



BIOLOGY

BOOKS - NTA MOCK TESTS

NEET MOCK TEST 1

Biology Single Choice

1. Which of the following statement is true regarding the role acetylcholine in nerve physiology?

- A. It increases the selective permeability of the cell membrane
- B. It increase the potassium concentration inside the axon
- C. It reduces activity of Na-K pump
- D. It increase the sodium concentration outside the axon

Answer: A



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2. A bicollateral vascular bundle is characterized by

- A. Phloem surrounded on both sides by xylem
- B. Transverse splitting of vascular bundle
- C. Longitudinal splitting of vascular bundle
- D. Xylem surrounded on both sides by phloem

Answer: D



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3. A few statements describing certain features of reproduction are given below.

- (i) Gametic fusion takes place.
- (ii) Transfer of genetic material takes place.
- (iii) Reduction division takes place.

(iv) Progeny have some resemblance with parents.

Select the options that are true for both asexual and sexual reproduction from the options given below.

A. i and ii

B. ii and iii

C. ii and iv

D. i and iii

Answer: C



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4. Root does not help in the absorption of water in which of the following plant?

A. Pistia

B. Pea

C. Wheat

D. Sunflower

Answer: A



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5. Artificial induction of roots on stems before it is separated from the parent plant for propagation is called

A. Cutting

B. Layering

C. Plant tissue culture

D. Grafting

Answer: B



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6. Generally number of integuments in the ovule of angiosperms and gymnosperms is

- A. One and two
- B. One and one
- C. Two and one
- D. Two and two

Answer: C



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7. Cartilage is formed by

- A. Osteoblasts
- B. Chondrocytes
- C. Fibroblasts
- D. Epithelium

Answer: B



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8. In root nodules of leguminous plants, the pigment leghemoglobin that gives pink colour to the nodules, is present in the

- A. The wall of bacteria
- B. The wall of host cell
- C. The cytoplasm of host cell
- D. Between bacteroids and surrounding

Answer: D



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9. A fall in glomerular filtration rate (GFR) activates

- A. Adrenal cortex to release aldosterone
- B. Adrenal medulla to release adrenaline
- C. Juxta-glomerular cells to release renin
- D. Posterior pituitary to release vasopressin

Answer: C

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10. Ephemerals are xerophytes that are

- A. Drought resisting
- B. Drought enduring
- C. Drought escaping
- D. None of these

Answer: C

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11. What is true about Bt toxin?

- A. Bt protein exists as active toxin in the Bacillus
- B. The activated toxin enters the ovaries of the pest to sterilize it and thus prevent its multiplication.
- C. The concerned Bacillus has antitoxins.
- D. The inactive protoxin gets converted into an active form in the insect gut.

Answer: D



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12. Identify the wrong statement regarding post-fertilization development.

- A. The ovary wall develops into pericarp

- B. The outer integument of the ovule develops into a tegmen
- C. The fusion nucleus (triple nucleus) develops into endosperm
- D. The ovule develops into seed

Answer: B



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13. Selaginella has a tendency to form seed, called seed habit because it follows

- A. Retention of megaspore permanently inside the megasporangium
- B. Heterospory
- C. Both (A) and (B)
- D. None of the above

Answer: C



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14. Cytokinin was first discovered by

- A. Skoog and Miller
- B. Boyer
- C. Benson and Calvin
- D. Went

Answer: A



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15. Surrogate mother is used for

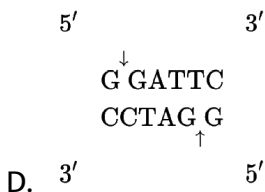
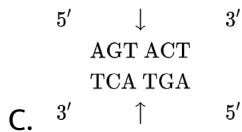
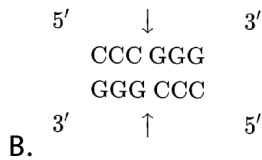
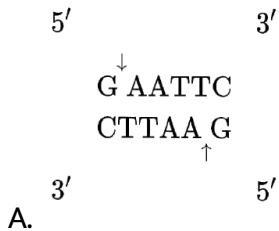
- A. induction of lactation
- B. Artificially inseminated female
- C. Future mother with transplanted embryo
- D. Mother who provides ovum

Answer: C

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16. Which specific DNA sequence where Eco R1 cuts is

Or Which of the following palindromic sequence is recognized by EcoRI



Answer: A



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17. Removal of calcium from freshly collected blood would

- A. cause delayed clotting
- B. prevent clotting
- C. cause immediate clotting
- D. prevent destruction of haemoglobin

Answer: B



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18. Synapsis is pairing of

- A. Any two chromosomes

B. Non homologous chromosomes

C. Acentric chromosomes

D. Homologues chromosomes

Answer: D



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19. The endometrium is found in

A. Placenta of mammals

B. Nipple of mammals

C. Uterus of mammals

D. none of these

Answer: C



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20. Consider the statements given below regarding contraception and answer as directed thereafter:

- (1) Medical Termination of Pregnancy (MTP) during first trimester is generally safe
- (2) Generally chances of conception are nil until mother breast-feeds the infant upto two years
- (3) Intrauterine devices like copper-T are effective contraceptives
- (4) Contraceptive pill may be taken upto one week after coitus to prevent conception

A. 1 and 2

B. 2 and 3

C. 3 and 4

D. 2 and 4

Answer: D



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21. When succinyl-CoA is converted into succinic acid, the energy-storing compound formed is

- A. ADP
- B. GDP
- C. AMP
- D. GTP

Answer: D



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22. Find the incorrect pair.

- A. Bowman's capsule - Glomerular filtration
- B. PCT- Absorption of Na^+ and K^+
- C. DCT - Absorption of glucose
- D. None of these

Answer: C



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23. Which part of the human brain controls the urge for eating and drinking ?

- A. Forebrain
- B. Midbrain
- C. Hindbrain
- D. Spinal cord

Answer: A



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24. The haploid cell which divides by mitosis to form embryosac is

- A. Megaspore mother cell
- B. Microspore mother cell
- C. Functional megaspore
- D. Non-functional megaspore

Answer: C



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25. The most common indicator organism that represents polluted water is

- A. *E. coli*
- B. *P. typhi*
- C. *C. vibrio*
- D. *Entamoeba*

Answer: A

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26. A DNA strand is directly involved in the synthesis of all of the following, except

- A. Another DNA
- B. Protein synthesis
- C. tRNA molecule
- D. mRNA molecule

Answer: B

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27. In Bryophytes, antherozoids are

- A. Biflagellate
- B. Multiflagellate

C. Sometimes biflagellate and sometimes multiflagellate

D. Biflagellate in a few species and multiflagellate in the rest

Answer: A



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28. Lichen are ecologically important as they

A. Purify air

B. Are pioneers of barren rocks

C. Are symbionts of algae and fungi

D. Are associated with mycorrhizal roots

Answer: B



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29. The loosely arranged nonchlorophyllous parenchyma cells present in lenticels are called

- A. Complementary cells
- B. Passage cells
- C. Water stomata
- D. Albuminous cells

Answer: A



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30. By the use of biotechnology, the production of B_2 vitamins has been increased to about 20,000 times in which of the following organism?

- A. *Ashbya gossypii*
- B. *Escherichia coli*
- C. *Pseudomonas denitrificans*

D. *Propionbacterium shermanii*

Answer: A



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31. The role of bacteria in carbon cycle is

A. photosynthesis

B. chemosynthesis

C. decomposition of organic compounds

D. evolution of O_2

Answer: C



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32. Which of the following is the closer relative of man :

A. Chimpanzee

B. Gorilla

C. Orangutan

D. Gibbon

Answer: A



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33. For transformation with recombinant DNA, the bacterial cells must first be made competent which means

A. Should increase their metabolic reactions

B. Should decrease their metabolic reactions

C. increases efficiency with which DNA enters the bacterium

D. Ability to divide fast

Answer: C

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34. If a colourblind woman marries a normal visioned man, their sons will be -

- A. One-half colour blind and one - half normal
- B. Three-fourth colour blind and one fourth normal
- C. All colour blind
- D. All normal visioned

Answer: C

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35. When both ovaries are removed from a rat which hormone is decreased in blood?

- A. Oxytocin

B. Prolactin

C. Estrogen

D. Gonadotropin releasing factor

Answer: C



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36. which of the following crops have been brought to India from new world?

A. Cashew nut, Potato, rubber

B. Mango, tea

C. Tea, rubber mango

D. Coffee

Answer: A



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37. Botanical name of Cauliflower is

- A. Brassica oleracea var. Capitata
- B. Brassia comapesteris
- C. Brassica oleracea var. botrytis
- D. Brassica oleracea var. Gemmifera

Answer: C



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38. On the basis of symptoms of chlorosis in leaves, a student inferred that this was due to deficiency of nitrogen. This inference could be correct only if we assume that yellowing of leaves appeared first in

- A. Old leaves
- B. Young leaves

C. Young leaves followed by mature leaves

D. Young leaves followed by older leaves

Answer: A



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39. If the total amount of adenine and thymine in a double-stranded DNA is 60%, then the amount of guanine in this DNA will be

A. 0.15

B. 0.2

C. 0.3

D. 0.4

Answer: B



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40. Vector for kala-azar is:

- A. Sand fly
- B. House fly
- C. Louse
- D. Bed bug

Answer: A



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41. Restriction endonucleases are enzymes which

- A. Cuts at specific positions within the DNA molecule
- B. Recognize a specific nucleotide sequence for binding of DNA ligase
- C. Restrict the action of the enzyme DNA polymerase
- D. Remove nucleotides from the ends of the DNA molecule

Answer: A



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42. The first line of defence is

A. Antibodies

B. WBC

C. Skin

D. Liver

Answer: C



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43. Which of the following papillae are without taste buds in human tongue?

A. Vallate

B. Fungiform

C. Fusiform

D. Filiform

Answer: D



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44. According to the chemi-osmotic mechanism for ATP synthesis given by

P. Mitchell, the force/factor responsible for ATP synthesis is

A. Membrane potential across membrane

B. Proton motive force

C. Electromotive force

D. Redox potential

Answer: B



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45. Convergent evolution is illustrated by

- A. Dogfish and whale
- B. Rat and dog
- C. Bacterium and protozoan
- D. Starfish and cuttle fish

Answer: A



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46. In human body , which one of the following is anatomically correct ?

- A. Collar bones - 3 pairs
- B. Salivary glands - 1 pair
- C. Cranial nerves - 10 pairs

D. Floating ribs - 2 pairs

Answer: D

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47. Site of attachment of spindle fibres in chromosome lies

- A. On the sides of centromere
- B. After secondary constriction
- C. Near telomere
- D. Within centromere

Answer: A

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48. What will happen if ligaments are cut or broken :-

A. Bones will move freely at joints

B. No movement at joints

C. Bones will become unfix

D. Bones will become fixed

Answer: C



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49. Biogas contains

A. 30% - 40% methane

B. 50% - 70% - CO_2

C. 50% - 70% methane

D. 20% methane

Answer: C



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50. Select the correct statement related to flowering in plants.

- I. Some plants require a periodic exposure to light to induce flowering
- II. The flowering is either quantitatively or qualitatively dependent on exposure to low temperature.
- III. The site of perception of light/dark duration is the stem apex.
- IV. Flowering in plants is due to the hormones produced in the shoot apex.

A. I, II and III are correct

B. I and II are correct

C. I, II and IV are correct

D. All are correct

Answer: C



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51. Which statement is not true for binomial system of nomenclature?

- A. Biological names are generally in Latin or Latinized or derived from Latin irrespective of their origin
- B. The first word in a biological name represents the species while the second word denotes the genus.
- C. The first word of biological name starts with capital letter and the first letter of second word starts with small letter.
- D. Name of the author is written in abbreviated form after the specific epithet

Answer: B



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52. Air layering is performed in case of

- A. Jasmin
- B. Grapevine
- C. Gooseberry
- D. Litchi

Answer: D

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53. Blood group AB has

- A. No antigen
- B. No antibody
- C. Neither antigen nor antibody
- D. Both antigen and anitbody

Answer: B

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54. Which of the following is a flowering plant with nodules containing filamentous nitrogen-fixing microorganism

- A. *Casuarina equisetifolia*
- B. *Crotalaria juncea*
- C. *Cycas revoluta*
- D. *Cicer arietinum*

Answer: A



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55. Mammary glands are modification of

- A. Sweat gland
- B. Salivary glands
- C. Lacrimal gland

D. None of these

Answer: A



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56. Which of the following plant material is widely used in the preparation of culture medium

A. *Pinus longifolia*

B. *Cocos nucifera*

C. *Borassus flabellifer*

D. *Cycas revoluta*

Answer: B



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57. Which of the following show higher rate of respiration

A. Collenchyma

B. Leaf

C. Dry seeds

D. Germinating seeds

Answer: D



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58. The main function of lacteals in the human small intestine is the absorption of

A. Glucose and vitamins

B. Amino acids and glucose

C. Water and vitamins

D. Fatty acids and glycerol

Answer: D



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59. Hammerling's experiments of *Acetabularia* involved exchanging

- A. Cytoplasm
- B. Nucleus
- C. Rhizoid and stalk
- D. Gametes

Answer: C



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60. Alpha diversity is biodiversity present

- A. Within community

- B. Between community
- C. Ranges of communities
- D. All the above

Answer: A



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61. The Ranthambore National Park is located in

- A. Maharashtra
- B. Rajasthan
- C. Gujarat
- D. U.P.

Answer: B



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62. Mycorrhiza is a symbiotic association between

- A. Bacteria and fungi
- B. Algae and fungi
- C. Fungi and roots of higher plants
- D. Blue green algae and roots of higher plants

Answer: C



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63. Adrenaline directly affects

- A. S.A node
- B. β - cells of Langerhans
- C. The dorsal root of spinal cord
- D. Epithelial cells of stomach

Answer: A



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64. Which is correct pair for edible part ?

A. Tomato-Thalamus

B. Maize-Cotyledons

C. Guava-pericarp

D. Date palm - Mesocarp

Answer: D



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65. Reproducing new plants by cells instead of seeds is known as

A. Mutation

B. Tissue culture

C. Antibiotics

D. Biofertilizer

Answer: B



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66. Who discovered "ribosomes" in animal cells

A. Watson

B. Temin

C. Chaudhary

D. Palade

Answer: D



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67. GIFT involves transfer of

- A. A mixture of sperms and ova into the uterus
- B. Embryo into the uterus
- C. A mixture of sperms and ova into the fallopian tube
- D. Zygote into the fallopian tube

Answer: C



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68. Contractile vacuole of Amoeba placed in salt water will

- A. Burst
- B. Disappear
- C. Enlarge
- D. Multiply

Answer: B



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69. Eutrophication is caused by

- A. Phosphate rocks only
- B. Agricultural fertilizers only
- C. Sewage and phosphate rocks
- D. Sewage and agricultural fertilizers

Answer: D



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70. When you hold your breath, which of the following gas changes in blood would first lead to the urge to breathe

- A. Falling O_2 concentration
- B. Rising CO_2 concentration
- C. Falling CO_2 concentration
- D. Rising CO_2 and falling O_2

Answer: B

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71. Weberian ossicles are found in

- A. Frogs
- B. Snakes
- C. Fishes
- D. Birds

Answer: C

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72. In *Drosophila*, the allele for normal grey body colour (G) is dominant to the ebony body (g). The following table summarises the results of several crosses:

Cross	Result
Strain 1 × gg	All Grey type
Strain 2 × gg	1 Grey : 1 ebony
Strain 3 × gg	All ebony type
Strain 4 × Gg	3 Grey : 1 ebony

Which strains have the genotype Gg?

- A. 1 and 3
- B. 1 and 4
- C. 2 and 3
- D. 2 and 4

Answer: D



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73. Which type of mouthpart is present on the lateral side of the pre-oral cavity in cockroach?

- A. Labrum and mandibles
- B. Mandibles and labium
- C. Mandibles and 1st maxillae
- D. Mandibles and hypopharynx

Answer: C



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74. The biomass available for consumption by the herbivores and the decomposers is called

- A. Net primary productivity

- B. Secondary productivity
- C. Standing crop
- D. Gross primary productivity

Answer: A



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75. Which of the following wavelength of light is absorbed maximum for photosynthesis

or

Chlorophyll A absorbs max of

- A. Red light
- B. Blue light
- C. Green light
- D. Yellow light

Answer: B



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76. Cytochrome oxidase contain

A. Fe

B. Hg

C. Co

D. Mo

Answer: A



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77. Tetanolysin is produced by

A. *Mycobacterium leprae*

B. clostridium botulinum

C. Clostridium tetani

D. None of these

Answer: C



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78. What is true about Nereis, scorpion, cockroach and silver fish ?

A. They all possess a dorsal heart

B. None of them is aquatic

C. They all belong to the same phylum

D. They all have jointed paired

Answer: A



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79. Passive absorption of water is related to all ,except

- A. Apoplastic pathway
- B. Transpiration pull plays the major role
- C. Development of a positive pressure in xylem
- D. Water absorption through the roots

Answer: C



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80. Emerson's enhancement effect and red drop have been instrumental in the discovery of

- A. Photophosphorylation and non cyclic electron transport
- B. Two photosystems operating simultaneously
- C. photophosphorylation and cyclic electron transport
- D. oxidative phosphorylation

Answer: B



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81. Biopiracy means

- A. Use of biopatents
- B. Thefts of plants and animals
- C. Stealing of bioresources
- D. Exploitation of bioresources with out authentic permission

Answer: D



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82. The chief water conducting elements of xylem in gymnosperms are

- A. Vessels

B. Fibers

C. Transfusion tissue

D. Tracheids

Answer: D



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83. When a cell is plasmolysed, it becomes

A. Flaccid and its TP becomes zero

B. Turgid and its becomes zero.

C. Turgid and TP becomes equal to OP

D. Flaccid and DPO becomes zero

Answer: A



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84. Khorana got the Nobel Prize on

- A. t-RNA
- B. Genetic code
- C. Carbohydrate metabolism
- D. Protein synthesis

Answer: B



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85. Gause's principle of competitive exclusion states that:

- A. More abundant species will exclude the less abundant species through competition
- B. Competition for the same resources excludes species having different food preferences

C. No two species can occupy the same niche indefinitely for the same limiting resources

D. Larger organisms exclude smaller ones through competition

Answer: C

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86. In tissue culture medium, the embryoids formed from pollen grains is due to

A. Cellular totipotency

B. Organogenesis

C. Double fertilization

D. Test-tube culture

Answer: A

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87. In humans, the embryo is protected in

- A. Amniotic cavity
- B. Peritoneal cavity
- C. Pleural cavity
- D. Allantois

Answer: A



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88. Select the correct statement regarding protein synthesis :

- A. When the small subunit of the ribosome encounters an mRNA the process of translation begins
- B. Peptidase catalyses the formation of peptide bond
- C. UTRs are present between the start

D. At the end of translation the releases factor binds to the initiation codon

Answer: A



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89. Chloride shift occurs in response to



Answer: A



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90. An antiviral chemical produced by the animal cell is

- A. Virion
- B. Interferon
- C. Repressor protein
- D. Hormone

Answer: B



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1. _____ is used to speed up the malting process in the brewing industry.

- A. GA_1
- B. GA_2

C. GA_3

D. GA_4

Answer: C



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2. Identify the following statements as true (T) or false (F) for genetic diversity and select the correct option :

(A) Genetic diversity is a diversity shown by a single species at genetic level

(B) It is total genetic information contained in all individuals of a community.

(C) Rauwolfia vomitoria shows the variation in the term of concentration of active chemical reserpine.

(D) India has more than 50000 genetically different strains of mango.

A. (A-T), (B-T) , (C -F) , (D - F)

B. (A - T) , (B - F) , (C -T) , (D - F)

C. (A-F), (B-F), (C-T), (D-T)

D. (A-F), (B-F), (C-T), (D-T)

Answer: B



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3. In flowering plants, meiosis takes place during

A. Seed germination

B. Bud formation

C. Formation of pollen grains

D. Formation of root tip

Answer: C



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4. C_2 cycle is studied in

A. C_4 plants

B. Those showing photorespiration

C. Both C_4 plants and those showing photorespiration

D. None of the above

Answer: B



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5. Which of the following statement is correctly paired?

A. Zn^{2+} - It is an activator of nitrogenase during nitrogen fixation.

B. Mo- Activator of alcohol dehydrogenase

C. Mg^{2+} - Activator of phosphoenol pyruvate carboxylase

D. Cu- Activator of RuBisCo

Answer: C



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6. The back flow of faecal matter in the large intestine is prevented by the presence of

- A. Sphincter of Oddi
- B. Ileo-caecal valve
- C. Gastric-oesophageal sphincter
- D. pyloric sphincter

Answer: B



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7. Which of the following is correct with respect to the sperms of fertile males ?

- A. At least 40 % of sperms must have a normal shape and size
- B. At least 60% of sperms must have motility
- C. At least 60% of sperms must have a normal shape and size.
- D. Both (A) and (B)

Answer: C



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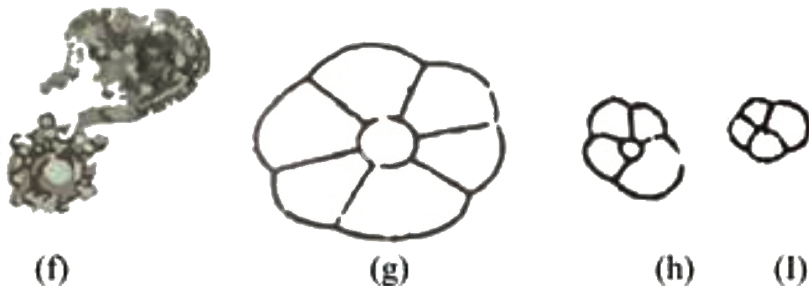
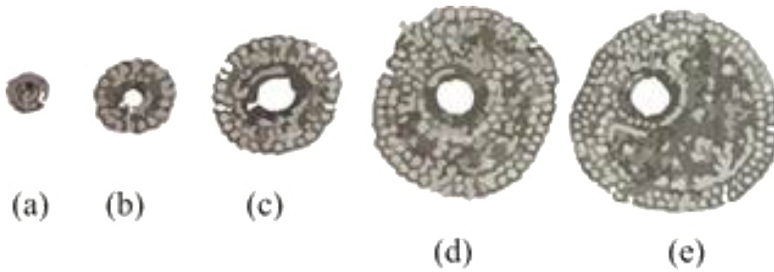
8. Which of the following statement /s is / are correct for aerobic muscles ?

- A. Such muscle contains red coloured oxygen storing pigment called myoglobin.
- B. Such muscles contain a large number of mitochondria
- C. They are also called red fibres
- D. All of these

Answer: D

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9. The following is the illustration of the sequence of ovarian events "a" to "l" in a human female :



Identify developing follicle, mature follicles and corpus luteum.

- A. (a) to (d) - mature follicle , (e) to (f) developing follicle , (g) - (l)
corpus luteum
- B. (a) to (d) - developing follicle ,(e) to (f) mature follicle, (g) - (l)
corpus luteum
- C. (a) to (d) - corpus luteum (e) to (f) mature follicle , (g) - (l)
developing follicle
- D. None of these

Answer: B

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10. In the electron transport system present in the inner mitochondrial membrane, complexes I and IV are respectively

- A. NADH dehydrogenase and $FADH_2$
- B. $NADH_2$ and NADH dehydrogenase

C. NADH dehydrogenase and cytochrome-c oxidase complex

D. NADH dehydrogenase and ATP synthase

Answer: C



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11. Which of the following is known as living fossil

A. Locusta

B. Dentalium

C. Limulus

D. Ascidia

Answer:



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12. Which of the following is a common characteristic between earthworm, leech, and a centipede ?

- A. They have Malpighian tubules
- B. They are hermaphrodite
- C. They have a ventral nerve cord
- D. They have no legs

Answer: C



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13. Emergency contraceptives are effective if used within

- A. 72 hrs of coitus
- B. 72 hrs of ovulation
- C. 72 hrs of menstruation
- D. 72 hrs of implantation

Answer: A



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14. Chronic disorder in which alveolar walls are damaged is

- A. Asthma
- B. Emphysema
- C. Occupational respiratory disorders
- D. Pneumonia

Answer: B



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15. The main function of phloem is translocation of

- A. Water

B. Mineral

C. Air

D. Food

Answer: D



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16. BOD is

A. Directly proportional to the amount of organic waste.

B. Directly proportional to the amount of DO

C. Inversely proportional to the amount of DO.

D. Both (A) and (C)

Answer: D



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17. A transgenic food crop which may help in solving the problem of night blindness in developing countries is

- A. Flavr Savr tomatoes
- B. Starlink maize
- C. Bt Soybean
- D. Golden rice

Answer: D



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18. A plant cell that has the potential to develop into a full plant is called

- A. Totipotency
- B. Unipotency
- C. Multipotency
- D. Regeneration

Answer: A



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19. Generative cell was destroyed by laser but a normal pollen tube was still formed because

- A. Vegetative cell is not damaged
- B. Laser beam stimulates growth of pollen tube
- C. Contents of killed generative cell stimulate pollen growth
- D. None of the above

Answer: A



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20. The frequency of recessive allele in a population is 0.2. The number of heterozygotes in a population of 500 is

A. 150

B. 240

C. 160

D. 64

Answer: C



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21. What is correct about self-incompatibility ?

A. It is due to the non-synchronization of pollen release and stigma receptivity

B. It is a genetic mechanism

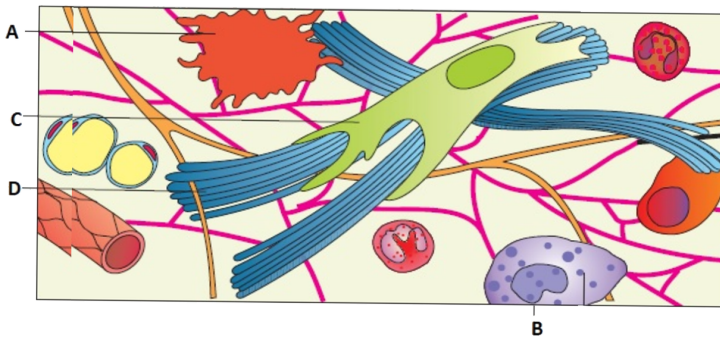
C. It is seen only in unisexual flowers.

D. It is due to the placement of anther and stigma at different positions.

Answer: B

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22. In the given diagram of areolar connective tissue, identify parts labeled A-D.



- | | | | | |
|----|------------|------------|-----------------|-----------------|
| | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> |
| A. | Mast cell | Macrophage | Fibroblast | Collagen fibres |
| B. | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> |
| | Macrophage | Mast cell | Fibroblast | Collagen fibres |
| C. | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> |
| | Macrophage | Mast cell | Collagen fibres | Fibroblast |
| D. | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> |
| | Mast cell | Macrophage | Collagen fibres | Fibroblast |

Answer: B

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23. What is true about ribosomes

- A. The prokaryotic ribosomes are 80S, where "S" stands for sedimentation differentiation.
- B. These are composed of ribonucleic acid and proteins.
- C. These are found only in eukaryotic cells.
- D. These are self-splicing introns of some RNAs

Answer: B

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24. Which of the following is the Pribnow box?

A. 5'TATAAT 3'

B. 5' TAATTA 3'

C. 5' AATAAT 3'

D. 5' ATATTA 3'

Answer: A



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25. Every 100ml deoxygenated blood delivers around ____ CO_2 to alveoli

: —

A. 20 ml

B. 4 ml

C. 5 ml

D. 25 ml

Answer: B

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26. Choose the correct statement.

- A. Vasa recta is well developed in cortical nephrons
- B. The PCT and DCT are situated in the medulla of the kidney
- C. The glomerulus enclosed the Bowman's capsule
- D. The ascending limb of the Henle's loop extends as the DCT

Answer: D

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27. The chemical released by *Penicillium notatum* inhibited the growth of which microbe?

- A. *Clostridium*
- B. *Streptomyces*

C. Staphylococci

D. Saccharomyces

Answer: C



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28. For bacterial cell which divides in every 1 minute, it takes one hour to fill up a cup. How much time will be taken to fill half the cup?

A. 59 minutes

B. 30 minutes

C. 60minutes

D. 20 minutes

Answer: A



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29. The breeding of the unrelated animals, which may be between individuals of the same breed but having no common ancestors for 4-6 generations is called

- A. Inbreeding
- B. Cross-breeding
- C. Out-crossing
- D. Inter-specific hybridization

Answer: C



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30. Flowers are zygomorphic in :-

- A. Aloe
- B. Indigofera
- C. Solanum nigrum

D. Colchicum

Answer:



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31. Both the lobes of thyroid gland are interconnected with

- A. Connective tissue called the stromal tissue
- B. Connective tissue called the thyroid tissue
- C. Connective tissue called follicle tissue
- D. Connective tissue called the isthmus tissue

Answer: D



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32. Which of the following statements is correct regarding foetal development in humans?

- A. By the end of the first month of pregnancy, the foetus develops limbs and digits
- B. By the end of 12 weeks (second trimester), most of the major organ systems are formed .
- C. The first movements of the foetus and appearance of hair on the head is usually observed during the fifth month.
- D. By the end of about 26 weeks (end of the second trimester), the body is covered with fine hair, eye-lids separate, and eye lashes are formed.

Answer: C



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33. Desert plants are generally

- A. Viviparous
- B. Succulent
- C. Herbaceous
- D. Heterophyllus

Answer: B



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34. Ideal cloning vector should have

- A. Restriction sites
- B. Selectable marker
- C. Origin of replication
- D. All of these

Answer: D



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35. Which one of the following pairs is not correctly matched ?

- A. Recombinant DNA- DNA formed by the joining of segments of DNA from different sources
- B. Purine - Nitrogenous bases cytosine, thymine and uracil
- C. ATP- The principal energy carrying compound in the cell
- D. r-RNA- RNA molecules found in ribosomes

Answer: B



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36. Wine is prepared by fermentation of grape juice by

- A. *Bacillus liquifaciens*
- B. *Penicillium roqueforti*
- C. *Saccharomyces cerevisiae*
- D. *Streptococcus aureus*

Answer: C

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37. Synapsides evolved around

- A. 500 mya
- B. 300mya
- C. 650 mya
- D. 800mya

Answer: B

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38. Which of the following pigments is purplish-red and contains a vitamin derivative?

- A. Rhodopsin
- B. Iodopsin
- C. Melanin
- D. None of the above

Answer: A



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39. Bast fibres are made up of

- A. Parenchyma cells
- B. Collenchyma cells
- C. Sclerenchyma cells

D. Chlorenchyma cells

Answer: C



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40. Which of the following does not happen during embryogenesis?

A. Cell multiplication

B. Cell differentiation

C. Equational division

D. Reduction division

Answer: D



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41. All the following statements are correct, except

A. Interphase is the shortest period of cell cycle

B. Cell growth, in terms of cytoplasmic increase, is a continuous process

C. Cycles of growth and division allow a single cell to form a structure consisting of millions of cell

D. The replicated DNA are distributed to daughter nuclei by a complex series of event during cell division.

Answer: A



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42. The following statements are given about different plant growth hormones :

I. Cytokinin suppresses the synthesis of chlorophyll.

II. Auxins control apical dominance.

III. Gibberellins promote shoot elongation.

IV. Abscisic acid enables seeds to withstand desiccation.

Which of the above statements are correct?

A. I and II

B. II and III

C. I and III

D. II,III and IV

Answer: D



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43. Which of the following will decay faster?

A. Sapwood

B. Softwood

C. Wood with lot of fibres

D. Heartwood

Answer: A



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44. A high density of tiger population in an area can result in :

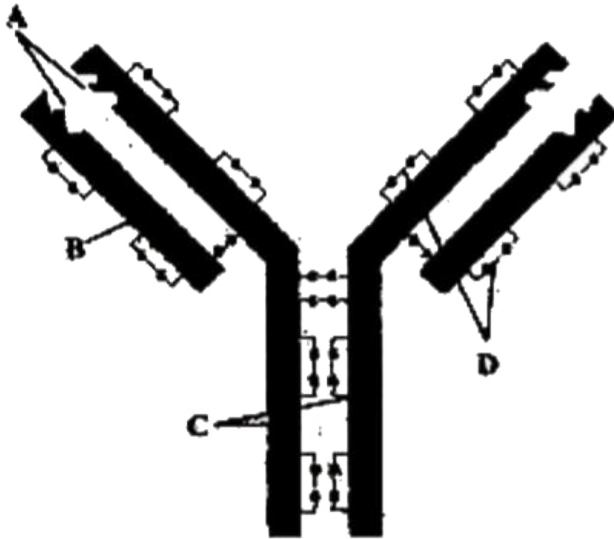
- A. Migration
- B. Interspecific competition
- C. Intraspecific competition
- D. Protocooperation

Answer: C



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45. Choose the option which rightly labels A,B, C and D in the figure given



A. A-light chains,B-heavy chain, C-antigen binding sites, D-disulphide bonds

B. A-disulphide bonds, B-antigen binding site, C-heavy chains, D-light chains

C. A-antigen binding sites, B-light chain, C-heavy chains,D-disulphide bonds

D. A-antigen binding sites, B-disulphide bonds, C-light chains, D-heavy chains

Answer: C

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46. In the electron transport system, a molecule of ATP is formed when an electron passes from :

- A. Cytochrome -c to cytochrome-a
- B. Cytochrome-a to cytochrome -c
- C. Cytochrome-b to cytochrome- c_1
- D. Cytochrome-c to cytochrome-b

Answer: C

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47. In the wall of alimentary canal which is the true sequence from outer to inner side

- A. Serosa, longitudinal muscle, mucosa, submucosa
- B. Mucosa, serosa, longitudinal muscle
- C. Serosa, longitudinal muscle, circular muscle, submucosa, mucosa
- D. Serosa, circular muscle, submucosa, mucosa

Answer: C



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48. Read the following sentences :

- (a) In elution, the separated bands of DNA are cut out from agarose gel & extracted from the gel piece.
- (b) E coil cloning vector pBR322 have several restriction sites, Ori, antibiotic resistance genes & ROP.
- (c) The downstream processing and quality control testing vary from

product to product.

(d) Competent bacterial cells cannot take up the plasmid.

- A. All are correct
- B. Only (b) is correct
- C. Only (d) is correct
- D. All are incorrect

Answer: A



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49. Which of the following statements is false?

- A. Aqueous humor leak out by canal of schlemm into blood capillaries and again reach upto their veins.
- B. A transparent, biconvex lens is present just after iris.

C. Iris divides the vitreous chamber into two parts, anterior chamber and posterior chamber.

D. Aqueous and vitreous humor both the fluids are secreted by the glands of ciliary body.

Answer: C

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50. During ventricular systole

A. Oxygenated blood is pumped into the pulmonary artery and deoxygenated blood is pumped into the artery

B. Oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary vein

C. Oxygenated blood is pumped into the pulmonary vein and deoxygenated blood is pumped into the pulmonary artery

D. Oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary artery

Answer: D

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51. Which of the following is correct regarding glycolysis ?

- A. It occurs in the cytoplasm of the cell.
- B. Hydrogen atoms are removed from NAD^+ and transferred to PGAL.
- C. ATP is consumed during the conversion of PEP to pyruvic acid.
- D. Conversion of BPGA to PGA is an energy-yielding process.

Answer:

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52. Which one of the following statements is correct for secondary succession?

A. It begins on a bare rock.

B. It occurs on a deforested site.

C. It follows primary succession.

D. It is similar to primary succession except that it has a relatively fast pace.

Answer: B



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53. During ionic flux, uptake of ions into inner space is

A. Active

B. Passive

C. Energy-dependent

D. Both active and energy-dependent

Answer: B



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54. Which of the following factors play a role in primary productivity?

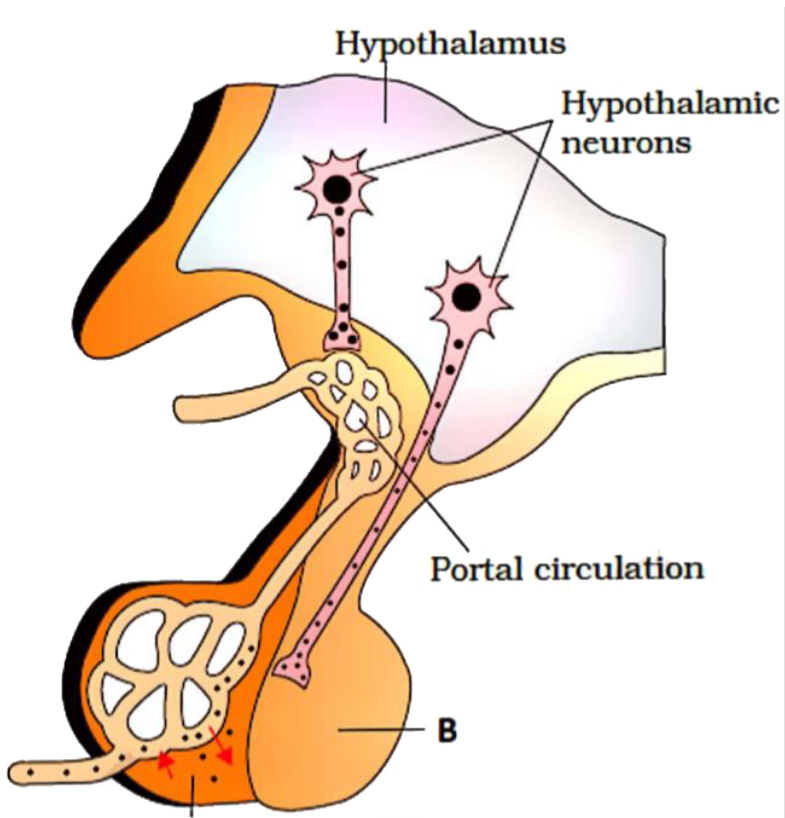
- A. Light and temperature
- B. Water and nutrients
- C. Photosynthetic capacity of producers
- D. All of these

Answer: D



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55. Which of the following hormones pass-through "route-B" in the given figure ?



- A. Oxytocin and vasopressin
- B. TSH and prolactin
- C. GnRH and somatostatin
- D. GH and gonadotropin

Answer: A



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56. Find out wrong statement regarding Cycas.

- A. It has an unbranched stem.
- B. It possesses pinnately compound leaves
- C. It is a dioecious plant.
- D. It is a non-archegonial plant

Answer: D



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57. Variable number of tandem repeats (VTNRs) in the DNA molecule are highly useful in :

A. Monoclonal antibody production

B. DNA fingerprinting

C. Recombinant DNA technology

D. Stem cell culture

Answer: B

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58. Parturition is induced by

A. A complex neuroendocrine mechanism

B. A neuroexocrine mechanism

C. A physio-chemical mechanism

D. None of the above

Answer: A

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59. All the following involves osmosis, except

- A. Water entering from soil to root hair
- B. Water passing from root hair to adjacent cells
- C. Water movement into the xylem vessel element.
- D. Water entering a mesophyll cell from xylem vessel element

Answer: C



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60. When fungi feed on dead organic matter, they are known as

- A. Dimorphic
- B. Parasites
- C. Saprophytes

D. None of these

Answer: C



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61. Consider the following statements and select the option stating which ones are true (T) and which ones are false (F)

(i) Abortions could happen spontaneously too

(ii) Infertility is the inability to produce viable offspring due to defects in the female partner only.

(iii) Complete lactation could help in contraception

(iv) Creating awareness can help to create a reproductively healthy society.

A. $\begin{matrix} i & ii & iii & iv \\ F & F & T & T \end{matrix}$

B. $\begin{matrix} i & ii & iii & iv \\ F & T & F & T \end{matrix}$

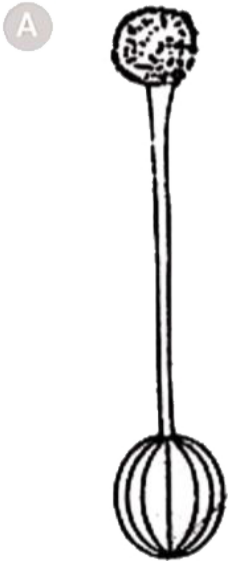
C. $\begin{matrix} i & ii & iii & iv \\ T & F & T & T \end{matrix}$

D. $\begin{matrix} i & ii & iii & iv \\ T & T & F & F \end{matrix}$

Answer: C

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62. Which of the following type of gynoecium is associated with wind pollination



A.

B



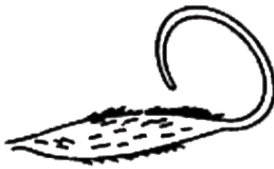
B.

C



C.

D



D.

Answer: B



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63. A reduction in the quantity of oxygen evolution during photosynthesis may be observed at

- A. Light having wavelength more than 680 nm
- B. Light having wavelength less than 680 nm
- C. Light having wavelength 560nm
- D. Light having wavelength less than 360nm

Answer: A



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64. Read the below given statements with respect to three important steps of decomposition: Fragmentation, leaching and catabolism. select the correct option.

- (i) Detritivores (e.g., earthworm) breakdown detritus into smaller particles.
- (ii) Water soluble inorganic nutrients go down into soil horizon and get

precipitated as unavailable salts.

(iii) Decomposers (e.g., bacteria and fungi) secrete digestive enzymes and degrade detritus into simpler inorganic substances.

A. B

B. A

C. C

D. D

Answer: C



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65. The correct statements about the working of oral pills are :

(i) Inhibit ovulation and implantation

(ii) Alter the quality of cervical mucus to prevent or retard the entry of sperms

(iii) Inhibit spermatogenesis

A. I,II and III

B. I and II

C. II only

D. III only

Answer: B



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66. Species diversity generally increases as one proceeds from

A. Low altitude to high altitude, and from low latitudes to high latitudes

B. High altitude to low altitude, and from low latitudes to high latitudes

C. High altitude to low altitude, and from high latitudes to low latitudes

D. Low altitude to high altitude, and from high latitudes to low latitudes

Answer: C

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67. In tissue culture experiments of tobacco callus, it was seen that when the culture medium contains 2 ppm of IAA and 2ppm of kinetin, an undifferentiated mass of callus is produced. If the ratio of kinetin to IAA is increased, then

- A. The callus size would increase by repeated cell divisions
- B. Root initiation would take place
- C. Shoot initiation would occur
- D. The callus would die

Answer: C

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68. In human beings, the color of skin is controlled by

- A. Multiple alleles
- B. Lethal genes
- C. Polygenic effect
- D. None of these

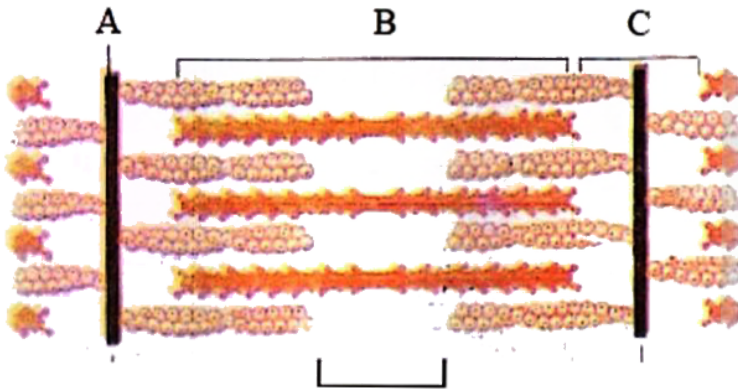
Answer: C



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69. Given below is the diagrammatic representation of a sarcomere. Mark the option with a correct description of the structure labelled as A, B ,C

and D in the same.



A. A- Elastic fibre that bisects I-band

B-Width of this band reduces during muscle contraction

B. B-Consists of myosin filaments

C- Width of this band remains same during muscle contraction

C. C-Light band that contains actin filaments

D- Don't exist when the sarcomere get contracted maximally

D. A-Z - line to which thin filaments are firmly attached

D-H - zone which can be seen in a maximally contracted muscle fiber

also

Answer: C



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70. A nematode *Meloidogyne* infects the roots of tobacco plants and causes a great reduction in the yield. A novel strategy was adopted to prevent this infestation which was based on the process of

- A. RNAi
- B. mRNA silencing
- C. Anti-sense RNA technology
- D. All of these

Answer: A



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71. Which one of the following is correctly matched?

- A. Ginger-Sucker
- B. Chlamydomonas -Conidia
- C. Yeast-Zoospores
- D. Onion-Bulb

Answer: D

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72. Transgenic crops are modified through genetic engineering to develop natural resistance to insect pests. Which of these pairs consist of transgenic crops?

- A. Bt Tobacco and Bt Cotton
- B. Tomato and Bt rice
- C. Maize and sugarcane
- D. Bt Tomato and Wheat

Answer: A



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73. Given below is a list of various diseases / disorders.

a. Phenylketonuria, b. Grave's disease, c. Thalassemia, d. Rheumatoid arthritis, e. Myasthenia gravis, f. Colour blindness, g. Blindness

Which one of the following represents hereditary disease ?

A. a,b,d, and e

B. a,c,f and g

C. c,f, and g

D. a,c and f

Answer: B



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74. Which of the following set of coenzymes are nucleotides of vitamin niacin?

A. NAD, NADP

B. FMN, FAD

C. ATP, ADP

D. ATP, FAD

Answer: A



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75. The classification of organisms based on chromosome number is called

A. Cytotaxonomy

B. Numerical taxonomy

C. Karyotaxonomy

D. Biochemistry

Answer: A



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76. Biological oxygen demand (BOD) is a measure of

- A. Industrial wastes poured into water bodies
- B. Extent to which water is polluted with organic compounds
- C. Amount of carbon monoxide inseparably combined with haemoglobin
- D. Amount of oxygen needed by green plants during night

Answer: B



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77. Which of the following statement / s is / are correct about crack?

- A. It interferes with transport of neurotransmitter dopamine.
- B. It produces a sense of euphoria
- C. Excessive dosage causes hallucinations.
- D. All of these

Answer: D



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78. In many cells ribosomes occur in chains along messenger RNA. What is the advantage of this arrangement as compared to a situation in which ribosomes occur singly?

- A. Fewer tRNA molecules are used in protein synthesis
- B. Polypeptides can be produced more easily.
- C. A greater variety of polypeptides can be produced

D. Probability of gene mutation occurring is less

Answer: B



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79. $NADP^+$ is reduced to NADPH in

- A. Cyclic photophosphorylation
- B. In PS II
- C. Calvin cycle
- D. Non-cycle photophosphorylation

Answer:



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80. Which type of white blood cells are concerned with the release of histamine and the natural anticoagulant heparin ?

- A. Neutrophils
- B. Basophils
- C. Eosinophils
- D. Monocytes

Answer: B



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81. The macronutrient which is an essential component of all organic compounds, yet not obtained by plants from soil is

- A. Nitrogen
- B. Carbon
- C. Phosphorous

D. Magnesium

Answer: B



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82. Water potential in leaf tissue is 'positive' (near zero) during

- A. Excessive transpiration
- B. Low transpiration
- C. Excessive absorption
- D. Guttation

Answer: D



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83. The living component of phloem tissue is

- A. Sieve tube
- B. Companion cells
- C. Bast parenchyma
- D. All of these

Answer: D

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84. Taxonomy refers to

- A. Plant classification
- B. Plant nomenclature
- C. Plant affinity
- D. All of these

Answer: D

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85. Which among the following is the most abundant protein in animal world

- A. Haemoglobin
- B. Keratin
- C. RuBisCO
- D. Collagen

Answer: D



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86. Select the wrong statement from the following

- A. Both chloroplasts and mitochondria have an internal compartment, bounded by the thylakoid membrane.
- B. Both chloroplasts and mitochondria contain DNA.

- C. The chloroplasts are generally much larger than mitochondria
- D. Both chloroplasts and mitochondria contain an inner and an outer membrane.

Answer: A

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87. The nephridia of earthworm are concerned with

- A. Locomotion
- B. Excretion of nitrogenous wastes
- C. Digestion
- D. Respiration

Answer: B

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88. Primary roots and its branches constitute

- A. Tap root system
- B. Adventitious root system
- C. Tertiary root system
- D. Fibrous root system

Answer: A



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89. 'Bhang' and 'Ganja' are

- A. Extract of hemp plant -Cannabis sativa
- B. Ripe poppy fruits and leaves
- C. Dried leaves, flowers and buds of Cannabis indica plant
- D. None of the above

Answer: A



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90. Which of the following are common freshwater fishes?

- A. Mackerel and Rohu
- B. Rohu, common carp and Catla
- C. Hilsa and Sardine
- D. None of these

Answer: B



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91. An undifferentiated layer, mesoglea, is present in

- A. Fasciola

B. Ancylocostoma

C. Hirudinaria

D. Adamsia

Answer:



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92. A variety effective against shoot and fruit borer is

A. Pusa Gaurav

B. Pusa Sawani

C. Pusa Sem 2

D. Pusa Sem 3

Answer:



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93. Butyric acid is produced by

- A. *Aspergillus niger*
- B. *Acetobacter aceti*
- C. *Clostridium butylicum*
- D. *Lactobacillus*

Answer:



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94. Every 100 ml oxygenated blood can deliver around

- A. 5 ml of O_2 to the alveoli
- B. 5 ml of O_2 to the tissues
- C. 4 ml of CO_2 to the tissues
- D. 4 ml of CO_2 to the alveoli

Answer:



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95. Sometimes a few chromosomes have non-staining secondary constrictions at a constant location. This gives the appearance of small fragment called the

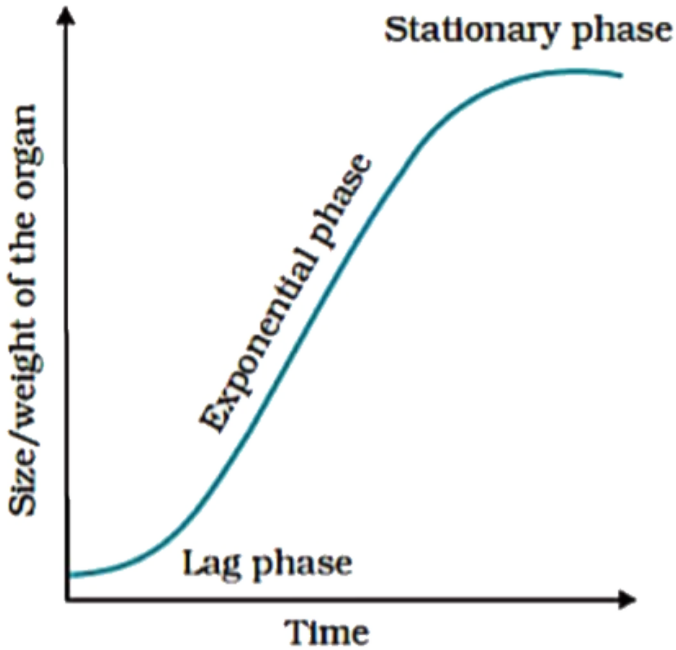
- A. Satellite
- B. Centromere
- C. Telomere
- D. Kinetochore

Answer:



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96. A growth curve of a plant is shown below. The mathematical expression for growth curve will be:



A. $L_t = L_0 + rt$

B. $W_1 = W_0 e^t$

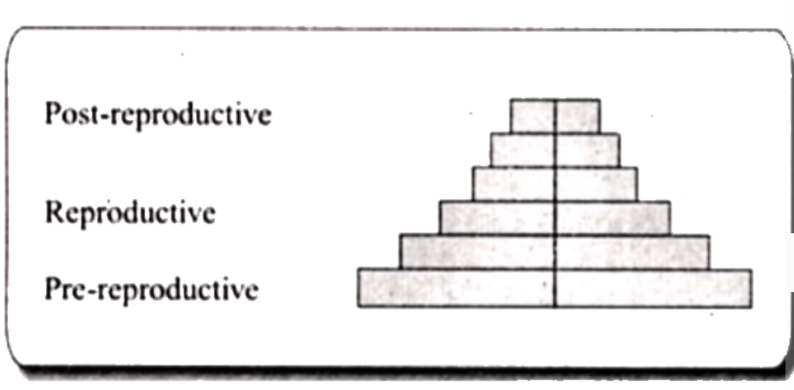
C. $W_1 = W_0 e^{rt}$

D. $L_t = L_0 + t$

Answer:

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97. The age pyramid for human population is shown below



Which of the following conclusion can be drawn from the given age pyramid?

- A. It represents that the population is young the growing.
- B. It is a pyramid of declining population
- C. It shows that the population is stable.
- D. It shows that the population size is fluctuating.

Answer:



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98. Aggregates of lymphoid tissue present in the distal portion of the small intestine are known as

- A. Villi
- B. Peyer's patches
- C. Rugae
- D. Choroid plexus

Answer:



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99. What is correct about the compound epithelium?

- A. It is multi-layered
- B. Its main function is protection against chemical and mechanical stress.
- C. They cover inner lining of ducts of salivary glands.
- D. all of these

Answer:



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100. Felidae and Canidae are examples of which taxonomical category?

- A. Genus
- B. Order
- C. Family
- D. Class

Answer:



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101. Which one of the following is not a micronutrient?

- A. Molybdenum
- B. Magnesium
- C. Zinc
- D. Boron

Answer:



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102. A scrubber in the exhaust of a chemical industrial plant removes:

- A. Gases like SO_2 .
- B. Particulate matter of the size $5 \mu m$ or above.
- C. Gases like ozone and methane.

D. Particulate matter of the size $2.5 \mu\text{m}$ or less.

Answer:



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103. Find incorrect statement w.r.t. pollen grains.

- A. Generally spherical measuring about 25-50 micro meters
- B. Exineless areas in pollen wall are called germ pore
- C. The vegetative cell is bigger has abundant food reserves and a large irregularly shaped nucleus.
- D. The generative cell has abundant cytoplasm and an irregular shaped nucleus

Answer:



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104. Which part of human brain is concerned with the regulation of body temperature?

- A. Cerebellum
- B. Cerebrum
- C. Hypothalamus
- D. Medulla oblongata

Answer:



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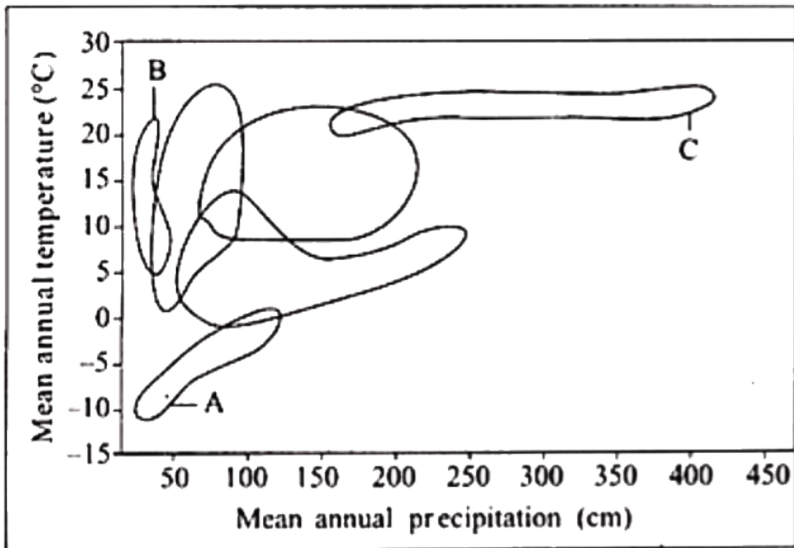
105. Vector for dengue and chikungunya is

- A. Female Anopheles mosquito
- B. Male anopheles mosquito
- C. Culex mosquito
- D. Aedes mosquito

Answer:

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106. The graph given below is showing biome distribution with respect to annual temperature and precipitation. Identify A, B and C, respectively.



A. A-Desert, B-Arctic tundra, C-Coniferous forest

B. A-Arctic tundra, B-Desert, C-Tropical forest

C. A-Temperate forest, B-Arctic tundra, C-Desert

D. A-Temperate forest, B-Arctic tundra, C-Grassland

Answer:



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107. In EcoRI, the letter 'R' is derived from

- A. Genus
- B. Species
- C. Strain
- D. Class

Answer:



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108. Ascaris is characterized by

- A. Absence of true coelom but presence of metamerism

- B. Presence of neither true coelom nor metamerism
- C. Presence of true coelom and metamerism
- D. Presence of true coelom but the absence of metamerism

Answer:



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109. The anterior pituitary hormone that does not stimulate another endocrine gland is

- A. somatotropin
- B. Thyrotropin
- C. Gonadotropin
- D. Adrenocorticotropin

Answer:



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110. Mark the ODD one out.

- A. Oxaloacetic acid
- B. Malic acid
- C. Citric acid
- D. Succinic acid

Answer:



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111. Isogamous reproduction and flagellated gametes can be observed in

- A. Polysiphonia
- B. Fucus
- C. Ulothrix
- D. Spirogyra

Answer:



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112. Receptors with aortic arch and carotid artery can recognise changes in

- A. Only CO_2 concentration in blood
- B. H^+ and O_2 concentration in blood
- C. CO_2 and H^+ concentration in blood
- D. O_2 concentration in blood

Answer:



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113. Which of the following organisms are correctly paired with its life span?

A. Crow-15 years

B. Butterfly-3 weeks

C. Parrot-40 years

D. Crocodile-100-150 years

Answer:



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114. The packaging of chromatin at a higher level requires an additional set of proteins that collectively are referred to as

A. Histones

B. NHC proteins

C. Tubulin

D. Actin

Answer:



115. Which of the following statement is incorrect?

- A. Basmati rice is distinct for its unique aroma and flavour and 27 documented varieties of basmati are grown in india.
- B. Biopiracy is the term used to refer to the use of bio-resources by multinational companies and other organizations without proper authorization from the coutries and people concerned without componsatory payment.
- C. Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA (or genes) whih codes for a particular product such as human protein (alpha-1-antitrypsin) used to treat Phenylketonuria.
- D. The indian government has set up organizations such as GEAC (Genetic Engineering Approval Committee), which will make

decisions regarding the validity of GM research and the safety of introducing GM-organisms for public services.

Answer:

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116. Select the incorrect statement regarding the transport of gases in the blood.

- A. About 97% of O_2 is transported by RBCs in the blood.
- B. Carbonic anhydrase is present in very high concentration in RBC
- C. High pCO_2 and low pO_2 in tissue help in binding of carbon dioxide
- D. CO_2 is carried in haemoglobin as carboxyhemoglobin

Answer:

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117. The mathematical expression of diffusion pressure deficit is

A. $DPD = OP - TP$

B. $DPD = OP + WP$

C. $DPD = WP - OP$

D. $DPD = TP + OP$

Answer:



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118. In which technique, to form embryo in the laboratory a sperm is directly injected into the ovum?

A. IVF-EF

B. ICSI

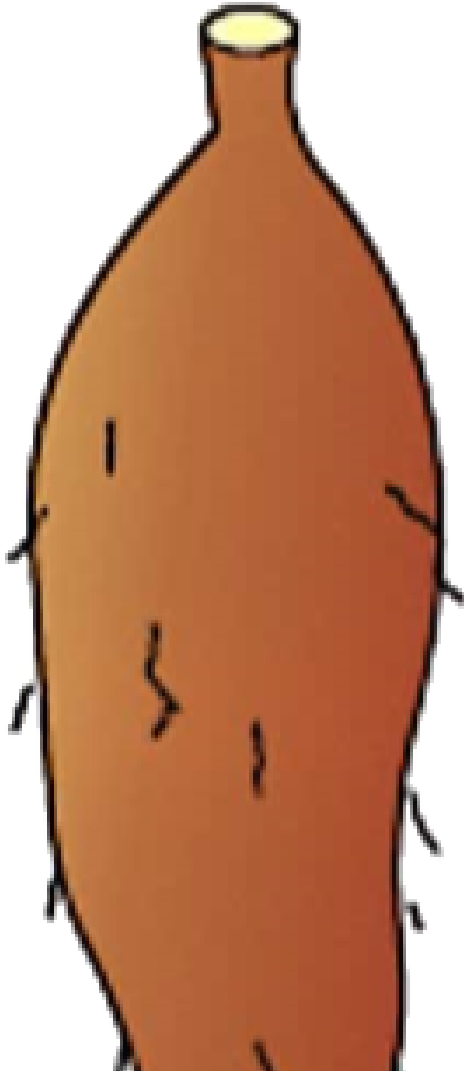
C. GIFT

D. IUI

Answer:

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119. Which kind of modification is seen in the given diagram?





- A. Tap root for storage
- B. Adventitious roots for supports
- C. Adventitious root for storage
- D. Tap root for respiration

Answer:



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120. Kingdom Plantae includes

- A. Algae, Bryophytes and Pteridophytes only
- B. Algae, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms only.
- C. Algae, Fungi, Pteridophytes, Gymnosperms and Angiosperms only.
- D. Algae, Pteridophytes, Gymnosperms and Angiosperms only.

Answer:



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121. A change in the relative abundance of an allele (the allelic frequency) within a population, over a succession of generations, is called

- A. Micro-evolution
- B. Macro-evolution
- C. Co-evolution

D. Phylogenetic evolution

Answer:



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122. "The formation of life was preceded by chemical evolution". This statement was given by,

- A. Urey and Miller
- B. Jacob and Monod
- C. Fischer and Huxley
- D. Oparin and Haldane

Answer: D



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123. Foetal ejection reflex is produced by

- A. Fully developed foetus only
- B. Placenta only
- C. Fully devepoled foetus and placenta
- D. Fully developed foetus, placenta and endometrium

Answer: C



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124. Algae used by Calvin and associated from photosynthetic research is

- A. Chlorella
- B. Chlamydomonas
- C. Volvox
- D. All the above

Answer:



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125. Biofertilizers include

- A. Nitrogen fixing bacteria
- B. Nitrogen fixing cyanobacteria
- C. Mycorrhiza
- D. All of these

Answer:



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126. The enzyme used to join the DNA fragments is :

- A. Topoisomerase

B. Adenosine deaminase

C. DNA ligase

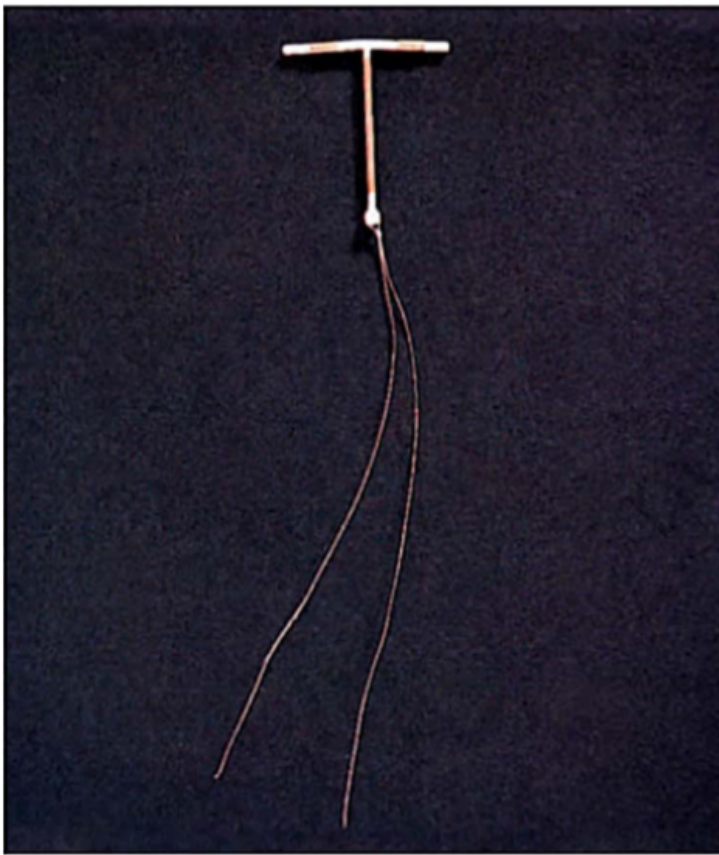
D. DNA polymerase

Answer:



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127. What is correct about the contraceptive method shown in the diagram below?



- A. It releases Ca ions that suppress sperm motility
- B. It releases Cu ions that suppress sperm motility
- C. It is a hormone-releasing IUDs, that make the uterus unsuitable for implantation.
- D. It prevents the entry of sperm in the uterus.

Answer: B



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128. Uric acid is nitrogenous waste in

- A. Birds and lizards
- B. Insects and bony fishes
- C. Frog and cartilaginous fishes
- D. Mammals and molluscs

Answer:



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129. Holoenzyme is

- A. Non-protein and apoenzyme

- B. Protein and apoenzyme
- C. Enzyme, protein and coenzyme
- D. Enzyme, non-protein and coenzyme

Answer:

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130. Which of the following is grown to provide human food rich in proteins, lipids, carbohydrates, vitamins and minerals

- A. Spirogyra
- B. Ulothrix
- C. Oscillatoria
- D. Chlorella

Answer:

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131. What is an eye of potato?

- A. Axillary bud
- B. Accessory bud
- C. Adventitious bud
- D. Apical bud

Answer:



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132. The waste products produced in man are

- A. Carbon dioxide
- B. Urea and salts
- C. Excess of water
- D. All of these

Answer:



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133. Which type of organism are PPLO?

- A. Virus
- B. Viroid
- C. Mycoplasma-like
- D. Bacteria

Answer:



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134. Under what condition, the upright pyramid of biomass becomes inverted?

A. Grassland ecosystem

B. Terrestrial ecosystem

C. Pond ecosystem

D. Tree ecosystem

Answer:

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135. Match List I and List II and select the correct answer using the code given below in the lists:

List I (Phase of meiosis) List II (Event that occurs)

Prophase I Crossing over occurs

Metaphase I Sister chromatids migrate to opposite poles

Anaphase I Homologous line up at equator in pairs

A. 1,2 and 3 are correct

B. 1 and 2 are correct, 3 is false

C. 1 is correct, 2 and 3 are false

D. 1 and 3 are correct, 2 is false.

Answer:



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136. A root was described as adventitious root because it

- A. Arose from plumule
- B. Was used variously for storage of food
- C. was swollen
- D. Was growing in marshy place

Answer:



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137. Osmosis is the passage of water through a semipermeable membrane from

- A. A higher concentration of water molecules to lower concentration
- B. Lower concentration of water molecules to higher concentration
- C. Equal concentration of water molecules
- D. None of these

Answer:



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138. Which of the following strategy is not a correct approach to reduce global warming ?

- A. Reducing the green-house gas emission by limiting the use of fossil fuels.

- B. Increase the vegetation cover particularly the forest for photosynthetic utilization of CO_2 .
- C. Minimising the use of nitrogen fertilizers, in agriculture for reducing NO_2 emission.
- D. Increasing the use of air conditioners, refrigeration units, and production of plastic.

Answer:



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139. Which type of cell division occurs in the gonads

- A. Mitosis only
- B. Meiosis
- C. Both mitosis and Meiosis
- D. Amitosis and meiosis

Answer:



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140. Gigantism and dwarfism are the disease related to

- A. Prolactin hormone of mammary gland
- B. Growth hormone of adenohipophysis
- C. Luteinising hormone of pituitary gland
- D. Thyroid stimulating hormone of thyroid

Answer:



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141. What is PAR range?

- A. 200nm-800nm

B. 400nm-700nm

C. 350nm-550nm

D. 600nm-100nm

Answer:



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142. The respiratory quotient during cellular respiration would depend on

A. Nature of enzymes involved

B. Nature of the substrate

C. Amount of carbon dioxide released

D. Amount of oxygen utilized

Answer:



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143. Allergy is due to release of which of the chemical from mast cells and basophils?

- A. Histamine
- B. Heparin
- C. Serotonin

A. A only

B. A & B

C. A & C

D. B & C

Answer:



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144. How many ATP molecules are generated in Calvin cycle ?

A. 18

B. 12

C. 6

D. 0

Answer:



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145. Somatostatin is a

A. Peptide hormone

B. An enzyme

C. A steroid

D. A carbohydrate

Answer:



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146. Which of the following sets is of flightless birds

- A. Columba and Psittacula
- B. Struthio and Aptenodytes
- C. Corvus and Columba
- D. Pavo and Neophron

Answer:



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147. Which is the common character between all the mammals

- A. They are oviparous
- B. They are herbivorous
- C. They are carnivorous
- D. They have seven cervical vertebrae

Answer:



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148. Biofortification involves breeding crops with higher levels of vitamins, proteins, minerals and healthier fats. Which of the following vegetable crop has been produced by IARI that has been enriched with Vitamin C?

- A. Bitter gourd, bathua, mustard, tomato
- B. Spinach and bathua
- C. Pumpkin, carrot and mustard
- D. French bean

Answer:



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149. a plant requires magnesium for :

- A. Protein synthesis
- B. Chloropyll synthesis
- C. Cell wall development
- D. Holding cells together

Answer:

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150. The gastric juice contains

- A. Trypsin, pepsin, lipase
- B. pepsin, lipase, rennin
- C. Pepsin, amylase, trypsin
- D. Trypsin, pepsin, rennin

Answer:

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151. Select the correct statement about biodiversity

- A. Large scale planting of Bt cotton has no adverse effect on biodiversity.
- B. Western Ghats have a very high degree of species richness and endemism.
- C. Conservation of biodiversity is just a fad pursued by the developed countries.
- D. The desert areas of Rajasthan and Gujarat have a very high level of desert animal species as well as numerous are animals

Answer:



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152. Mark the correct statement with respect to ZIFT.

- A. Ova collected from a female donor are transferred to the fallopian tube to facilitate zygote formation.
- B. Woman's egg is fertilized outside the body and then zygote is transferred to the fallopian tube.
- C. Woman's egg is fertilized outside the body and then zygote is transferred to the uterus.
- D. Ova collected from a female donor and transferred to the uterus.

Answer: B



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153. Which of the following is a correct match between crop, variety and resistance to diseases ?

A.

Crops	Variety	Resistance to diseases
Wheat	Himgiri	White rust

B.

Crops	Variety	Resistance to diseases
Brassica	Pusa sadabahar	Black rot

Crops	Variety	Resistance to diseases
Cowpea	Pusa komal	Bacterial blight

C.

Crops	Variety	Resistance to diseases
Chilli	Pusa swarnim	Chilli mosaic virus

D.

Answer:

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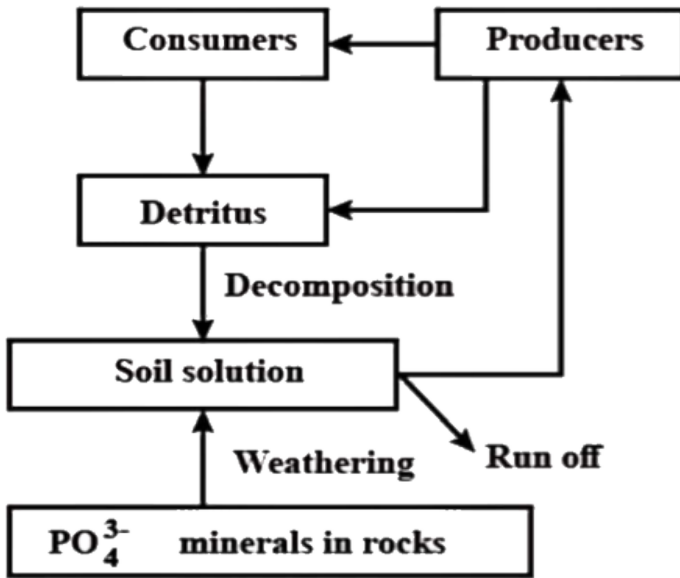
154. Which of the following is not a correct statement?

- A. A herbarium houses dried, pressed and preserved plant specimens.
- B. Botanical gardens have a collection of living plants for reference.
- C. A museum has a collection of photographs of plants and animals
- D. Key is a taxonomic aid for identification of specimens.

Answer:

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155. Given below is a phosphorus cycle. Select the incorrect statements from the following:



- (i) It represents phosphorus cyclic in an aquatic ecosystem.
- (ii) It represents phosphorus cyclic in a terrestrial ecosystem.
- (iii) The natural reservoir of phosphorus is forest ecosystem.
- (iii) The natural reservoir of phosphorus is forest rocks.
- (iv) There is a respiratory release of phosphorus into the atmosphere.
- (v) Gaseous exchange of phosphorus between organisms and the environment does not occur.

A. (i),(ii) and (v)

B. (i),(iii) and (iv)

C. (ii), (iii) and (iv)

D. (i), (iii), (iv) and (v)

Answer:



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156. Which of the following pairs has a haploid structure?

A. Nucellus and antipodal cells

B. Antipodal cells and egg cell

C. Antipodal cells and megaspore mother cell

D. Nucellus and primary endosperm nucleus

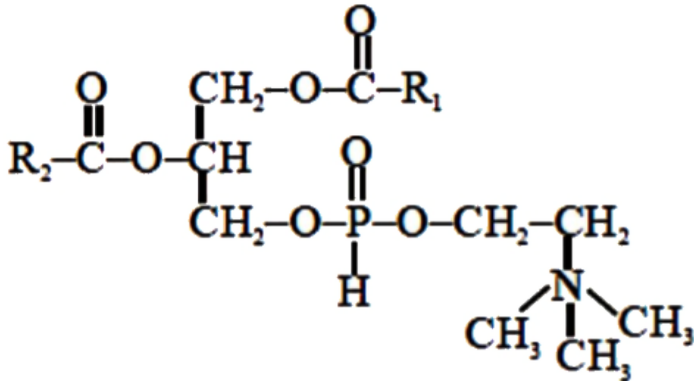
Answer:



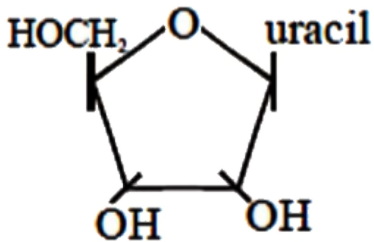
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157. Identify the molecule (a) and (b) shown below and select the right option giving their name and occurrence.

(a)



(b)



A. (a) Lecithin-Cell membrane

B. (b) Uridylic acid-RNA

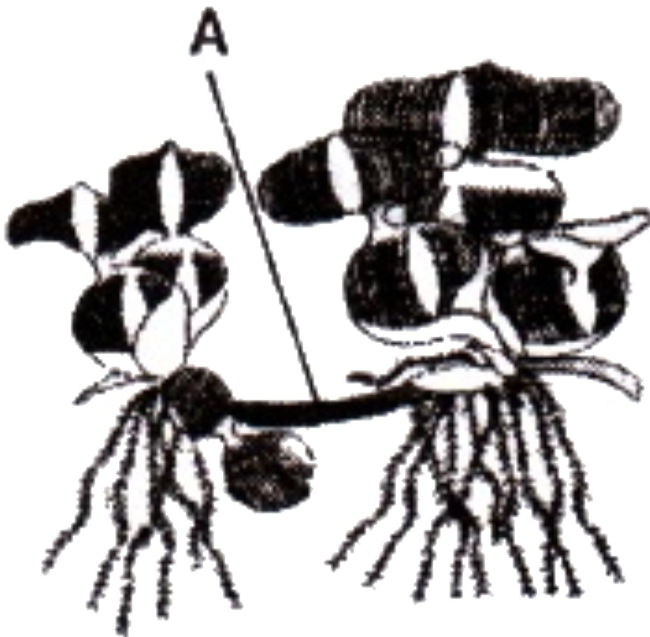
C. (a) Triglyceride-DNA

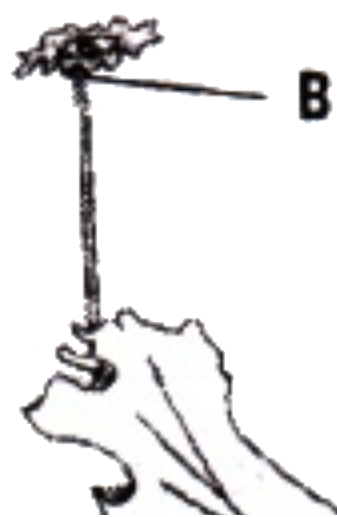
D. (b) Uracil-DNA

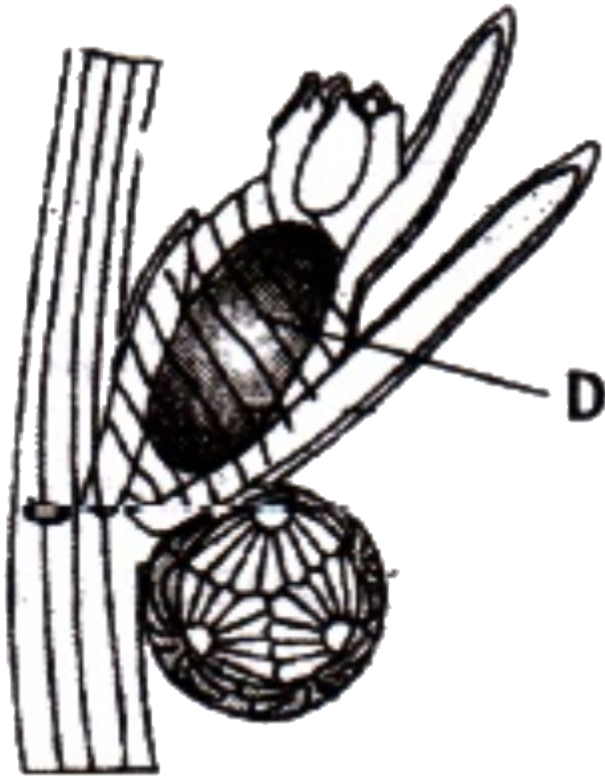
Answer:

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158. Examine the figures (A-D) given below and select the right option out of (a-d), in which all the four structures A, B, C and D are identified correctly.







A. A-Rhizome, B-Sporangiophore, C-Polar cell, D-Globule

B. A-Runner, B-Archeconiophore, C-Synerid, D-Antheridium

C. A-Offset, B-Antheridiophore, C-Antipodals, D-Oogonium

D. A-Sucker, B-Seta, C-Megaspore mother cell, D-Gemma cup

Answer:



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159. Which of the following groups of organisms are ecologically similar?

A. Producer protists and consumer protists

B. Monerans and producer protists

C. Consumer protists and fungi

D. Monerans and fungi

Answer:



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160. The longest bone of the human body is

- A. Humerus
- B. Tibia
- C. Vertebra
- D. Femur

Answer:



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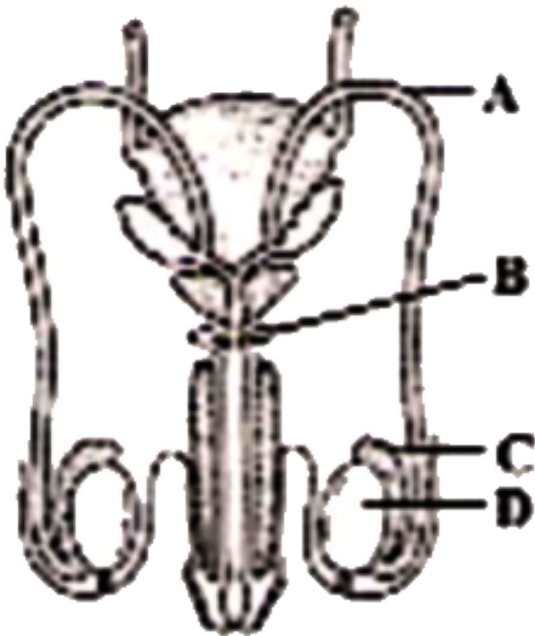
161. Amongst the following, which characteristic feature is not applicable to Bt cotton?

- A. Bt is the abbreviated term for botulinum toxin
- B. Such cotton is resistant to armyworm and beetles.
- C. The toxin is activated in the body of the insect
- D. The toxin is coded by a gene called 'cry'.

Answer:

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162. Observe the given diagram and read the statements carefully. Identify the correct ones.



- (i) A carries urine and sperms.
- (ii) B secretes a fluid that helps in the lubrication of penis.
- (iii) D produces testosterone but not sperms.
- (iv) C stores sperms.

A. (i) and (ii)

B. (ii) and (iii)

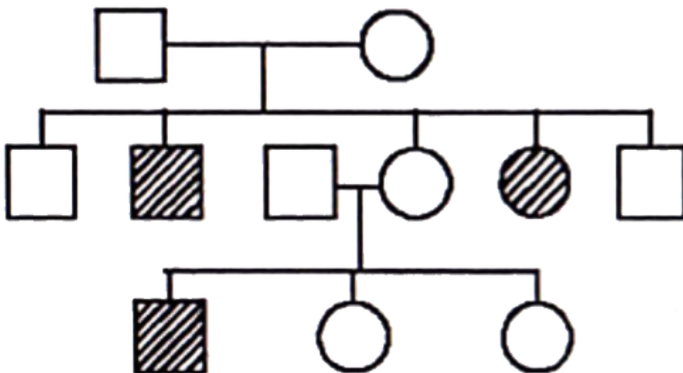
C. (ii) and (iv)

D. (i) and (iv)

Answer: C

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163. Study the pedigree chart given below:



what does it show?

- A. Inheritance of a condition like phenylketonuria as an autosomal recessive trait.
- B. The pedigree chart is wrong as this is not possible
- C. Inheritance of a recessive sex-linked disease like haemophilia.
- D. inheritance of a sex-linked inborn error of metabolism like phenylketonuria.

Answer:



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164. Which of the following is a wrongly matched pair?

- A. Tuber-Potato
- B. Rhizome-Ginger
- C. Bulbil-Agave
- D. Leaf buds-Banana

Answer:



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165. Three of the following pairs of the human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the non-matching pair

A.

Pairs of skeletal parts	Category
(a) Sternum and Ribs	Axial skeleton

B.

Pairs of skeletal parts	Category
(b) Clavicle and Glenoid cavity	Pelvic girdle

C.

Pairs of skeletal parts	Category
(c) Humerus and Ulna	Appendicular skeleton

D.

Pairs of skeletal parts	Category
(d) Malleus and Stapes	Ear ossicles

Answer:



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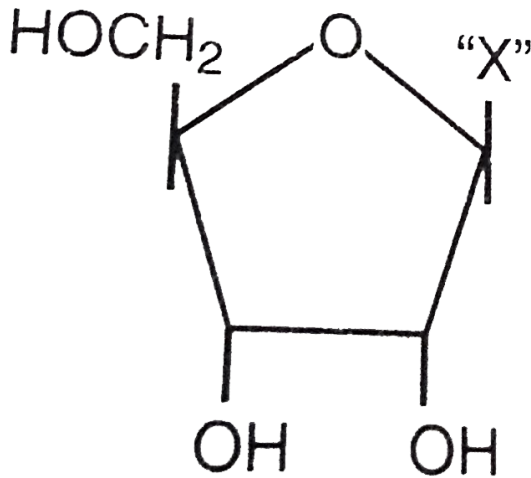
166. Which one of the following statement is wrong with respect to RMS (restriction modification system) as the foundation of r-DNA technology?

- A. Restriction endonuclease identifies introduced foreign DNA and cuts it into pieces.
- B. Modification enzymes add a methyl group to one or two bases usually within the recognition site of restriction endonuclease enzymes.
- C. Restriction endonuclease can cleave any palindromic sequence
- D. Restriction enzymes restriction the propagation of foreign DNA of bacteriophages in the host bacterium.

Answer:

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167. The given diagrammatic representation shows one of the categories of small molecular weight organic compounds in the living tissues. Identify the category shown and the one blank component "X" in it :



- A. Category Component
- B. Amino acid NH_2
- C. Nucleotide Adenine
- D. Nucleoside Uracil

Answer:



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168. A leaf peeling of *Tradescantia* is kept in a medium having 10% NaCl. After a few minutes, if we observe the leaf peel under microscope, we are likely to see

- A. Entry of water into the cell
- B. The cells bursting out
- C. Diffusion of NaCl into the cell
- D. Exit of water from the cell

Answer:



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169. What are the adaptations seen in animals that live in water scarcity conditions?

- A. Having a thick coat to minimise evaporative desiccation
- B. Oxidising stored fat to produce water as by product
- C. Producing very concentrated urine and solid faeces
- D. All of these

Answer:

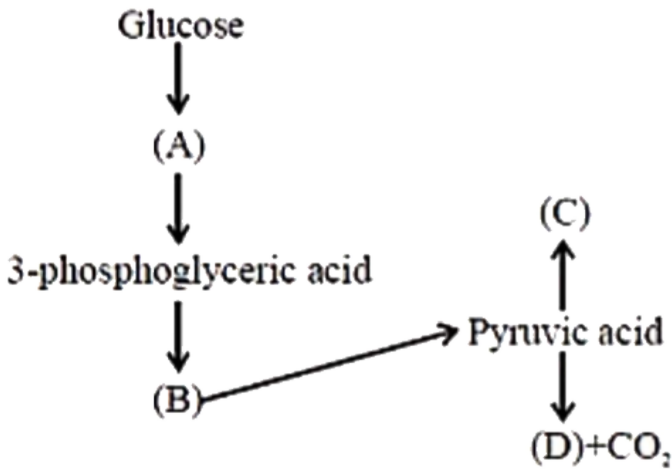
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170. Mark the non-invasive technique without any side effects to diagnose the cancer of internal organs.

- A. Radiography
- B. Computed tomography
- C. Histopathological studies
- D. Magnetic resonance imaging (MRI)

Answer: B

171. Based on the given process, identify the correct match for A,B,C and D from the following options.



A.

A	B	C	D
PGAL	PEP	C ₂ H ₅ OH	Lactic acid

B.

A	B	C	D
PGAL	PEP	Lactic acid	C ₂ H ₅ OH

C.

A	B	C	D
G-6-P	2-PGA	C ₂ H ₅ OH	Lactic acid

D.

A	B	C	D
PEP	F-6-P	Lactic acid	C ₂ H ₅ OH

Answer:



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172. Which kind of plants are required for uninterrupted dark-period flowering?

- A. Short day plants
- B. Long day plants
- C. Short night plants
- D. Day neutral plants

Answer:



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173. Phenylketonuria (PKU) is an inherited disease which refers to

- A. Decrease in phenylalanine in tissue and blood
- B. Increase in phenylpyruvic acid in tissue and blood

C. Elimination of sugar in urine

D. Elimination of genetics acid in urine

Answer:



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174. What is not true about sclereids ?

A. These are parenchyma cells with thickened lignified walls.

B. These are elongated and flexible with tapered ends.

C. These are commonly found in the shells of nuts and in the pulp of guava, pear, etc.

D. These cells also provide support.

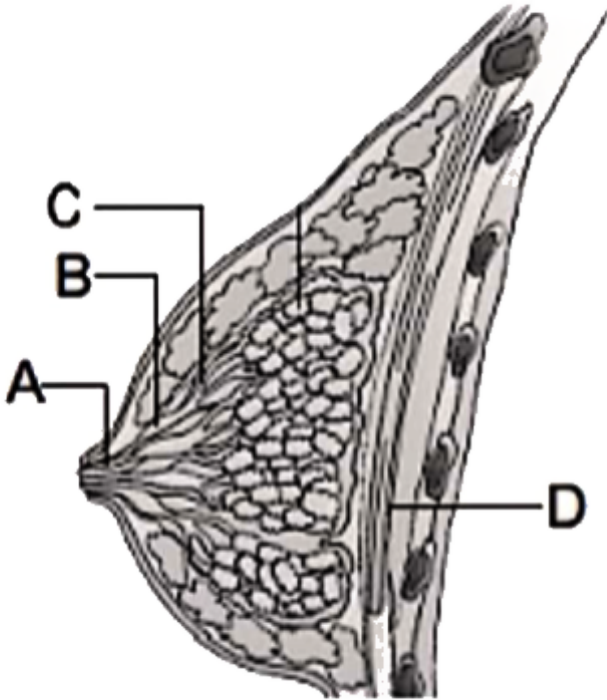
Answer:



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175. Given below is a diagrammatic sectional view of the mammary gland.

Select the option which indicates the correct labeling.



A. A-Ampulla

B. B-Mammary alveolus

C. C-Lactiferous duct

D. D-Pectoralis major muscle

Answer: D

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176. The blood of cockroach contains no respiratory pigment. It means that:

- A. Cockroach does not respire
- B. Respiration is anaerobic
- C. O_2 goes directly into tissues by diffusion
- D. O_2 goes into tissue by intracellular capillary system

Answer:

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177. Select the match ones.

I. nitrosomonas-Nitrite to nitrate II. Thiobacillus-Denitrification.

III. Nostoc-Free-living nitrogen-fixer

IV. Azotobacter-Anaerobic nitrogen-fixer

A. I and II

B. III and IV

C. II and III

D. II and IV

Answer:



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178. In flowering plants archesporium gives rise to

A. only the wall of the sporangium

B. Both wall and the sporogenous cells

C. wall and the tapetum

D. Only tapetum and sporogenous cells

Answer:



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179. Which of the following is a restriction endonuclease?

- A. Hind II
- B. Protease
- C. Dnase I
- D. Rnase

Answer:



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180. Zeatin has been obtained from

- A. Wheat

B. Rice

C. Maize

D. Oat

Answer:



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181. In majority of the angiosperms, pollen is released in a two-celled stage. The two cells are

A. the gamete and generative cell

B. the vegetative cell and tube nucleus

C. two male gametes

D. the vegetative cell and generative cell

Answer: D



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182. Which set of hormones are secreted during pregnancy only?

- A. Estrogen, hPL, Relaxin
- B. Progesterone, Cortisol, hCG
- C. hCG, hPL, Relaxin
- D. Cortisol, Progestogens, Relaxin

Answer: C



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183. Which of the following is the correct description of the mechanism of action of a copper IUD?

- A. These inhibit ovulation and implantation as well as alter the quality of cervical mucus to prevent or retard entry of sperms.

- B. These increase phagocytosis of sperms within the uterus and the certain ions released from it suppress sperm motility and the fertilising capacity of sperms.
- C. Ovum and sperms are prevented from physically meeting.
- D. These prevent conception by blocking the entry of sperms through the cervix.

Answer: B



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184. Intentional or voluntary termination of pregnancy before full term is called medical termination of pregnancy (MTP) or induced abortion. Which of the following is incorrect about MTP?

- A. MTP has a significant role in decreasing the population.
- B. Government of India legalised MTP in 1971 with some strict conditions to avoid its misuse.

C. MTP_s are considered relatively safe during the first trimester in comparison to second trimester abortions.

D. MTP is not allowed if the pregnancy is the result of rape.

Answer: D

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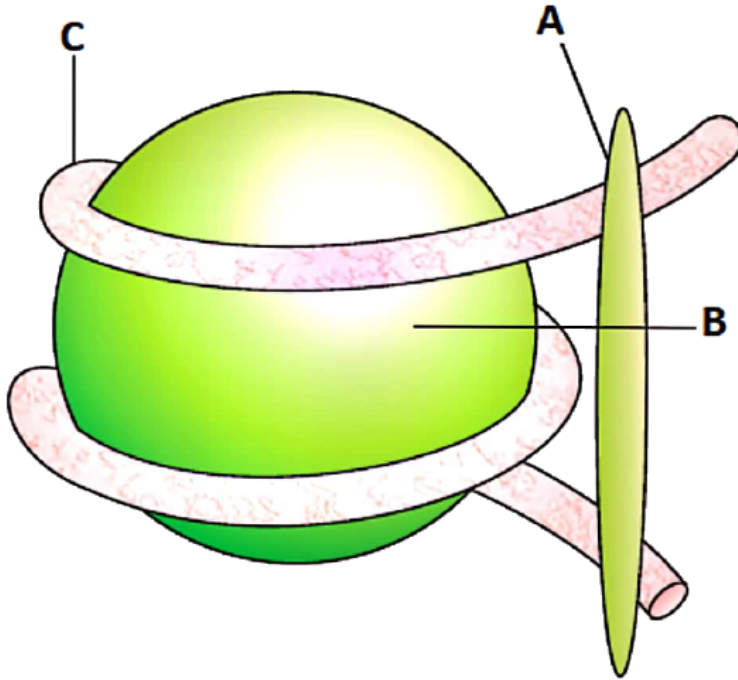
185. If the two genes are having % of recombination less than 50%, then the progeny of F_2 generation will show

- A. higher number of the recombinant types
- B. segregation in the expected 9 : 3 : 3 : 1 ratio
- C. segregation in 3:1 ratio
- D. higher number of the parental

Answer: D

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186. Identify parts labelled A, B, and C in the given diagram and select the correct option.



A.

A	B	C
Negatively charged DNA	Positively charged histone octamer	H1 histone

B.

A	B	C
H1 histone	Negatively charged DNA	Positively charged histone octamer

C.

A	B	C
H1 histone	Positively charged histone octamer	Negatively charged DNA

A	B	C
H1 histone	Negatively charged histone octamer	Negatively charged DNA

D.

Answer: C



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187. Select the two correct statements out of the four (1-4) given below about lac operon.

1. Glucose or galactose may bind with the repressor and inactivate it
2. In the absence of lactose the repressor binds with the operator region
3. The z-gene codes for permease
4. This was elucidated Francois Jacob and Jacque Monod

The correct statements are :

A. I and II

B. I and III

C. II and IV

D. I and II

Answer: C



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188. Sometimes the change in allelic frequency is so different in the new sample of the population that they become a different species. The original drifted population create a different population. This is called

- A. Founder effect
- B. Bottleneck effect
- C. Metapopulation effect
- D. Gene migration

Answer: A



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189. How many of the following diseases are transmitted by contaminated food and water?

[Typhoid, Ringworms, Pneumonia, Common cold, Dengue, Amoebiasis, Chikungunya]

- A. One
- B. Two
- C. Three
- D. Four

Answer: B



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190. Select the incorrect statement from the following.

- A. Through vaccines, antigenic proteins of pathogen or dead or weakened pathogens are introduced in the body.

B. Anti-venom provides active immunity.

C. Anti-histamines control allergy

D. Both (a) and (b)

Answer: B



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191. If the protoplast of tomato is fused with potato protoplast and grown as new plant, it will be known as

A. Explant

B. Somaclones

C. Callus

D. Somatic hybrid

Answer: D



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192. Mark the incorrect statement.

- A. Insect and pest infestation is one of the major causes for large scale destruction of crop plants.
- B. Breeding method for insect pest resistance involves the special steps that are not similar to use in other agronomic traits such as yield or quality.
- C. Malnutrition of micronutrients and vitamins can be termed as hidden hunger.
- D. Somaclones are genetically identical to original plants.

Answer: B



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193. Which of the following describes out-crossing ?

- A. Mating of more closely related Individuals within the same breed for 4- 6 generations.
- B. This is the practice of mating of animals within the same breed, but having no common ancestors en either side of their pedigree up to 4-6 generations.
- C. Superior males of one breed are mated with superior females of another breed (of same species).
- D. Male and female animals of two different species are mated.

Answer: B



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194. *Monascus purpureus* is a yeast used commercially in the production of

A. Ethanol

- B. Streptokinase for removing clots from the blood vessels
- C. Citric acid
- D. Blood cholesterol lowering statins

Answer: D



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195. Which of these is not the feature of a cloning vector?

- A. Ori supporting high copy number
- B. Selectable marker
- C. Resistant to the action of restriction enzymes
- D. Presence of cloning site

Answer: C



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196. Primers used in PCR must be:

- A. 3'-end specific
- B. 5'-end specific
- C. It can be 3'-end specific or 5'-end specific.
- D. Primers are not needed in PCR.

Answer: A



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197. The variant of cry genes used to control corn borers is

- A. cryIAc
- B. cryIAb
- C. cryIIAb
- D. Both (a) and (b)

Answer: B



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198. Which of the following locations acts as the reservoir for nitrogen cycle?

- A. Atmosphere
- B. Sedimentary bedrock
- C. Soil
- D. Fossilised plant and animal remains

Answer: A



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199. All of the following contributed to Mendel's success, except

A. Mendel's selection of pea plant for experiments

B. Application of mathematical knowledge

C. Working on small sampling size at a time

D. Taking one character at a time.

Answer: C



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200. Select the incorrect statement.

A. A genus comprises of a group of related species which has more characters in common in comparison to species of other genera.

B. Higher the category, greater is the difficulty of determining the relationship to other taxa at the same level.

C. Going higher from species to kingdom, the number of common characteristics goes on increasing.

D. All organisms, including plants and the animal kingdom, have species as the lowest category.

Answer: C

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201. Which organism does not produce oxygen during photosynthesis?

A. Anabaena

B. Funaria

C. Higher plants

D. Rhodospirillum

Answer: D

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202. Which one is smallest among the following

A. TMV

B. Bacteriophage

C. Neurospora

D. E. coli

Answer: B



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203. The second-largest phylum of invertebrate animals is:

A. Annelida

B. Aschelminthes

C. Mollusca

D. Platyhelminthes

Answer: C



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204. Select the set of incorrect statements.

I. The circulatory system in Platyhelminthes has a single opening.

II. Annelids are the first animals to have true coelom and metamerism (true segmentation).

III. The space between the hump and the mantle is called the mantle cavity in which gills are present.

IV. Most of the echinoderms are bisexual.

A. I, II

B. III, IV

C. II, III

D. I, IV

Answer: D





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205. How many of the following shows zygomorphic flowers with valvate/imbricate aestivation?

Indigofera, Lupin, Petunia, Aloe, Colchicum autumnale, Sesbania, Trifolium, Solanum

A. 3

B. 4

C. 5

D. 6

Answer: B



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206. growth/annual rings are formed by the activity of

A. Cambium

B. Secondary xylem

C. Phellogen

D. Xylem and phloem

Answer: A



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207. How many spermathecae are found in the male cockroach?

A. One

B. One pair

C. 2 pairs

D. none

Answer: D



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208. In *Periplaneta americana*, the blood vascular system is of ___A___ type. Blood vessels are ___B___. The visceral organs are located in ___C___. ___C___ is filled with a fluid which is composed of ___D___ and ___E___.

A. *A* Closed *B* absent *C* Enterocoel *D* Plasma *E* Haemocytes

B. *A* open *B* Poorly developed *C* Haemoel *D* RBC *E* Haemolymph

A	B	C	D	E
Open	Absent	Haemocoel	Haemocytes	Lymph

C.

D. *A* open *B* Poorly developed *C* Haemoel *D* plasma *E* Haemocytes

Answer: A



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209. The axoneme is found in

A. Cilia

B. Flagella

C. Microbodies

D. Both (A) and (B)

Answer: D



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210. Assertion : Competitive inhibitor is also called as substrate analogue.

Reason : It resembles the enzymes in structure.

A. Both 1 and 2 are correct

B. 1 is correct and 2 is incorrect

C. 1 is incorrect and 2 is correct

D. Both are incorrect.

Answer: B



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211. Analyze the events occurring during every stage of the cell cycle, how the amount of DNA content (C) per cell changes and select the correct option.

- A. DNA content becomes doubled during S phase of cell cycle
- B. DNA content is reduced to half during anaphase
- C. DNA content remain same during meiosis I
- D. Both (a) and (b)

Answer: D



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212. Which of the following statement is incorrect ?

- A. Different substances move independently along their concentration gradient in mass flow.

- B. Active absorption of ions from the soil by the root is mainly affected by respiratory activity of root.
- C. The translocation of organic solutes in sieve tube members is supported by mass flow.
- D. Root pressure develops due to active absorption.

Answer: A



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213. How many electron and protons are required to fix a dinitrogen ?

- A. 32 each
- B. 8 each
- C. 6 each
- D. 4 each

Answer: B



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214. ATP as well as $NADPH + H^+$ both are required during the conversion of _____ in C_3 cycle

- A. $RUBP + CO_2 \rightarrow PGA$ (2 molecules)
- B. $PGA \rightarrow PGAL$
- C. $PGAL \rightarrow DHAP$
- D. Fructose 1, 3 - biphosphate \rightarrow Glucose

Answer: B



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215. In the election transport chain the correct sequence of eletron acceptor is

- A. Cytochrome a, a_3 , b, c

B. Cytochrome b, c, a, a_3

C. Cytochrome b, c_3 , a, a_3

D. Cytochrome c, b, a, a_3

Answer: B



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216. Ethylene is highly effective in fruit ripening. It enhances the respiration rate during ripening of fruits, this rise in rate of respiration is called?

A. Respiratory climactic

B. Respiratory quotient

C. Respiratory effect

D. Respiratory quiescence

Answer: A



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217. PEM (protein-energy malnutrition) that affects the infants results in

- A. Marasmus
- B. Kwashiorkor
- C. Pot-bellied
- D. Obesity.

Answer: A



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218. Moist cuticle is the respiratory organ in

- A. Insects
- B. Earthworms
- C. Aquatic arthropods and molluscs

D. Amphibians like frogs

Answer: B



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219. ECG is a graphical representation of the electrical activity of the heart during a cardiac cycle. Identify the incorrect interpretation.

- A. P-wave: Depolarisation of the atria.
- B. QRS complex: Ventricular systole.
- C. T-wave: Ventricular repolarisation.
- D. End of T-wave: End of ventricular systole.

Answer: B



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220. The amount of urine released by humans in a day is

A. 1 to 1.5 litres of slightly acidic (pH- 6.0) urine having 45-60 gm of urea.

B. 1 to 1.5 litres of slightly acidic (pH- 6.0) urine having 25-30 gm of urea.

C. 0 to 1 litres of slightly alkaline (pH- 7.3) urine having 25-30 gm of urea

D. 1 to 1.5 litres of slightly acidic (pH- 6.0) urine having 45-60 gm of urea.

Answer: B



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221. Midbrain is located between

- A. Thalamus/hypothalamus of forebrain and pons varolii of hindbrain
- B. Thalamus/hypothalamus of forebrain and medulla of hindbrain
- C. Olfactory lobe of forebrain and pons varolii of hindbrain
- D. Olfactory lobe of forebrain and medulla of hindbrain

Answer: A

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222. Thymosins play role in

- A. Cell-mediated immunity only
- B. Humoral immunity only
- C. Both cell-mediated and humoral immunity
- D. Neither cell-mediated and nor humoral immunity

Answer: C

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223. Which set of animals doesn't belong to the same phylum?

A. Roundworm, Hookworm, Filarial worm

B. Earthworm, Leech, Nereis

C. Sea pen, Brain coral

D. Devil fish, King crab, Chiton

Answer: D



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224. Respiratory quotient for tripalmitin is

A. 0.9

B. 0.7

C. 1.0

D. 1.4

Answer: B



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225. The periderm includes

A. Cork

B. Cork cambium

C. Secondary cortex

D. All of these

Answer: D



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226. Which of the following is correct about phenylketonuria?

- A. It is an example of pleiotropy
- B. It is an autosomal dominant disease
- C. It is caused due to single gene mutation
- D. Both (A) and (C)

Answer: D

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227. Two features present in meiosis but absent in mitosis are

- A. Pairing of non-homologous chromosomes
- B. Pairing of homologous chromosomes and recombination between them
- C. Replication of chromosome
- D. All of these

Answer: B



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228. Which of the following animals have different symmetry in comparison to the other three?

A. Pila

B. Pleurobrachia

C. Sycon

D. Asterias

Answer: A



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229. Stomata are not found in

A. Algae

B. Mosses

C. Ferns

D. Liverworts

Answer: A



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230. Zygote undergoes cleavage while moving through the isthmus of the oviduct towards the uterus and forms daughter cells called blastomeres. The embryo with 8 to 16 blastomeres is called a ___A___ which continues to divide to form ___B___ in uterus. The blastomeres in the ___B___ are arranged into an outer layer called ___A___ and an inner group of cells called the inner cell mass.

A. | A B C |
| Morula Blastocyst Haemocyto- |

B. | A B C |
| Morula Gastrula Haemocyto- |

C. | A B C |
| Blastula Gastrula Trophoblast |

D. | A B C |
| Morula Blastula Trophoblast |

Answer: D

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231. Mycoplasmas, the smallest cells, are only (i) μ m in length while bacteria could be (ii) μ m. Among multicellular organisms, human red blood cells are about (iii) μ m in diameter. Identify (i), (ii), and (iii).

A. $\left| \begin{array}{ccc} \text{(i)} & \text{(ii)} & \text{(iii)} \\ 0.5 & 5 - 7 & 7 \end{array} \right|$

B. $\left| \begin{array}{ccc} \text{(i)} & \text{(ii)} & \text{(iii)} \\ 0.3 & 3 - 7 & 9 \end{array} \right|$

C. $\left| \begin{array}{ccc} \text{(i)} & \text{(ii)} & \text{(iii)} \\ 0.3 & 3 - 5 & 4 \end{array} \right|$

D. $\left| \begin{array}{ccc} \text{(i)} & \text{(ii)} & \text{(iii)} \\ 0.3 & 3 - 5 & 7 \end{array} \right|$

Answer: C

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232. The cellulosic cell wall is observed in members of

A. Protista

B. Plantae

C. Both (a) and (b)

D. Monera

Answer: B



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233. Read the following statements :

- i. Open type circulatory systems are found in Arthropods.
- ii. Pseudocoelomates are bilaterally symmetrical.
- iii. Most of the sponges are radially symmetrical.
- iv. Platyhelminthes have a tissue level of organization.

How many of the above statements are incorrect?

A. One

B. Two

C. Three

D. None

Answer: B



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234. A man of 'A' blood group marries a woman of 'AB' blood group. Which types of progeny would indicate that man is heterozygous?

A. O

B. A

C. B

D. AB

Answer: C



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235. The essential chemical components of many coenzymes are

- A. Nucleic acid
- B. Carbohydrates
- C. Vitamins
- D. Proteins

Answer: C



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236. Biological organisation starts with

- A. Cellular level
- B. Organismic level
- C. Submicroscopic molecular level
- D. Tissue level

Answer: C

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237. Sea fur belongs to phylum A. Members of such phylum have:

- A. Bilateral symmetry
- B. Blind sac body plan
- C. Metamerism
- D. Triploblastic nature

Answer: B

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238. Which of the following statement is incorrect about the phylum hemichordata?

- A. Excretion by proboscis glands
- B. Respiration by gills
- C. Monoecious
- D. Have a rudimentary structure in the

Answer: C

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239. Cytoskeleton is made up of

- A. Callus deposits
- B. Cellulosic microfibrils
- C. Proteinaceous filaments
- D. Calcium carbonate granules

Answer: C

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240. Callus can form plantlets by altering the concentration of

- A. Phytohormones
- B. Amino sugars
- C. Vitamins
- D. Sugars

Answer: A



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241. Which of the following is correct with respect to biofortified food?

- A. Wheat variety, Atlas 66, having a high lysine and tryptophan content.
- B. vitamin C enriched crop are bitter gourd, bathua, mustard, tomato

C. vitamin A enriched carrots, spinach, French and garden peas

D. iron and calcium enriched broad and lablab

Answer: B



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242. How many of the following structures/organs belong to the male reproductive system of a cockroach?

[Utricular gland, spermatheca, oothecal chamber, Phallic gland, seminal vesicles]

A. None

B. One

C. Two

D. Three

Answer: D



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243. Dense connective tissue can be observed at all of the following locations, except

- A. Ligament
- B. Tendon
- C. Beneath the skin
- D. Skin

Answer: C



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244. Select the incorrect statement.

- A. Algin is obtained from Algae.

- B. Cyanobacteria form mycorrhizae which helps in the absorption of phosphate
- C. Salvinia, Selaginella and Azolla show heterospory.
- D. The genome of TMV is RNA.

Answer: D

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245. Conducting part of the tertiary bronchi and bronchioles end up in

- A. Segmental bronchi
- B. Segmental bronchiole
- C. Respiratory bronchioles
- D. Terminal bronchiole

Answer: D

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246. The process of conversion of organic nitrogen from dead material to ammonia is known as

- A. Nitrification
- B. Decomposition
- C. Denitrification
- D. Ammonification

Answer: D



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247. Which of the following is incorrectly matched?

- A. ABO Blood group in Humans - Multiple allelism.
- B. Skin colour in human - Multiple allelism
- C. Flower colour in *Mirabilis* - Incomplete dominance.

D. Phenylketonuria - Pleiotropism.

Answer: B



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248. Vasa recta is associated with

- A. Most of cortical nephrons
- B. Few of cortical nephrons only
- C. Juxta medullary nephrons
- D. Urinary bladder

Answer: C



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249. Rubisco enzyme can act both as carboxylase and as oxygenase. In C_4 cycle it functions as

- A. Oxygenase only
- B. Carboxylase only
- C. Mainly carboxylase activity minimizing oxygenase.
- D. Oxygenase but sometimes as carboxylase

Answer: C



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250. Which of the following is not a post pollination development?

- A. A Formation of callose plugs in pollen tube
- B. Division of pollen cell into tube cell and generative cel.
- C. Secretion of pectinase and other hydrolytic enzyme.
- D. Swelling of tube cell and formation of pollen tube.

Answer: B



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251. Which of the following is not the example of synovial joint?

- A. Between humerus and pectoral girdle
- B. Between atlas and axis
- C. Between carpal and metacarpal of thumb
- D. Between the adjacent vertebrae

Answer: D



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252. How many of the given statements are correct?

- A. Hypothalamus is the centre for eating and drinking.
- B. Corpus callosum is made up of nerve fibres.

C. ADH is synthesized by the posterior pituitary.

D. Balancing by semicircular canals is done by the macula.

A. One

B. Two

C. Three

D. All

Answer: B



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253. According to the taxonomic hierarchy, which of the following statements are correct?

A. Felis and Canis are placed under same family.

B. Potato and brinjal belong to the same genus.

C. Classes of plants with few similar characters are assigned to higher category called order.

D. Panther and *Felis domestica* are placed in different families.

Answer: B

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254. Dikaryon formation is characteristic of

A. Ascomycetes and Basidiomycetes

B. Phycomycetes and Ascomycetes

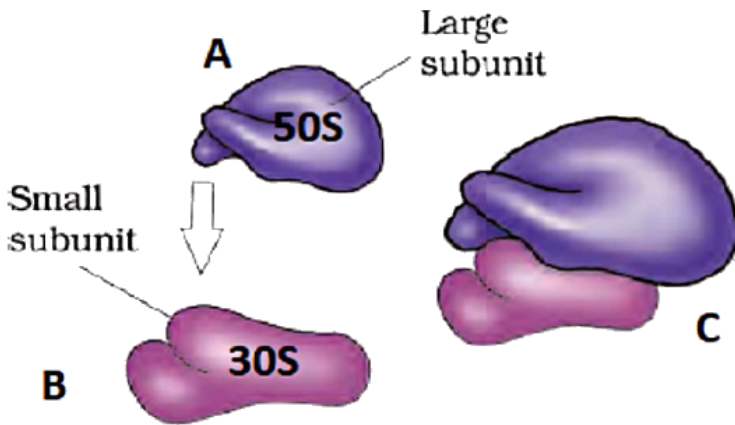
C. Basidiomycetes and Zygomycetes

D. Phycomycetes and Deuteromycetes

Answer: A

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255. Analyze the diagram given below, and select the correct option regarding part labeled as C.



- A. 70S subunit formed during eukaryotic translation
- B. 70S subunit formed during prokaryotic translation
- C. 80S subunit formed during prokaryotic translation
- D. 80S subunit formed during eukaryotic translation

Answer: B



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256. The lining of each seminiferous tubule is made up of 2 types of cells - A and B. 'A' cells undergo meiosis and result in sperm formation. 'B' cells secrete

- A. Testosterone
- B. Estrogen
- C. FSH
- D. None of these

Answer: D



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257. The largest part of the fallopian tube is

- A. Isthmus
- B. Fimbriated end
- C. Ampulla

D. Uterine part of Fallopian tube.

Answer: C



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258. The mRNA Consisting of 282 nucleotides can produce a polypeptide chain of

- A. 282 amino acids
- B. 120 amino acids
- C. 93 amino acids
- D. 94 amino acids

Answer: C



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259. "Every species has a right to live". What kind of value implies the conservation of biodiversity?

- A. Narrowly utilitarian
- B. Broadly utilitarian
- C. Aesthetic
- D. Ethical

Answer: D



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260. In a comparative study of grassland ecosystem and pond ecosystem it may be observed that:

- A. The abiotic components are almost similar.
- B. The biotic components are almost similar
- C. Both biotic and abiotic component are different.

D. Primary and secondary consumers are similar

Answer: C

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261. Which of the statement is not applicable to mutations?

- A. These are discontinuous variations
- B. Usually recessive
- C. Usually harmful
- D. Predictable

Answer: D

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262. Which of the following set shows convergent evolution?

- A. Anteater and Numbat
- B. Lemur and Bobcat
- C. Spotted Cuscus and Wolf
- D. Mole and flying Phalanger

Answer: A

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263. In eukaryotic transcription, heteronuclear RNA (hnRNA) is transcribed by

- A. RNA polymerase I
- B. RNA polymerase II
- C. RNA polymerase III
- D. All of these

Answer: B

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264. Vertical distribution of different species occupying different levels is called

- A. Stratification
- B. Eutrophication
- C. Productivity
- D. Biodiversity

Answer: A

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265. Crossing over occurs between

- A. Two different genomes
- B. Homologous chromosome

C. Sister chromatid

D. Non homologous chromosome.

Answer: B



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266. Select the set of opioids.

A. Morphine and hashish

B. Codeine and charas

C. Heroin and marijuana

D. Morphine and heroin.

Answer: D



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267. Blood and bone marrow tests are mainly done for analysis of

- A. Leukemia
- B. Gastric carcinoma
- C. Skin carcinoma
- D. Brain tumour

Answer: A



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268. When both alleles of a pair are fully expressed in heterozygotes, they are called

- A. Lethals
- B. Codominants
- C. Incomplete dominants
- D. Recessive allele.

Answer: B



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269. The method of breeding, in which superior males of one breed are mated with superior females of another breed is called

- A. Inbreeding
- B. Inter-specific hybridization
- C. Outcrossing
- D. Cross Breeding

Answer: D



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270. Which layer of uterus exhibits strong contraction during parturition?

- A. Perimetrium
- B. Myometrium
- C. Endometrium
- D. Mesovarium.

Answer: B

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271. Androecium and gynoecium are _____ of a flower.

- A. Essential whorls
- B. Accessory whorls
- C. Non-essential whorls
- D. All of these

Answer: A

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272. Given below are four methods and their mode of action in achieving contraception. Find the incorrect match.

- A. Cervical caps-Prevent sperms reaching cervix
- B. Periodic abstinence-Natural method that avoids chances of ovum and sperms meeting.
- C. Cu375-Suppress sperm motility and fertilising capacity of sperms.
- D. Saheli-Prevent ovulation

Answer: D

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273. Snakes and lizards shed their scales as skin cast it is

- A. Dermis
- B. Epidermis

C. Carnified cells

D. none of these

Answer: C



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274. Hyposecretion of steroid hormones from adrenal glands leads to

A. Addison's disease

B. Cushing's disease

C. Dwarfism

D. None of the above

Answer: A



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275. Which one of the following pairs of food components in human reaches the stomach totally undigested

- A. protein and starch
- B. Starch and fat
- C. Fat and cellulose
- D. Starch and cellulose

Answer: C



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276. E. coli with completely N^{15} DNA was allowed to replicate in N^{14} medium for two generations. Percentage of bacteria with heavy DNA will be

- A. 6.25 %
- B. 50 %

C. 25 %

D. 100 %

Answer: B



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277. The three levels of biodiversity are

A. Genetic diversity, species diversity and ecological diversity

B. Species diversity, ecological diversity and habitat diversity

C. Geographical diversity, genetic diversity and habitat diversity

D. Ecological diversity , species diversity and community diversity

Answer: A



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278. The asexual spores are generally not found in

- A. Basidiomycetes
- B. Ascomycetes
- C. Deuteromycetes
- D. Zoomycetes

Answer: A



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279. In ECG the repolarization of ventricles is indicated by

- A. P wave
- B. QRS complex
- C. S wave
- D. T wave

Answer: D



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280. The cells of the embryo sac in the chalazal end are called as

- A. Antipoda cells
- B. Synergids
- C. Egg and synergids
- D. Antipodals and synergids

Answer: A



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281. Species with small world populations that are not endangered or vulnerable at present, but are at the risk are called

A. Critically endangered

B. Lower risk

C. Rare

D. Extinct

Answer: C



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282. Emulasification of fat is carried out by

A. Pancreatic juice

B. HCl

C. Bile

D. Mucus of intestine

Answer: C



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283. In plants meiosis occurs in

- A. Anther
- B. Root tip
- C. Cambium
- D. Pollen grain

Answer: A



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284. Guard cells help in

- A. Transpiration
- B. Guttation
- C. Increasing temperature of leaf

D. Decreasing gaseous exchange

Answer: A



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285. Which of the following organisms possesses characteristics of both a plant and an animal?

A. Mycoplasma

B. Paramecium

C. Bacteria

D. Euglena

Answer: D



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286. Microscopic study of tissues is known as

- A. Histology
- B. Microbiology
- C. Cytology
- D. Pathology

Answer: A



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287. Darwin's Finches are an excellent example of

- A. Adaptive radiation
- B. Seasonal migration
- C. Brood parasitism
- D. Connecting links

Answer: A



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288. In Mongolism, each cell has how many chromosomes

- A. 21st pair having one less
- B. 23rd pair with one less
- C. 45
- D. 47

Answer: D



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289. Sticky pollen grains with large and attractive coloured flowers in characteristic of flower showing

A. Anemophily

B. Entomophily

C. Hydrophily

D. Malacophily

Answer: B



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290. Crossing over in diploid organism is responsible for

A. Segregation of alleles

B. Dominance of genes

C. Linkage between genes

D. Recombination of genes

Answer: D



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291. The posterior lobe of the pituitary is called

- A. Glandularhypophysis
- B. Neurohypophysis
- C. Adenohypophysis
- D. Vascularhypophysis

Answer: B



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292. Purified antibiotic penicillin of *Penicillium notatum* was obtained by

- A. Alexander Fleming
- B. Howard Florey
- C. Ernest Chain

D. Carolus Linnaeus

Answer: A



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293. The Pneumococcus experiment of Griffith proves that

- A. DNA is the transforming principle
- B. Bacteria undergo binary fission
- C. Bacteria do not reproduce sexually
- D. RNA sometimes controls the production of DNA and proteins

Answer: A



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294. The reason for the exit of nerve cells from the cell cycle once after forming is :

- A. Absence of nucleus
- B. Absence of mitochondria
- C. Absence of centrosome
- D. Absence of Golgi body

Answer: C



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295. Which of the following statement is / are correct with respect to remedy for plastic waste?

- a. Polyblend is a fine mixture of recycled modified plastic.
- b. It is a zero-waste procedure
- c. It was due to the collaboration of town people of Arcata and biologists of Humboldt State University

d. A blend of polyblend and bitumen enhances bitumen's water - repellent properties and helps to increase road life

A. a and b

B. a and c

C. a and d

D. only a

Answer: C



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296. How many statements are correct ?

- a. Biomagnification is the natural ageing of a lake by nutrient enrichment of its water
- b. After CFC, methane is a major cause of greenhouse effect
- c. Ozone is a secondary pollutant in troposphere
- d. The thickness of the ozone is measured in Dobson unit

A. a,b

B. only d

C. c,d

D. a,b,d

Answer: C



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297. In mammals growing oocytes are surrounded by special nutritive cells called

A. Follicle cells

B. Nurse cells

C. Follicle cells and nurse cells

D. None of the above

Answer: A



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298. The habit of a cabbage or acaulescent plant can be changed drastically by the application of

A. IAA

B. GA_3

C. ABA

D. Zeatin

Answer: B



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299. The number of occipital condyles in man is/are

A. one

B. Two

C. Three

D. Four

Answer: B



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300. Respiration is an

A. Endothermic process

B. Exothermic process

C. Anabolic process

D. Endergonic process

Answer: B



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301. Match the column with respect to organelles and their respective function.

	Column I		Column II
a.	Golgi apparatus	(i)	Helps in spindle formation
b.	Ribosomes bound to ER	(ii)	Synthesis and storage of fats
c.	Microtubules	(iii)	Secretory proteins
d.	Spherosomes	(iv)	Helps in pseudopodia formation
		(v)	Acrosome of sperms

A. a-i,b-ii,c-iv,d-v

B. a-v,b-iii,c-i,d-ii

C. a-v,b-iii,c-iv,d-ii

D. a-iv,b-iii,c-v,d-ii

Answer: B



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302. The type of chlorophyll present of Phaeophyceae is

- A. chlorophyll a and chlorophyll e
- B. chlorophyll a and chlorophyll c
- C. chlorophyll a and chlorophyll d
- D. chlorophyll a and chlorophyll b

Answer: B



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303. According to Hardy-Weinberg's principle, if allele one is denoted as 'A' and allele two as 'a' and their frequencies are denoted by p and q, and if random mating occurs. The frequency of heterozygous individual would be :

- A. $2pq$
- B. q^2

C. pq

D. p^2

Answer: A



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304. Enzymes having slightly different molecular structure but performing identical activity are called

A. Isoenzymes

B. Holoenzymes

C. Apoenzymes

D. Coenzymes

Answer: A



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305. Extrusion of second polar body from egg nucleus occurs

- A. After the entry of sperm, before the completion of fertilization
- B. After the completion of fertilization
- C. Before the entry of sperm
- D. Has no relation to sperm entry.

Answer: A



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306. Culturing of shoot apex as explant on nutrient medium in tissue culture gives to disease-free plants because :

- A. Such an explant contains secondary metabolites
- B. It contains toxins that prevent growth of other organism
- C. Such explant is pathogen free
- D. Sterilization kills all pathogens

Answer: C



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307. Which of the following structure will not be common to mitotic cell of a higher plant

- A. Cell plate
- B. Centriole
- C. Centromere
- D. Spindle fibres

Answer: B



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308. Multiple alleles control the inheritance of

- A. Phenylketonuria
- B. Colour blindness
- C. Sickle cell anaemia
- D. Blood groups

Answer: D

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309. If the birth rate is 100, the death rate is 10 and the number of individuals in a population group is 1000, then what will be the intrinsic rate of natural increase of the population ?

- A. 900
- B. 90
- C. 1090
- D. 890

Answer: B



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310. To study any kind of genetic abnormality arising due to change in chromosome number, the karyotype is prepared. Which of the following stages is most suitable to develop a karyotype ?

A. Metaphase

B. Telophase

C. Anaphase

D. Prophase

Answer: A



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311. Genetically engineered bacteria have been used in the commercial production of

- A. Human insulin
- B. Testosterone
- C. Thyroxine
- D. Melatonin

Answer: A



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312. At the neuromuscular junction :

- A. The muscle membrane possesses muscularia receptors
- B. The motor nerve endings secrete norepinephrine
- C. Curare leads to prolongation of neuromuscular transmission
- D. The motor nerve endings secrete acetylcholine

Answer: D



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313. Which one of the following is associated with excretion in amoeba ?

- A. Endoplasm
- B. Mitochondria
- C. Contractile vacuole
- D. Plasma membrane

Answer: C



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314. Peripatus is known as a connecting link, because it has the characters of both

- A. Aves and Fishes
- B. Reptiles and Birds
- C. Fishes and Amphibians
- D. Arthropods and Annelids

Answer: D

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315. Caffeine, amphetamine and concaine are

- A. Nerve depressants
- B. Nerve initiators
- C. Nerve stimulants
- D. Nerve impulse initiators

Answer: C

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316. Name of Schleiden and Schwann are associated with

- A. Protoplasm as the physical basis of life
- B. Cell theory
- C. Theory of cell lineage
- D. Nucleus functions as control centre of cell

Answer: B



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317. If the gene of interest is inserted at the BamHI site in pBR322, the recombinant plasmid will

- A. Show ampicillin & tetracycline resistance only
- B. Show tetracycline resistance
- C. Will grow well on tetracycline containing medium

D. Will not grow on tetracycline containing medium

Answer: D



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318. In lichens, sexual reproduction is usually performed by

A. Fungal partner only

B. Algal partner only

C. Fungal and algal partners (both)

D. Either fungal partner or algal partner (not both)

Answer: A



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319. What does the filiform apparatus do at the entrance of the ovule ?

- A. It brings about opening of the pollen tube.
- B. It helps in the entry of pollen tube into a synergid.
- C. It prevents entry of more than one pollen tube into the embryo sac.
- D. It guides pollen tube from a synergid to egg.

Answer: B

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320. Which of the following set of bacteria are found to be very useful in genetic engineering experiments ?

- A. Nitrosomonas and Klebsiella
- B. Rhizobium and Diplococcus
- C. Nitrobacter and Azotobacter
- D. Escherichia and Agrobacterium

Answer: D

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321. Which one of the following traits of garden pea is a recessive feature ?

- A. Round seed shape
- B. Axial flower position
- C. Green seed colour
- D. Green pod colour

Answer: C

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322. Which one of the following processes is not involved in beer production ?

- A. Melting

B. Mashing

C. Fermentation

D. Distillation

Answer: D



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323. Hydrolysis of nucleic acid yields

A. Only sugar

B. Phosphoric acid only

C. Nitrogenous base only

D. Nitrogenous base, sugar and phosphate

Answer: D



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324. Read the following statements :

- i. presence of DNA.
- ii. Presence of cristae.
- iii. Presence of the 70S ribosome.
- iv. Enzyme for carbohydrate synthesis.
- v. Site for oxidative phosphorylation.

How many of the above statements are in common for mitochondria and chloroplast ?

- A. Two
- B. Five
- C. Four
- D. Three

Answer: A



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325. Which of the following statements is correct with respect to Blackman's law of limiting factor ?

- A. Only one factor can be limited in photosynthesis
- B. Photosynthesis consists of a light and dark reaction
- C. The trapping of light by chloroplast is temperature dependent
- D. The trapping of light by chloroplast can occur only if CO_2 is present

Answer: B



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326. ADH is synthesised by _____, released by _____ and acts on _____.

- A. Hypothalamus, neurohypophysis, PCT
- B. Hypothalamus, neurohypophysis, DCT and collecting duct

C. Hypothalamus, adeonohypophysis, PCT

D. Hypothalamus, adenohipophysis, loop of Henly

Answer: B



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327. Stirred-tank bioreactors have been designed for

A. Addition of preservatives to the product

B. Purification of the product

C. ensuring anaerobic condition in the culture vessel

D. Availability of oxygen throughout the process

Answer: D



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328. The enzyme nitrogenase is

- A. A Cu-Fe protein
- B. Found in prokaryotes only
- C. An O_2 requiring enzyme
- D. Essential to convert NH_3 to N_2

Answer: B



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329. Which of the following statements is correct for the 'nodes of Ranvier' in nerves ?

- A. Neurilemma is discontinuous
- B. Myelin sheath is discontinuous
- C. Both neurilemma and myelin sheath are discontinuous
- D. Covered by myelin sheath

Answer: B



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330. The plant group that produces spores and embryo but lacks vascular tissues and seeds is

- A. Pteridophyta
- B. Rhodophyta
- C. Bryophyta
- D. Phaeophyta

Answer: C



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331. There are two plants A and B with respective critical photoperiod of 13 hours and 11 hours. When they are exposed to light for a period of 12

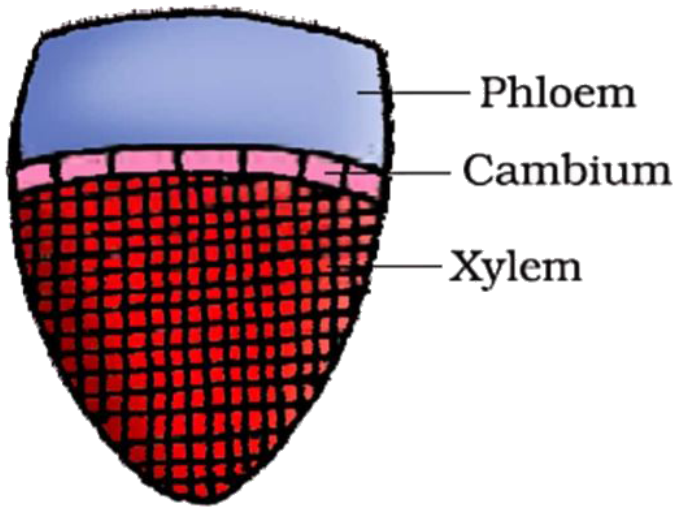
hour, it initiated flowering in both. Which of the following conclusions is most appropriate for these plants ?

- A. Both plant A and B are long day plants
- B. Both plant A and B are short day plants
- C. Plant A is short day plant and plant B is long day plant
- D. Plant A is long day plant and plant B is short day plant

Answer: C



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332.

In which of the following, this kind of vascular bundle can be seen ?

- A. Dicot stem
- B. Monocot stem
- C. Dicot leaf
- D. Monocot leaf

Answer: A



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333. Liberation of oxygen when green cells in water are exposed to sunlight in presence of suitable acceptor is

- A. Arnon's reaction
- B. Emerson's enhance effect
- C. Blackman's reaction
- D. Hill's reaction

Answer: D



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334. HIV causes reduction in

or

HIV virus affects..... In AIDS patient

- A. T-helper cells only
- B. All T-cells

C. B-cells only

D. Both B and T -cells

Answer: A



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335. Verxillary aestivation is seen in

A. China rose

B. Bean

C. Gulmohur

D. Cotton

Answer: B



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336. Cyanophycean granules and glycogen granules are examples of

A. Mircorbodies

B. Inclusion bodies

C. SER

D. Lysosomes

Answer: B



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337. Which of the following is incorrect about Klinefelter's syndrome ?

A. A chromosomal disorder

B. Karyotype of $44 + XXY$

C. Gynaecomastia

D. Fertile males

Answer: D



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338. During transcription, DNA site at which RNA polymerase binds is called

- A. Terminator
- B. Promoter
- C. Regulator
- D. Operator

Answer: B



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339. Residual volume is

- A. Lesser than tidal volume
- B. Greater than inspiratory volume
- C. Greater than vital capacity
- D. Greater than tidal volume

Answer: D

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340. Practical significance of taxonomy is

- A. To classify the organism
- B. To understand diversity
- C. To understand evolution
- D. Identification of organisms

Answer: D

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341. Coenocytic mycelium is formed in

- A. Ustilago
- B. Saccharomyces
- C. Rhizopus
- D. Alternaria

Answer: C



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342. Adaptations to plants against dry environmental conditions is / are

- A. Stomata arranged in deep pits
- B. Stomata remain open during day time
- C. CAM pathway

D. More than one option is correct

Answer: D



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343. The meristem which occurs in grasses and regenerates parts removed by the grazing herbivores is

- A. Apical meristem
- B. Intercalary meristem
- C. Secondary meristem
- D. Cambium

Answer: B



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344. Which of following are the steps of genetic engineering ?

- A. Isolation of DNA
- B. Fragmentation of DNA by restriction endonuclease.
- C. Isolation of the desired DNA fragments.
- D. All of these

Answer: D



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345. In man the axial skeleton is made up of

- A. 80 bones
- B. 100 bones
- C. 103 bones
- D. 106 bones

Answer: A



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346. Which of the following statement is correct regarding liverworts ?

- A. The thallus is dorsiventral and closely appressed to the substrate
- B. They are monoecious as well as dioecious
- C. Asexual reproduction by frgements or gemma cups.
- D. More than one option is correct

Answer: D



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347. What is true about ecosystem ?

- A. Primary consumers are least dependent upon producers

- B. Primary consumers out-number producers
- C. Producers are more than primary consumers
- D. Secondary consumers are the largest and most powerful

Answer: C

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348. Phyllode is present in :-

- A. Asparagus
- B. Euphorbia
- C. Australian Acacia
- D. Opuntia

Answer: C

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349. The rupture of the Graafian follicle and the release of ovum occurs under the influence of

- A. LH
- B. FSH
- C. MSH
- D. GH

Answer: A



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350. A lake with an inflow of domestic sewage rich in organic waste may result in

- A. drying of the lake very soon due to algal bloom
- B. an increased production of fish due to lot of nutrients
- C. death of fish due to lack of oxygen

D. increased complexity of the aquatic food web

Answer: C



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351. How many bacteria are produced in four hours if a bacterium divides once in half an hour ?

A. 8

B. 64

C. 16

D. 256

Answer: D



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352. Underground parts of some plants spread to new niches and when older parts die new plants are formed. This condition is seen in

- A. Banana and pineapple
- B. Jasmine and mint
- C. Grass and strawberry
- D. Chrysanthemum and Pistia

Answer: C



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353. Contraction of diaphragm during inhalation

- A. It decreases the volume of the thoracic chamber in the anteroposterior axis
- B. It increases the volume of the thoracic chamber in the dorso-ventral axis

C. It increases the volume of the thoracic chamber in the anteroposterior axis.

D. It decreases the volume of the thoracic chamber in the dorso-ventral axis.

Answer: C

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354. Which of the following is a pair of bacterial diseases ?

A. Typhoid and Pneumonia

B. Malaria and AIDS

C. Ringworm and AIDS

D. Common cold and Malaria

Answer: A

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355. Which of the statements supports that a flower is a highly condensed and modified part of the plant body?

A. Anatomically, the pedicel and thalamus of a flower resembles that of a flower.

B. Except for the lower internode, other internodes are condensed forming a broad base called thalamus.

C. The flower may develop in the axis of a small leaf-like structure called bract.

D. All of the above

Answer: C



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356. In a medico legal case of accidental interchange between two babies in a hospital, the baby of the blood group 'A' could not be rightly given to a couple with:

- A. Husband of O group and wife of AB group
- B. Husband of A group and wife of O group
- C. Husband of B group and wife of O group
- D. Husband of AB group and wife of A group

Answer: C



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357. How many microspore mother cells will give rise to 256 microspores after reduction division ?

- A. 512
- B. 128

C. 64

D. 96

Answer: C



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358. Which of the following statement is incorrect w.r.t. class cyclostomata?

- A. All the members are ectoparasites on some fishes
- B. Their body is devoid of scales and paired fins
- C. Circulation is of opentype
- D. They are marine but migrate for spawning to fresh water

Answer: C



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359. A type of granulocyte and agranulocyte

- (i) are phagocytic cells that destroy foreign organisms entering the body.
- (ii) secrete histamine, serotonin, heparin, etc., and are involved in inflammatory reactions.
- (iii) resist infections and are also associated with allergic reactions.
- (iv) are responsible for the immune responses of the body.

A.

<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>
Monocytes	Neutrophils	Basophils	Eosinophils

B. (*i, ii, iii, iv*), (Neutrophils, Basophils, Eosinophils, Monocytes)

C.

<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>
Neutrophils	Monocytes	Eosinophils	Basophils

D.

<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>
Monocytes	Neutrophils	Eosinophils	Basophils

Answer: B



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360. Which of the following statement about human population is correct

?

- A. The world population was around 7.2 billion by 2000
- B. India's population reached close to 1.2 billion by 2000
- C. India' populatioin was approximately 350 million at the time of independence
- D. According to the 2011 census report, the population growth rate was more than 2 percent.

Answer: C



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361. Asexual reproduction in sponges occurs by

- A. Parthenogenesis
- B. Budding
- C. Fragmentation
- D. Spores

Answer: C



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362. The development of male gametophyte in angiosperms is

- A. Partly in-situ in anther and partly ex-situ on stigma.
- B. Fully in-situ in anther
- C. Fully Ex-situ on stigma
- D. In-vitro only

Answer: A



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363. Which of the following is the correct description of follicular phase of menstrual cycle?

- A. Primary follicles in the ovary grow to become a fully mature Graafian follicle and simultaneously endometrium of uterus regenerates through proliferation.
- B. The corpus luteum secretes large amounts of progesterone which is essential for maintenance of the endometrium
- C. Both LH and FSH attain a peak level about 10th day leading to rupture of Graafian follicle.
- D. These changes in the ovary and the uterus are induced by changes in the levels of adrenal gland.

Answer: A



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364. A total of 512 seeds are collected from the cross between $AaBb \times AaBb$. Find the number of plants produced with the genotype $Aabb$ and $Aabb$.

A. 35

B. 350

C. 96

D. 285

Answer: C



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365. Modern Homo sapiens arose during ice age between

A. 15,000 - 5000 years ago

B. 5 million years ago

C. 15 million years ago

D. 75,000 - 10,000 years ago

Answer: D



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366. A. The conditions primitive on earth (before the origin of life) were :
low temperature, volcanic storms, reducing atmosphere containing
 Ch_4 , NH_3 , etc.

B. Cheetah and humans share similarities in the pattern of bones of forelimbs.

C. In a collection of moths made in the 1850s i.e., before industrialization set in, it was observed that there were more dark-winged moths on trees than white-winged moths.

D. Branching descent and natural selection are the two key concepts of Darwinian theory of evolution.

E. The Neanderthal man with a brain size of 1400 cc lived in east and central Asia 25,000-10,000 years ago.

Which set of given statements are correct ?

A. A , B, E

B. B,D

C. A,C,E

D. B,C,D

Answer: B



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367. Select the incorrect information given regarding ascariasis.

A. Common name of causative agent: Round worm

B. Organ in which adult pathogen is found-Colon

C. Symptoms: Internal bleeding, muscular pain, fever anemia and blockage of the intestinal passage.

D. Mode of infection: Contaminated soil, water and plants.

Answer: B



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368. Fishery is an industry devoted to the catching, processing or selling of fish, shellfish or other aquatic animals. Some of the very common freshwater fishes include

- A. Catla, rohu and common carp
- B. Hilsa, common carp and pomfrets
- C. Catla, rohu and sardine
- D. Hilsa, sardines , mackerel and pomfrets

Answer: A



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369. In biolistic method of gene transfer, the microparticles coated with foreign DNA are bombarded into target cells at a very high velocity. These microparticles are made up of

- A. silver or tungsten

B. Arsenic or silver

C. Gold or tungsten

D. None of these

Answer: C



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370. The number of death and birth in the last stage of sigmoid growth curve of a population will be

A. Similar to lag phase

B. Unequal with more deaths

C. Unequal with less deaths

D. Equal

Answer: D



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371. Which of the following is correct regarding the ecosystem?

- A. There is cyclic exchange of materials between living beings and environment.
- B. The flow of energy is unidirectional
- C. It is a self-regulating unit
- D. All of these

Answer: D



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372. Select the incorrect match from the following:

- A. *Musca domestica* : Diptera (Order)
- B. *Mangifera indica*: Anacardiaceae (Family)
- C. *Solanum melogena*: Polymoniales (Order)

D. Panthera tigris-Canidae(Family)

Answer: D



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373. Which one of the following statements about viruses is correct?

- A. Viruses possess their own metabolic system
- B. Viruses contain either DNA or RNA
- C. Viruses are facultative parasites
- D. Viruses are readily killed by antibodies

Answer: B



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374. Excretory system is absent in

A. Echinodermata

B. Mollusca

C. Annelids

D. Arthropods

Answer: A



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375. In the given table, each phylum is paired with a set of characters. Select the option with an incorrect set of information about the given phyla of animals.

I. Echinodermata	P - Radula for feeding; Q - Water vascular system
II. Aschelminthes	R - Complete alimentary canal with muscular pharynx; S - Internal fertilization
III. Ctenophora	T - Internal fertilization; U - Sexual reproduction only

A. R,S,T

B. P,T

C. P,S,T

D. P,Q,U

Answer: B



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376. In cymose inflorescence

A. Main axis terminates in a flower

B. Main axis is of indefinite growth

C. Flower are borne in basipetal order

D. Both [a] and [c]

Answer: D



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377. As a tree grows very old, which of the following increases more rapidly in thickness?

- A. Cortex
- B. Heartwood
- C. Phloem
- D. Pericycle

Answer: B



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378. The transverse section of a plant material shows the following anatomical features, (a) the vascular bundles are conjoint, scattered and surrounded by clerenchymatous undule sheaths (b) phloem parenchyma is absent. What will you identify it as?

A. Dicot stem

B. Monocot stem

C. Dicot root

D. Monocot root

Answer: B



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379. *Periplaneta americana* is a very common species of cockroach. It is

A. Ureotelic

B. Uricotelic

C. Ammonotelic

D. Guanotelic

Answer: B



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380. Read the following statements.

A. Cartilage is present in between atlas and axis.

B. In epithelium, cells are compactly arranged with the little intercellular matrix.

C. The simple epithemlium consists of a two or more layer of cells.

How many of the above statement are incorrect ?

A. None

B. One

C. Two

D. All

Answer: C



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381. Which of the following cell organelles are involved in the manufacturing of various substances?

A. Lysosome, Vacuole, Ribosome

B. Ribosomes, RER, SER

C. Vacuole, RER, SER

D. SER, Ribosome, Centriole

Answer: B



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382. Select the incorrect statement.

A. Lipid are insoluble in water

B. Glycerol is trihydroxy propane

C. Lecithin is a glycoprotein

D. Adenosine is a nucleoside

Answer: C

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383. The X-shaped structures formed during the largest stage of meiosis-I are called

- A. Bivalent
- B. Chiasmata
- C. Cross-overs
- D. More than one option is correct

Answer: B

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384. Transpiration has more than one purpose. Which of the following is not the purpose of transpiration?

- A. Creates transpiration pull for absorption and transport in plants.
- B. Cools leaf surfaces by evaporative cooling
- C. Transports minerals from the soil to all parts of the plant.
- D. Gives high tensile strength to water column present in xylem.

Answer: D

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385. Manganese toxicity causes:

- A. Reduces uptake of magnesium and iron
- B. Inhibit translocation of Ca^{2+}
- C. Yellow spots surrounding chlorotic veins
- D. Both (a) and (b)

Answer: D

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386. Effectiveness of different wavelength of light on photosynthesis is measured by

- A. Quantum yield
- B. Quantum requirement
- C. Absorption spectrum
- D. Fluorescence

Answer: C



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387. Number of oxygen atoms required for oxidation of $2NADH_2$ molecules in ETS is

- A. 1
- B. 2

C. 3

D. 4

Answer: B



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388. Arithmetic growth curve is represented by which of the following equation?

A. $w_t = w_0 e^{rt}$

B. $L_0 = L_t + rt$

C. $L_t = L_0 + rt$

D. $2L_t = L_0 - rt$

Answer: C



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389. Which of the following disease is the result of the reflex action of medulla oblongata?

- A. Indigestion
- B. Vomiting
- C. Constipation
- D. Diarrhoea

Answer: B



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390. Which of the following is most suitable description for trachea?

- A. Straight tube, extending upto the mid-thoracic cavity and divides at the level of 5th thoracic vertebra.
- B. Straight tube, extending upto the mid-thoracic cavity and divides at the level of 3rd thoracic vertebra.

C. Straight tube, extending upto the neck and divides at the level of

5th cervical vertebra

D. Curved tube, extending upto the mid-thoracic cavity and divides at

the level of 5th thoracic vertebra.

Answer: A



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391. In which disease does a symptom of acute chest pain appear due to enough oxygen not reaching the muscle ?

A. Angina pectoris

B. Atherosclerosis

C. Arteriosclerosis

D. Hypertension

Answer: A

392. Read the following statements about the excretory system in humans:

I. A fall in GFR can activate the JG cells to release renin.

II. ADH can also affect the kidney function by its constrictory effects on blood vessels.

III. The proximity between the Henle's loop and vasa recta, as well as the counter-current in them help in maintaining an increasing osmolarity towards the outer medullary interstitium.

IV Our lungs remove large amounts of CO_2 (108 litres/day).

V. Renal calculi are the stone or insoluble mass of crystallised salts like oxalates within the kidney.

How many of these are correct?

A. None

B. One

C. Two

D. Three

Answer: C



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393. Which of the following organs is not a part of the limbic system?

A. Amygdala

B. Hippocampus

C. Inner pars of cerebral hemispheres

D. Cerebellum

Answer: D



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394. Which of the following is not the function of parathormone (PTH)?

- A. Increases calcium level in blood
- B. Decreases the reabsorption of calcium from the renal tubules
- C. increases the calcium absorption from GIT
- D. Decreases the movement of calcium to bones.

Answer: B

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395. Which of the following sets of elements delays flowering if their concentration in plants is low?

- A. N, K, Mg , S
- B. N , S, P
- C. Ca, Mg , Cu
- D. N, S, Mo

Answer: D

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396. The part of large intestine which appears as a blind sac and harbours some microorganisms is called :

- A. Caecum
- B. Vermiform appendix
- C. Colon
- D. Rectum

Answer: A

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397. Match the columns with their respective matches.

	Column I		Column II
P.	Inspiratory Capacity	I.	ERV + RV
Q.	Expiratory Capacity	II.	TV + ERV
R.	Functional Residual Capacity	III.	ERV + TV + IRV
S.	Vital Capacity	IV.	TV + IRV

A. P-III, Q-II, R-IV, S-I

B. P-IV, Q-I, R-III, S-II

C. P-III, Q-IV, R-I, S-II

D. P-IV, Q-II, R-I, S-III

Answer: D



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398. Citrus canker is a

A. Bacterial disease

B. Fungal disease

C. Viral disease

D. Prion disease

Answer: A



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399. Which of the following is correct about non-living objects?

A. Doesn't grow

B. Show intrinsic growth

C. Show extrinsic growth

D. Show both extrinsic and intrinsic growth

Answer: C



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400. Respiratory organs like gills, book gills, book lungs or tracheal system are found in phylum

- A. Arthropoda
- B. Aschelminthes
- C. Mollusca
- D. Chordata

Answer: A



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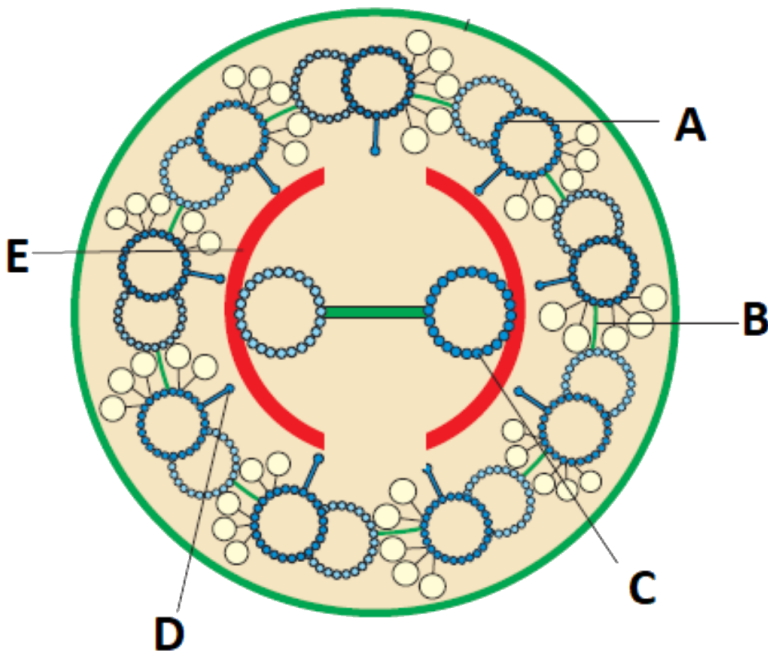
401. Nissl's granules are located in

- A. Cyton and Dendrites
- B. Dendrites and Axon
- C. Axon and Cyton
- D. Axon and Axon terminal

Answer: A

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402. Identify parts labeled A - E in the given figure.



A.

A

B

C

Peripheral microtubules

Interdoublet bridge

Central microtubule

B.

<i>A</i>	<i>B</i>	<i>C</i>
Peripheral microtubules	Intertriplet bridge	Central microtubule

C.

<i>A</i>	<i>B</i>	<i>C</i>
Peripheral microtubules	Interdoublet bridge	Central microtubule

D.

<i>A</i>	<i>B</i>	<i>C</i>
Peripheral microtubules	Intertriplet bridge	Central macrotubule

Answer: C



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403. Water constitutes _____% of the total cellular mass.

A. 10

B. 30

C. 50

D. 90

Answer: D



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404. In mitosis, the centromeres split and chromatids separate during :

A. Metaphase

B. Anaphase

C. Prophase

D. Telophase

Answer: B



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405. A particular mineral element P activates various enzymes, especially nitrate reductase, Identify P.

A. Cu

B. Mo

C. Mg

D. Mn

Answer: B



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406. The serum has all of the following except

A. Ions

B. Glucose

C. Clotting factors

D. Amino acids

Answer: C



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407. Which of the following is not a part of renal tubules?

- A. Glomerulus
- B. PCT
- C. DCT
- D. Loop of Henle

Answer: A



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408. Photosynthesis is a

- A. Physico-chemical process
- B. Physical process
- C. Chemical process

D. Catabolic process

Answer: A



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409. In males, FSH stimulates

- A. Sertoli cells
- B. Spermatogonia
- C. Interstitial cells
- D. cells of ejaculatory duct

Answer: A



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410. Milk yield is primarily dependent on

A. Quality of breed

B. Absence of disease

C. Quantity of roughage given to animal

D. Quantity of concentrate given to animal

Answer: A



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411. The number of chloroplast in chlamydomonas is _ _ _ _ _ and in a mesophyll cell, it ranges between _ _ _ _ _.

A. 1, 2 - 4

B. 2, 20 - 40

C. 20 - 40, 1

D. 1, 20 - 40

Answer: D

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412. Different cells have different sizes. Arrange the following cells in an ascending of their size and select the correct option.

(i) Mycoplasma (ii) Ostrich egg

(iii) Human RBCs (iv) Bacteria

A. (i) \rightarrow (iv) \rightarrow (iii) \rightarrow (ii)

B. (i) \rightarrow (iii) \rightarrow (iv) \rightarrow (ii)

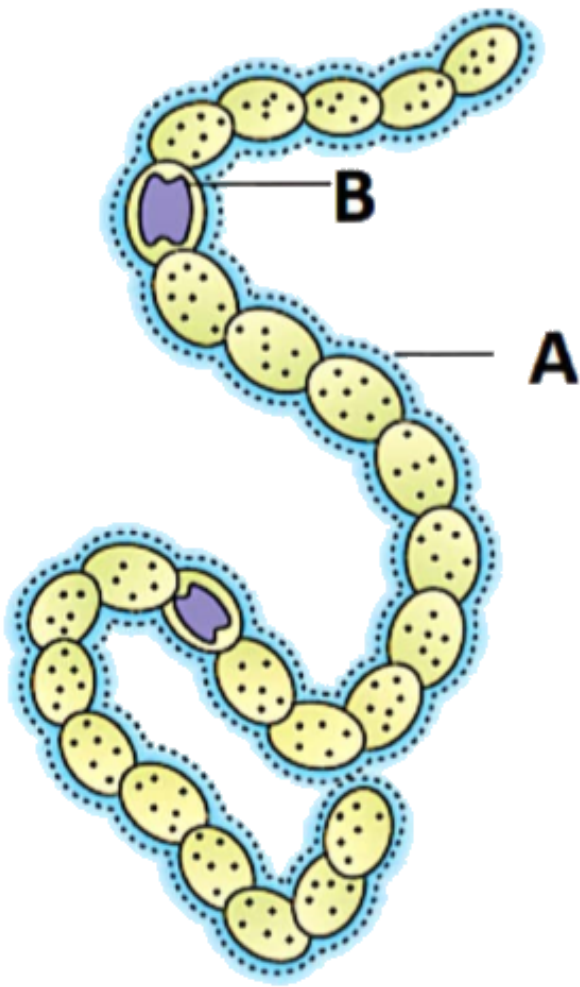
C. (ii) \rightarrow (i) \rightarrow (iii) \rightarrow (iv)

D. (iii) \rightarrow (ii) \rightarrow (i) \rightarrow (iv)

Answer: A

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413. Identify parts labeled *A* and *B* in the given diagram and select the correct option.



A. Anabaena-A: Heterocyst, B-Mucilagenous sheath

B. Nostoc - A: Hetercyst, B - Mucilagenous sheath

C. Azonspirillum - A: Mucilagenous sheath, B : - Heterocyst

D. Anabaena-A: Mucilagenous sheath, B : - Heterocyst

Answer: D



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414. Identify the correct option:

Biological Name	Family	Order	Class
Mangifera indica	<i>A</i>	<i>B</i>	<i>C</i>
Triticum aestivum	<i>D</i>	<i>E</i>	<i>F</i>

A. A-Anacardiaceae, B-Sapindales, C- Monocotyledonae, D-Poaceae, E-

Poales, F- Dicotyledonae

B. A-Anacardiaceae, B-Sapindales, C- Dicotyledonae, D-Poaceae, E-

Poales, F- Monocotyledonae

C. A-Poaceae, B-Sapindales, C- Dicotyledonae, D-Anacardiaceae, E-

Poales, F- Monocotyledonae

D. A-Anacardiaceae, B-Poales, C- Dicotyledonae, D-Poaceae, E-

Sapindales, F- Monocotyledonae

Answer: B



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415. Identify the incorrect pair.

- A. Trypanosoma - protozoan
- B. Plankton-Float passively
- C. Gonyaulax - Chitinous cell wall
- D. Slime moulds - Saprophytic protists

Answer: C



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416. Identify the mismatch among the following.

- A. Reptiles - Cleidoic eggs
- B. Amphibians- Epidermal scales
- C. Mammals - Corpus callosum

D. Aves - Pneumatic bones

Answer: B



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417. What set of characters belongs to the same phylum?

- A. First true coelomates and nephridia as the excretory structures.
- B. Pseudocoelomates and flame cells as the excretory structures
- C. Acoelomates and metanephridia cells as the excretory structures
- D. Eucoelomates and flame cells as the excretory structures.

Answer: A



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418. How many of the following statements are not correct?

[I] In a flowering plant the substances that would need to be transported are water, mineral nutrients, organic nutrients and plant growth regulators.

[II] Over small distances, substances move by diffusion and by cytoplasmic streaming supplemented only by passive transport.

[III] Organic and mineral nutrients undergo multidirectional transport through the xylem.

[IV] From the storage organs, organic compounds are later re-exported.

[V] Phytohormones and other chemical signals are transported to maintain and regulate the plant functions.

A. Two

B. Three

C. Four

D. Five

Answer: A

419. Mark out the number of incorrect statement/s:

[I] Some essential elements can alter the osmotic potential of a cell.

[II] Nitrogen is required by the meristematic tissue and the metabolically active cells only.

[III] Mg^{2+} is needed by several respiratory enzymes.

[IV] Mo is essential for the water-splitting reaction in photosynthesis, a reaction that leads to oxygen evolution.

[V] Sulphur is the main constituent of several coenzymes, vitamins (thiamine, biotin, coenzyme-A) and ferredoxin.

A. Two

B. Three

C. Four

D. Five

Answer: A

420. Which of the following are the structural and functional units of liver?

- A. Hepatic peritoneum
- B. Hepatic lobules
- C. Ligamentum teres
- D. Falciform ligament

Answer: B



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421. The most notable diseases caused by prions are A_____ commonly called B_____ in cattle and its analogous variant C_____ in humans.

- A. A - Cr- Jacob disease, B - Mad cow disease, C - Bovine spongiform encephalopathy

B. A - Bovine spongiform encephalopathy, B - Mad cow diseases, C -

PSTV d

C. A - Bovine spongiform encephalopathy, B - Mad cow diseases, C - Cr-

Jacob disease

D. A - Cr- Jacob disease, B - Mad cow disease, C - PSTV d

Answer: C



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422. Select the incorrect statement.

A. Jawless fishes have 6-15 pairs of gill slits.

B. Reptiles have three-chambered heart except crocodile and cleidoic
eggs

C. Chordates have a solid dorsal nerve cord & notochord

D. Urochordata and Cephalochordata are often referred to as protochordates.

Answer: C

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423. Plants with edible roots include:

- A. Turnip, Banyan , Asparagus
- B. Radish , Carrot , Rhizophora
- C. Carrot, Turnip, Maize
- D. Carrot, Radish, Sweet potato

Answer: D

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424. Which of the following is not the feature of cardiac muscle?

- A. Communication junctions are intervertebral disc
- B. They show branching pattern
- C. Stimulation received by one cell is passed to neighbouring cells
- D. They are striated in nature

Answer: A



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425. Which of the following set represent the members of Solanaceae family?

- A. Belladonna, Ashwagandha, Petunia
- B. Datura, Indigofera, Tomato
- C. Brinjal, Chilli, Sunhemp
- D. Potato, Brinjal, Lupin

Answer: A



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426. Companion cells are present in the phloem of

- A. Pteriophytes
- B. Gymnosperms
- C. Angiosperms
- D. Both 1 and 2

Answer: C



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427. Vision in cockroach is

- A. Internal

- B. External, in the water
- C. external , in the cocoon
- D. Internal , in the cocoon

Answer: A



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428. Vessels differ from tracheids in having

- A. In being living
- B. Presence of perforation plates at both ends
- C. Eucleated condition
- D. All of the above

Answer: B



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429. During muscle contraction, what could be the correct sequence ?

- A. Release of calcium ions into the sarcoplasm.
- B. Release of Acetylcholine.
- C. Sliding of actin filaments over each other.
- D. Break down of ATP to form a cross bridge.

A. A-D-B-C

B. A-B-D-C

C. B-A-C-D

D. B-A-D-C

Answer: D



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430. Which of the following is correct about metaphase - I ?

- A. Bivalents are arranged at equator

- B. Univalents are arranged at equator
- C. Non-homologous chromosomes forms pair
- D. Spindle fibers are attached at chromomere

Answer: A



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431. Which of the following is correct about organism develop through parthenogenesis?

- A. They show a 50% similarity to father
- B. They show a 50% similarity to mother
- C. They show a 100% similarity to father
- D. They show a 100% similarity to mother

Answer: D



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432. Which of the following is an important function of cortisol ?

- A. Maintains cardio - vascular system as well as the kidney functions .
- B. Absorption of calcium from gut.
- C. Absorption of water in PCT
- D. Absorption of iron from gut

Answer: A



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433. Angiotensin-II will perform all the following except

- A. Vasoconstriction
- B. Hypernatremia
- C. Increasing GFR
- D. Excretion of Na^+ in urine

Answer: D



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434. The human placenta does not secrete which of the following hormone?

- A. Human chorionic gonadotropin (hCG)
- B. Human placental lactogen (hPL)
- C. Androgens
- D. Progestogens

Answer: C



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435. Inner layer of male gametophyte in Angiosperm is mainly composed of

- A. Polymer of amino acids
- B. Polymer of nucleotide
- C. Polymer of lipid
- D. Polymer of carbohydrate

Answer: D

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436. During embryonic development of human, limbs, and digits are formed during

- A. First month of pregnancy
- B. Second month of pregnancy
- C. Third month of pregnancy
- D. Seventh month of pregnancy

Answer: B

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437. Barr body is absent in

- A. Klinefelter's syndrome
- B. Turner's syndrome
- C. Normal female
- D. Down syndrome in female

Answer: B

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438. The frequency of crossing over between any two linked genes is

- A. Higher if they are recessive
- B. Determined by their relative dominance
- C. The same as if they were not linked

D. Directly proportional to the distance between them

Answer: D



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439. Saheli' is a contraceptive drug. Select the incorrect statement about it

A. Oral drug

B. Non-steroidal

C. Once a month pill

D. High contraceptive value

Answer: C



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440. Experimental proof of theory of chemical evolution of life was given by

- A. Hershey and Chase
- B. Oparin and Haldane
- C. Urey and Miller
- D. Alfred Wallace

Answer: C



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441. Biotic potential refers to

- A. Increase of population under optimum conditions
- B. Increase of population under given conditions
- C. Increase of population under natural conditions
- D. Increase of population under climatic conditions

Answer: A



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442. Which of the following factors may result in introduction of new variations ?

- A. Gene mutation
- B. Genetic recombination
- C. Stabilizing natural selection
- D. Immigration of individuals

Answer: A



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443. Identify the correct sequence of stages in the evolution of modern humans.

I. Neanderthal man

II. Cro-Magnon man

III. Australopithecines

IV. Homo habilis

V. Homo erectus

VI Modern human

A. IV, III, V, II, I, VI

B. III,V,IV,II,I,VI

C. III,IV,V,I,II,VI

D. III,IV,V,II,I,VI

Answer: C



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444. The female mosquito is the vector for which of the following diseases?

- A. Typhoid and Polio
- B. Plague and Rabies
- C. Common cold and Ringworm
- D. Filariasis and Malaria

Answer: D

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445. Which of the following statement is not correct?

- A. Ecosystem is an open system
- B. Ecosystem is self-sustaining and dynamic structure
- C. Sun is the ultimate source of energy for any ecosystem
- D. In an artificial ecosystem flow of energy is not unidirectional

Answer: D

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446. Which of the following is not true about succession?

- A. It is a natural process of change in species structure and community with time
- B. It is a gradual and predictable change
- C. Progressive increase in the amount of living biomass as succession proceeds
- D. Food chain relationship becomes less complex as succession proceeds

Answer: D



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447. Which of the following is an autoimmune disease?

A. Muscular dystrophy

B. Gout

C. Myasthenia gravis

D. Osteoporosis

Answer: C



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448. How many of the given statements are not incorrect?

I. The plasmid is autonomously replicating circular extra-chromosomal DNA.

II. Ligase enzyme belongs to a larger class of enzymes called nucleases.

III. DNA fragments are negatively-charged molecules.

IV. E.coli always has genes encoding resistance to antibiotics such as ampicillin and chloramphenicol.

A. One

B. Two

C. Three

D. Four

Answer: B



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449. Mark the incorrect pair

A. Bt cotton - Genes from Agrobacterium

B. SCID - ADA defucuebcy

C. Rosie - a lactalbumin

D. Ely-lily-Humulin

Answer: A



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450. Match the column-I with column-II.

	Column-I		Column-II
A	Wheat	I	Pusa Shubhra
B	Cauliflower	II	Pusa Gaurav
C	<i>Brassica</i>	III	Pusa Komal
D	Chilli	IV	Sonalika
		V	Pusa Sadabahar

A. A-IV, B-I, C-II, D-III

B. A-IV, B-III, C-II, D-V

C. A-IV, B-I, C-II, D-V

D. A-III, B-I, C-II, D-IV

Answer: C



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451. Natural parthenogenesis occurs in

- A. Frog to form female
- B. Honeybee to produce drones
- C. Cockroach
- D. Grapes

Answer: B



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452. Select the incorrect match.

Seminiferous tubules	Each lobule contains one to three highly coiled seminiferous tubules in which sperms are produced. These open into the vasa efferentia through rete testis.
----------------------	---

A.

Fallopian tube	The fallopian tube is about 10-12 cm long and extends from the periphery of each ovary to the uterus. The oviducts (fallopian tubes), uterus and vagina constitute the female accessory ducts.
----------------	--

B.

Semen	At least 60% sperms must have normal shape and size and for at least 40% of them must show vigorous motility. The seminal plasma along with the sperms constitute the semen.
-------	--

C.

Secondary ovarian follicle	Primary follicles get surrounded by more layers of granulosa cells to become secondary follicles. In the secondary ovarian follicle, the theca layer is organised into an inner theca interna and an outer theca externa.
----------------------------	---

D.

Answer: D



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453. All of the following statements are correct about active immunity, except

- A. It is slow and takes time to give its full effective response.
- B. Memory cells are formed.
- C. Antibodies are not formed during primary response.
- D. Exposure of antigen is a pre-requisite for the development of active immunity.

Answer: C



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454. Which of the following variety is resistant to white rust?

- A. Parbhani kranti
- B. Himgiri
- C. Pusa Komal
- D. Karan rai

Answer: D



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455. Out-breeding is the breeding of unrelated animals. It includes

- A. Inbreeding only
- B. Inbreeding + Cross-breeding
- C. Out-crossing + Cross-breeding
- D. Out-crossing + Cross-breeding+ Interspecific hybridization

Answer: D



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456. During which stage of sewage treatment micrones are used

- A. Primary treatment
- B. Secondary treatment
- C. Tertiary treatment

D. All of these

Answer: B



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457. What is insertional inactivation?

- A. Inactivation of the host cell.
- B. Inactivation of plasmid
- C. Inactivation of the gene for the synthesis of the enzyme.
- D. Inactivation of ori site

Answer: C



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458. ELISA is based on the principle of

A. Antigen-antibody interaction

B. Antigen-antigen interaction

C. Antibody-antibody interaction

D. None of these

Answer: A



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459. The term 'niche' of a species refers to

A. Specific place

B. The specific place where an organism lives and the role it plays

C. Competitive power of an organism

D. Specific function of an organism

Answer: B



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460. Introduction of exotic species in an area can have deleterious effects on biological communities by

- A. Displacing native species
- B. Preying on native species
- C. Competing with native species for food/shelter
- D. All of the above

Answer: D



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461. Which of the following will result in cultural eutrophication ?

- A. It is the natural aging of a lake by nutrient enrichment of its water.
- B. It is caused due to pollutants arising as a result of human activities like effluents from the industries and homes.

C. It is caused due to the release of organic nutrients

D. It is caused due to the release of heated effluents.

Answer: B



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462. Which of the following is related to integrated waste water treatment process within a natural system?

A. The system created by Ramesh Chandra Dagar

B. Jhum cultivation

C. Formation of polyblend

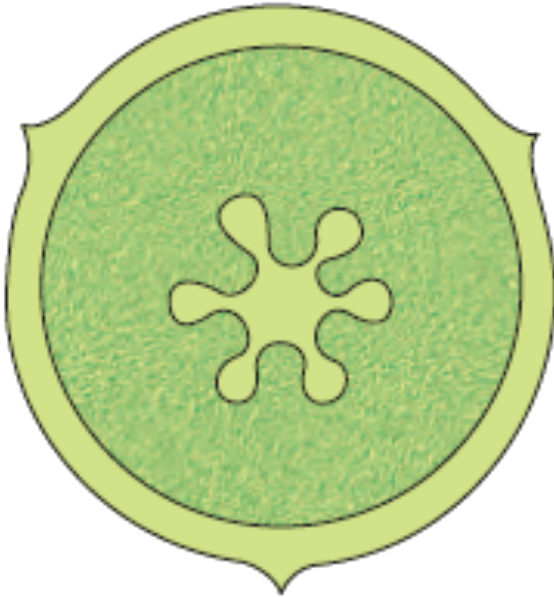
D. Friends of Arcata Marsh (FOAM)

Answer: D



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463. The type of placentation shown in the given diagram is



- A. Axile
- B. Parietal
- C. Free central
- D. Poales, floral

Answer: C



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464. Plasmids present in the bacterial cells are :

- A. Circular double stranded helical DNA molecules
- B. Circular double stranded helical RNA molecules
- C. Linear double stranded helical RNA molecules
- D. Linear double stranded helical DNA molecules

Answer: A



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465. From the point of evolutionary complexity, which one of the following is most advanced?

- A. Chlamydomonas
- B. Funaria
- C. Selaginella

D. Pinus

Answer: D



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466. Pseudopodia are found in _____ and help in _____

- A. Amoeba, swimming
- B. Plasmodium, phagocytosis
- C. Amoeba, phagocytosis
- D. Paramecium, locomotion

Answer: C



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467.

Phylum	Level of organisation	Digestive system	Respiratory system
Aschelminthes	A	Complete	absent
Echinodermata	Organ system	B	Present
Platyhelminthes	Organ	Incomplete	C
Annelida	Organ system	Incomplete	D

Select the option with correct identification of A, B, C, and D.

A. A - organ, B - Complete, C-Present, D- Absent

B. A - organ system, B - Complete, C - Absent , D - Absent

C. A - organ system, B - Incomplete , C- Absent, D - Present

D. A - organ system, B - Incomplete , C - Present , D - Absent

Answer: B



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468. Which of the following set correctly represents characteristics of family Liliaceae?

- A. Tricarpellary, trilocular, axile placentation, zygomorphic
- B. Tricarpellary, trilocular, parietal placentation, zygomorphic
- C. Tricarpellary, trilocular, axile placentation, actinomorphic
- D. Bicarpellary, trilocular, axile placentation, actinomorphic

Answer: C



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469. If T.S. of young dicot stem is stained with Iodine solution, which of the following region will be stained dark blue?

- A. Cortex
- B. Pericycle
- C. Endodermis
- D. Cambium

Answer: C

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470. In *Periplaneta americana*, the ventral sclerite is called

- A. Pleurite
- B. Clitellum
- C. Sternite
- D. Tergite

Answer: C

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471. Identify the incorrect match.

- A. Blood group A - Anti-A (Antibodies in plasma)
- B. Platelets - Megakaryocytes (Cells that fragment to produce platelets)

C. Lymphocytes - 20-25% (Percentage among WBCS)

D. Granulocytes - Eosinophils, basophils, and neutrophils

Answer: A



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472. How many of the following functions can be correctly correlated with loop of Henle ?

A. Reabsorption of nearly all of the essential nutrients.

B. Reabsorption in this segment is minimum.

C. A significant role in the maintenance of high osmolarity of medullary interstitial fluid.

D. Reabsorption of 70-80 percent of electrolytes and water.

E. Conditional reabsorption of Na^+ .

A. One

B. Two

C. Three

D. None

Answer: B



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473. The enzyme that catalyzes the digestion of food belongs to the class of enzymes

A. Transferase

B. Hydrolase

C. Lyases

D. Ligases

Answer: B



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474. For the stages of the cell cycle, select the correct option.

A. A chromosome is arranged at the equator - Metaphase.

B. Centromere splits and chromatids are separated - Anaphase I.

C. The pairing between homologous chromosomes takes place - Zygotene.

A. A and B

B. A and C

C. B and C

D. A, B and C

Answer: B



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475. Lowering in magnitude of water potential due to dissolution of a solute is called.

A. Solute potential (Ψ_s)

B. Pressure potential (Ψ_p)

C. Turgor pressure

D. Suction pressure

Answer: A



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476. Excess of manganese may induce the deficiencies of

A. Mg

B. Iron

C. Calcium

D. All of these

Answer: D



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477. Regeneration of each RuBP in C_3 cycle requires

A. 1 ATP

B. 6 ATP

C. 1 ATP and 1 NADPH+ H^+

D. 3 ATP and 2 NADPH+ H^+

Answer: B



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478. Select the incorrect statement.

A. Cytochromes are found in cristae of mitochondria

B. After glycolysis, fate of glucose in mitochondrial matrix is reduction

C. Net gain of ATP in aerobic respiration is 36 ATP

D. There is one step in Kreb's cycle where FAD^+ reduced to $FADH_2$

Answer: B



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479. Cell wall thickening, protoplasmic modification, and functional specialization are observed in which phase of growth?

A. Phase of cell division

B. Phase of elongation

C. Phase of maturation

D. Phase of growth

Answer: C



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480. Digestion is considered complete when the substrate is broken into a form that is

- A. smaller
- B. masticated
- C. mixed with gastric juice
- D. absorbable

Answer: D



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481. What will be the additional volume of air that a person can expire by a forcible expiration?

- A. 500 mL
- B. 1100 mL
- C. 2300 mL

D. 3000 mL

Answer: B



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482. Which of the following statements is incorrect ?

I. Each Malpighian tubule in cockroach is lined by glandular and ciliated cells.

II. Most of the species of cockroach are of no economical importance.

III. Fat bodies in cockroach play an important role in reproduction.

IV. The cockroach is ammonotelic in the rainy season.

A. I, III

B. I, III, IV

C. III, IV

D. II, IV

Answer: C



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483. Nucleolus usually associates with chromatin (or chromosomes) at a specific site called

- A. Nucleolar organiser region (NOR)
- B. Chromosome
- C. Nucleoplasm
- D. Nuclear membrane

Answer: A



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484. The non-myelinated neurons can be located in

- A. CNS and somatic nervous system
- B. CNS and autonomous nervous system

C. CNS only

D. Autonomous and somatic neural system

Answer: D



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485. Some cells in testis secrete testosterone and the hormone stimulating such cells are released in blood by

A. Seminal vesicles

B. Testis itself

C. Hypothalamus

D. Anterior pituitary

Answer: D



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486. Silencing of a gene could be achieved through the use of :

- A. RNAi only
- B. Antisense RNA only
- C. Both RNAi and antisense RNA
- D. Single stranded DNA only

Answer: C



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487. What is the role of germ pore in pollen grain?

- A. Emergence of pollen tube
- B. Emergence of plumule
- C. Emergence of radical
- D. Emergence of hypocotyls

Answer: A



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488. Which of the following organisms possesses characteristics of both a plant and an animal?

- A. Paramecium
- B. Mycoplasma
- C. Euglena
- D. Bacteria

Answer: C



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489. Which among the following is a pair of high yielding crop varieties resistant to water stress developed in India?

A. Maize and Sugarcane

B. Jowar and Maize

C. Bajra and Gram

D. Jowar and Wheat

Answer: B



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490. The Ministry of Environment and Forest has initiated which plan to save major rivers of our country?

A. Ganga action plan

B. Yamuna action plan

C. Fermentation plan

D. Both (a) and (b)

Answer: D

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491. Malpighian tubules in *Periplaneta americana* are _____ in number and _____ coloured.

- A. 50-60, green
- B. 50-60, yellow
- C. 100-150, green
- D. 100-150, yellow

Answer: D

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492. Which amino acid plays a central role in nitrogen metabolism?

- A. Glutamic acid
- B. α -ketoglutaric acid

C. Aspartic acid

D. Aminated keto acid

Answer: A



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493. Major limiting factor for photosynthesis in C_3 plants is

A. CO_2

B. Temperature

C. Light

D. Water

Answer: A



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494. Which one of the following is incorrectly matched?

- A. Ribozyme - 23s rRNA
- B. lacA - Permease
- C. *EST_g* - Satellite DNA
- D. Chromosome 1 - 2968 genes

Answer: B



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495. Select the incorrect information given about the disease commonly caused by these fungal genera: Microsporum, Trichophyton and Epidermophyton.

- A. Common symptoms- Appearance of dry, scaly and itchy lesions on various parts of the body.
- B. Favourable conditions for disease - In winter and dry conditions.

C. Common areas involved - Skin folds, nails, scalp, groin and between the toes.

D. Mode of infection From soil or by using towels, clothes or even the comb of infected individuals.

Answer: B



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496. How many of the following plants have an association with Rhizobium? [Sweet pea, Lentils, Garden pea, Alfalfa, Alnus, Frankia, Soybean, Clover beans]

A. 5

B. 6

C. 7

D. 8

Answer: B



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497. Select the set of incorrect statements from the ones given below.

A. Plasma is straw coloured and viscous in nature.

B. Eosinophils are 2-3% of total WBC_S .

C. Lymphocytes are the second-most abundant agranulocytes.

D. Stroke volume is the amount of blood that each ventricle pumps during one minute.

A. A, B and D

B. C and D

C. A and B

D. A and D

Answer: B



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498. Which of the following is not true?

- A. Virus-free plants can be produced by meristem culture.
- B. Somaclonal variations may be present in plants produced from callus.
- C. Somaclonal variations are caused due to recombination during meiosis.
- D. Cellular totipotency was first demonstrated by F.C. Steward

Answer: C



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499. Which of these ecosystems has the lowest net primary production per square meter?

- A. A coral reef

B. An open ocean

C. A grassland

D. A marshy area

Answer: B



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500. Which of the following set of hormones are supposed to have intracellular receptors?

A. Estrogen, testosterone, aldosterone

B. Thyroxine, insulin, glucagon

C. Epinephrine, cortisol, ADH

D. Oxytocin, glucagon, insulin

Answer: A



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501. In light reaction for the synthesis of ATP, the site is

- A. Cytoplasm
- B. Stromal side of the thylakoid membrane
- C. Lumen side of the thylakoid membrane
- D. Inter-membrane space

Answer: B



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502. Archaeobacteria can survive better than other bacteria in unfavourable conditions because of their

- A. Food
- B. Mesosomes
- C. Cell wall

D. Plasmids

Answer: C



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503. The element which prevents bursting of the pollen tube and helps in pollen germination is

A. K

B. B

C. Fe

D. H_2O

Answer: B



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504. RNA Polymerase III transcribe

- A. 28S rRNA
- B. hnRNA
- C. 5.8S rRNA
- D. 5S rRNA

Answer: D



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505. Select the correct statement from the following.

- A. Notochord is found in all chordates.
- B. Pharynx is perforated by gill slits in non- chordates.
- C. Hearts is dorsal in birds.
- D. Both (A) and (C) are correct.

Answer: A



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506. Which set of examples belongs to the same phylum?

- A. Sepia and Laccifer
- B. Corallium and Leucosolenia
- C. Ancylostoma and Enterobius
- D. Balanoglossus and Corvus

Answer: C



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507. The entire collection of plants/seeds having all the diverse alleles for all genes in a given crop is called:

A. Gene pool

B. Germplasm

C. Genome

D. Genotype

Answer: B



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508. An individual with Down's syndrome has _____ copies of 21st chromosome.

A. 1

B. 4

C. 3

D. 2

Answer: C

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509. Radial symmetry is found in

- A. Larva of Echinodermates
- B. Most of sponges
- C. Molluscs
- D. None of the above

Answer: D

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510. Ciliated epithelia is found in

- A. Ileum and bronchioles
- B. Bronchioles and oesophagus
- C. Fallopian tubes and bronchioles

D. Fallopian tubes and Ileum

Answer: C



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511. The connective tissue which connects bones to muscles are called

A. Tendons

B. Ligaments

C. Cartilage

D. Bones

Answer: A



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512. The proteins that reproduce within the living cells are termed as

A. Plasmid

B. Phages

C. Prions

D. Prophage

Answer: C



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513. Maximum volume of air that can be exhaled after forceful inhalation, is termed as

A. Total lung capacity

B. Vital capacity

C. Expiratory capacity

D. Functional Residual capacity.

Answer: B

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514. Development of sporophyte/embryo from gametophytic tissue without fusion of gametes is

- A. Apospory
- B. Apogamy
- C. Apomixis
- D. Aposporogamy

Answer: B

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515. Microtubules are cylindrical structures having α and β tubulin proteins. They are the constituents of which one of the following groups?

- A. Nucleolus, Nucleoid, Nuclear membrane

B. Centrosome, Spindle fibre, Flagella, Cilia

C. Mitochondria, Lysosome, Chloroplast, golgi apparatus

D. Chromosome, chromatid, chromatin

Answer: B



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516. Which of the following is the polymer of a nucleotide?

A. Protein

B. Lipid

C. DNA

D. Carbohydrate

Answer: C



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517. Which type of teeth is absent in a child's dentition?

- A. Incisor
- B. Canine
- C. Premolar
- D. Molar

Answer: C



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518. In root nodules of leguminous plants, the function of leg-hemoglobin during biological nitrogen fixation is

- A. Convert N_2 to NH_3
- B. Convert NH_3 Nitrite
- C. Transport oxygen for nitrogenase activity
- D. Protect nitrogenase from oxygen

Answer: D



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519. NPP (net primary productivity) is highest in

- A. Tropical region
- B. Polar region
- C. High altitude
- D. Deep ocean

Answer: A



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520. 'T' wave in an ECG represents

- A. Atrial repolarization

- B. Atrial depolarization
- C. Ventricular repolarization
- D. Ventricular depolarization

Answer: C



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521. Which hormone is a potent hyperglycemic hormone?

- A. Insulin
- B. Glucagon
- C. Parathormone
- D. Calcitonin

Answer: B



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522. Choose the correct option regarding retrovirus

- A. An RNA virus that can synthesize DNA during infection.
- B. A DNA virus that can synthesize RNA during infection.
- C. A ssDNA virus
- D. A dsRNA virus

Answer: A



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523. Which of the following changes does not occur during conversions of secondary follicle into tertiary follicle?

- A. Development of antrum
- B. Completion of meiosis - II
- C. Differentiation of theca
- D. Enlargement in size

Answer: B



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524. Which of the set of two hormones is having different sources?

- A. GnRH and somatostatin
- B. Prolactin and thyroid stimulating hormone
- C. Oxytocin and vasopressin
- D. Calcitonin and parathormone

Answer: D



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525. The pituitary gland is located in a bony cavity called _____P_____ and is attached to hypothalamus by a stalk known as _____Q_____ It is divided anatomically into an

adenohypophysis and a neurohypophysis. Adenohypophysis consists of two portions, _____R_____ and _____S_____ The _____R_____ region of pituitary, produces _____T_____, prolactin (PRL), thyroid stimulating hormone (TSH), adrenocorticotrophic hormone (ACTH) and gonadotropins (luteinizing hormone (LH) and _____U_____

A.

P Q R S T
 Ethmoidal cavity isthmus pars tuberalis pars intermedia GHRH

B.

P Q R S
 Ethmoidal cavity infundibulum pars tuberalis pars intermedia

C.

P Q R S T U
 Sella tursica isthmus pars distalis pars tuberalis GHRH follicle-stimulating hormone

D.

P Q R S T U
 Sella tursica infundibulum pars distalis pars intermedia GH follicle-stimulating hormone

Answer: D



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526. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is

- A. Autosomal dominant
- B. Autosomal recessive
- C. Sex-linked dominant
- D. Sex-linked recessive

Answer: D



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527. Who has drawn the same conclusions on evolution like Charles Darwin?

- A. Alfred R. Wallace

B. B. Hugo de Vries

C. Hardy S. Weinberg

D. De Lamarck

Answer: A



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528. Root cambium is

A. Primary meristem

B. Secondary meristem

C. Intercalary meristem

D. Apical meristem

Answer: B



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529. (i) Anabaena lives symbiotically with Azolla.

(ii) Azotobacter is a free-living N_2 fixer in the soil.

Which of the statements given above is/are correct?

A. (i) Only

B. (ii) Only

C. Both (i) and (ii)

D. Neither (i) or (ii)

Answer: C



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530. Which one of the following categories of organisms do not evolve oxygen during Photosynthesis

A. Red algae

B. Photosynthetic bacteria

C. C_4 plants with Kranz anatomy

D. Blue green algae

Answer: B



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531. Effect on the genetic drift is minimized if

A. Population is large

B. Emigrating individuals are large in number

C. Emigration occurs frequently

D. Large segment of a population dies

Answer: A



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532. A lake with an inflow of domestic sewage rich in organic waste may result in

- A. Drying of the lake very soon to algal bloom.
- B. An increased production of fish due to lot of nutrients.
- C. Death of fish due to lack of oxygen.
- D. Increased population of aquatic food web organism.

Answer: C



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533. Cork cambium results in the formation of cork which becomes impermeable to water due to the accumulation of

- A. Resins
- B. Suberin
- C. Lignins

D. Tannins

Answer: B



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534. What will be the effect of accumulation of K^+ ions in guard cells

- A. Water potential increases
- B. Water potential decreases
- C. Loss of turgidity
- D. Solute potential increases

Answer: B



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535. Which of the following is set of homologous organs showing divergent evolution?

- A. Thorns of bougainvillea and tendrils of cucurbita
- B. Forelimbs of horse and wings of insects
- C. Eyes of octopus and eyes of human
- D. Flippers of whales and flippers of dolphins

Answer: A



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536. In myasthenia gravis, antibodies are formed against

- A. Cholinergic receptors on motor neurons
- B. Cholinergic receptors on motor end plate
- C. Acetylcholine
- D. Adrenergic receptors

Answer: B



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537. Somaclonal variation occurs during

- A. Application of colchicine
- B. Irradiation with gamma rays
- C. Tissue culture
- D. Hybridisation

Answer: C



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538. A character is controlled by 5 alleles. How many genotypes are possible for this character?

A. 15

B. 6

C. 12

D. 25

Answer: A



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539. The symptoms of allergy can be reduced by

A. Anti-histamine

B. Adrenalin

C. Steroids

D. All of these

Answer: D



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540. If the frequency of a recessive allele is 0.4. What will be the frequency of individuals with dominant phenotype in the population?

A. 0.68

B. 0.6

C. 0.84

D. 0.36

Answer: C



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541. In maize, pollination is

A. Anemophilous (wind)

B. Ornithophilous (birds)

C. Malacophilous (snail)

D. Entomophilous (ants)

Answer: A



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542. Which of the following contraceptive method is used can also help in preventing STD?

A. Coitus withdrawal

B. Diaphragms

C. Condoms

D. Oral contraceptive

Answer: C



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543. During transcription the template strand is the one with polarity

- A. Always 3' to 5' as the template strand
- B. Always 5' to 3' as the template strand
- C. Any of the strand can become template strand
- D. Alternatively both strand work as template strand

Answer: A



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544. Which one of following is wrongly matched?

- A. fungi-Chitin
- B. Plasma membrane-Phospholipid
- C. Bacteria-Lipopolysaccharide
- D. Endodermis-Suberin

Answer: C



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545. A protoplast is a cell

- A. Without nucleus
- B. Undergoing division
- C. Without cell wall
- D. Without Golgi body

Answer: C



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546. Which of the following statement is correct about competitive inhibitors?

- A. The inhibitor does not resembles the substrate
- B. The inhibitor competes with the substrate for the allosteric sites.
- C. Inhibition of succinic hydrogenase by malonate which closely resembles the substrate succinate in structure is an example of it
- D. this mechanism is used in the control of bacteria pathogens

Answer: D

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547. The deficiencies of micronutrients not only affects growth of plants, but also vital functions such as photosynthetic and mitochondrial electron flow. Among the list given below, which group of three elements shall affect the most, both photosynthetic and mitochondrial electron transport ?

A. Co, Ni, Mo

B. Ca, K, Na

C. Mn, Co, Ca

D. Cu, Mn, Fe

Answer: D



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548. A thin, muscular wall (oval depression) in the heart is seen

A. Inter-atrial septum

B. Inter-ventricular septum

C. Right auriculo-ventricular septum

D. Left auriculo-ventricular septum

Answer: A



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549. Coralloid roots of *Cycas* are useful in

- A. N_2 -fixation
- B. Absorption
- C. Transpiration
- D. Fixation

Answer: A



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550. To be evolution of successful, a mutation must occur in

- A. Germplasm DNA
- B. Somatoplasm DNA
- C. RNA
- D. Cytoplasm

Answer: A



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551. Select the incorrectly matched pair from the following :

- | | |
|-------------------|-------------|
| (i) Sericulture | Silkmoth |
| (ii) Aquaculture | Fish |
| (iii) Apiculture | Honey bee |
| (iv) Pisciculture | Bombyx more |

A. (i)

B. (ii)

C. (iii)

D. (iv)

Answer: D



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552. The cause of special flavour in onion and garlic is due to the presence of

Or

Yellowing of tea leaf takes place by the deficiency of

A. Chlorine

B. Hydrogen

C. Oxygen

D. Sulphur

Answer: D



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553. In meiosis, division is

A. I reductional and II equational

B. I equational and II reductional

C. Both reductional

D. Both equational

Answer: A



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554. During the transmission of nerve impulse through a nerve fibre, the inner membrane charge of the neurilemma will be

- A. First positive, then negative and continue to be positive
- B. First negative, then positive and continue to be positive
- C. First positive, then negative and again back to positive
- D. First negative, then positive and again back to negative.

Answer: D



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555. The product formed by malic dehydrogenase is

- A. Malic acid
- B. Fumaric acid
- C. Oxaloacetic acid
- D. Succinic acid

Answer: C



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556. In India, forests constitute about

- A. 19.4% of the land area
- B. 33.7% of the land area
- C. 22% of the land area
- D. 67% of the land area

Answer: C



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557. Binomial nomenclature means

- A. One name given by two scientists
- B. One scientific name consisting of a generic and specific epithet
- C. Two names, one latinised, other of a person
- D. Two names of same plant

Answer: B



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558. Plants growing in shady region are called

- A. Sciophytes

B. Xerophytes

C. Epiphytes

D. Heliophytes

Answer: A



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559. Lippes loop is an example of

A. Vaults

B. Cu releasing IUDs

C. Non-medicated IUDs

D. Hormonal IUDs

Answer: C



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560. Most of the unicellular organisms are kept under

- A. Kingdom monera and kingdom protista
- B. Kingdom monera and kingdom plantae
- C. Kingdom protista and kingdom plantae
- D. Kingdom protista and kingdom fungi

Answer: A



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561. Sella turcica is a

- A. Covering of kidney
- B. Covering of testis
- C. Depression in brain
- D. Depression in skull which lodges the pituitary body

Answer: D



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562. A large persistent cotyledon in the embryo of the wheat grain is called

- A. Coleorrhiza
- B. Scutellum
- C. Coleoptile
- D. Epiblast

Answer: B



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563. Which of the following is heterosporous

A. Dryopteris

B. Salvinia

C. Adiantum

D. Equisetum

Answer: B

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564. Preserving germplasm in frozen state is

A. Cryopreservation

B. Cold storage

C. In situ preservation

D. Vernalisation

Answer: A

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565. First dicarboxylic acid formed during TCA cycle is

- A. Citric acid
- B. Succinyl CoA
- C. α – ketoglutaric acid
- D. Oxaloacetic acid

Answer: C



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566. Widal test is used for susceptibility of

- A. Malaria
- B. Cholera
- C. Tellow fever

D. Typhoid

Answer: D



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567. Floar features are chiefly used in angiosperms identification because

- A. Flowes are of same colours
- B. Flowers can be safely pressed
- C. Reproductive parts are more stable and conservative than vegetative parts
- D. Flowers are freely available

Answer: C



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568. Which of the following compound is used in visualisation of DNA fragments in gel electrophoresis?

- A. Hexachlorobenzene
- B. Silver bromide
- C. Ethyl chloride
- D. Ethidium bromide

Answer: D



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569. The type of cell junctions that helps in preventing leakage of substances is called

- A. Adhering junctions
- B. Gap junctions
- C. Tight junctions

D. Plasmodesmata

Answer: C



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570. *Bacillus thuringiensis* (Bt) strains have been used for designing novel

- A. Bio-metallurgical technique
- B. Bio-mineralisation processes
- C. Bio-insecticidal plants
- D. Bio-fertilizers

Answer: C



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571. Which of the following is absent in polluted water?

A. Hydrilla

B. Water hyacinth

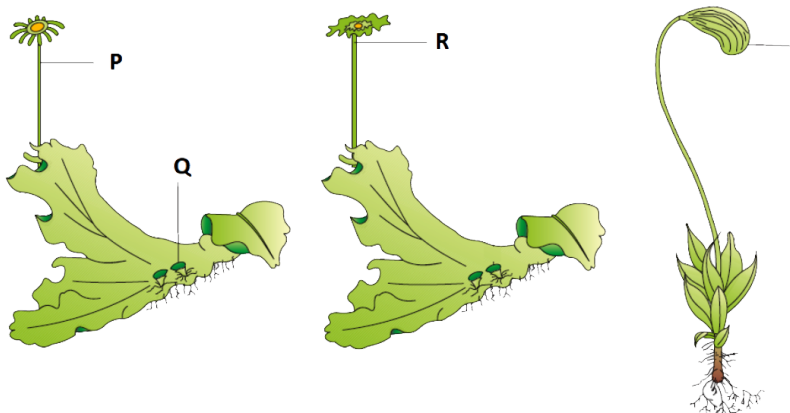
C. Larva of stone fly

D. Blue green algae

Answer: A

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572. Observe the following figures and identify the structures of parts labelled as P, Q, R and S.



A.	P Archegoniophore	Q Gemma cup	R Antheridiophore	S Seta
B.	P Antheridiophore	Q Rhizoids	R Archegoniophore	S Capsule
C.	P Archegoniophore	Q Setu	R Antheridiophore	S Leaves
D.	P Archegoniophore	Q Gemma cup	R Antheridiophore	S Capsule

Answer: D

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573. in dicot stem, xylem is

- A. Exarch
- B. Mesarch
- C. Centarch
- D. Endarch

Answer: D

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574. According to Central Pollution Control board (CPCB). Which particulate size in diameter (in micrometers) of the air pollutants is responsible for greatest harm to human health?

A. 1.5 or less

B. 1.0 or less

C. 5.2-2.5

D. 2.5 or less

Answer: D



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575. The microbial source for citric acid is

A. *Aspergillus niger*

B. *Acetobacter acetic*

C. Clostridium butylicum

D. Lactobacillus acidophilus

Answer: A



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576. Which disease is characterized by inflammation of joints due to the accumulation of uric acid crystals?

A. Arthritis

B. Gout

C. Tetany

D. Muscular dystrophy

Answer: B



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577. The portion of the embryonal axis above the level of cotyledons is

- A. Hypocotyl
- B. Root cap
- C. Root tip
- D. Epicotyl

Answer: D



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578. Which one of the following pairs of hormones are the examples of those that can easily pass through the cell membrane of the target cell and bind to a receptor inside it (mostly in the nucleus)

- A. Insulin, glucagon
- B. Thyroxin, insulin
- C. Somatostain, oxytocin

D. Cortisol, testosterone

Answer: D



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579. Fibroblasts , macrophages and mast cells are present in

A. Cartilage tissue

B. Adipose tissue

C. Areolar tissue

D. Glandular epithelium

Answer: C



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580. Complete the equation. Nucleic acids----- Nucleotides-----

A. Monoglycerides

B. Diglycerides

C. Disaccharides

D. Nucleosides

Answer: D

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581. Choose the correct statement.

A. The C_4 - plants do not have RuBisCO.

B. Carboxylation of RuBP leads to the formation of PGA and phosphoglycolate

C. Carboxylation of phosphoenolpyruvate results in the formation of oxalic and in C_4 – plants.

D. Decarboxylation of C_4 – acids occur in the mesophyll cells.

Answer: C



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582. Which one of the following pairs of structures are correctly matched with their description?

- A. Tibia and fibula - Both form parts of acetabulum cavity
- B. Cartilage and cornea - Oxygen is required for respiratory need and is supplied by the blood vessels
- C. Shoulder joint and elbow joint - Synovial type of joints
- D. Premolars and molars - 20 in all and 3 rooted

Answer: C



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583. Fertilization is depicted by the condition :

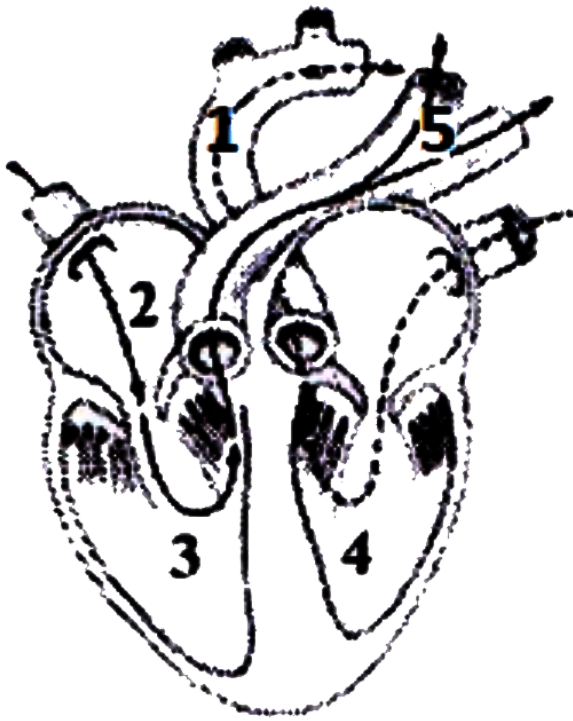
- A. Haploid to diploid
- B. Diploid to triploid
- C. Diploid to haploid
- D. Diploid to hexaploid

Answer: A



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584. In the given figure of the heart, which of the marked structures (1, 2, 3, 4, and 5) carry oxygenated blood?



A. 1, 2, 3 and 4

B. 1 and 5

C. 1 and 4

D. 3 and 5

Answer: C



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585. The vector also have one unique recognition site to enable foreign DNA to be inserted into the vector during the generation of an rDNA molecule. Most of the commonly used vectors contains unique recognition sites region of DNA which is referred to as a polylinker or multiple cloning site (MCS). An MCS provides:

- A. Ability to separate DNA fragments
- B. Flexibility in the choice of restriction enzyme
- C. Flexibility in selectable marker
- D. Ability of DNA to mutate itself

Answer: B



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586. Find out the wrong pair with respect to the number of chromosomes in meiocytes.

A. Fruit fly - 8

B. Apple - 36

C. Rice - 24

D. Housefly - 12

Answer: B



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587. The permissible use of the technique amniocentesis is for :

A. Detecting sex of the unborn foetus

B. Artificial insemination

C. Transfer of embryo into the uterus of a surrogate mother

D. Detecting any genetic abnormality.

Answer: D



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588. A taxon is

- A. A Group of related families
- B. A group of related species
- C. A type of living organisms
- D. A taxonomic group of any ranking

Answer: D



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589. If a wavelength of above 680 nm is available for excitement, the product of the reaction will be

- A. O_2
- B. ATP and $NADPH_2$
- C. ATP

D. $NADPH_2$

Answer: C



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590. Oral contraceptives are prescribed in females to check

- A. Ovulation
- B. Fertilization
- C. Implantation
- D. Entry of sperms in vagina

Answer: A



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591. The cloaca in frog is a common chamber for the urinary tract, reproductive tract and

- A. Alimentary canal
- B. Portal system
- C. Hepatic portal vessels
- D. Notochord

Answer: A



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592. At which concentration of CO_2 , C_3 plants shows saturation

- A. $450\mu lL^{-1}$
- B. $360\mu lL^{-1}$
- C. $540\mu lL^{-1}$
- D. $630\mu lL^{-1}$

Answer: A

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593. The rejection of organ transplanting in humans is prevented by using:

- A. Aspirin
- B. Cyclosporin
- C. Calcitonin
- D. Thrombin

Answer: B

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594. Consider the following

- i. For a solution at atmospheric pressure $\Psi_w = \Psi_s$

ii. Ψ_w (water potential) of a cell is affected by solute potential only

iii. Ψ_p (pressure potential) is usually positive in xylem during the day

which of the statements given above is/are correct?

A. ii & iii

B. I only

C. ii only

D. I, ii and iii

Answer: B



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595. How many different types of gametes can be formed by F_1 progeny resulting from the following cross?

AABBCC \times aabbcc

A. 3

B. 8

C. 27

D. 64

Answer: B



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596. Which one of the following pairs is not correctly matched ?

A. Plasmid - Small piece of extrachromosomal DNA in bacteria

B. Interferon - An enzyme that interferes with DNA replication

C. Cosmid - A vector for carrying large DNA fragments into host cells

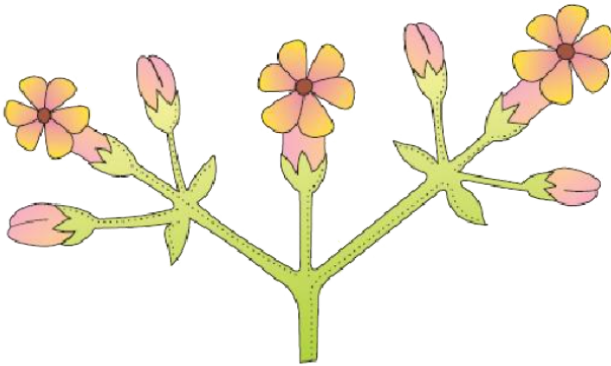
D. Myeloma antibodies - Producing tumor cells

Answer: B



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597. Identify the given diagram .



- A. Racemose inflorescence
- B. Cymose inflorescence
- C. Verticilastar inflorescence
- D. Hypentodium

Answer: B



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598. Blastula lacks

A. Blastomeres

B. Blastoderm

C. Blastocoel

D. Blastopore

Answer: D



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599. The cranial capacity of *Homo erectus* was

A. 900 c.c

B. 1350 c.c

C. 1075 c.c

D. 1450 c.c

Answer: A



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600. The ageing of leaves is called

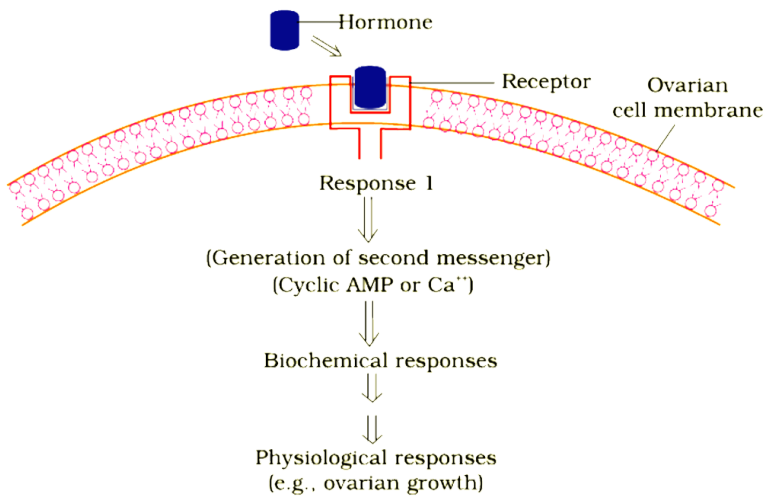
- A. Necrosis
- B. Senescence
- C. Photoperiodism
- D. Vernalization

Answer: B



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601. Which of the following hormone represent the mechanism of hormone action shown in the given diagram?



- A. Estrogen
- B. Progesterone
- C. FSH
- D. Cortisol

Answer: C



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602. Which of the following statement is correct about mycorrhiza?

- A. It is a symbiotic association between fungi and the root of higher plants.
- B. Pinus seeds cannot germinate in their absence.
- C. Plants having such associations show resistance to salinity.
- D. More than one option is correct

Answer: D

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603. The peripheral nervous system is divided into two divisions called A and B. A relays impulses from the CNS to skeletal muscles while the B transmits impulses from the CNS to the involuntary organs and smooth muscles of the body. B is further classified into C and D neural system.

A.

A	B	C	I
Autonomic neural system	Somatic neural system	Sympathetic	I

B.

A	B	C
Sympathetic	Parasympathetic	neural Autonomic neural system

C.

A	B	C
Somatic neural system	Autonomic neural system	Sympathetic

D.

A	B	C
Somatic neural system	Sympathetic	Autonomic neural system

Answer: C



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604. The trigger for activation of toxin of *Bacillus thuringiensis* is:

- A. Acidic pH of gut
- B. Alkaline pH of gut
- C. High temperature
- D. Mechanical action in the insect gut

Answer: B



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605. The pollen grains lose their viability in 30 minutes in

- A. *Triticum aestivum*
- B. *Allium cepa*
- C. *Atropa belladonna*
- D. *Solanum nigrum*

Answer: A



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606. Which one of the following statements is correct about Phycomycetes?

- A. The mycelium is aseptate and coenocytic.
- B. A zygospore is formed by fusion of two gametes.
- C. Rhizopus and Albugo are examples of them.
- D. All of these

Answer: D

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607. The nuclear membrane disappears in

- A. Metaphase
- B. Early prophase
- C. Late prophase
- D. Anaphase

Answer: C

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608. Which one is an important constituent of the renin - angiotensinogen - aldosterone system?

- A. Juxtaglomerular apparatus
- B. Bowman's capsule
- C. Loop of Henle
- D. Glomerulus

Answer: A



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609. The mechanism universally accepted to describe the translocation of sugars from source to sink is called

- A. Translocation of food due to TP gradient and imbibition force
- B. Translocation of food due to turgor pressure (TP) gradient

C. Translocation fo food due to imbibition force

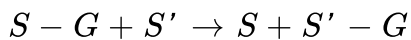
D. None of the above

Answer: B



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610. Select the type of enzyme involved in the following reaction



A. Lyases

B. Transferases

C. Isomerases

D. Oxidoreductases

Answer: B



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611. Hypersensitivity towards any foreign material is due to antibody

A. IgA

B. IgG

C. IgM

D. IgE

Answer: D



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612. match the items in column - I with column - II and choose the correct option

Column - I		Column - II	
A.	Tidal volume	1.	2500 to 3000 ml of air
B.	Inspiratory reserve volume	2.	1000 ml of air
C.	Expiratory reserve volume	3.	500 ml of air
D.	Residual volume	4.	3400 to 4800 ml of air
E.	Vital capacity	5.	1200 ml of air

A. A - III, B - IV, C - II, D - I, E - V

B. A - III, B - I, C - II, D - V, E - IV

C. A - III, B - I, C - IV, D - V, E - IV

D. A - IV, B - III, C - II, D - I, E - V

Answer: B



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613. A few statements with regard to sexual reproduction are given below.

- (i) Sexual reproduction does not always require two individuals.
- (ii) Sexual reproduction generally involves gametic fusion.
- (iii) Meiosis never occurs during sexual reproduction.
- (iv) External fertilisation is a rule during sexual reproduction.

Choose the correct statements from the option below.

A. I and iii

B. I and ii

C. ii and iii

D. I and iv

Answer: B



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614. The central part of the proximal region of the centriole is proteinaceous and called the (A)____, which is connected with tubules of the peripheral triplet by (B)_____.

A. A - Axoneme , B - Linear spokes

B. A - Axoneme p, B - Linear hub

C. A - Hub , B - Radial spokes

D. A - Hub , B - Radial axoneme

Answer: C



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615. Gibberellin was first extracted from

- A. *Gibberella fujifuroi*
- B. *Gracilaria verrucosa*
- C. *Gardnerella vaginilis*
- D. *Geotrichum penicillatum*

Answer: A



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616. In the renal tubules the permeability of the distal convoluted tubule and collecting duct to water is controlled by

- A. Vasopression (ADH)
- B. Aldosterone
- C. Growth hormone

D. Renin

Answer: A



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617. Tobacco plants resistant to a nematode have been developed by the introduction of DNA that produced (in the host cells):

- A. Sense RNA
- B. Anti - sense RNA
- C. A toxic protein
- D. Both sense and anti - sense RNA

Answer: D



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618. Attractive force of cell walls of xylem for water molecules is termed as

- A. Adhesion
- B. Cohesion
- C. Osmosis
- D. Plasmolysis

Answer: A



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619. ABO blood group system is due to

- A. Multifactor inheritance
- B. Incomplete dominance
- C. Multiple allelism
- D. Epistasis

Answer: C



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620. The meristem that occurs in the mature region of roots and shoots of many plants particularly those that produce woody axis and appear later than primary meristem is called.

- A. Primary meristem
- B. Secondary meristem
- C. Intercalary meristem
- D. Both (B) and (C)

Answer: B



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621. If a certain group of cells utilises the amino acid glycine exclusively for synthesis, and if a growing culture of these cells is fed radioactive glycine, radioactivity will be found first in the

- A. Ribosomes
- B. tRNA
- C. mRNA
- D. Mitochondria

Answer: B



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622. Ecological succession is

- A. Directional but unpredictable.
- B. Directional and predictable.
- C. Gradual and predictable.

D. Directionless and unpredictable.

Answer: C



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623. Gemmae are vegetative reproductive structures found in

A. Angiosperms

B. Bryophytes

C. Algae

D. Gymnosperms

Answer: B



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624. Read the following statements. Which one of the following is incorrect?

- A. GAATTC is the recognition site of EcoRI.
- B. *Agrobacterium tumefaciens* is used for cloning genes in plants
- C. In the restriction enzyme EcoRI, "co" stands for coenzyme.
- D. For transformation, micro - particles coated with DNA to be bombarded with gene gun are made up of gold or tungsten.

Answer: C



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625. Which animal and phylum is represented in the given figure?



- A. Ascidia - Hemichordata
- B. Ascidia - Chordata
- C. Ascidia - Tunicata
- D. Ascidia - Urochordata

Answer: B



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626. Which of the following variety is resistant against hill bunt ?

- A. Himgiri
- B. Prabhani kranti
- C. Pusa Komal
- D. Pusa Gaurav

Answer: A



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627. At puberty, only _____ primary follicles remain are left in each ovary.

- A. 200 - 300 million
- B. 60000 - 80000
- C. 1 million
- D. 6000 - 8000

Answer: B



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628. Water potential of actively absorbing cells is

A. Always +ve

B. Always -ve

C. Always 0

D. Always > 1

Answer: B



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629. Energy storage at consumer level is called

A. Gross primary productivity

- B. Secondary productivity
- C. Net primary productivity
- D. Net productivity

Answer: B



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630. Select the incorrectly matched pair.

- A. Fig and fig wasp - Mutualism
- B. Cuscuta and hedge plant - Commensalism
- C. Cuckoo and crow - Brood parasitism
- D. Goats and Abingdon tortoise on Galapagos Islands - Competition

Answer: B



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631. The term 'biodiversity' was given by

- A. Alexander von Humboldt
- B. Edward Wilson
- C. David Tilman
- D. Paul Ehrlich

Answer: B



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632. Jellies and foams are used with which of the following contraceptive method to enhance its efficiency

- A. vaults
- B. vaseotomy
- C. Coitus interrupts
- D. IUDs

Answer: A



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633. Which of the following is not obtained by the process of distillation?

- A. Wine
- B. Whisky
- C. Brandy
- D. Rum

Answer: A



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634. Translocation of food in plants was demonstrated by

- A. Girdling experiment

B. Mass flow hypothesis

C. Root pressure hypothesis

D. Cohesion-tension theory

Answer: A



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635. Study the following columns and choose the correct option.

	COLUMN I		COLUMN II
A	Population	1	Part of the earth consisting of all the ecosystems of the world
B	Community	2	Assemblage of all the individuals belonging to different species occurring in an area
C	Ecosystem	3	Group of similar individuals belonging to the same species found in an area
D	Ecosphere	4	Interaction between the living organisms and their physical environment components
		5	Classification of organisms based on the type of environment.

A. A B C D

1 4 5 3

B. A B C D

5 2 3 4

C. A B C D

2 3 5 1

D. A B C D

3 2 4 1

Answer: D

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636. Oestrus cycle is seen in

A. Dogs

B. Apes

C. Tiger

D. More than one option is correct

Answer: D

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637. Hogo de Vries gave his mutation theory on organic evolution while working on :

- A. Sweet Pea
- B. Fruit fly
- C. Evening primrose
- D. Garden pea

Answer: C



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638. One strand of the given segment of DNA codes for mRNA having the sequence AUC, GCG, UCA needed for the synthesis of proteins. The strand by which DNA molecule will be responsible for the above mRNA sequence is

ATC GCC ATU
| | |
TAG CGG TAG

A.

AGA GCG GAT
| | |
ICT CGC CIA

B.

TGA CGC TAG
| | |
ACT GCG ATC

C.

TAG CGC AGT
| | |
ATC GCG TCA

D.

Answer: D



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639. Only the green part of the plants could release oxygen in the presence of sunlight during photosynthesis was explained by

A. Jan Ingenhousz

B. Robert Mayer

C. Malvin Calvin

D. Blackman

Answer: A



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640. Which of the following is an avascular tissue?

A. Connective

B. Epithelial

C. Muscular

D. Nervous

Answer: B



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641. Chief pollinators of agricultural crops are

- A. Butterflies
- B. Bees
- C. Moths
- D. beetles

Answer: B



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642. Biofertilizers include

- A. Nitrogen fixing bacteria
- B. Nitrogen fixing cyanobacteria
- C. Both bacteria and cyanobacteria
- D. Bacteria, cyanobacteria and mycorrhizal fungi

Answer: D



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643. The first product of photosynthesis is sugar and it is converted

- A. Into starch in all plants
- B. Into proteins
- C. Into vitamins
- D. Rarely into anything else

Answer: A



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644. The virus that created a scare in the country and drastically affected egg and chicken consumption is

A. HPV

B. Hepatitis virus

C. Bird flu virus

D. Herpes virus

Answer: C



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645. Oxidative phosphorylation involves simultaneous oxidation and phosphorylation to form

A. Pyruvate

B. NADP

C. DPN

D. ATP

Answer: D

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646. A large proportion of oxygen is left unused the human blood even after its uptake by the body tissue. This O_2

- A. Helps in releasing more O_2 to the epithelial tissues
- B. It is enough to keep oxyhaemoglobin saturation at 96%
- C. Raise the PCO_2 of blood to 75 mm of Hg
- D. Acts as a reserve during muscular exercise

Answer: D

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647. In plants, potential in the water column in the xylem plays a major role in water transport up a stem is

- A. Positive pressure

B. Negative pressure

C. Positive pressure

D. Negative water

Answer: B



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648. Composition of semen is

A. Sperms

B. Secretions of the seminal vesicles

C. Secretions of prostate gland and bulbo-urethral glands

D. all the above

Answer: D



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649. What is the right sequence of bones in the ear ossicles of a mammal starting from the tympanum inwards?

A. Malleus, Incus, Stapes

B. Malleus, Stapes, Incus

C. Incus, Malleus, Stapes

D. Stapes , Incus, Malleus

Answer: A



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650. Identify the correct sequence of steps involved in the process of decomposition.

(a) Humification

(b) Catalbolism

(c) Fragmentation of detritus

(d) Leaching

(e) Mineralization

A. b-d-c-e-a

B. c-b-e-a-d

C. c-d-b-a-e

D. b-d-e-c-a

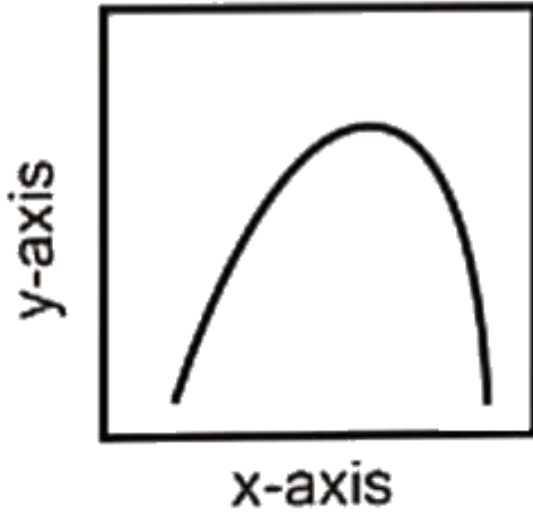
Answer: C



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651. The curve given below shows enzymatic activity with relation to three conditions (pH, temperature and substrate concentration). What does

the two axis (x and y) represent ?



- A. X-axis: Enzymatic activity, Y-axis: pH
- B. X-axis: Temperature, Y-axis: Enzyme activity
- C. X-axis: Substrate concentration, Y-axis: Enzymatic activity
- D. X-axis: Enzymatic activity, Y-axis: Temperature

Answer: B

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652. Two cells A and B are contiguous. Cell A has osmotic pressure 10 atm, turgor pressure-7 atm and diffusion pressure deficit 3 atm. Cell B has osmotic pressure 8 atm, turgor pressure 3 atm and diffusion pressure deficit 5 atm. The result will be

- A. No movement of water
- B. Equilibrium between the two
- C. Movement of water from cell A to B
- D. Movement of water from cell B to A

Answer: C



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653. Human population growth in India.

- A. Tends to follow a sigmoid curve as in case of many other animal species

- B. Tends to reach a zero population growth as in case of some animal species
- C. Can be reduced by permitting natural calamities and enforcing birth control measures
- D. Can be regulated by following the national programme of family planning

Answer: D



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654. Mule is a cross breed between:

- A. Male donkey and female horse
- B. Female donkey and male horse
- C. Male mule and female horse
- D. None of these

Answer: A



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655. In human foetus , the heart begins to beat at developmental age of :

A. 4th – 5(th) week

B. 1st – 2nd week

C. 6th – 7th week

D. 8th – 9(th) week

Answer: A



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656. Which of the following in sewage treatment removes suspended solids?

- A. Tertiary treatment
- B. Secondary treatment
- C. Primary treatment
- D. Sludge treatment

Answer: C

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657. Select the incorrect statement w.r.t. taxonomic aids.

- A. Key is based on set of contrasting characters known as couplet
- B. There is no universally accepted system for the arrangement of herbarium sheets
- C. Flora contains actual account of habitat and distribution of plants of a given area
- D. Monographs contain information on any one taxon

Answer: B



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658. Asexual reproduction mainly takes place in

- A. Higher animals
- B. lower animals
- C. Plants
- D. all the above

Answer: B



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659. Geitonogamy does not occur in

- A. Dioecious plant

- B. Monoecious plant
- C. Both of the above
- D. It occurs in all the plants

Answer: A

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660. On humans, the undigested, unabsorbed substances called faeces are temporarily stored in

- A. Rectum
- B. Colon
- C. Caecum
- D. Cloaca

Answer: A

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661. Consider the following statements regarding mesosomes :

- a. It may be present in the form of vesicles, tubules and lamellae.
- b. It helps on cell wall secretion, cell respiration, DNA replication and cell division
- c. It increases the surface area of the cell wall and enzymatic content.
- d. It contains oxidative enzymes.

which of the above statements are true ?

A. a,b,c & d

B. a,b & d

C. a,b & c

D. b, c & d

Answer: C



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662. The electrons, that are removed from photosystem-II and photosystem-I during z-scheme, must be replaced. This is achieved by electrons released

- A. By photosystem-I $NADP^+$
- B. By splitting of water and NADPH
- C. By ATP and photosystem-II
- D. By splitting of water and photosystem-II

Answer: D



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663. Rennin acts on

- A. Digestion of milk protein in basic pH
- B. Proteins in stomach
- C. Fat in intestine

D. Digestion of milk protein in acidic pH

Answer: D



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664. The immunity associated with memory is called

- A. Natural immunity
- B. Acquired immunity
- C. Innate immunity
- D. Passive immunity

Answer: B



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665. On an ECG, the depolarization of atria is indicated by

A. P-Wave

B. Q-wave

C. R-wave

D. S-wave

Answer: A



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666. Blood analysis of a patient reveals an unusually high quantity of carboxyhaemoglobin content. Which of the following conclusions is most likely to be correct ?

A. Carbon disulphide

B. Chloroform

C. Carbon dioxide

D. Carbon monoxide

Answer: D



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667. Chlorosis is caused due to the deficiency of

A. Magnesium

B. Calcium

C. Boron

D. Copper

Answer: A



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668. Exponential growth in human population is represented in

A. Lag phase

B. Log phase

C. Plateau stage

D. First stage

Answer: B



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669. The layer of cells forming tissue that appears to be multilayered but actually some of the cells extend from the basement membrane to the surface is

A. Simple columnar epithelium

B. Pseudostratified epithelium

C. Stratified columnar epithelium

D. Stratified cuboidal epithelium

Answer: B



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670. Genomic DNA library means

- A. A collection of literature about DNA
- B. A collection of organisms for extracting DNA
- C. A collection of total genomic DNA of a single organism
- D. A collection of gene vectors

Answer: C



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671. Which bacteria is utilized in Gobar gas plant

- A. Methanogens
- B. Nitrifying bacteria
- C. Ammonifying bacteria

D. Denitrifying bacteria

Answer: A



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672. Endothecium and tapetum in anther are derived from

- A. Primary sporogenous layer
- B. Primary parietal layer
- C. Both primary sporogenous layer and Primary parietal layer
- D. None of the above

Answer: B



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673. In eukaryotes, the anticodon of tRNA that pairs with the start codon of mRNA during translation is _____

- A. UAA
- B. UCA
- C. UAC
- D. UUU

Answer: C



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674. On a single process of the Krebs Cycle, decarboxylation takes place in ___ steps.

- A. Five
- B. Four
- C. Three

D. Two

Answer: D



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675. In nitrogen cycle, which of the following plays an important role ?

A. Rhizopus

B. Nitrobacter

C. Mucor

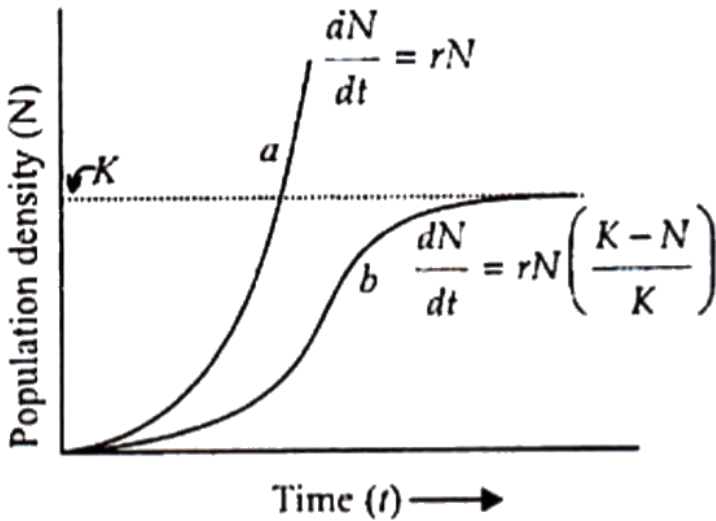
D. Claviceps

Answer: B



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676. The graph shows two types of the population growth curve, 'a' - Exponential and 'b' - Logistic. Which of the following graph models is considered to be the more realistic one?



- A. Logistic curve
- B. Exponential curve
- C. Both Exponential and Logistic curve
- D. None of the above

Answer: A



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677. The technique called gamete intrafallopian transfer (GIFT) is recommended for those females

- A. Who cannot produce an ovum
- B. Who cannot retain the foetus inside uterus.
- C. Whose cervical canal is too narrow to allow passage for the sperms
- D. Who cannot providee suitable environment for fertilisation.

Answer: A



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678. How many organism in the list given below are autotrophs
Lactobacillus, Nostoc, Chara, Nitrosomonas, Nitrobacter, Streptomyces,
Sacharomyces, Trypanosoma, Porphyra Wolfia

A. Four

B. Five

C. Six

D. Three

Answer: C



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679. Formation of concentrated (hyperosmotic) urine in vertebrates generally depends on

A. Length of the proximal convoluted tubule

B. Length of Henle's loop

C. Area of Bowman's capsule epithelium

D. Capillary network forming of earthworm

Answer: B

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680. Which one of the following statements is CORRECT?

- A. Nicotine causes hallucinations
- B. Heroin is a diacetylmorphine
- C. Hashish has stimulant property
- D. Cocaine is opioid drug

Answer: B

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681. The continuous upward flow of water stream in tall trees is maintained due to _____

- A. Guttation and transpiration
- B. Transpiration pull only

C. Cohesive force between water molecules only

D. Cohesive force between water molecules and transpiration pull

Answer: D



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682. Uricotelism is found in

A. Mammals and birds

B. Fishes and fresh water protozoans

C. Birds, reptiles and insects

D. Frogs and toads

Answer: C



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683. Match the following based on their life spans.

	Column-I		Column- II
(1)	Elephant	(a)	2 to 3 Month
(2)	Fruit fly	(b)	4 months
(3)	Rice plant	(c)	less than one month
(4)	Butterfly	(d)	60-90 yrs

A. 1 2 3 4

a b c d

B. 1 2 3 4

d a c b

C. 1 2 3 4

d a b c

D. 1 2 3 4

d c a b

Answer: C



684. The specific-property attributed to gibberellins is

- A. Shortening of genetically tall plants
- B. Elongation of genetically dwarf plant
- C. Promotion of rooting
- D. Yellowing of young leaves.

Answer: B



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685. Which of the following vectors has been used for introducing nematode-specific genes in infected tobacco plants?

- A. *Meloidogyne incognita*
- B. *Bacillus thuringiensis*

C. Disarmed retrovirus

D. Ti plasmid of Agrobacterium

Answer: D



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686. Schwann cells are present in which part of a myelinated neuron?

A. Dendrites

B. Axon hillock

C. Axon

D. Soma/body

Answer: C



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687. An example for opposite phyllotaxy is

- A. Alstonia and Calotropis
- B. Guava and Calotropis
- C. mustar and sunflower
- D. China rose and guava

Answer: B



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688. Identify the correctly matched pair.

- A. Montreal protocol-Ozone depletion
- B. Kyoto protocol-Ozone depletion
- C. Ramsar convention - Ground water pollution
- D. Basal convention - Biodiversity conservation

Answer: A



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689. Match the microbes to their respective products from the given columns.

	Column I		Column II
a.	<i>Clostridium</i>	(i)	Statins
b.	<i>Aspergillus</i>	(ii)	Cyclosporin
c.	<i>Trichoderma</i>	(iii)	Citric acid
d.	<i>Monascus</i>	(iv)	Butyric acid

A. a(iv),b(iii),c(ii),d(i)

B. a(i),b(ii),c(iii),d(iv)

C. a(iv),b(ii),c(iii),d(i)

D. a(iv),b(ii),c(iii),d(i)

Answer: A



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690. According to chemiosmotic hypothesis, ATP synthetase form ADP when protons (H^+),

- A. Move from stroma to thylakoid lumen by simple diffusion
- B. Move from stroma to thylakoid lumen by facilitated diffusion
- C. Move from thylakoid lumen to stroma by active transport
- D. Move from thylakoid lumen to stroma by facilitated diffusion

Answer: D



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691. The phase in which both the chromosome and DNA content becomes half is

A. Anaphase

B. Anaphase II

C. Anaphase I

D. Both (A) and (B)

Answer: C



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692. Sensory organs like antennae, eyes (compound and simple), statocysts or balancing organs are present in members of phylum

A. Mollusca

B. coelenterata

C. Arthropoda

D. Echinodermata

Answer: C

693. Which one of the following is a matching set of the class and some of its main distinguishing features, classification, and examples?

- A. Cyclostomata - Division Agnatha, 6- 15 pairs of gill slits, endoskeleton bony, Example: Myxine
- B. Reptilia - Division Gnathostomata, epidermal scutes, endoskeleton body, Example: Hemidactylus
- C. Amphibia - Super-class Tetrapoda, cloaca as a common opening for the alimentary canal and urinary tract
- D. Chondrichthyes - Super-class Pisces, gill slits without operculum, exoskeleton cartilaginous, Example: Carcharodon

Answer: B

694. A vegetative propagules in aquatic plants like Eichhornia (water hyacinth) is called

- A. Stolon
- B. Offset
- C. Prop root
- D. Bulb

Answer: B



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695. Zinc is required for synthesis of

- A. Auxins
- B. Gibberellins
- C. Cytokinins
- D. Ethylene

Answer: A



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696. In mitochondria, enzyme cytochrome oxidase is present in

- A. outer membrane
- B. Perimitochondrial space
- C. Inner membrane
- D. Matrix

Answer: C



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697. Adiantum belongs to the class

- A. Psilopsida

B. Sphenopsida

C. Pteropsida

D. Lycopsida

Answer: C



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698. Which of the following is essential for muscle contraction?

A. Na^+

B. K^+

C. Ca^{+2}

D. Cl^-

Answer: C



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699. Which of the following feature of vector is required to identify the transformed cell?

- A. Selectable marker
- B. Ori site
- C. Rop
- D. Restriction site

Answer: A



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700. Which one of the following cannot be explained on the basis of Mendel's Law of Dominance?

- A. The discrete unit controlling a particular character is called a factor
- B. Out of one pair of factors one is dominant, and the other is recessive

C. Alleles do not show any blending and both the characters recover as such in F_2 generation

D. All of these

Answer: C



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701. Consider the following statement and choose the correct option

- (i) The thread like cytoplasmic strands, running from one cell to other is known as plasmodesmata
- (ii) Xylem and phloem constitute the vascular bundle of the stem
- (iii) The first form xylem elements are described as metaxylem
- (iv) Radial vascular bundles are mainly found in the leaves

A. II is true, but I, III and IV are false

B. III is true, but I, II and IV are false

C. IV is true, but I, II and III are false

D. I and II are true, but III and IV are false

Answer: D



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702. Which of the following set is not an example of divergent evolution?

- A. Vertebrate hearts or brains
- B. Marsupials and Darwin finches
- C. Sweet potato and potato
- D. Forelimbs of vertebrates

Answer: C



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703. Which of the following statement is correct about autoradiography?

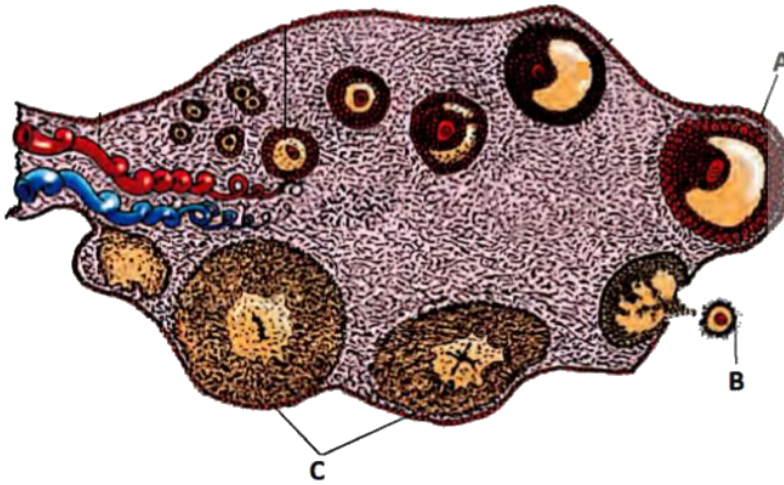
- A. A double-stranded DNA or RNA probe is allowed to hybridize to its complementary DNA
- B. The clone having the mutated gene will appear on the photographic film.
- C. The probe will not have complementarity with the mutated gene
- D. More than one option is correct

Answer: C



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704. Given below is the diagrammatic section view of the ovary. Identify parts labeled as A, B, and C



- A.
- | A | B | C |
|-------------------|------|---------------|
| Tertiary follicle | Ovum | Corpus luteum |

- B.
- | A | B | C |
|-------------------|------|-----------------|
| Graafian follicle | Ovum | Corpus albicans |

- C.
- | A | B | C |
|-------------------|------|---------------|
| Graafian follicle | Ovum | Corpus luteum |

- D.
- | A | B | C |
|---------------|------|-------------------|
| Corpus luteum | Ovum | Graafian follicle |

Answer: C

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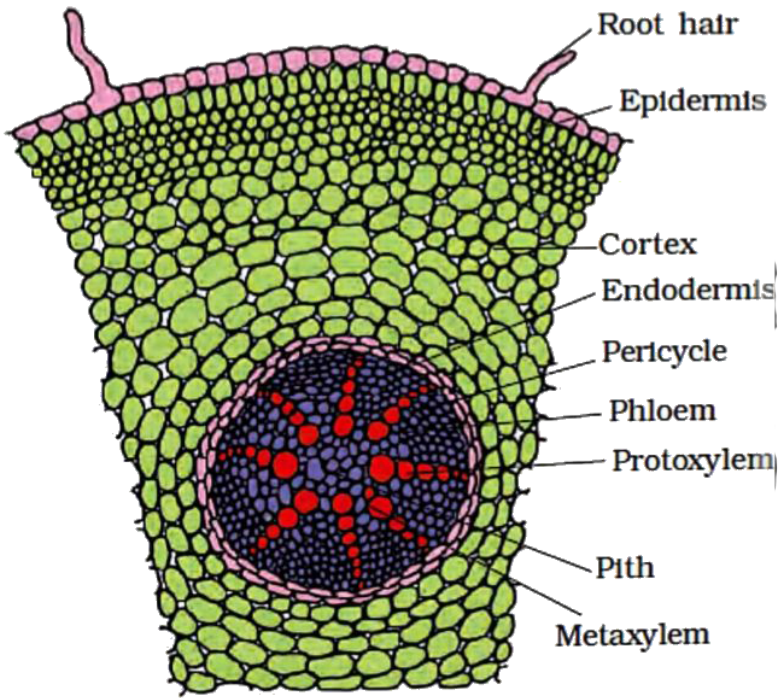
705. Which law states that each gamete has an equal chance of possessing either member of a pair of homologous chromosomes?

- A. Segregation
- B. Independent assortment
- C. Dominance
- D. All of the above

Answer: A



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706.

The given figure shows T.S of

- A. Dicot root
- B. Monocot root
- C. Secondary growth in dicot root
- D. Secondary growth in monocot root

Answer: B



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707. Examples of In-situ conservation method are national parks, sanctuaries, biosphere reserves, and hotspots. The number of (A) national parks, (B) wildlife sanctuaries and (C) biosphere reserves of India, are

A. (A - 90), (B - 448), (C - 20)

B. (A - 78), (B - 212), (C - 18)

C. (A - 90), (B - 448), (C - 14)

D. (A - 58), (B - 412), (C - 14)

Answer: C



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708. The A leaves the eye and the retinal blood vessels enter it at a point medial to and slightly above the posterior pole of the eyeball. B is not present in that region and hence it is called the C . At the posterior pole

of the eye lateral to the C there is a yellowish pigmented spot called D with a central pit called the E

A.

A	B	C	D	E
Optic nerves	Photoreceptor cells	fovea	macula lutea	blind spot

B.

A	B	C	D	E
Optic nerves	Photoreceptor cells	macula lutea	blind spot	fovea

C.

A	B	C	D	E
Optic nerves	Photoreceptor cells	blind spot	macula lutea	fovea

D.

A	B	C	D	E
Optic nerves	Photoreceptor cells	blind spot	fovea	macula lutea

Answer: C

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709. Turgor pressure becomes equal to the wall pressure when

- A. Water leaves the cell
- B. No exchange of water takes place

C. Water enters the cell

D. Solute goes from the cell into water

Answer: B



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710. In which of the following, sporophylls may form distinct compact structures called strobili is found

A. Selaginella and Fuca

B. Selaginella and Equisetum

C. Fucus and Cycas

D. Pteris and Polysiphonia

Answer: B



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711. Organelle involved in modification and routing of newly synthesised proteins to their destination is

- A. chloroplast
- B. Glyoxysomes
- C. Endoplasmic reticulum
- D. Golgi apparatus

Answer: D



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712. At G_1 stage, which phenomenon takes place

- A. DNA synthesis
- B. RNA transcription
- C. Reverse transcription
- D. All of these

Answer: B



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713. Which of the following hormones is modified amino acid ?

- A. Epinephrine
- B. Progesterone
- C. Prostaglandin
- D. Estrogen

Answer: A



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714. In the year 1963, the two enzymes responsible for restricting the growth of bacteriophage in *E. coli* were isolated. One of these added methyl groups to DNA, while the other cut DNA. The latter was called

A. restriction endonuclease

B. methylase

C. ligases

D. plasmid

Answer: A

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715. The immune system when works against self cells it is called

A. Self immune system

B. Autoimmunity

C. Specific immunity

D. None of the above

Answer: B

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716. Systemic heart refers to

- A. The heart that contracts under stimulation from nervous system
- B. Left auricle and left ventricle in higher vertebrates
- C. Entire heart in lower vertebrates
- D. Both the ventricles of human heart

Answer: C



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717. Which of the following statement is false?

- A. Insulin stimulates cellular glucose uptake and utilisation and glycogenesis
- B. Insulin deficiency result in a disease called diabetes mellitus

C. Glucagon inhibits glycogenolysis and gluconeogenesis

D. Thymosin increases the production of antibodies to provide humoral immunity

Answer: B



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718. The suffix - "idae" is used for

A. Species

B. Family

C. Class

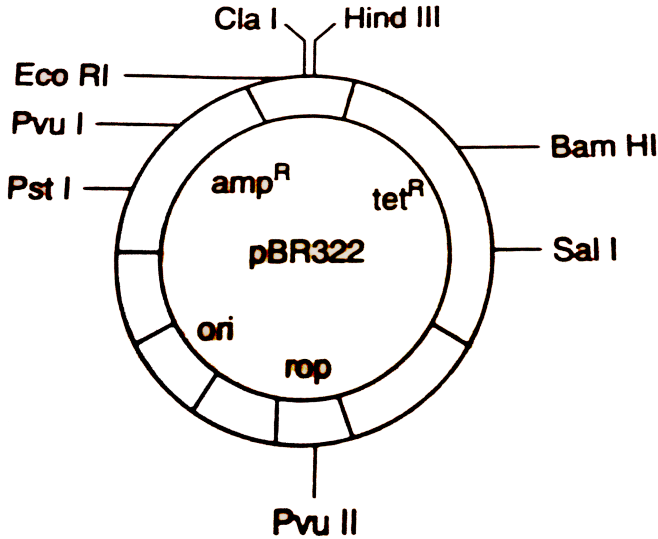
D. Genus

Answer: B



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719. The given figure is the diagrammatic representation of the E. coli vector pBR322. Which one of the given options correctly identifies its certain component (s) ?



- A. Ori -original restriction enzyme
- B. Rop-reduced osmotic pressure
- C. HindIII, EcoRI -selectable markers
- D. amp^R , tet^R - antibiotic resistance genes

Answer: D



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720. Which is incorrect regarding Hisardale?

- A. It is developed through crossbreeding .
- B. it is a hybrid breed .
- C. it is milch breed .
- D. It is a high wool -producing crossbreed .

Answer: C



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Mcqs Biology

1. Spindle fibres are made up of

- A. Proteins
- B. Cellulose

C. Lipids

D. Pectin

Answer: A



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2. Which of the following types of RNA molecule can be described as soluble, relatively small and having a folded compact shape

A. rRNA

B. tRNA

C. mRNA

D. Nucleolar RNA

Answer: B



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3. Plant nomenclature means :-

- A. to give names of plants without any rules
- B. Nomenclature of plants under the international rules
- C. Nomenclature of plants in local language
- D. Nomenclature of plants in english language

Answer: B



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4. Which of the following is used for bolting in beet?

- A. Kinetin
- B. Xylene
- C. Ethylene
- D. gibberellin

Answer: D



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5. A polypeptide of five amino acids is synthesized during protein synthesis in eukaryotic cells. Which one of the following can be the correct polypeptide?

- A. Glycine-valine-methionine-histidine-lysine
- B. Methionine-glycine-histidine-lysine-valine
- C. Valine-methionine-glycine-histidine-lysine
- D. histidine-lysine-methionine-valine-glycine

Answer: B



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6. What is true for cyanobacteria?

A. Non-oxygenic without nitrogenase

B. Non-oxygenic with nitrogenase

C. Oxygenic with nitrogenase

D. Oxygenic without nitrogenase

Answer: C



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7. To determine whether F_1 hybrid is homozygous or heterozygous for a particular trait ____ Cross is performed.

A. Monohybrid

B. Test

C. Back

D. Reciprocal

Answer: B

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8. How many pigment molecules constitute a single photosystem?

- A. 2500
- B. 250-400
- C. 2000
- D. 2

Answer: B

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9. Antihistamine pills are to nullify:

- A. Allergic reaction
- B. Malaria
- C. Typhoid

D. None of these.

Answer: A



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10. A cell swells up when kept in

- A. Hypotonic solution
- B. Hyperrrtonic solution
- C. Isotonic solution
- D. all of the above

Answer: A



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11. Sphenoid bone is found in :

- A. Hindi limb
- B. Lower jaw
- C. Pelvic girdle
- D. skull

Answer: D

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12. One of the free-living, anaerobic nitrogenfixer is

- A. Beijernickia
- B. Rhodospirillum
- C. Rhizobium
- D. Azotobacter

Answer: B

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13. Which of the following material is not safe to prepare carry bags?

A. Cloth

B. Paper

C. Jute

D. Polythene

Answer: D



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14. Ribosomal RNA is actively synthesized in :-

A. Lysosomes

B. Nucleolus

C. Nucleoplasm

D. Riboromes

Answer: B



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15. In Kreb's cycle, the conversion of oxalosuccinate into α -ketoglutarate involves ____ reaction.

A. Oxidation

B. Reduction

C. Hydration

D. Decarboxylation

Answer: D



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16. Given below are some of the stages of the hydrarch.

(A) March-meadow stage

(B) Reed-swamp stage

(C) submerged plant stage (D) Phytoplankton stage

Select the option that represents the correct sequence of these stages.

A. IV,III,V,II and I

B. III,V,I,II and IV

C. II,IV,III,I and V

D. IV,V,III,II and I

Answer: A



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17. Mule is an example of ____

- A. cross-breeding
- B. Interspecific hybridisation
- C. Out-breeding
- D. Out-crossing

Answer: B



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18. During rDNA technology, which one of the following enzymes is used for cleaving DNA molecule?

- A. Exonuclease
- B. Endonuclease
- C. Restriction endonuclease
- D. Helicase

Answer: C

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19. The chemical method of contraception includes

- A. Jellies only
- B. Creams and foams only
- C. Oral contraceptives only
- D. All of above

Answer: D

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20. Consider the following statements regarding photosynthesis

- (A) ATP formation during photosynthesis is termed as photophosphorylation
- (B) Kranz anatomy pertains to leaf

(C) Reduction of $NADP^+$ to NADPH occurs during Calvin cycle

(D) In a chlorophyll molecule manganese is present in phytol tail

A. I and II correct

B. III and IV are correct

C. I and III are correct

D. I and IV correct

Answer: A



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21. Pollen tube at the time of entering embryo sac has

A. Four gametes

B. Three male gametes

C. Two male gametes

D. One gametic nucleus

Answer: C



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22. Knee joint and elbow joints are examples of

- A. Hinge joint
- B. Gliding joint
- C. Ball and socket joint
- D. Pivot joint

Answer: A



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23. Read the following statement and choose the correct option:

- I. *Agrobacterium tumefaciens*, a pathogen of several monocot plants, is able to deliver a piece of DNA known as "T-DNA".

II. The tumor inducing (Ti) plasmid of *Agrobacterium tumefaciens* has been modified into a cloning vector, which is more pathogenic to the plants.

- A. Both *i* and ii are correct
- B. *i* is correct, while ii is incorrect
- C. *i* is incorrect, while ii is correct
- D. Both I and ii are incorrect

Answer: C



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24. The conversion of nitrate to nitrogen is called

- A. Nitrification
- B. Denitrification
- C. Ammonification

D. Nitrogen fixation

Answer: B



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25. In man, recessive characters like haemophilia are mainly transmitted through

- A. Y-chromosome
- B. Chromosome number 12
- C. X-chromosome
- D. Chromosome number 11

Answer: C



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26. Sertoli cells are regulated by the pituitary hormone known as

- A. GH
- B. Prolactin
- C. LH
- D. FSH

Answer: D



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27. The biogeographic region in india having maximum endemism for amphibians is

- A. The westerns Ghats
- B. The indo-Burma region
- C. The himalayan range
- D. The gangetic plains

Answer: A



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28. Biosphere reserves are different from National Park as

- A. Humans are not integral part of biosphere reserve
- B. Plants and animals are protected in biosphere reserves
- C. Humans are an integral part of the biosphere reserve
- D. Only plants are protected in-situ environment

Answer: C



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29. The chemotherapeutic substance derived from living organisms that has an inhibitory effect on parasitic organisms is known as

- A. Exotoxin
- B. Bactericide
- C. Antibody
- D. Antibiotic

Answer: D

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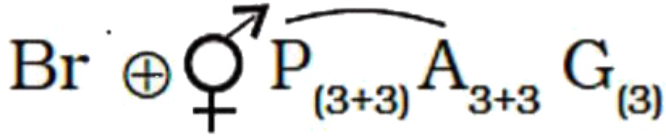
30. Phyllode is an adaptation to

- A. Heterophtic environment
- B. Halophytic environment
- C. Mesophytic environment
- D. Xerophytic environment

Answer: D

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31. Analyze the floral formula given below.



The floral formula corresponding to which of the following?

- A. Crotonaria and Astragalus
- B. Lepidium and Ibaeris
- C. Allium and Asparagus
- D. Vetiveria and Cymbopogon

Answer: C



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32. During the propagation of a nerve impulse, the action potential results from the movement of

- A. K^+ ions from extracellular fluid to intracellular fluid
- B. Na^+ ions from extracellular fluid to intracellular fluid
- C. K^+ ions from intracellular fluid to extracellular fluid
- D. Na^+ ions from intracellular fluid to extracellular fluid

Answer: B



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33. The hardest part of the animal body is

- A. Bone
- B. Hair
- C. Dentine
- D. Enamel

Answer: D



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34. Why is insulin not orally administered to the patient?

- A. Insulin is a steroid
- B. It is bitter in taste
- C. Its activity increases after digestion
- D. It will be digested in the stomach and will become non-functional

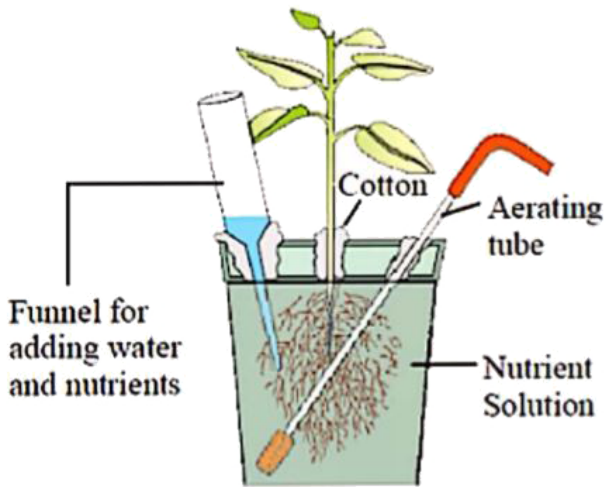
Answer: D



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35. Below diagram showing a technique for the culture of plants. This technique has been successfully employed for the production of which of

the following?



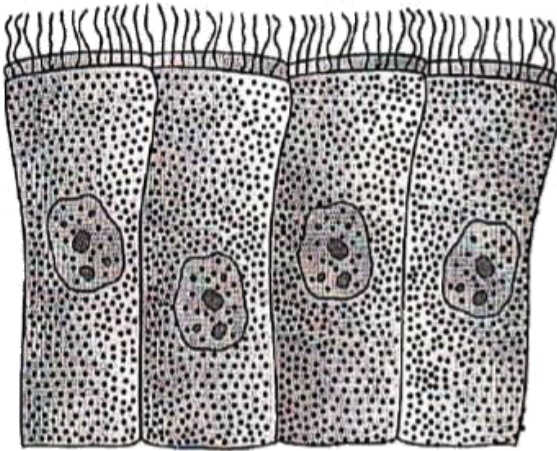
- A. Tomato, apple, guava and Fig
- B. Cucumber, Potato and Banyan
- C. Cucumber, Lettuce and Tomato
- D. Lettuce, apple, Potato and Mango

Answer: C



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36. Identify the given epithelium in the diagram with its correct location



	Epithelium	Location
a)	Ciliated columnar	Nephron
b)	Ciliated cuboidal	Trachea
c)	Ciliated columnar	Fallopian tube
d)	Compound	Skin

- A. Epithelium Location
 Ciliated columnar Nephron
- B. Epithelium Location
 Ciliated cuboidal Trachea
- C. Epithelium Location
 Ciliated columnar Fallopian tube
- D. Epithelium Location
 Compound Skin

Answer: C



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37. In a standard ECG which one of the following alphabets is the correct representation of the respective activity of the human heart ?

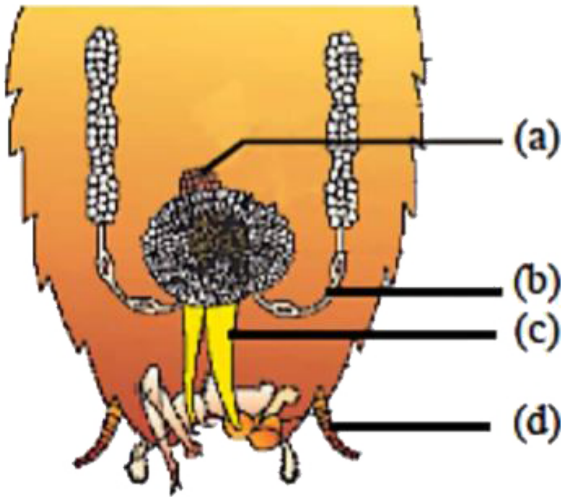
- A. S-start of systole
- B. T-end of diastole
- C. P-depolarisation of the atria
- D. R-repolarisation of ventricles

Answer: C



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38. Consider the diagram below and label the structures (a-d).



A.

a	b	c	d
Colleterial gland	Vas deferens	Ejaculatory duct	Anal cercus

B.

a	b	c	d
Phallic gland	Vas deferens	Ejaculatory duct	Anal cercus

C.

a	b	c	d
Phallic gland	Ejaculatory deferens	Vas duct	Caudal style

D.

a	b	c	d
Phallic gland	Vas deferens	Ejaculatory duct	Titillator

Answer: B



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39. A jawless fish which lays eggs in fresh water and whose ammocoete larve after metamorphosis return to ocean is

- A. Rohu
- B. Neomyxine
- C. Petromyzon
- D. Eptatretus

Answer: C



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40. Afferent nerve fibres carry impulses from

- A. Effector organs to CNS
- B. Receptors of CNS

C. CNS to receptors

D. CNS to muscles

Answer: B



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41. Water potential is equal to

A. $\Psi_S + O. P.$

B. $\Psi_S + T. P.$

C. $\Psi_P + \Psi_W$

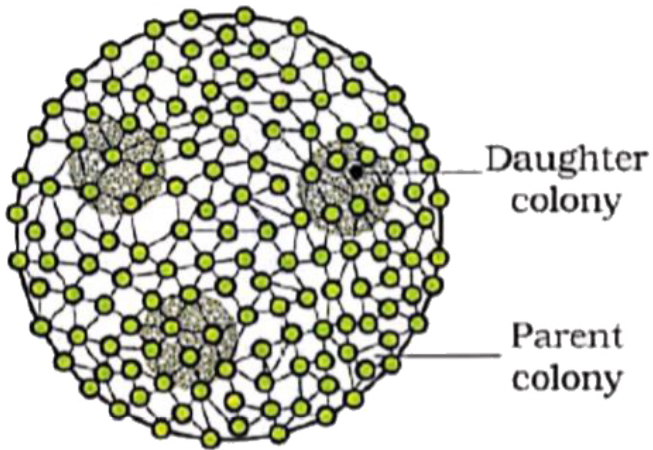
D. $\Psi_S + \Psi_P$

Answer: D



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42. The organism shown in the given diagram is



A. Spirogyra

B. Ulothrix

C. Oscillatoria

D. Volvox

Answer: D



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43. Which of the following STIs are not completely curable ?

A. Genital herpes

B. Hepatitis-B

C. AIDS

D. All of these

Answer: D



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44. Which was the biggest land dinosaur ?

A. Stegosaurus

B. Tyrannosaurus

C. Brachiosaurus

D. Triceraptops

Answer: B



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45. Synaptonemal complex is formed during

- A. Pachytene
- B. Zygotene
- C. Leptotene
- D. Diplotene

Answer: B



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46. Why is carbon monoxide (CO) poisonous for man?

- A. It affects the nerves of the lungs.

B. It affects the diaphragm and intercostal muscles.

C. It reacts with the oxygen-reducing percentage of oxygen in the air.

D. haemoglobin combines with carbon monoxide instead of oxygen and the produce cannot dissociate.

Answer: D

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47. Organisms which can tolerate and thrive in wide range of temperature are called

A. Stenothermal

B. Homeotherms

C. Poikilotherms

D. Eurythermal

Answer: D

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48. A person suffering from cancer is treated with radiotherapy. Which of the following techniques is used in this treatment?

- A. All tumour cells and surroundings normal cells get killed.
- B. It is meant to cure damaged DNA
- C. radiations activated p53 gene of tumour cell
- D. tumour cells are irradiated lethally

Answer: D

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49. An example of gene therapy is

- A. Production of injectable hepatitis B vaccine

B. Production of vaccines in food crops like potatoes which can be eaten

C. Introduction of the gene for adenosine deaminase in persons suffering from severe combined immuno deficiency (SCID)

D. Production of test-tube babies by artificial insemination and implantation of fertilized eggs

Answer: C



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50. Which is incorrect regarding Hisardale?

A. It is developed through cross-breeding.

B. It is a hybrid breed

C. It is a milch breed.

D. It is a high wool-producing crossbreed.

Answer: C



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51. Grave's disease is characterised by the following, except

- A. Deposition of fats in eye sockets
- B. Enlargement of thyroid gland
- C. Weight loss
- D. Weight gain

Answer: D



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52. Which one of following is complex V of the ETS of inner mitochondrial membrane?

A. NADH Dehydrogenase

B. Cytochrome oxidase

C. Ubiquinone

D. ATP synthase

Answer: D

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53. Which combination of gases is suitable for fruit ripening

A. CO_2 and C_2H_6

B. CH_4 and CO_2

C. CO_2 and O_2

D. C_2H_4 and CO_2

Answer: D

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54. Which one of the following is a matching pair of certain organism(s) and the kind of association?

- A. Sea anemone and clownfish-commensalism
- B. Red algae and fungi in lichens-mutualism
- C. orchids growing on trees-parasitism
- D. Cuscuta (dodder) growing on other flowering plants-Epiphytism

Answer: A



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55. The correct sequence of reactions in Krebs cycle is:

- A. Isocitric acid \rightarrow α - ketoglutaric acid \rightarrow oxalosuccinic acid
- B. Isocitric acid \rightarrow oxalosuccinic acid \rightarrow α -ketoglutaric acid
- C. Oxalosuccinic acid \rightarrow citric acid \rightarrow α -ketoglutaric acid

D. α -ketoglutaric acid \rightarrow isocitric acid

Answer: B



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56. The process of spermiogenesis involves all of the following, except

- A. Formation of mitochondrial sheath
- B. Formation of proximal and distal centrioles
- C. Formation of acrosomes
- D. Shortening of sperm

Answer: D



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57. What is common between vegetative reproduction and Apomixis

- A. Both are a sexual method of reproduction
- B. Both produce progeny identical to the parent
- C. Both are applicable to only dicot plants
- D. Both bypass the flowering plant

Answer: B



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58. Protists are:

1. Unicellular and prokaryote
2. Unicellular and eukaryote
3. Multicellular and eukaryote
4. Autotroph and heterotroph

A. 1,2 and 3

B. 2,3 and 4

C. 3 and 4

D. 2 and 4

Answer: D



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59. Which of the following are surface structures of a prokaryotic cell, but does not facilitate motility?

A. Pili

B. Flagella

C. Fimbriae

D. Both (A) and (C)

Answer: D



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60. Which of the following types of bacteria were used in Griffith's transformation experiment?

- A. Diplococcus, R-III and S-II type
- B. Pneumococcus, T_2 phase
- C. Streptococcus, R-II and S-III type
- D. Diplococcus, E. coli

Answer: C



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61. Read the different components from (A) to (D) in the list given below and tell the correct order of the components with reference to their arrangement from outer side to inner side in a woody dicot stem

- (A) Secondary cortex , (B) Wood
- (C) Secondary phloem , (D) Phellem

A. (i),(ii),(iv),(iii)

B. (iv),(i),(iii),(ii)

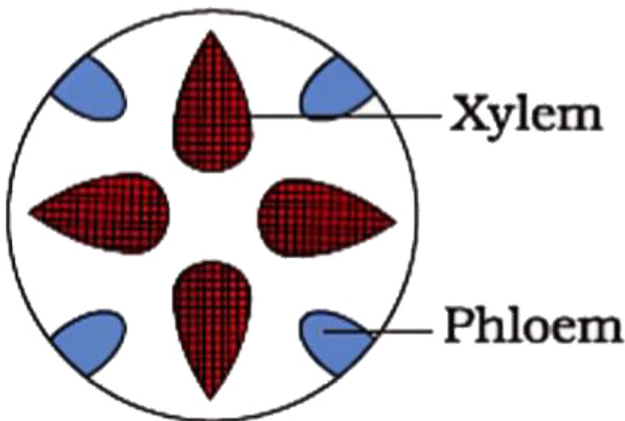
C. (iv),(iii),(i),(ii)

D. (iii),(iv),(ii),(i)

Answer: B

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62. Which type of arrangement is shown by the vascular bundle in the given diagram?



- A. Open vascular bundles
- B. Closed vascular bundles
- C. Conjoint vascular bundles
- D. Radial vascular bundles

Answer: D

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63. Select the correct statements with respect to poultry farm management.

- A. The word poultry is often used to refer to the meat of only birds.
- B. They typically include chicken and ducks, and sometimes turkey and geese.
- C. Leghorn is an improved breed of chicken
- D. All of these

Answer: D



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64. Which one is the cofactor of carboxypeptidase?

A. Iron

B. Zinc

C. Copper

D. Magnesium

Answer: B



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65. which of the following forms the pioneer community in hydrarch succession?

A. Wolffia

B. Phytoplankton

C. Lichen

D. Submerged free-floating plants

Answer: B



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66. The egrets always forage close to where the cattle are grazing. The interaction between them can be called

A. Brood Parasitism

B. Parasitism

C. Mutualism

D. Commensalism

Answer: D

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67. Each of the following statements concerning the seminiferous epithelium is true except.

- A. Before puberty, it contains spermatids
- B. It consists of sertoli cells and spermatogenic cells
- C. It has a robust basement membrane
- D. Its basal compartment contains spermatogonia

Answer: A

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68. Find the mismatched pair.

- A. Physical barriers-mucus coating of the epithelium lining the gastrointestinal tracts.

B. Physiological barriers-acid in the stomach

C. Cellular barriers-PMNL-neutrophils

D. Cytokine barriers-saliva in mouth

Answer: D



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69. How many of the daughter cells obtained from a megaspore mother cell result in the formation of monosporic embryo sac?

A. Four

B. Three

C. Two

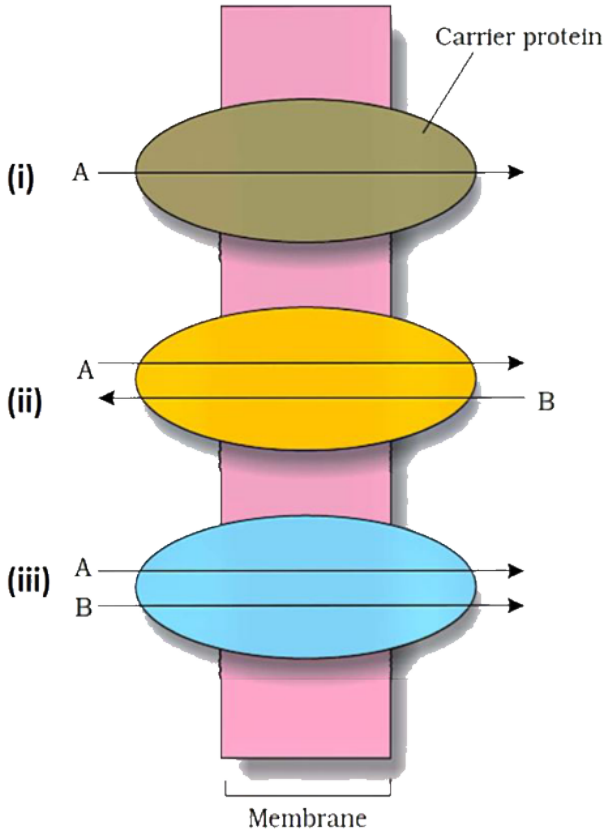
D. One

Answer: D



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70. Identify the type of transport labelled (i), (ii) and (iii) in the diagram given below:



A.

(i)	(ii)	(iii)
Passive	Active	Facilitated

B.

(i)	(ii)	(iii)
Symport	Antiport	Uniport

Q

(i)	(ii)	(iii)
Uniport	Antiport	Symport

C.

Q

(i)	(ii)	(iii)
Uniport	Symport	Antiport

D.

Answer: C**Watch Video Solution**

71. The mode of excretion in which animal excrete urea as major excretory waste is called

- A. Ureotelism
- B. Uricotelism
- C. Ammonotelism
- D. Aminotelism

Answer: A**Watch Video Solution**

72. Industrial melanism is an example of

- A. Protective resemblance with the surroundings
- B. Defensive adaptation of skin against ultraviolet radiations
- C. Drug resistance
- D. Artificial selection

Answer: A



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73. Which of the following is correctly matched?

- A. pbR322-Enzyme
- B. Ligase-Molecular glue
- C. Agrobacterium-Production of insulin
- D. EcoRI-Plamid vector

Answer: B

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74. The part of nephron involved in active reabsorption of sodium is

- A. Distal convoluted tubule
- B. Proximal convoluted tubule
- C. Bowman's capsule
- D. Descending limb of Henle's loop

Answer: A

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75. The serial arrangement of taxon/taxonomic category is known as

- A. Category

B. Classification

C. Hierarchy

D. Taxonomy

Answer: C



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76. The pro-hormone insulin is processed to become a fully mature and functional insulin hormone by removal of

A. C peptide

B. A peptide

C. B peptide

D. Both (A) and (B)

Answer: A



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77. The green alga used by T.W Engelmann in his prism experiment is

- A. Chlorella
- B. Spirogyra
- C. Cladophora
- D. Ulothrix

Answer: C



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78. Which of the following does not match?

- A. Pancreas-Largest exocrine gland
- B. Antigen-Antibody
- C. Thyroid-Goitre
- D. Enzyme-Substrate

Answer: A



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79. In five kingdom classification, ascomycetes are included in

- A. Monera
- B. Protista
- C. Animalia
- D. Fungi

Answer: D



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80. Apical dominance in higher plants is due to

- A. Auxin

B. Gibberellins

C. Ethylene

D. ABA

Answer: A



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81. Regeneration of a plant cell to give rise to new plant is called:

A. Reproduction

B. Budding

C. Totipotency

D. Pleuripotency

Answer: C



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82. The end of juvenile phase marks the beginning of

- A. Vegetative phase
- B. Reproductive phase
- C. Senescence
- D. Ageing

Answer: B



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83. Each testicular lobule contains ___ convoluted seminiferous tubules.

- A. 1 to 3
- B. 5 to 7
- C. 8 to 10
- D. 11 to 14

Answer: A



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84. Maximum bioconcentration of pesticide residue is usually found in birds that exclusively feed on:

- A. Fish
- B. Seeds
- C. Worms
- D. Meat

Answer: A



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85. Which one of the following groups of three animals is correctly matched with their one characteristic morphological feature?

A. Columba, Equus, and Balaenoptera-Dorsal hollow nerve cord and poikilothermous

B. Ptreopus, Pavo, Macropus and Psittacula-4 chambered heart and homeothermy

C. Ascaris, Wuchereria and Pheretima-Pseudocoelomates and metamerism

D. Dentalium, octopus, apis, and bombyx-open circulatory system and dorsal nerve cord

Answer: B



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86. Find the correct pair.

A. Arthritis-Decreased bone mass

B. Diabetes mellitus-Deficiency of ADH

C. Angina pectoris-acute chest pain

D. Emphysema-Inflammation of bronchi

Answer: C



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87. Antherozoids of both funaria and pteris were released together near the archegonia of pteris. Only its sperms enter the archegonia as

A. Pteris archegonia repel funaria sperms

B. Funaria sperms get killed by pteris sperms

C. Funaria sperms are less mobile

D. Pteris archegonia release chemical to attract its sperms

Answer: D



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88. The gynoecium may have more than one pistil. Such a condition is called

- A. Monocarpellary
- B. Apocarpous
- C. Syncarpous
- D. Multicarpellary

Answer: D



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89. Select the incorrect statement.

- A. Large holes in Swiss cheese are due to production of a large amount of CO_2
- B. Protease and pectinase is used to clarify the bottles juices
- C. Penicillin was discovered by florey

D. In mycorrhiza, the fungi help in the absorption of nutrients

Answer: C



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90. Which one is polymer?

A. Sucrose

B. Glycogen

C. Fructose

D. Lactose

Answer: B



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