BIOLOGY

BOOKS - MTG BIOLOGY (HINGLISH)

PRACTICE PAPERS

Practice paper

1. For transformation, micro-particles coated with DNA to be bombarded from gene gun are made up of

A. silver or platium

B. platinum or zinc

C. silicon or platinum

D. gold or tungsten

Answer: D

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2. Depending upon the distance between any two genes which is inversely proportional to the strength of linkage, cross overs will vary from

A. $50 - 100\,\%$

B. $0 - 50\,\%$

C. $75 - 100\,\%$

D. $100 - 150\,\%$

Answer: B

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3. Sertoli cells are found to

A. ovaries and secrete progesterone

B. adrenal cortex and secrete adrenaline

C. seminiferous tubules and secrete nutrients for germ cells

D. pancreas and secrete cholecystokinin

Answer: C

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4. What do A, B ,C and D represent ?

A.

A	B	C	D
Infundibulum	Fertilisation	Myometrium	Morula

B.

A	B	C	D
Infundibulum	Fertilisation	Endometrium	Blastocyst

C.

A	B	C	D
Isthmus	Fertilisation	Myometrium	Blastocyst

D.

A	B	C	D
Isthmus	Fertilisation	Endometrium	Morula

Answer: B

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5. Cu ions released from copper-releasing intra uterine devices (IUDs)

A. make uterus unsuitable for implantation

B. increase phagocytosis of sperms

C. suppress sperm motility

D. prevent ovulation

Answer: C

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6. Which one of the following correctly describes the homologous structures ?

A. Organs with anatomical similarities, but performing different functions

B. Organs with anatomical dissimilarties but performing same function

C. Organs that have no function now, but had an important function in ancestors

D. Organs appearing only in embryonic stages and disappearing later in the adult

Answer: A

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7. A person suffering from a disease caused by Plasmodium, experiences recurring chill and fever at the time when

A. the sporozoites released from RBCs are being rapidly killed and broken down inside spleen

B. the trophozoites reach maximum growth and give out certain toxins

C. the parasite after its rapid multiplication inside RBCs ruptures them, releasing the stage to enter fresh RBCs

D. the microgametocytes and megagametocyte are being destroyed by the WBCs

Answer: C

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8. Number of histone proteins in each nucleosome core is

A. 8

B. 10

C. 12

D. 14

Answer: A

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9. Sacred groves are specially useful in

A. generating environmental awareness

B. preventing soil erosion

C. year-round flow of water in rivers

D. conserving rate and threatened species

Answer: D

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10. Some important events in the human female reproductive cycle are given below. Arrange the events in a proper squence.

A- Secretion of FSH, B - Growth of corpus luteum,

C- Growth of the follicle and oogenesis, D- Ovulation

E - Sudden increase in the levels of LH.

A. A $\rightarrow$ D $\rightarrow$ C $\rightarrow$ E $\rightarrow$ B

B. B $\rightarrow$ A $\rightarrow$ C $\rightarrow$ D $\rightarrow$ E

C. C $\rightarrow$ A $\rightarrow$ D $\rightarrow$ B $\rightarrow$ E

D. A $\rightarrow$ C $\rightarrow$ E $\rightarrow$ D $\rightarrow$ B

Answer: D

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11. Given : 1 = Natural selection , 2 = Variations and their inheritance , 3 = Survival of the fittest , 4 = struggle for existence

According the Darwinism, which of the following represents the correct squence of events in the origin of new species ?

A. 3,4,1,2

B. 2,3,1,4

C. 1,2,3,4

D. 4,2,3,1

Answer: D

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12. There are two opposing views about origin of modern man. According to one view Homo erectus in Asia were the ancestors of modern man. A study of variation of DNA however suggested African origin of modern man. What kind of observation on DNA variation could suggest this ?

A. Greater variation in Asia than in Africa

B. Greater variation in Africa than in Asia

C. Similar variation in Africa and Asia

D. Variation only in Asia and no variation in Africa

Answer: B

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13. Heroin is extracted from

A. Erythroxylon coca

B. Cannabis sativa

C. Papaver somniferum

D. Atropa belladona

Answer: C

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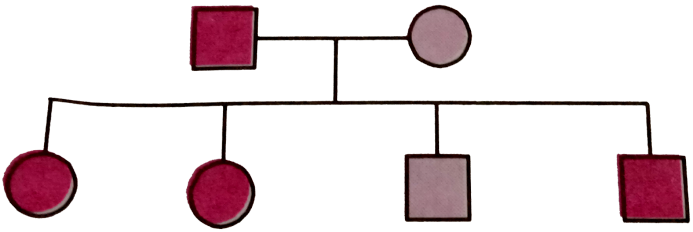
14. Study the pedigree chart of certain family given here and select the correct conclusion



A. The female parent is heterozygous

B. The parents could not have had a normal daughter for this character

C. The trait under study could not be colourblindness

D. The male parent is homozygous dominant

Answer: A

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15. A mixture containing DNA fragments A,B,C and D, with molecular weights of $A + B = C, A > B$ and $D > C$, was subjected to agarose gel electrophoresis. The positions of these fragments from cathode to anode sides of the gel would be

A. D,C,A,B

B. A,B,C,D

C. C,B,A,D

D. B,A,D,C

Answer: A

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16. Which of the following representations shows the pyramid of number in a forest ecosystem ?

A. D

B. A

C. B

D. C

Answer: D

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17. When domestic sewage mixes with river water

A. small animals like rats will die after drinking river water

B. the increased microbial activity releases micronutrients such as iron

C. the increased microbial activity uses up dissolved oxygen

D. the river water is still suitable for drinking as impurities are only about 0.1 %

Answer: C

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18. An improved variety of transgenic basmati rice

A. does not require chemical fertilisers and growth hormones

B. gives high yiels and is rich in vitamin A

C. is completely resistant to all insect pests and diseases of paddy

D. gives high yield but has no characteristic aroma.

Answer: B

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19. Cry ll Ab and cry l Ab produce toxins that control

A. cotton bollworms and corn borer respectively

B. corn borer and cotton bollworms respectively

C. tobacco budworms and nematodes respectively

D. nematodes and tonacco budworms respectively

Answer: A

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20. In Mendelian dihybrid cross when heterozygous round Yellow are self crossed, Round Yellow are self crossed, Round Green offsprings are represented by the genotype

A. RrYy,RrYY,RRYy

B. Rryy,RRyy,rryy

C. Rryy,Rryy

D. RrYy,rryy,Rryy

Answer: C

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21. In a double standed DNA, the sequence of nucleotides in one strand is 3' ATTCGCTAT 5'. What will be the complementary squence on the other strand ?

A. 3' TAAGCGATA 5'

B. 5' TAAGCGATA 3'

C. 5' ATTCGCTAT 3'

D. 5' TAAGCGTTA 3'

Answer: B

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22. Which one the following statements are correct ?

(i) RNA polymerase I transcribes rRNAs

(ii) RNA polymerase II transcribes snRNAs

(iii) RNA polymerase III transcribes hnRNA

(iv) RNA polymerase II transcribes hnRNA

A. (i) and (ii)

B. (i) and (iii)

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

D. (i) and (iv)

Answer: D

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23. Match the following and select the correct combination from the given options

	Column I (Population interaction)		Column II (Examples)
A.	Mutualism	(i)	Ticks on dogs
B.	Commensalism	(ii)	Balanus and Chthamalus
B.	Prasitism	(iii)	Sparrow and any seed
D.	Competition	(iv)	Epiphyte on a mango branch
E.	Predation	(v)	Mycorrhiza

A. A-(i),B-(v),C-(iv),D-(iii),E-(ii)

B. A-(ii),B-(i),C-(v),D-(iv),E-(iii)

C. A-(iii),B-(ii),C-(i),D-(v),E-(iv)

D. A-(v),B-(iv),C-(i),D-(ii),E-(iii)

Answer: D

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24. Read the following four statements (A-D)

A. The first transgenic buffalo, Roise produced milk which was human

alpha-lactalbumin enriched

B. Restriction enzymes are used in isolation of DNA from other macromolecules

C. Downstream processing is one of the step of rDNA technology

D. Disarmed pathogen vectors are also used in transfer of rDNA into the host

which of the two statements have mistakes ?

A. B and C

B. C and D

C. A and C

D. A and B

Answer: D

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25. Which one of the following bacteria is used for production of transgenic plants ?

A. Escherichia coli

B. Bacillus subtillis

C. Staphyloccoccus aureus

D. Agrobacterium tumefaciens

Answer: D

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26. People administered with preformed antibodies get

A. active immunity

B. innate immunity

C. natural immunity

D. passiva immunity

Answer: D

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27. In an organism, tall phenotype is dominant over recessive dward phenotype, and the alleles are designated as T and t, respectively. Upon crossing two different individuals, total 250 offsprings were obtained, out of which 124 displayed tall phenotype and rest were dwarf. Thus, the genotype of the parents were

A. TT $\times$ TT

B. TT $\times$ tt

C. Tt $\times$ Tt

D. Tt $\times$ tt

Answer: D

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28. 3, AAA TGC GCG ATA 5' is the sequence of nucleotides on a gene after transcription the mRNA formed against it and the sequence of bases in

the corresponding binding anticondons will be

A. UU ACG CGC UAU and AAA UGC GCG AUA

B. UAU CGC GCA UUU and AUA GCG CGU AAA

C. UUU ACC TUG UAU and AAA UGG UAC AUA

D. UAU GUT CCA UUU and AUA CAU GGU AAA

Answer: A

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29. The biomass available for consumption to heterotrophs and the rate formation of new organic matter by consumers are defined as

A. gross primary productivity and net primary productivity respectively

B. net primary productivity and gross primary productivity respectively

C. gross primary productivity and secondary productivity respectively

D. net primary productivity and secondary productivity respectively.

Answer: D

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30. The given figure is the diagrammatic representaton of the E. coli vector pBR322. Which of these genes can act as selectable marker ?

A. Ori

B. Hind III

C. amp^R, tet^R

D. EcoRl

Answer: C

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31. Though the total number of follicles in the ovaries of a nomal young woman is about 4,00,000 the duration between menarche and menopause is limited. This is attributed to the

A. follicular atresia

B. liquor folliculi

C. follicular proliferation

D. follicular plasticity

Answer: A

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32. Which of the following ways is most likely to decrease the genetic diversity in a population ?

A. Gene mutation

B. Genetic recombination

C. Stabilising natural selection

D. Immigration of individuals

Answer: C

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33. Double fertilisation in an angiospermous plant means

A. fusion of two egg cells with two male gametes

B. fusion of egg cell twice with male gametes

C. fusion of one male gamete with the egg cell and the other male gamete with the synergid

D. fusion of one male gamete with the egg cell and the other male gamete with secondary nucleus

Answer: D

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34. A parasite that lives within a plant tissue is called as

A. ectophyte

B. endophyte

C. epiphyte

D. hydrophyte

Answer: B

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35. The number of autosomes in human female is

A. 26 pairs

B. 22 pairs

C. 24 pairs

D. 21 pairs

Answer: B

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36. Identify the human developmental stage shown here as well as the related correct place its implantation in a normal pregnant woman, and select the right option for the two, together

A. Developmental stage - Site of implantation
Late morula - Middle part of Fallopian tube

B. Developmental stage - Site of implantation
Blastula - End part of Fallopian tube

C. Developmental stage - Site of implantation
Blastocyst - Uterine wall

D. Developmental stage - Site of implantation
Blastocyst - Uterine wall

Answer: C

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37. Select the correct statement.

A. hPL plays a major role in parturition

B. Fetus shows movements first time in the 7^{th} month of pregnancy

C. Signal for parturition comes from fully development fetus and placenta

D. Embryo's heart is formed by the 2^{th} month of pregnancy

Answer: C

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38. Match column I with column II and select the correct option from codes given below

	Column I		Column II
A.	Chemical methods	(i)	Tubectomy and vasectomy
B.	IUDs	(ii)	Copper T and loop
C.	Barriers	(iii)	Condom band cervical cap
D.	Sterilisation	(iv)	Spermicidal jelly and foam
		(v)	Coitus interruptus and calender method

A. A-(iv),B-(ii),C-(iii),D-(i)

B. A-(iv),B-(v),C-(ii),D-(iii)

C. A-(i),B-(iii),C-(ii),D-(v)

D. A-(iv),B-(ii),C-(v),D-(i)

Answer: A

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39. Read the following statements and select the correct option

A. Increase in melanised moths after industrialisation in Great Britain is a proof for natural selection

B. When more individuals of a population acquire a mean character value, it is called disruption

C. Changes in allelic frequency in a population will lead to Hardy-Weinberg equilibrium

D. Genetic drift changes the existing gene or allelic frequency in future generations.

A. B alone is correct

B. D alone is correct

C. A and D alone are correct

D. B and D alone are correct

Answer: C

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40. The extinct human ancestor, who ate only fruits and hunted with stone weapons was

A. Ramapithecus

B. Australopithecus

C. Dryopithecus

D. Homo erectus

Answer: B

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41. Which is correct for Turner's syndrome ?

A. It is a case of monosomy

B. It causes sterility in females

C. It is characterised by the absence of Barr body

D. All of these

Answer: D

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42. Identify the molecules A and B shown below and select he right option giving their source and use

A.

Molecule	source	Use
A-Cocaine	Erythroxylon coca	Accelerates the transport of dopa

B.

Molecule	source	Use
B-Heroin	Cannabis sativa	depressant and slows down body func

C.

Molecule	source	Use
B-Cannabinoid	Atropa belladona	Produces hallucinations

D.

Molecule	source	Use
A-Morphine	Papaver somniferum	Sedative and pain killer

Answer: D

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43. Which one of the following correctly represents the manner of replication of DNA ?

A. 

B. 

C. 

D. 

Answer: D

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44. Which of the following layers of the ovum undergoes changes to prevent polyspermy when sperm contacts with it ?

A. Corona radiata

B. Plasma membrane

C. Zona pellucida

D. Tunica albuginea

Answer: C

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45. Which of the following is dioecious ?

A. 

B. 

C. 

D. 

Answer: D

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46. The rate at which light energy is converted into chemical energy of organic molecules, is the ecosystem's

A. net primary productivity

B. net secondary productivity

C. gross secondary productivity

D. gross primary productivity

Answer: D

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47. Which of the following is most appropriate to develop a vaccine against AIDS ?

A. Stop B by destroying host cells

B. Stop C by anti-reverse transcriptase antibodies

C. Stop A by destroying host cells

D. Stop A by an enzyme antagonistic to reverse transcriptase

Answer: D

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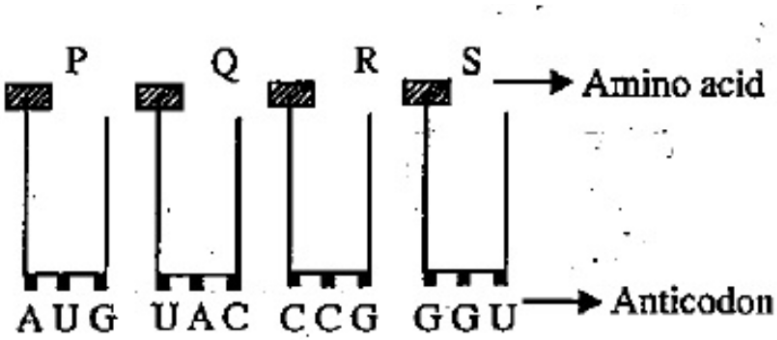
48. Find the sequence of blinding of the following amono acyl-tRNA complexes during translation of an mRNA transcribed by DNA segment having the base sequence 3' TACATGGGTCCG 5'. Choose the answer showing the correct order of alphabets.



A. P,Q,S,R

B. Q,P,S,R

C. P,Q,R,S

D. Q,P,R,S

Answer: B

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49. Which of the following comparisons of prokaryotic transcription and eukaryotic transcription is incorrect ?

A.

Prokaryotic transcription	Eukaryotic transcr
Transcriptional unit has only one gene	Transcriptional unit has c

B.

Prokaryotic transcription	Eukaryotic transcription
Occurs in the cytoplasm	Occurs in the nucleus

C.

Prokaryotic transcription
A single RNA polymerase synthesises all the three types of RNA

D.

Prokaryotic transcription	Eukar
Coupled-transcription translation is the rule	Coupled-transcri

Answer: A

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50. Arrange the following stages of fertilisation and early development into a proper sequence.

I. Sperm entry

II. Acrosomal reaction

III. Karyogamy

IV. Capacitation

V. Cortical reaction

A. I,III,II,IV,V

B. III,V,I,IV,II

C. IV,II,V,I,III

D. V,I,IV,II,III

Answer: C

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51. The given figure represents the different zonation in deep lake. Which of the following is incorrect regarding it ?

A. T represents light and oxygen level

B. Only consumes are found in E

C. Producers do not occur in A

D. D receives light at or below compensation point

Answer: C

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52. What of these interactions has negative effects ?

(i) Predation

(ii) Mutualism

(iii) Commensalism

(iv) Parasitism

A. (i) and (iii)

B. (i) and (iv)

C. (ii) and (iii)

D. (i) only

Answer: B

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53. When a pure strain of tall plants (TT) with round seeds (RR) is crossed with a pure strain of short plants (tt) with wrinkled seeds (rr), an F_1 generation is produced. The alleles for short and wrinkled are recessive to those for tall and round, respectively. When these F_1 plants self-pollinate, what proportion of the F_2 generation is short with wrinkled seeds ?

A. 0

B. $\frac{1}{16}$

C. $\frac{1}{2}$

D. $\frac{9}{16}$

Answer: B

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54. Photochemical smong always contains

A. aluminium ions

B. methane

C. ozone

D. phosphorus

Answer: C

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55. If large quantities of domestic sewage is continuously emptied into a small strem, it leads to

A. depletion of oxygen content un stream water

B. depletion of nutrients in the stream water

C. enrichment of oxygen content in stream water

D. increase in the total amount of life in the stream water.

Answer: A

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56. Insect tolerant gene from Bacilus thuringiensis is introduced using Ti plasmid of

A. Escherichil coli

B. Haemophilus influenzae

C. Agrobacterium tumefaciens

D. Arabidopsis thaliana

Answer: C

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57. Match column I with column II and select the correct option from codes given below

	Column I		Column II
A.	Cleistogamy	(i)	Insect pollination
B.	Geitonogamy	(ii)	Bud pollination
C.	Entomophily	(iii)	Pollinatin between flowers in the same plant
D.	Xenogamy	(iv)	Wind pollination
		(v)	Cross pollination

A. A-(iii) , B-(i) , C-(v) , D-(ii)

B. A-(i) , B-(v) , C-(ii) ,D-(iii)

C. A-(ii) , B-(iii), C-(i) , D-(v)

D. A-(v) , B-(iv) , C-(iii) , D-(ii)

Answer: C

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58. Due to the nondisjunctiuon of chromosomes during spermatogenesis, sperms carry both sex chromosomes (22A + XY) and some sperms do not carry any sex chromosome (22A + O). If these sperms fertilise normal eggs (22A + X), what types of genetic disorders appear among the offsprings ?

A. Turner's syndrome and klinefelter's syndrome

B. Down's syndrome and klinefelter's syndrome

C. Down's syndrome and Turner's syndrome

D. Down's syndrome and cri-du-chat syndrome

Answer: A

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59. Which of the following is correct which also regarding genetic code ?

A. UUU is the initiation condon which also codes for phenylalanine

B. There are 64 triplet codons and only 20 amino acids

C. Three random nitrogen bases specify the placement if one amino acid

D. UAA is the nonsense condon which also codes for methionine

Answer: B

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60. Study the four statement (i-iv) given below and select the two correct ones out of them

(i) A lion eating a deer and a sparrow feeding or grains are ecologically similar in being consumers.

(ii) Predator star fish Pisaster helps in maintaining species diversity of some invertebrates

(iii) Predators ultimately lead to the extinction of prey species

(iv) Production of chemicals such as nicotine, strychnine by the plants are metabolic disorders

The two correct statements are

A. (ii) and (iii)

B. (iii) and (iv)

C. (i) and (iv)

D. (i) and (ii)

Answer: D

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61. Which of the following is false ?

A. Quantity of biomass in a trophic level at a particular period is called as standing crop

B. The energy content in a tropic level is determined by considering a few individuals of a species in that trophic level

C. The succession that occurs in newly cooled lava is called primary succession

D. Phytoplanktons are the pioneers in the aquatic ecosystem

Answer: B

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62. Which of the following DNA sequence qualifies to be designted as a palindrome ?

A. 5' - GACCAG - 3' in one strand

B. 3' - GACCAG - 5' in one strand

C. 5' - GACCAG - 3'

3' - CTGGTC - 5'

D. 5' - AGCGCT - 3'

3' - TCGCGA - 5'

Answer: D

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63. Match column I with column II and select the correct option from the codes given below

	Column I		Column II
A.	Exonucleases	(i)	Stable above$90^{\circ}C$
B.	Polynucleotide kinases	(ii)	Cleave the end of linear DNA
C.	Taq DNA Polymerase	(iii)	Add phosphate to 5' OH end
D.	Terminal transferases	(iv)	Add a number of nucleotides to 3' end o
		(v)	Regulate the level of supercoiling of DN

A. A-(ii), B-(iii),C-(i),D-(iv)

B. A-(ii),B-(v),C-(i),D-(iii)

C. A-(ii),B-(iv),C-(i),D-(v)

D. A-(iii),B-(iv),C-(i),D-(ii)

Answer: A

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64. Select the correct statement

A. Acetobacter aceti produces citric acid

B. Saccharomyces cerevisiae is used as clot buster

C. Penicillium notatum restricts the growth of Staphylococci

D. Methanogens are found in aerobic conditions

Answer: C

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65. The haploid content of human DNA is

A. $3.3 \times 10^6 bp$

B. $3.3 \times 10^9 bp$

C. $4.6 \times 10^6 bp$

D. $6.6 \times 10^9 bp$

Answer: B

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66. Gel electrophoresis is a

A. technique of separation of charged molecules under the influence of magnetic field

B. technique of incorporation of DNA molecules into the cell through transient pore made due to electrical impulses

C. technique of separation and isolation of DNA fragments through the pores of agarose

D. technique of separation and purification of gene products

Answer: C

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67. The egg apparatus of angiosperms comprises

A. an egg cell and two antipodals

B. an egg cell and two synergids

C. an egg cell and two polar nuclei

D. an egg cell and the central cell

Answer: B

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68. Which of the following is not a feature of a J-shaped growth form of population ?

A. It is found in stable type of population

B. Exponential phase is very rapid

C. A crash phase occurs at the end of the growth

D. Enviourmental resistance does not operate

Answer: A

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69. How many different kinds of gametes will be produced by a plant having the genotype AABbCC ?

A. Two

B. Three

C. Four

D. Nine

Answer: A

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70. Sickle-cell anaemia is

A. autosomal dominant inheritance

B. X-linked recessive inheritance

C. autosomal recessive inheritance

D. X-linked dominant inheritance

Answer: C

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71. In microbial genetics which one is reffered to as "Griffith effect"?

A. Conjugation

B. transduction

C. Transformation

D. Sex-duction

Answer: C

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72. If percentage of cytosine is 18 %, then percentage of thymine will be

A. 32 %

B. $64\ \%$

C. $36\ \%$

D. $23\ \%$

Answer: A

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73. The species of plants that play a vital role in controlling the relative abundance of other species in a community are called

A. edge species

B. keystone species

C. pioneer species

D. seral species

Answer: B

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74. The fitness of individual with different phenotypes of the same trait differs in two different situation P and Q.P and Q respectively indicate

A. disruptive and directional selection

B. directional and stabilising selection

C. directional and disruptive selection

D. stabilising and disruptive selection

Answer: C

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75. Study the following pedigree. The transmission of the trait indicates

A. autosomal dominance

B. maternal imprinting

C. paternal imprinting

D. mitochondrial inheritance

Answer: D

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76. The given pyramid shows the relative bionmass of zooplanktons and phytoplanktons in a marine ecosystem

The biomass of the zooplanktons is higher than the of the phytoplanktons because

A. the zooplanktons convert energy more efficiently

B. the zooplanktons have a shorter life cycle than the phytoplanktons

C. the phytoplanktons are individually much smaller than the zooplanktons

D. the phytoplanktons have an extremly high turnover rate

Answer: D

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77. One of the types of ecological pyramids is given here. This type represents

A. pyramid of numbers in a grassland

B. pyramid of biomass in a fallow land

C. pyramid of numbers in a forest

D. energy pyramid in a spring

Answer: C

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78. Pollen grains of a plant whose 2n = 8 are cultured to get callus by tissue culture method. What would be the number of chromosomes in the cells of the callus ?

A. 14

B. 56

C. 28

D. 21

Answer: A

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79. Transfer of pollen grains from the another to the stigma of another flower of the same plant is called

A. xenogamy

B. geitonogamy

C. karyogamy

D. autogamy

Answer: B

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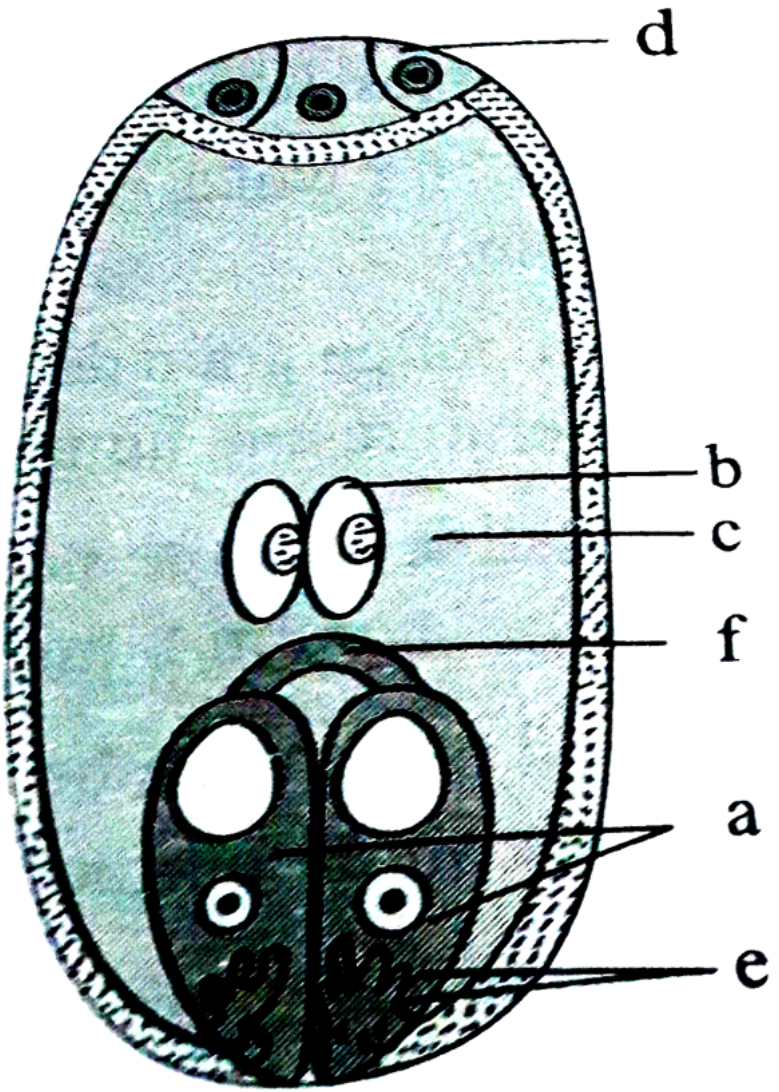
80. In the given diagram, parts labelled as 'A', 'B', 'C', 'D', 'E' and 'F' are respectively identified as



A. synergids, polar nuclei central cell, antipodal cell, filiform apparatus and egg

B. polar nuclei egg, antipodal cell, central cell, filiform apparatus and synergids

C. egg, synergids, central cell, filiform apparatus, antipodal cell and polar nuclei

D. central cell, polar nuclei, filiform apparatus antiopodal cell, synergids and egg

Answer: A

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81. If the length of a double helical DNA if 1.7 meters then the number of base pairs present in the DNA is

A. 5×10^9

B. 1.7×10^9

C. 3.4×10^9

D. 1.7×10^5

Answer: A

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82. When yellow round heterozygous pea plants are self fertilised, the frequency of occurrence of RrYY genotype among the offspring is

A. $9/16$

B. $3/16$

C. $2/16$

D. $1/16$

Answer: C

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83. Which of the following statements is false regarding predators ?

A. Predators keep prey populations under control

B. Predators help in maintaining species divisity in a community

C. If a predator is not efficient, then the prey population would become extinct

D. Herbivores have a greater advantage over carnivores since the plants cannot run away to avoid predation

Answer: C

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84. Given below is an imaginary pyramid of number

Which of the following could be a possibility regarding it ?

A. Level PC is insects and level SC is small insectivorous birds

B. Level PP is phytoplanktons in sea and whale on top level TC

C. Level PP is pipal trees and the level SC is sheep

D. Level PC is rats and level SC is cats

Answer: A

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85. Which of the following relations is correct regarding GPP and NPP of an ecosystem ?

A. NPP = GPP - Animal consumption

B. NPP = GPP + Plant respiration

C. NPP = GPP - Plant respiration

D. NPP = GPP + Animal consumption

Answer: C

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86. Select the incorrect statement

A. Species diversity increases as we move away from he equator towards two poles

B. Stellar's sea cow and passenger pigeon got extinct due to over exploitation by man

C. Lantana and Eichhornia are invasive weed species in India

D. Among animals insects are the most species-rich taxonomic group.

Answer: A

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87. Match column I with column II and select the correct option from the given codes

	Column I		Column II
A.	Electriostatic precupitator	(i)	Removes gases like SO_2
B.	Scrubber	(ii)	Reduces automobile emission
C.	Catalytic converter	(iii)	Removes oparticulate matter

A. A-(ii),B-(iii),C-(i)

B. A-(iii),B-(ii),C-(i)

C. A-(i),B-(ii),C-(iii)

D. A-(iii),B-(i),C-(ii)

Answer: D

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

A.

Crop	Variety	Resistance to disease
Wheat	Himgiri	White rust

B.

Crop	Variety	Resistance to disease
Brassica	Pusa sadabahur	Black rot

C.

Crop	Variety	Resistance to disease
Cowpea	Pusa komal	Bacterial blight

D.

Crop	Variety	Resistance to disease
Chilli	Pusa Swarnim	Chilly mosaic virus

Answer: C

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89. Match column I with column II and select the correct option from the given codes

	Column I		Column II
A.	Aspergilius niger	(i)	Ethanol
B.	Clostridium butylicm	(ii)	Statins
C.	Saccharomyces cerevisiae	(iii)	Citric acid
D.	Trichoderma polysporum	(iv)	Butyric acid
E.	Monascus purpureus	(v)	Cyclosporin A

A. A-(iv),B-(v),C-(ii),D-(i),E-(iii)

B. A-(iii),B-(iv),C-(i),D-(v),E-(ii)

C. A-(iii),B-(iv),C-(v),D-(i),E-(ii)

D. A-(ii),B-(iii),C-(iv),D-(v),E-(i)

Answer: B

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90. Organism X infects all broad-leaved agricultural crops, For genetic engineering, its tumor forming genes are deleted. Here, X is

A. Bacillus thuringiensis

B. Agrobacterium tumefacines

C. Meloidogyne incognita

D. Bacillus amyloliquefaciens

Answer: B

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91. Which one of the following statements about morula in human is correct ?

A. It has almost equal quantity of cytoplasm as an uncleaved zygote but much more DNA

B. It has far less cytoplasm as well as less DNA than in an uncleaved zygote

C. It has more or less equal quantity of cytoplasm and DNA as in uncleaved zygote

D. It has more cytoplasm and more DNA than an uncleaved zygote

Answer: A

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92. The technique called Gamete intra Fallopian Tranfer (GIFT) is recommended for those females

A. who cannot produce an ovum

B. who cannot retain inside uterus

C. whose cervical canal is too narrow to allow passage for the sperms

D. who cannot provide suitable environment for fertilisation

Answer: A

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93. Who proposed that the first form of life could have come from pre-existing non-living organic molecules ?

A. S.L Millar

B. Oparin and Haldane

C. Alfred Wallace

D. Hugo de Vries

Answer: B

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94. Which one among the following is an example for homology ?

A. Eye of octopus and mammals

B. Tubre of sweet potato and potato

C. Flippers of penguins and dolphins

D. Thorns and tendrils of Bougainvillea and Cucurbita

Answer: D

Watch Video Solution

95. Population are said to be sympatric when

A. two populations live together and freely interbreed to produce sterile offspring

B. two populations are physically isolated by natural barriers

C. two populations are isolated but occasionally come together to interbreed

D. two pupulations share the same environment but cannot interbreed

Answer: D

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96. Gynaecomastia is common feature seen in

A. Down's syndrome

B. Turner's syndrome

C. cystic fibrosis

D. Klinefelter's syndrome

Answer: D

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97. In which one of the following options the two examples are correctly matched with their particular type of immunity ?

A.

Examples	Type of immunity
Polymorphonuclear leucocytes and monocytes	Cellular barriers

B.

Examples	Type of immunity
Anti-tetanus and anti-snake bite injections	Active immunity

C.

Examples	Type of immunity
Saliva in mouth and tears in eye	Physical barriers

D.

Examples	Type of immunity
Muscus coating of epthelium lining the urinoigential tract and The HCl in stomach	Physiological barriers

Answer: A

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98. A person suffering from a disease caused by Plasmodium experiences recurring chill and fever at the time when _____ is released

A. heparin

B. hirudin

C. haemozoin

D. histamine

Answer: C

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99. Which of the following is an opioid drug ?

A. Heroin

B. Cocaine

C. Marijunana

D. Hashish

Answer: A

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100. Shortest phase in the menstrual cycle of women is

A. menstrual phase

B. luteal phase

C. ovulatory phase

D. follicular phase

Answer: C

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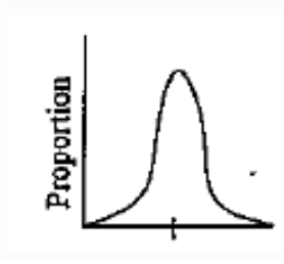
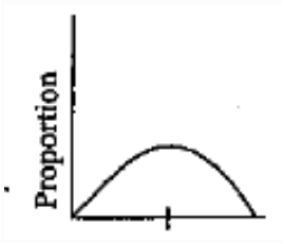
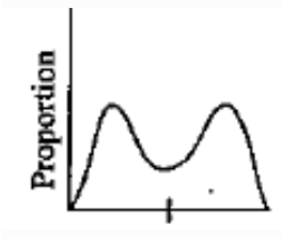
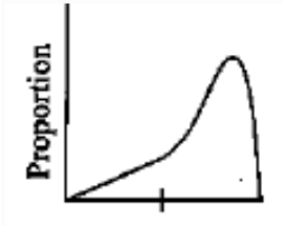
101. Which of the following graphs shows the type of natural selection which favours polymorphisms ?

A. 

B. 

C. 

D. 

Answer: C

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102. Which of the given pyramids represents the variation in biomass at different trophic levels in pond ecosystem ?

A.

B. 

C. 

D. 

Answer: C

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103. Which of the following species is a primary consumer in the given food web ?

A. F

B. G

C. H

D. K

Answer: B

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104. Penicillium does not allow the growth of Staphylococus bacterium and Trichoderma stops the growth of fungus Aspergilus. This type of biotic interaction is called

A. parasitism

B. amensalism

C. commensalism

D. competition

Answer: B

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105. Refer to the given figure showing different zones in a deep lake. In which zone of the lake, produces occur throughout from surface to

bottom ?

A. B and C

B. C and D

C. A and B

D. None of these

Answer: C

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106. Human chorionic gonadotropin is secreted by

A. chorion

B. amnion

C. corpus luteum

D. placenta

Answer: D

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107. Female plant is diploid and male plant is tetraploid. Find out the correct match regarding this.

A.

Embryo	Endo sperm	Integument	Egg	Pollen	Aleurone lay
3n	4n	2n	n	2n	4n

B.

Embryo	Endo sperm	Integument	Egg	Pollen	Aleurone lay
2n	6n	2n	4n	4n	2n

C.

Embryo	Endo sperm	Integument	Egg	Pollen	Aleurone lay
2n	3n	2n	4n	n	3n

D.

Embryo	Endo sperm	Integument	Egg	Pollen	Aleurone lay
6n	4n	3n	n	2n	n

Answer: D

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108. 5' AGCT3' is the recognition sequence and cleavage site for which of the following enzyme ?

A. AluI

B. BamHI

C. EcoRI

D. HindIII

Answer: A

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109. The colour of high yielding Mexican wheats were not linked by the indians. It was originally red grained. Their cultivation was adopted in India on large scale only when exposure to gamma radiations coverted

them to amber grained. Which of following methods of plant-breeding has been put into practice in the given case ?

A. Polyploid breeding

B. Interspecific hybridisation

C. Tissue culture

D. Mutation breeding

Answer: A

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110. Which of the following methods is/are used in recovery of healthy plants from diseased plants ?

A. Embryo culture

B. Meristem culture

C. Suspension culture

D. Anther culture

Answer: D

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111. The most likely reason for the development of resistance against pesticides in insects damaging crops is

A. genetic recombination

B. directed mutations

C. acquired heritable changes

D. None of these

Answer: B

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112. In a population with two alleles for a gene locus (P and p), the allele frequency of P is 0.7. What would be the frequency of heterozygotes if the population is in Hardy-Weinberg equilibrium ?

A. 0.49

B. 0.42

C. 0.21

D. 0.09

Answer: B

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113. A plant species A has a diploid chromosome number of 12. Another plant species B has a diploid chromosome number of 16. the allopolyploid developed by hybridisation of A and B shall a diploid chromosome number as

A. 14

B. 28

C. 40

D. 56

Answer: B

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114. A gene pool consists of

A. the entire genome of a reproducing individual

B. the total of all alleles present in a population

C. the frequencies of alleles for a gene locus within the population

D. all the gametes in a population

Answer: B

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115. If a double stranded DNA has 20% of cytosine, what will be the percentage of adenine in it ?

A. 30 %

B. 20 %

C. 40 %

D. 60 %

Answer: A

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116. A haemophilic man marries a normal homozygous woman. What is he probability that their son will be haemophilic ?

A. 75 %

B. 50 %

C. $25\ \%$

D. $0\ \%$

Answer: D

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117. Which one of the following sets includes bacterial diseases ?

A. Malaria, mumps,polio

B. Cholera,typhoid,mumps

C. Tetanus,TB,malaria

D. Diphtheria,leprosy,plague

Answer: D

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118. The detritus food chain begins with:

A. primary producers

B. primary consumers

C. secondary consumers

D. dead organic matter

Answer: D

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119. The range of biomagnification of DDT in an aquatic food chain, if starting from 0.003 ppb level in water may go at fish-eating bird level upto

A. 0.5 ppm

B. 5.0 ppm

C. 15.0 ppm

D. 25.0 ppm

Answer: D

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120. The sequence of development of embryo sac is

A. archesporium $\rightarrow$ megaspore $\rightarrow$ megasporangium $\rightarrow$ embryo sac

B. archesporium $\rightarrow$ megaspore $\rightarrow$ megaspore mother cell $\rightarrow$ embryo sac

C. archesporium $\rightarrow$ megaspore mother cell $\rightarrow$ megaspore $\rightarrow$ embryo sac

D. megaspore mother cell $\rightarrow$ archesporium $\rightarrow$ megaspore $\rightarrow$ embryo sac

Answer: C

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121. Apomixis is

A. formation of seeds by fusion of gametes

B. formation of seeds without syngamy and meiosis

C. formation of seeds with syngamy but no meiosis

D. None of these

Answer: B

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122. Given below is a pedigree chart of a family with five children. It shows the inheritance of attached ear-lobes as opposed to the free ones. The square represent the male individuals and circles represent the female individuals

Which one of the following conclusions drawn is correct ?

A. The parents are homozygous recessive

B. The trait is Y-linked

C. The parents are homozygous dominant

D. The parents are heterozygous

Answer: D

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123. In sweat pea, genes C and P are necessary for colour in flowers. The flowers are white in the absence of either or both the genes. What will be the percentage of coloured flowers in the offspring of the cross $Ccpp \times ccPp$?

A. $75\ \%$

B. $25\ \%$

C. 100 %

D. 50 %

Answer: B

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124. Which of the following is a correct match ?

A. Down's syndrome - 21st chromosome

B. Sickle cell anaemia - X-chromosome

C. Haemophilia - Y-chromosome

D. Parkinson's disease - X and Y chromosome

Answer: A

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125. During transcription, holoenzyme RNA polymerase binds to a DNA sequence and the DNA assumes a saddle like structure at that point. What is that sequence called ?

A. AAAT box

B. TATA box

C. GGTT box

D. CAAT box

Answer: B

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126. The term "niche" of a species refers to:

A. specific place where an organism lives

B. competitive power of an organism

C. specific function of an organism

D. specific and habitual function

Answer: D

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127. Primary succession on land occurs as

A. lichen $\rightarrow$ mosses $\rightarrow$ annual grass $\rightarrow$ shrubs $\rightarrow$ trees

B. mosses $\rightarrow$ lichen $\rightarrow$ annual grass rar shrubs $\rightarrow$ trees

C. plankton $\rightarrow$ submerged $\rightarrow$ floating stage $\rightarrow$ marsh stage $\rightarrow$ climax stage

D. all of these

Answer: A

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128. Hotspots are priority areas for in situ conservation. The key criteria for determining a hotspot is/are

A. location in developed/undeveloped country

B. vicinity to the sea

C. to habitat number of endemic species and degree of threat

D. all of these

Answer: C

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129. The character that proves that frogs have evolved from fishes is

A. their ability to swim in water

B. tadpole larva in frogs

C. similarity in the shape of the lead

D. their feeding on aquatic plants

Answer: B

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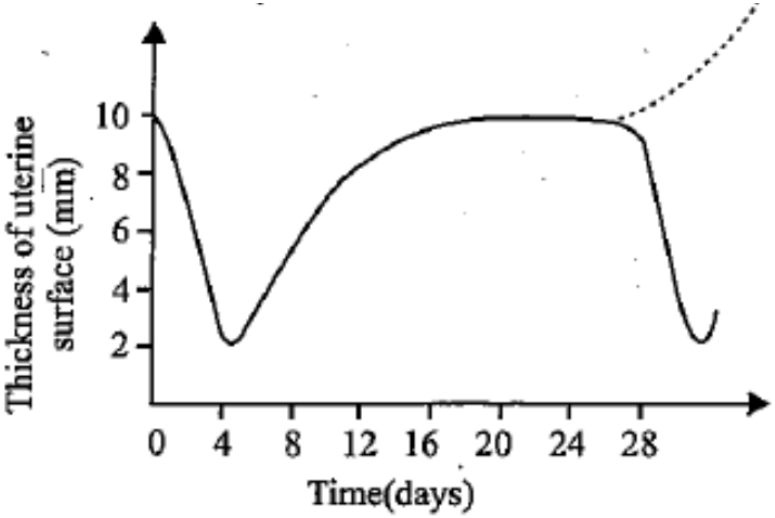
130. The given figure shows the thickness of the uterine layer of an adult woman during a period of time



Which of the following conditions is expected to occur in the beginning, ig the curve continues along the dotted line ?

A. A placenta would form on the uterus

B. An embryo would get embedded in the uterine layer

C. The amount of menstrual flow would increase

D. Two ove would simultaneously release from the ovary

Answer: B

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131. Which of these combinations is most likely to be present before ovulation occurs ?

A. FSH, corpus luteum,estrogen,secretory uterine lining

B. LH,corpus luteum,progesterone,secretory uterine lining

C. FSH, follicle,estrogen,uterine lining becoming thick

D. Luteinising hormone (LH), follicle,progesterone,thick uterine lining

Answer: C

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132. Amniocentesis involves

A. digestion of amino acid

B. conversion of glucose to amino acids

C. taking out of cells near the fetus

D. killing of child before birth

Answer: C

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133. Presence of which of the following hormones in the urine confirms pregnency?

A. Progesterone

B. Estrogen

C. Human chorionic gonadotropin

D. Prolactin

Answer: C

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134. Darwin's finches represent

A. reproductive isolation

B. geographical isolation

C. climatic variation

D. morphological variation

Answer: B

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135. Genetic drift operates only in

A. island population

B. smaller population

C. larger population

D. Mendelian population

Answer: B

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136. Which of the following is correct order of the evolutionary history of man?

A. Peking man,Homo sapiens, Neanderthal man,Cro-Magnon man

B. Peking man,Neanderthal man,Heidelberg man,cro-Magnon man

C. Peking man,Heidelberg man,Neanderthal man,Cro-Magnon man

D. Peking man,Neanderthal man,homo sapiens, Heidelberg man

Answer: C

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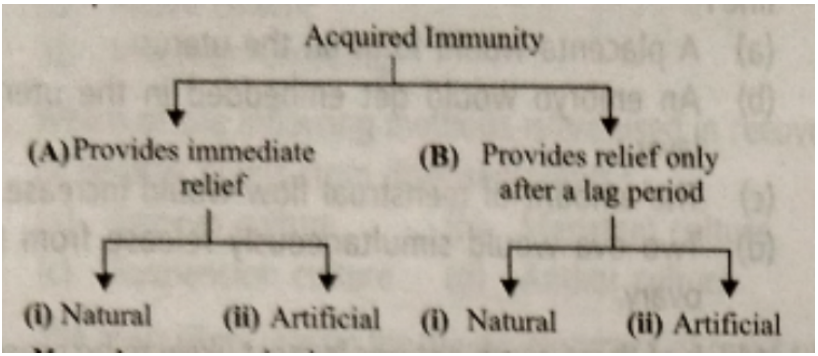
137. The given flow chart shows classfication of acquired immunity. What type of immunity will be development by the persons X and Y ?



X : A person who has recovered from an attack of measles

Y : A person who is given anti-tetanus serum.

A. $\begin{matrix} \text{X} & \text{Y} \\ \text{A(i)} & \text{B(i)} \end{matrix}$

B. $\begin{matrix} \text{X} & \text{Y} \\ \text{B(i)} & \text{A(ii)} \end{matrix}$

C. $\begin{matrix} \text{X} & \text{Y} \\ \text{B(ii)} & \text{A(ii)} \end{matrix}$

D. $\begin{matrix} \text{X} & \text{Y} \\ \text{A(i)} & \text{A(ii)} \end{matrix}$

Answer: B

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138. An autoimmune disease is:

A. myasthenia gravis

B. haemophilia

C. AIDS

D. None of these

Answer: A

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139. The Lederberg replica plating experiment showed that

A. mutations are actually pre-adaptive and evolution is not directed process, in fact evolution is based on chance events in nature and chance mutation in the organism

B. mutations appear in organism in response to change in the enviorment, conscious reaction desire or use and disuse of organs

C. mutations are random and continuous variations that form the raw material for gradual changes of evolution

D. all of these

Answer: A

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140. The given table shows ome information about the trophic levels of a food chain

Trophic level	Energy in the trophic level	Number of organisms
P	10,000 kJ	1000
Q	200 kJ	10
R	100,000 kJ	1
S	2000 kJ	500

Select the option with correct order of tropic levels in a food chain

A. $Q \rightarrow S \rightarrow P \rightarrow R$

B. $S \rightarrow Q \rightarrow R \rightarrow P$

C. $P \rightarrow R \rightarrow Q \rightarrow S$

D. $R \rightarrow P \rightarrow S \rightarrow Q$

Answer: D

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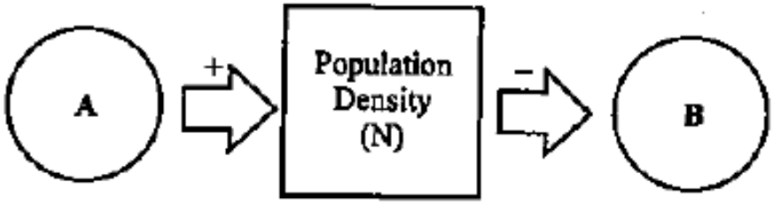
141. The density of a population in a given habitat during a period, fluctuates due to changes in certain basic processes. On this basis, identify A and B boxes in the given flow chart



A. A - Natality, B - Mortality

B. A - Immigration, B - Emigration

C. A - Natality, B- Immigration

D. Both (a) and (b)

Answer: D

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142. In the figure, identify the tropical forest and coniferous forest from the markings A-F select the correct option

A. A and B

B. B and D

C. C and E

D. C and F

Answer: C

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143. Examine the given figure and select the right option in which all the four structures A,B,C and D are labelled correctly

A.

A	B	C	D
Corona radiata	Zone pellucida	Follicular cavity	Mature Gr

B.

A	B	C	D
Corona radiata	Zone pellucida	Perivitelline space	Germinal

C.

A	B	C	D
Zone pellucida	Corona radiata	Follicular cavity	secondar

D.

A	B	C	D
Zone pellucida	Corona radiata	Perivitelline	Ovum

Answer: D

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144. Which of the following contraceptive methods correctly matches with its mode of action ?

A.

Contraceptive method	Mode of action
Tubectomy	Make the uterus unstable for implantati

B.

Contraceptive method	Mode of action
Oral pills	Inhibit ovulation and implantation

C.

Contraceptive method	Mode of action
Diaphragms	Spermicidal and increases phagocytosis of sp

D.

Contraceptive method	Mode of action
IUDs	Blocks gamete transport

Answer: B

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145. The male sex hormone testosterone is secreated by

A. vas deferens

B. epididymis

C. Leydig's cell

D. prostate gland

Answer: C

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146. In which of the following embryonic stages does the implantation take place ?

A. 

B. 

C. 

D. 

Answer: A

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147. Which of the following is incorrectly matched ?

A. Alpha - Number of species in a given habitat

B. Genetic diversity - Variation of genes within species

C. Beta-diversity - Diversity of habitat in the whole region

D. Species diversity - The product of species richness and evenness

Answer: C

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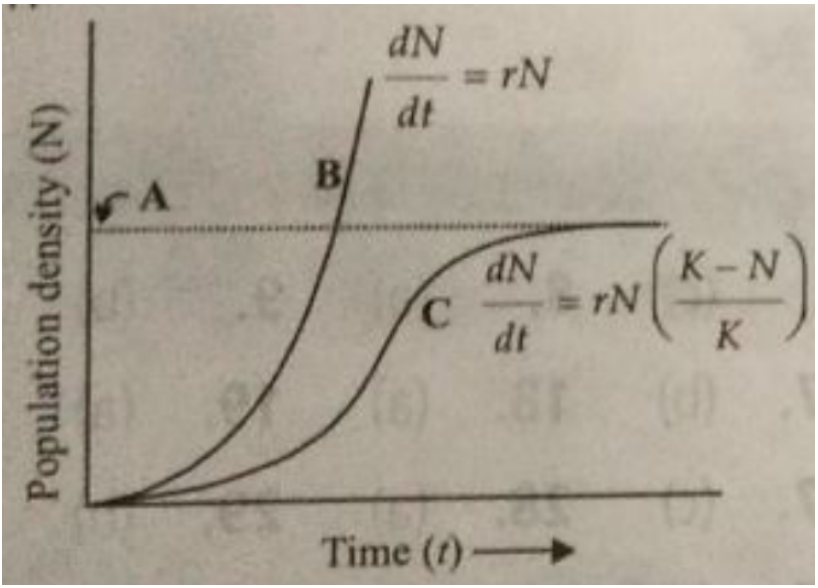
148. Which is correctly labelled with respect to the given diagram ?



A. B : Logistic curve

B. C : Carrying capacity

C. C : Exponential curve

D. A : Carrying capacity

Answer: D

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149. Refer to the given schematic representation of menstrual cycle showing three phases, I,II and III. Select the option that correctly matches these phases with the following events

(i) FSH secreted by the anterior pituitary stimulates the ovarian follicle to secrete estogen which stimulates the proliferation of the endometrium

(ii) LH secreted by the anterior pituitary stimulates the development of corpus luteum which secretes progesterone

(iii) Reduced production of LH from anterior pituitary causes degeneration of corpus luteum, thereby progesterone production is

reduced.

A. Phase I (i) Phase II (ii) Phase III (iii)

B. Phase I (iii) Phase II (i) Phase III (ii)

C. Phase I (ii) Phase II (iii) Phase III (i)

D. Phase I (iii) Phase II (ii) Phase III (i)

Answer: C

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150. Select the correct answer with respect the given figures

A. Allopatric speciation Q Sympatric speciation R Parapatric speciation P

B. Allopatric speciation P Sympatric speciation Q Parapatric speciation R

C. Allopatric speciation P Sympatric speciation R Parapatric speciation Q

D.	Allopatric speciation	Sympatric speciation	Parapatric speciation
	R	P	Q

Answer: A

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