



BIOLOGY

BOOKS - NTA MOCK TESTS

NTA NEET SET 48

Biology

1. The circulatory system of cockroach

A. is present on dorsal side and has 3 chambers of heart in abdominal region

B. is present on ventral side and has 10 abdominal and 3 thoracic chambers of heart

C. is present on ventral side and has 13 chambers of heart in abdominal region

D. is present on dorsal side and has 10 abdominal and 3 thoracic chambers of heart

Answer: D

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2. Identify the organism given in the diagram .

A. *Bacillus thuringensis*

B. *Agrobacterium tumefaciens*

C. Cyanobacteria

D. *Escherichia coli*

Answer: A



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3. A dsDNA found in E. Coli has N^{15} labeled nitrogen bases. This organism was provided with N^{14} based nitrogen bases for the replication process . The two new DNA molecules synthesized after one round of replication in the N^{14} based medium . Which of the following options correctly describes the comparison between

parent DNA and daughter DNA ?

	DNA	Density	Sequence of Nucleotides	Radioactivity
1	Parent DNA	Heavy	Same as daughter DNA	Not-Radioactive
	Daughter DNA	Light	Same as parent DNA	Not-Radioactive
2	Parent DNA	Heavy	Same as daughter DNA	Radioactive
	Daughter DNA	Light	Same as parent DNA	Radioactive
3	Parent DNA	Light	not the same as daughter DNA	Not-Radioactive
	Daughter DNA	Heavy	not the same as parent DNA	Not-Radioactive
4	Parent DNA	Light	Same as daughter DNA	Not-Radioactive
	Daughter DNA	Heavy	Same as parent DNA	Not-Radioactive

A. 1

B. 2

C. 3

D. 4

Answer: A



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4. A set of 6 test tube having same temperature but different pH were setup to conduct an experiment . To each of the tubes, starch and amylase were added in a mix of sterile water . The concentration was kept the same . The following table notes the reaction completion time for each of the six tubes.

<i>PH</i>	1	3	5	7	9	11
Time taken to complete in seconds (s).	94	64	32	5	35	66

Using the above data , determine the pH where amylase has shown highest rate of activity.

A. pH 1

B. pH 5

C. pH 7

D. pH 11

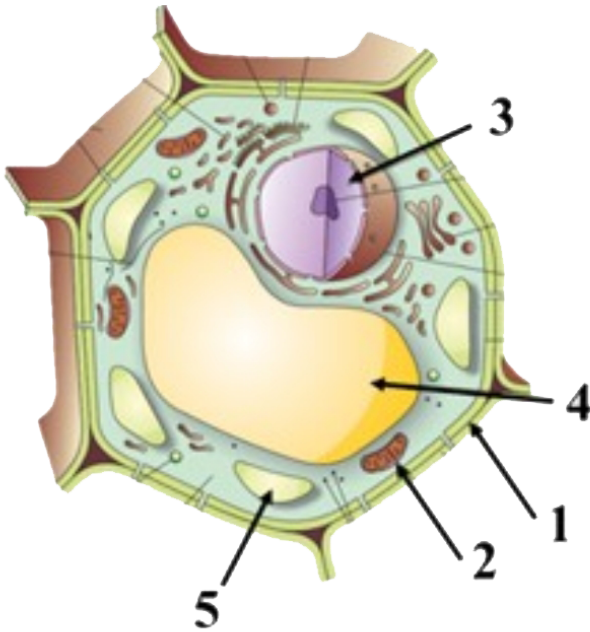
Answer: C



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5. The following is the labelled representation of a typical plant cell. Among the levelled parts , which of these will also ba

observed in a typical animal cell ?



A. 1,3 and 4 only

B. 1,4 and 5 only

C. 2,3 and 4 only

D. 1,3,4 and 5 only

Answer: C



6. Meiosis is one of the two cell division process observed to occur in cells . Which statement from below correctly describes the outcome of a successful meiotic division ?

- A. Four daughter cells are produce . Each resulting daughter cell has the same number of chromosomes as the parent cell.
- B. Two daughter cells are produce Each resulting daughter cell has the same number of chromosomes as the parent cell.
- C. Four daughter cells are produce . Each resulting daughter cell has one - half the number of chromosomes as the parent cell.

D. Two daughter cells are produced. Each resulting daughter cell has one-half the number of chromosomes as the parent cell.

Answer: C

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7. Breathing, an important step of the respiratory system, is a two-part process involving inhalation and exhalation. During the process of breathing, the thorax region shows some changes. Identify the statement/s from below that is/are related to the exhalation process.

- I. External intercostal muscles contract
- II. Pressure in the lungs increases
- III. Diaphragm contracts
- IV. The volume of thorax decreases

A. II and IV only

B. I, II and III only

C. I , II , III and IV

D. II and III only

Answer: A



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8. Read the following statement regarding DNA recombinant technology. Identify the statements that are true and false and select the appropriate option.

I. Selectable marker helps in identifying and eliminating non-transformants and selectively permitting the growth of the transformants.

II. Plasmids have the ability to replicate within bacterial cells

independent of the control of chromosomal DNA making it a suitable cloning vector.

III. The DNA fragments for isolation can be separated by a technique known as thin-layer chromatography.

IV. A technique where cells are bombarded with high velocity micro-particles of Au or W coated with DNA is known as micro-injection.

	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
1	False	False	True	True
2	True	True	False	False
3	True	True	True	True
4	False	False	True	False

A. 1

B. 2

C. 3

D. 4

Answer: B



9. Read the statements below regarding the nucleus of a cell. Identify them as true or false and select the correct combination option.

I. The nucleus displays an elaborate nucleoprotein fiber called chromatin during the interphase of the cell cycle.

II. The space between the parallel membranes of the nuclear envelope is called the nucleoplasm.

III. Nucleus was discovered first by Flemming.

IV. The nuclear pores within the nuclear envelope are formed by the fusion of both membranes.

No.	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
1	True	True	False	False
2	True	False	False	False
3	True	True	False	False
4	True	False	False	True

B. 2

C. 3

D. 4

Answer: D



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10. Nucleoside from one of the precursor in the formation of the genetic material within the living system . What is the composition of nucleoside ?

A. Five carbon sugar molecule , nitrogen base only

B. Six carbon sugar molecule , nitrogen base only

C. Six carbon sugar molecule , nitrogen base and phosphate group only

D. Five carbon sugar molecule , nitrogen base , and amino acids

only

Answer: A

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11. Match the organism with its related contribution in the field of biotechnology.

Column-I

Column-II

- | | |
|-----------------------------|----------------------------------|
| 1 Escherichia coli | <i>I</i> 1 st rDNA |
| 2 Agrobacterium tumefaciens | <i>II</i> pBR322 |
| 3 Thermus aquaticus | <i>III</i> Ti plasmid |
| 4 Salmonella typhimurium | <i>IV</i> Polymerase used in PCR |

A. 1 - I , 2 - III , 3 - II , 4 - IV

B. 1 - II , 2 - III , 3 - IV , 4 - I

C. 1 - III , 2 - IV , 3-IV , 4 - I

D. 1 - II , 2 - I , 3 - IV , 4 - III

Answer: B



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12. Select the combination of option that will correctly complete the below statements.

I. A typical eukaryotic cell has membrane bound distinct structures namely,(P).

II. All the prokaryotes are known to have a layer of cell wall around its cell membrane except (Q)

III. A special membranous structure found in a bacteria is (R) which is formed by the extensions of the plasma membrane of the cell.

IV. (S) are thin filamentous extensions from cell wall that helps the bacterial cell with motility.

A. P - organ , Q - mycoplasma , R - peroxisome , S - cilia

B. P - organelle , Q - eubacteria , R - mesosome , S - flagella

C. P - organelle , Q - mycoplasma , R - mesosome , S - flagella

D. P - vesicle , Q - eubacteria , R - peroxisome , S - flagella

Answer: C

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13. Skeletal muscles come under the board category of muscle tissue for the animals. How many of the following statements are correct related to the skeletal muscles.

I. They are closely attached to bones.

II. These are involuntary in the activity.

III. They are typically found within the blood vessel

IV. Several muscle fibers are enclosed by a sheath of connective tissue.

A. 3

B. 2

C. 4

D. 1

Answer: B



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14. According to substrata samhita (600 B. C.), the four division of the plants are,

A. Vanaspathi , Vrksa , Sasya and Osadhi

B. Vanaspathi , Vrksa , Virudha and Osadhi

C. Vanaspathi , Bheej , Virudha and Osadhi

D. Vanaspathi , Vrksa , Virudha and Utpathi

Answer: B



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15. Read the following statements. Which of the following statements about RNA molecule is incorrect?

I. It has a double helical structure.

II. It contains ribose which is a cyclic aldopentose monosaccharide.

III. It is the genetic material in all animal viruses.

IV. It contains the ribothymidylic acid.

A. I, III and IV only

B. III and IV only

C. I and II only

D. I , II , III and IV

Answer: A



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16. On comparing the proportion of elements found in human tissue and Earth's crust, which one of the following is found to be negligible?

- A. Silicon
- B. Calcium
- C. Magnesium
- D. Sulphur

Answer: A

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17. Plant cell undergoes cell division to form two new cell. The below diagram represents a certain stage of the cell cycle of plant cells. Determine the step/stage of the cell cycle process that will

happen just before the represented process starts.



Cell plate

- A. Diakinesis
- B. Karyokinesis
- C. DNA synthesis
- D. Cytokinesis

Answer: B

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18. A balloon is blown up by a healthy person with no known respiratory disorder. Select the option that correctly provides information about the proportion of gasses of air inside the balloon compared to the proportion of gasses of air outside the balloon.

<i>No</i>	water vapour	oxygen	carbon dioxide
1	More	More	Less
2	Less	More	More
3	More	Less	More
4	less	Less	More

A. 1

B. 2

C. 3

D. 4

Answer: C



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19. DNA fingerprinting is a technique used in generating a profile of an individual . This technique identifies the various satellite DNA found in the sequence and has high degree of

- A. Metamorphism
- B. Polymorphism
- C. Biomorphism
- D. Pathomorphism

Answer: B



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20. Sticky ends, observed in the DNA , are due to the action of a particular type of nucleases. Which of the following statements is correct regarding the sticky ends of the DNA strand ?

- A. The sticky ends are made of unpaired nucleotides
- B. The sticky ends have an adhesive group for attachment.
- C. The sticky ends are made of paired up nucleotides
- D. The sticky ends are made by the action of ligases

Answer: A

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21. Which of the following is Gause 's competitive Exclusion principal ?

- A. Two closely related species competing for the same resources can co - exist indefinitely
- B. Two closely related species competing for the same resources can co - exist indefinitely and the competitively

superior one will be eliminated eventually.

C. Two different species competing for the same resource cannot co - exist indefinitely.

D. Two closely related species competing for the same resources can co - exist indefinitely and the competitively inferior one will be eliminated eventually.

Answer: D

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22. Choose the option which accurately represents the characteristics of family Fabaceae .

	Flower	Androeceium	Ovary	Seed
i.	Bisexual, Actinomorphic	Diadelphous	Superior	Endospermic
ii.	Bisexual, Actinomorphic	Polyadelphous	Inferior	Non- endospermic
iii.	Bisexual, Zygomorphic	Diadelphous	Superior	Non- endospermic
iv.	Bisexual Zygomorphic	Monadelphous	Inferior	Endospermic

A. i.

B. ii.

C. iii.

D. iv.

Answer: C

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23. Brandy, whiskey , and rum are

- A. Distilled , non - fermented products
- B. Non - distilled , fermented products
- C. Fermented distilled products
- D. Non - distilled , non - fermented products

Answer: C

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24. Which of the following statements is true according to the concept of biological classification ?

- A. Bacteria are heterotrophic saprophytic organisms in the kingdom Monera with a great range of diversity.
- B. The heterotrophic prokaryotic , multicellular organisms lacking a cell wall are included kingdom Animalia.

C. Kingdom Fungi includes eukaryotic multicellular heterophic organisms which exhibit both sexual as well as asexual modes of reproduction and have a great range of diversity.

D. Kingdom Plantae includes eukaryotic chlorophyll containing unicellular organisms and a few heterotrophs.

Answer: C

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25. Dr. John is a botanist , he is experimenting with exotic species of rose plant Rose polyantha . He started with 40 plants, after a year 22 more plants were added through reproduction but also 14 plants died during the experimentation .

Which of the following statements are correct ?

1. The death rate is 0.35% per year

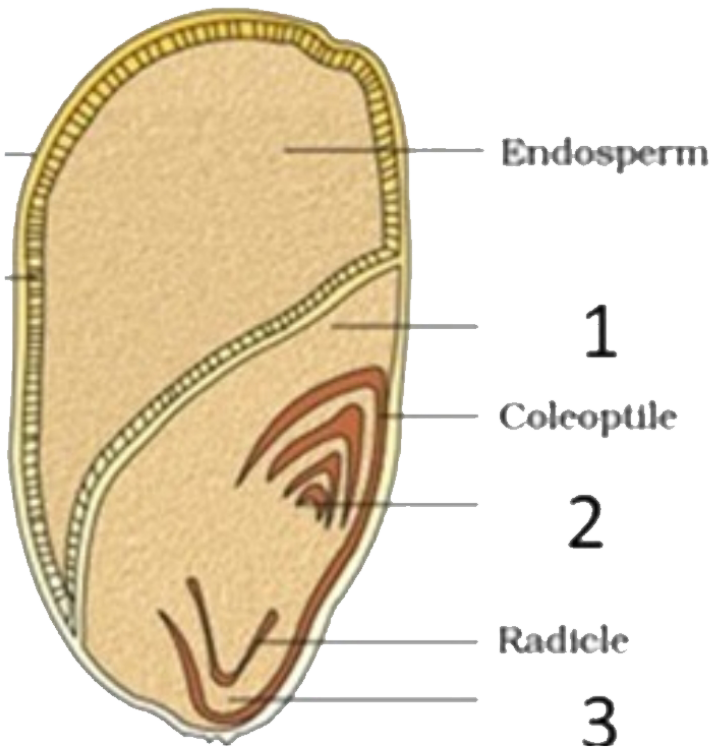
2. The birth rate is 0.55 % per rose per year
 3. The birth rate is 0.55 % per year
 4. The death rate is 0.35 % per rose per year
-
- A. 1 and 2
 - B. 2 and 4
 - C. 3 and 4
 - D. 1 and 3

Answer: B



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26. Observe the diagram given below.



Which of the following describes the parts labeled as 1,2 and 3 correctly ?

- i. It represents the plumule which further develops into the shoot .
- ii. Large shield shaped cotyledon.
- iii. Further develops into the primary root.

A. 1 – *iii*, 2 – *i*, 3 – *ii*

B. 1 – *ii*, 2 – *i*, 3 – *iii*

C. 1 – *iii*, 2 – *ii*, 3 – *i*

D. 1 – *i*, 2 – *iii*, 3 – *ii*

Answer: B



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27. Babanrao is an organic farmer growing ladyfingers in this field.

What are the precautions he will take to control pests in his field ?

I. Use of ladybird and dragonflies to control butterfly cartepillars .

II. Use of Nucleopolyhedrovirus to control arthropods .

III. Use of *Bacillus thuringiensis* to control butterfly caterpillars .

IV. Use of *Trichoderma* to control arthropods .

A. I , III,

B. II, III

C. III , IV

D. I , IV

Answer: B



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28. Identify the correct match :

Organisms	Habitat	Features
<i>a . Diatom</i>	i. stagnant water	1. photosynthetic with the stiff cell wall.
<i>b. Gonyaulax</i>	ii . seawater	2. photosynthetic with the indestructible cell wall.
<i>c.</i> Paramoecium	iii. marine water	3. photosynthetic with no cell wall.
<i>d. Euglena</i>	iv. freshwater	4. Not photosynthetic and have no cell wall

A. $a - i - 4, b - iii - 3, c - iv - 4, d - ii - 2$

B. $a - iv - 2, b - iii - 1 - , c - ii - 4, d - i - 3$

C. $a - ii - 3, b - iv - 1, c - iii - 2, d - i - 4$

D. $a - iv - 2, b - iii - 4, c - ii - 1, d - i - 3$

Answer: B



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29. Match the organism with its properties in a food chain :

Organism	Role in the food chain	Nutrition	Trophic level
1. Grass	i. Secondary Consumer	a. Herbivores	w. Third
2. Grasshopper	ii. Tertiary Consumer	b. Primary Carnivores	x. Fourth
3. Rodents	iii. Producer	c. Secondary Carnivores	y. First
4. Cats	iv. Primary Consumer	d. Transducers	z. Second

A.

1 - iv - c - w, 2 - ii - d - x, 3 - iii - a - y, 4 - i - b - z

B.

1 - *i* - *b* - *x*, 2 - *iii* - *c* - *y*, 3 - *ii* - *d* - *x*, 4 - *iv* - *a* - *w*

C.

1 - *iii* - *d* - *y*, 2 - *iv* - *a* - *z*, 3 - *i* - *b* - *w*, 4 - *ii* - *c* - *x*

D.

1 - *ii* - *a* - *z*, 2 - *i* - *b* - *w*, 3 - *iv* - *c* - *x*, 4 - *iii* - *d* - *y*

Answer: C



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30. In calotropis , the leaves show (X) phyllotaxy while the petals show (Y) aestivation.

A. (X) : opposite and (Y) : valvate

B. (X) : alternate and (Y) : valvate

C. (X) : opposite and (Y) : twisted

D. (X) : alternate and (Y) : twisted

Answer: A



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31. Match the correct term and meaning .

Term	Meaning
I. Classification	A. Study of organisms and their diversities and the relationships between them.
II. Taxonomy	B. Process by which anything is grouped into categories based on easily observable characters.
III. Systematics	C. Unit of classification
IV. Taxon	D. Process of classification.

A. I - B , II - D , III - A , IV - C

B. I - D , II - B , III - A , IV - C

C. I - B , II - C , III - D , IV - A

D. I - B , II - D , III - C , IV - A

Answer: A

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32. Which one of the following statements about ecological succession is incorrect ?

A. A community that is in near equilibrium with the environment and that is called a climax community .

B. The gradual and fairly predictable change in the species composition of a given area is called ecological succession .

C. Primary succession takes place in those areas which somehow lost all the living organisms that existed there .

D. At any time during primary or secondary succession , natural or human induced disturbances (fire , deforestation , etc) , can convert a particular seral stage of succession to an earlier stage.

Answer: C

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33. Identify the group in which the following fungus is classified.
Which of the statement regarding that group is not true?



1. Mycelium : Unbranched and non - septate
2. Some members : ustilago and Mucor
3. Hyphae structure : only monokaryotic
- 4 Grows on : tree. Logs and stumps, soils and also on plant bodies

A. 1,2,3,4

B. 1,3

C. 2,4

D. 1,3,4

Answer: B



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34. Which of the following plants has a zygomorphic flower?

A. Mustard

B. Datura

C. Chilli.

D. Gulmohur

Answer: D



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35. During encystation, Amoeba withdraws its pseudopodia and secretes a layered hard covering or cyst around itself.

A. 5

B. 4

C. 2

D. 3

Answer: D



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36. Choose the incorrect statement about members of the kingdom Fungi.

A. With the exception of yeasts which are unicellular , fungi are filamentous .

B. The fungal cell walls is made of cellulose and pectin.

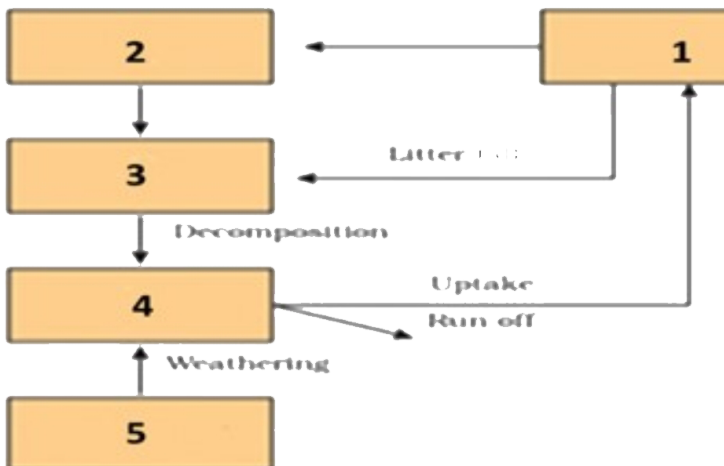
C. Fungal bodies consist of long , slender thread - like structures called hyphae.

D. Some hyphae are continuous tubes filled with multinucleated cytoplasm known as coenocytic hyphae.

Answer: B

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37. Identify 1,2,3,4 and 5 in the cycle given below :



A. 1 - Producers 2 - Consumer 3 - Detritus 4 - Soil solution 5 -

Rock Mineral

B. 1 - Consumer 2 - Producers 3 - Soil solution 4 - Rock Mineral 5

- Detritus

C. 1 - Soil solution 2 - Consumer 3 - Rock Mineral 4 - Producers 5

- Detritus

D. 1 - Producers 2 - Consumer 3 - Detritus 4 - Rock Mineral 5 -

Soil solution

Answer: A



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38. Match from the column given below :

Parts of Dicot Roots	Consists of
a. Epiblema	i. Unicellular root hair
b. Casparian strips	ii. Vascular bundle and pith
c. Pericycle	iii. Waxy material suberin
d. Stele	iv. Thick walled parenchymatous cells.

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

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

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

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

Answer: B



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39. Identify the correct sequence of structure of androecium in chronological order of development .

- A. Sporogenous tissue → pollen grain → microspore tetrad
→ male gametes.
- B. Sporogenous tissue → microspore tetrad → pollen grain
→ male gametes.
- C. pollen grain → Sporogenous tissue → microspore tetrad
→ male gametes.
- D. microspore tetrad → Sporogenous tissue → pollen grain
→ male gametes.

Answer: B



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40. Which of these organisms have chlorophyll a and chlorophyll c in their cells and a cellulosic wall usually covered on the outside by

a gelatinous coating ?

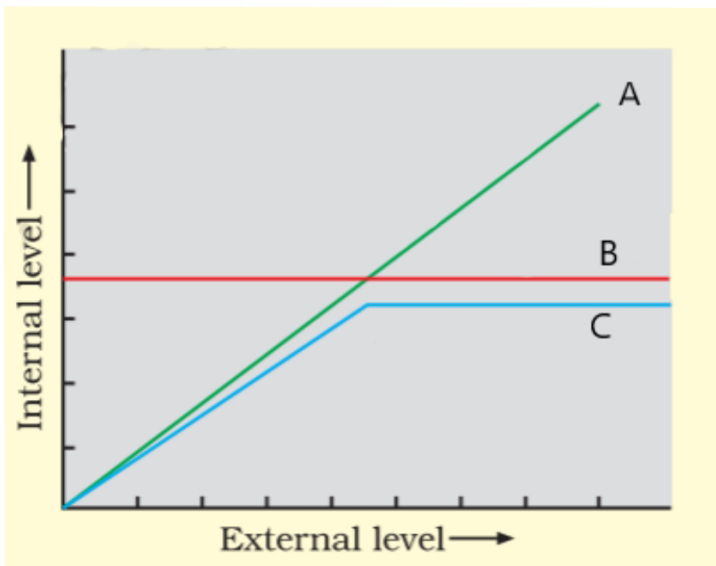
- A. Volvox and Fucus
- B. Fucus and Porphyra
- C. Chara and Laminaria
- D. Fucus and Laminaria

Answer: D



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41. Identify A , B and C in the image and choose the correct statement.



A. Thermoregulation can be seen in both group B and C organisms .

B. Group B organisms maintain hemostasis with the help of physiological or behavioural changes .

C. Group A organisms can thrive anywhere , from the Antarctic to the Sahara.

D. Most of the plant and animals belong to group C organisms

Answer: A



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42. The correct option representing the structures forming phellogen , phellem and phelloderm is

A. Phellogen : Cork cambium , Phellem, Secondary cortex and

Phelloderm : Cork Secondary cortex and phelloderm : Cork

B. Phellogen : Cork cambium , Phellem: Cork and Phelloderm :

Secondary cortex

C. Phellogen : Cork , Phellem: Secondary cortex and Phelloderm

: Cork cambium

D. Phellogen : Secondary cortex , Phellem : Cork and Phellderm :

cork cambium

Answer: B



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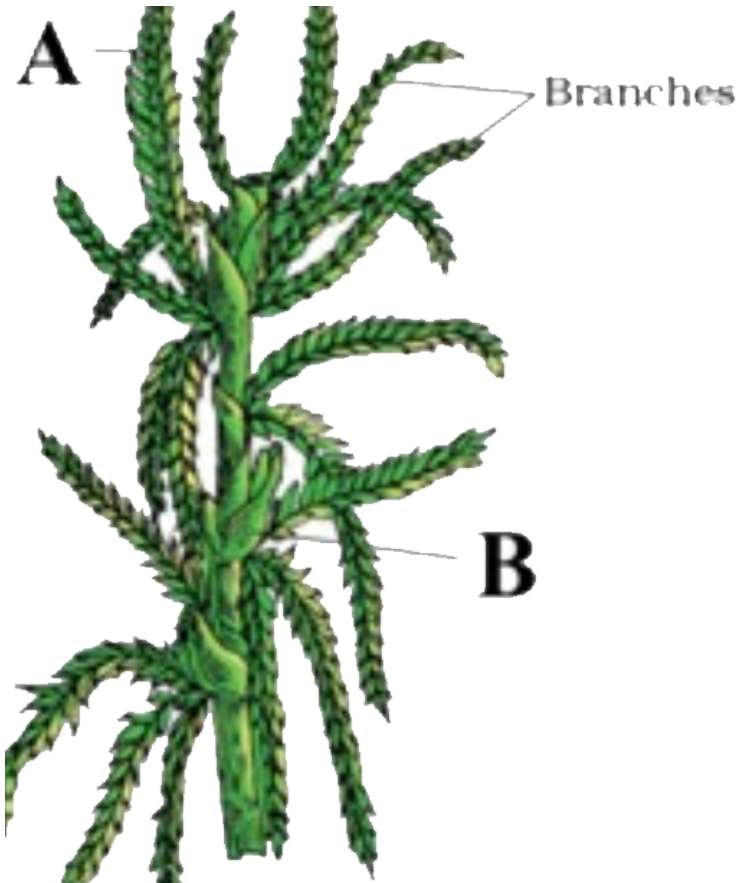
43. Which of the following statements is true for pollination by water ?

- A. Pollen grains of water pollinated plants are small and spherical .
- B. The flowers of water pollinated plants are not very colourful.
- C. Female flowers of Vallisneria remain submerged in water and male flowers release the pollen inside the water causing pollination deep with water .
- D. Nelumbo nucifera (India lotus) is an aquatic plant pollinated by water.

Answer: B

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44. Identify the following diagram and select the option with correct labels :



- A. Selaginella sporophyte with A as archegonial branch and B as antheridial branch
- B. Selaginella sporophyte with A as archegonial branch and B as archegonial branch
- C. Sphagnum gametophyte with A as archegonial branch and B as antheridial branch
- D. Sphagnum gametophyte with A as archegonial branch and B as archegonial branch

Answer: D



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45. Fill in the blanks (i),(ii) and (iii) with the correct choice of words.

Biodiversity is a term popularised by sociobiologist(i).....

Medicinal plant(ii)..... shows the genetic variation in terms of potency and concentration of(iii)..... .

- A. (i) - Alexander von Humboldt , (ii) - Raulwolfia , (iii) - reserpine
- B. (i) - Edward Wilson , (ii) - Parthenium , (iii) - atropine
- C. (i) - Edward Wilson , (ii) - Raulwolfia , (iii) - reserpine
- D. (i) - Alexander von Humboldt , (ii) - Parthenium , (iii) -
atropine

Answer: C



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46. Identify the correct match from the column given below .

No.	PS	Reaction Centre	Location	Products synthesised during Z scheme
i.	PS I	P700	Inner surface of thylakoid membrane.	ATP
ii.	PS II	P700	Outer surface of thylakoid membrane.	NADPH
iii.	PS II	P680	Inner surface of thylakoid membrane.	ATP
iv.	PS I	P680	Outer surface of thylakoid membrane.	NADPH

A. i.

B. ii.

C. iii.

D. iv.

Answer: C



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47. Which of the following is correct about apomixis?

I. An apomixis is a form of sexual reproduction.

II. Apomixis is a mechanism to produce seeds without fertilization.

III. Apomictic embryos are similar in their genetic nature.

IV. Examples of apomixis are Citrus and mango.

A. I , III and IV

B. II, III and IV

C. I, II and III

D. I , II and IV

Answer: B



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48. The greatest contribution of root pressure is

- A. to re- establish the continuous chains of water molecules in the xylem which often break under the enormous tensions created by transpiration.
- B. to play a major role in water movement up tall trees over 50 feet in height.
- C. to act as a main driving force to push water from the roots in the xylem towards the leaves .
- D. to give water high tensile strength and high capillarity action.

Answer: A



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49. There is a forest next to Raju's village which is a natural habitat for an endangered species of lotus. The Government plans to develop a highway through the forest which will cause disturbance in the habitat and may lead to extinction of the endangered species. Being an environmental activist, what must have Raju suggested the Government in order to save the species as the highway project is also important for the development of the village?

A. In situ conservation

B. Migration

C. Ex situ conservation

D. Deforestation

Answer: C

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50. In C_4 plants , the Calvin pathway takes place in

- A. mesophyll cells only
- B. both mesophyll and bundle sheath cells
- C. bundle sheath cells only
- D. cells of the vascular bundles

Answer: C

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51. Observe the given floral diagram and choose the suitable formula from the following .



A. $\% \overset{\uparrow}{\underset{\downarrow}{Q}} K_5 C_5 A_{10} \underline{G}_1$

B. $\% \overset{\uparrow}{\underset{\downarrow}{Q}} K_{(5)} C_5 A_{10} \underline{G}_1$

C. $\% \overset{\uparrow}{\underset{\downarrow}{Q}} K_{(5)} C_{1+2+(2)} A_{(9)+1} \underline{G}_{10}$

D. $\% \overset{\uparrow}{\underset{\downarrow}{Q}} K_{(5)} C_{1+2+(2)} A_{(9)+1} \underline{G}_1$

Answer: D



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52. Which of the following statements about the nitrogen cycle are false ?

1. Rhizobium and Frankia cause nitrogen fixation in their independent free - living stage .
2. Azotobacter and Anabaena are anaerobic, symbiotic , free - living , nitrogen fixers.
3. Rhodospirillum is an aerobic , nitrogen -fixing microbe found in the root nodules of legumes .
4. Nitrobacter oxidizes nitrites to nitrates .

A. 1 and 2

B. 2 and 4

C. 1 , 2 and 3

D. 3 and 4

Answer: C

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53. David is a hardworking environmentalist who has to travel 10 kilometres to his office daily. He drives to and fro from his destination in a sedan which releases a substantial amount of vehicular exhaust into the atmosphere . This concerns David due to the growing pollution in city . Which of the following measures can he take to reduce the emission of pollutants from his car ?

- A. Platinum catalytic converter with unleaded petrol
- B. Platinum - palladium catalytic converter with leaded petrol
- C. Platinum - palladium catalytic converter with unleaded petrol
- D. Platinum catalytic converter with leaded petrol

Answer: C

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54. At what percent of alcohol concentration does the Yeast poison itself to death ?

A. 7

B. 9

C. 11

D. 13

Answer: D

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55. Pollen germination can be prominently seen in

- A. rose
- B. hibiscus
- C. Eucalyptus
- D. Croton

Answer: D

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56. Which of these is not a function of the gaseous hormone ?

- A. Initiation of flowering and synchronization of fruit - set in pineapples

- B. Promotion of male flowers in cucumbers thereby increasing its yield
- C. Breaking the bud dormancy and promoting sprouting of potato tubers
- D. Promotion of root growth and root hair formation, thus helping the the plants to increase their absorption surface.

Answer: B



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57. Which of the following is incorrect about ozone ?

- i. The bad ozone is found in the upper part of atmosphere
- ii. Thickness is measured in terms of Dobson units
- iii. Ozone gas is formed by action on UV rays on molecular oxygen
- iv. Ophthalmic problems may increase with ozone depletion

A. iii only

B. i and iv

C. i ii and iii

D. i only

Answer: D



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58. Given below are the steps involved in the citric cycle . Arrange them correct option.

i. Formation of alpha - ketoglutaric acid and succinyl - CoA.

ii. Condensation of acetyl group with oxaloacetic acid.

iii. Isomerization of citrate to isocitrate.

iv. Synthesis of GTP.

A. i,iv , iii , ii

B. iii, iv , ii ,i

C. iv, i, ii , iii

D. ii, iii, i, iv

Answer: D



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59. Which of these processes involve tissue culture ?

I. Somatic hybridization to produce a hybrid between potato and tomato called potato .

II. Mutation breeding to produce a mung bean resistant to yellow mosaic disease .

III . Cross hybridization to produce insect - resistant rapeseed mustard called Pusa Gaurav.

IV. Micropropagation to produce a virus - free potato plant.

A. I and III

B. I , II and IV

C. III and IV

D. I and IV

Answer: D



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60. Rye has two kinds of varieties: autumn and spring varieties.

The correct statement about them is

A. Spring variety is harvested in spring while the autumn variety is harvested in autumn

B. Spring variety dies in spring while the autumn variety dies in autumn

C. Spring variety is planted in spring while the autumn variety is planted in autumn

D. Spring variety is grown in tropical countries while the autumn variety is grown in temperate countries

Answer: C

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61. In the artery,

A. systolic blood pressure is lesser than diastolic blood pressure

B. the duration of systolic blood pressure is greater than the duration of diastolic blood pressure

C. the duration of systolic blood pressure is lesser than the duration of diastolic blood pressure

D. the duration of systolic blood pressure is same as the duration of diastolic blood pressure

Answer: C

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62. Which of these statements about the counter current mechanism is true ?

A. NaCl is transported by the ascending limb of Henle's loop which is exchanged with the descending limb of vasa recta.

NaCl is returned to the interstitium by the ascending portion of vasa recta.

- B. NaCl is transported by the descending limb of Henle's loop which is exchanged with the ascending limb of vasa recta. NaCl is returned to the interstitium by the descending portion of vasa recta.
- C. NaCl is transported by the ascending limb of Henle's loop which is exchanged with the ascending limb of vasa recta. NaCl is returned to the interstitium by the ascending portion of vasa recta.
- D. NaCl is transported by the descending limb of Henle's loop which is exchanged with the descending limb of vasa recta. NaCl is returned to the interstitium by the descending portion of vasa recta.

Answer: A



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63. Gene pool can be defined as

- A. sum total of genes of all individuals of interbreeding population
- B. sum total of genes present in an individual
- C. total number of genes of all individuals in a given geographical area
- D. total number of genes present among all species in the biosphere

Answer: A



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64. Colour - blindness occurs in

- A. Males having colour blind father and normal mother
- B. Females having colour blind father and normal mother
- C. Females having colour blind father and carrier mother
- D. Males have normal father and mother.

Answer: C

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65. Which of the following terms doesn't mean one and the same ?

- A. Polyglobulia - Polycythemia
- B. Scavenger leucocyte - Monocyte
- C. Bicuspid valve - Mitral valve

D. Myocardial infarction - Myocardial ischaemia

Answer: D

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66. A patient suffering from Down's syndrome was carefully examined . There were three 21 chromosomes in the patient . The sequence of all the genes and alleles present on two of the three 21st chromosomes were an exact match with the patient's mother while the third one was an exact match with the patient's father . Which of the following process was faulty to have produced this individual ?

- A. Anaphase I in maternal meiosis
- B. Anaphase I in paternal meiosis
- C. Anaphase II in maternal meiosis

D. Anaphase II in paternal meiosis

Answer: C

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67. Arrange the following in the chronological order of their appearance i.e. from oldest to latest.

A. Ramapithecus → Homo habilis → Java ape man →

Australopithecus → Neanderthal man

B. Ramapithecus → Australopithecus → Homo habilis →

Java ape man → Neanderthal man

C. Ramapithecus → Java ape man → Australopithecus →

Neanderthal man → Homo habilis

D. Ramapithecus → Java ape man → Australopithecus →

Homo habilis → Neanderthal man

Answer: B

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68. Identify the odd one from the list of organisms given below :

A. Hyla

B. Salamandra

C. Ichthyopis

D. Calotes

Answer: D

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69. Which one of the following scientists shared the same views about evolution ?

- A. Ernst Heckel and Karl Ernst von Baer
- B. Aristotle and Louis Pasteur
- C. Lamarck and Weismann
- D. Charles Darwin and Alfred Wallace

Answer: D

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70. Match the enzymes given in column I with the substrates they act upon in column II and the product obtained from the reaction given in column III and select the correct. Option from the codes

given below .

No.	Enzyme	No.	Substrate	No.	Product
I	Trypsin	i	Polysaccharides	a	Diglycerides
II	Amylase	ii	Nucleic acids	b	Dipeptides
III	Lipase	iii	Proteins	c	Nucleosides
IV	Nuclease	iv	Fats	d	Disaccharides

A. $I - iii - b, II - i - d, III - iv - a, IV - ii - c$

B. $I - iii - b, II - iv - a, III - i - d, IV - ii - c$

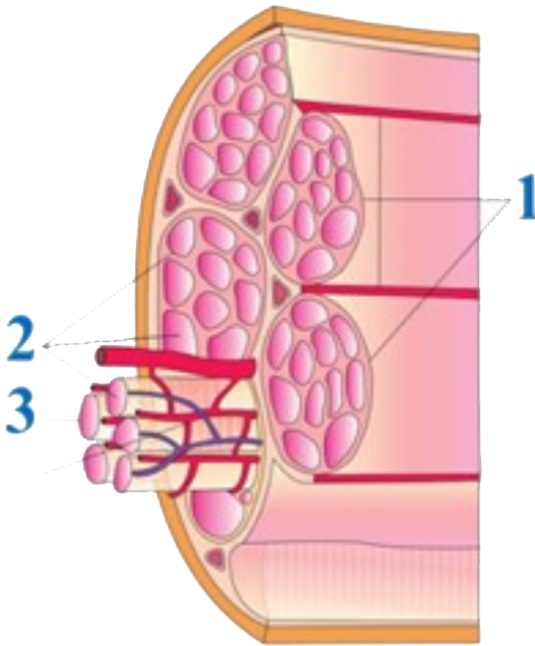
C. $I - i - b, II - ii - c, III - iii - d, IV - iv - a$

D. $I - ii - a, II - iii - b, III - i - b, IV - iv - d$

Answer: A

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71. Observe the diagram given below :



Which of the following statements regarding the above diagram is / are correct ?

- A. 1 is a syncytium , as its cytoplasm contains many nuclei.
- B. 2 are held together by connective tissue layer called fascia.
- C. 2 is the structural as well as the functional unit of muscle.

D. 3 is the membrane which forms a neuromuscular junction along with motor neuron.

Answer: D

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72. A pure pea plant having yellow and round seeds in an inflated pod was crossed with a pure pea plant having green and wrinkled seeds in a constricted pod . The proportion of plants having green round seeds in an inflated pod in the F_2 generation is

A. $\frac{27}{64}$

B. $\frac{9}{64}$

C. $\frac{3}{64}$

D. $\frac{1}{64}$

Answer: B

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73. Which of the following is incorrect about allergy ?

- A. Allergy is the exaggerated response of the immune system to certain antigens present in the environment .
- B. Allergy is due to the release of chemicals like histamine from the eosinophils..
- C. The antibodies produced in allergies are of IgE type.
- D. Steroidal drugs give quick relief from allergies .

Answer: B

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74. Which of these statements is incorrect about Platyhelminthes ?

- A. Some members like Planaria possess high regeneration capacity .
- B. They are bilaterally symmetrical , triploblastic and acoelomate animals with organ level of organisation.
- C. Their sexes are separate , fertilisation is internal and development is through many larval stages.
- D. They have specialized cells called flame cells which help in osmoregulation and excretion.

Answer: C



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75. The longest bone of the human body is

- A. A triangular flat bone situated in the dorsal part of the thorax
- B. A long slender bone with two curvatures
- C. A bone situated in the lower extremity which takes part in formation of knee joint
- D. A coxal bone

Answer: C



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76. Given below are the steps involved in the generation and conduction of nerve impulse. Arrange them in proper sequence and select the correct option.

- I. Rapid influx of Na^+ ions followed by reversal of polarity at the site of application of stimulus.
- II. Reversal of polarity and generation of action potential at a point ahead of the point of application of stimulus.
- III. Development of free permeability to Na^+ ions at the site of application of stimulus.
- IV. Arrival of the impulse generated at the first site to the second site.
- V. Rise in permeability of K^+ ions and restoration of the resting potential of the membrane.

A. V , II, III, IV , I

B. I, III , II , V , IV

C. III, II , I, IV , V

D. III , I, II , IV , V

Answer: D





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77. Excess of growth hormone causes acromegaly in adults . In normal individuals, such condition doesn't arise due to inhibition of growth hormone . Which of the following is responsible for secretion of hormone that regulates growth hormone secretion ?

- A. The gland situated at the base of diencephalon
- B. The gland situated in a bony cavity of the sphenoid bone
- C. The gland situated on the dorsal side of the forebrain
- D. The gland having two lobes situated on either side of the trachea

Answer: A



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78. Read the following statements about male reproductive system and identify the correct ones.

I . The scrotum helps in maintaining the temperature ideal for spermatogenesis . II. The male germ cells present in the seminiferous tubules undergo mitotic division and lead to the formation of sperms .

III . The bulbourethral glands secrete substances which help in lubricating the penis and these glands also help in formation of the ejaculatory duct.

IV. The site of spermatogenesis are highly compartments of the testis .

A. I and II

B. I and IV

C. I , III and IV

D. I , II and IV

Answer: B



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79. The normal body colour of a grasshopper is green . The gene for this character is present on X chromosome. Due to recessive mutation in this gene , grasshoppers with pink body colour are produced . A male grasshopper with green body colour mates with a female grasshopper with pink body colour . Which of these statements is true ?

- A. All offsprings will be green irrespective of sex.
- B. All offsprings will be pink irrespective of sex.
- C. 50% daughters will be green and 50% sons will be pink.
- D. All the daughters will be green and all the sons will be pink.

Answer: D



80. Complete the following paragraph by selecting the correct options for the blanks A ,B and C from the options given below :

The most infections human ailment ofI..... is caused by a group of viruses known as rhinoviruses. They infect the nose and the respiratory tract , but not the.II..... The droplets from an infected person are eitherIII.... directly , or spread via contaminated objects.

A. I : common cold , II: lungs , C: absorbed

B. I : common cold , II: lungs , C: inhaled

C. I : pneumonia cold , II: lungs , C: inhaled

D. I : pneumonia cold , II: lungs , C: absorbed

Answer: B



81. Read the statements given below. Which of the following statements is / are incorrect ?

I. Amniocentesis , a procedure which involves the analysis of yolk cells , has been banned by the government to prevent female foeticide.

II. The oral contraceptives pill ' saheli ' was developed by the central Drug Research Institute (CDRI) situated in the city of Ludhiana .

III. Spermicidal Creams , jellies , and foams are usually used with natural methods of contraception to increase their efficiency .

IV . Progesterone or progesterone - estrogen combination can also be used as implants under the skin for contraception purpose .

A. I and III

B. I , II and IV

C. I,II and III

D. III and IV

Answer: C

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82. Goitre can occur in

A. hyperthyroidism

B. hypothyroidism

C. both hypothyroidism and hyperthyroidism

D. neither hyperthyroidism nor hypothyroidism

Answer: C

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83. The expression of a phenotype

- A. depends on the genotype but doesn't depend on the environment
- B. depends on the environment but doesn't depend on the genotype
- C. depends on both environment as well as on the genotype
- D. doesn't depend on either the environment or the genotype

Answer: C

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84. Which of these interactions between hormones of menstrual cycle is correct ?

- A. Estrogen has an inhibitory effect on the release of LH but a stimulatory effect on the release of FSH
- B. Estrogen has an inhibitory effect on the release of FSH but a stimulatory effect on the release of LH
- C. Progesterone has an inhibitory effect on the release of LH but a stimulatory effect on the release of FSH
- D. Progesterone has an inhibitory effect on the release of FSH but a stimulatory effect on the release of LH

Answer: B

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85. Which of the given option is incorrect about spleen ?

- A. It is the graveyard of erythrocytes .

- B. It receives only oxygenated blood.
- C. It helps in filtration of blood.
- D. It is primary lymphoid organ.

Answer: D



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86. Which of the following receptors helps in perception of taste ?

- A. Taste buds situated on the anterior two - thirds of the tongue .
- B. Gustatory which are chemoreceptors
- C. Olfactory receptors which are chemoreceptors
- D. Stato - acoustic receptors

Answer: B



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87. Which of the following is incorrect about the human endocrine system ?

- A. Hormone are non-nutrient chemical substances that only act as extracellular messengers and are produced in trace amounts.
- B. The pars distalis region of a gland situated in the sella turcica, is responsible for secretion of the hormone which includes ovulation.
- C. Diabetes mellitus is a disorder caused due to decreased secretion of hormones from the alpha cells of the Islet of

Langerhans of the pancreas.

D. The juxtaglomerular cells of the kidney produce a steroid hormone called erythropoietin, which stimulates erythropoiesis.

Answer: B

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88. A woman had an extreme premature delivery . She gave birth to a baby boy at 23 weeks of gestation . The birth weight of the baby was 950 gm . Which of the following is most likely to be observed in this baby ?

A. The baby's heart will not be adequately formed

B. The baby's limbs and digits will not be adequately formed

C. The body's external genitalia will not be adequately formed

D. The body's eyelashes will not be adequately formed

Answer: D

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89. Read the following properties about two diseases phenylketonuria and alkaptonuria.

Properties	Phenylketonuria	Alkaptonuria
Type	Autosomal recessive disease	Autosomal recessive disease
Defective gene	p	a
Location of the defective gene	Chromosome 12	Chromosome 3
Enzyme deficient in the defective gene	Phenylalanine hydroxylase	Homogentisic acid oxidase
The function of enzyme in a normal person	Conversion of phenylalanine to tyrosine	Conversion of homogentisic acid to maleyl acetoacetic acid
Urine	Phenylketone is excreted in urine giving it a musty odour	Alkapton is excreted in urine giving it black colour when
Urine	excreted in urine giving it a musty odour	black colour when exposed to air

In our body tyrosine is the only precursor for the formation of

homogentisic acid.

Rohit has genotype $aapp$. His urine will

- A. contain phenylketone but no alkapton
- B. contain alkapton but no phenylketone
- C. contain both phenylketone and alkapton
- D. not contain either phenylketone or alkapton

Answer: A

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90. The assisted reproductive technology which involves the transfer of zygote or early embryos with upto 8 blastomeres stage into the female accessory duct is called

A. ZIFT

B. GIFT

C. ICSI

D. IUT

Answer: A



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