

1.

When the centromere is situated in the middle of two equal arms of chromosomes, the chromosome is referred as:

1. Sub-metacentric
2. Acrocentric
3. metacentric
4. Telocentric

2.

In the equation  $GPP - R = NPP$

R represents:

1. Environment factor
2. Respiration losses
3. Radiant energy
4. Retardation factor

3.

Match List I with List II

| List - I  | List - II                |
|---|--------------------------|
| (a) Cells with active cell division capacity                  | (i) Vascular tissues     |
| (b) Tissue having all cells similar in structure and function | (ii) Meristematic tissue |
| (c) Tissue having different types of cells                    | (iii) Sclereids          |
| (d) Dead cells with highly thickened walls and narrow lumen   | (iv) Simple tissue       |

Select the correct answer from the options given below.

(a) (b) (c) (d)

1. (i) (ii) (iii) (iv)
2. (iii) (ii) (iv) (i)
3. (ii) (iv) (i) (iii)
4. (iv) (iii) (ii) (i)

4.

Which of the following stages of meiosis involves division of centromere?

1. Anaphase II
2. Telophase II
3. Metaphase I
4. Metaphase II

5.

Match List - I with List - II

| List -I     | List - II  |
|-------------|--|
| (a) Cristae | (i) Primary constriction in chromosome               |
| Thylakoids  | (ii) Disc-shaped sacs in Golgi apparatus             |
| Centromere  | (iii) Infoldings in mitochondria                     |
| Cisternae   | (iv) Flattened membranous sacs in stroma of plastids |

Choose the correct answer from the options given below.

(a) (b) (c) (d)

- (iii) (iv) (i) (ii)
- (ii) (iii) (iv) (i)
- (iv) (iii) (ii) (i)
- (i) (iv) (iii) (ii)

6.

Diadelphous stamens are found in:

- Pea
- China rose and citrus
- China rose
- Citrus

7.

The term used for transfer of pollen grains from anthers of one plant to stigma of a different plant which during pollination, brings genetically different types of pollen grains to stigma, is:

- Chasmogamy
- Cleistogamy
- Xenogamy
- Geitonogamy

8.

The plant hormone used to destroy weeds in a field is:

- 2, 4-D
- IBA
- IAA
- NAA

9.

Which of the following algae contains mannitol as reserve food material?

- Volvox
- Ulothrix
- Ectocarpus
- Gracilaria

10.

DNA strands on a gel stained with ethidium bromide when viewed under UV radiation, appear as:

- Dark red bands
- Bright blue bands
- Yellow bands
- Bright orange bands

11. Which of the following are not secondary metabolites in plants?
1. Vinblastin, curcumin
  2. Rubber, gums
  3. Morphine, codeine
  4. Amino acids, glucose
12. In spite of interspecific competition in nature, which mechanism the competing species might have evolved for their survival?
1. Mutualism
  2. Predation
  3. Resource partitioning
  4. Competitive release
13. Amensalism can be represented as:
1. Species A (-) : Species B (-)
  2. Species A (+) : Species B (0)
  3. Species A (-) : Species B (0)
  4. Species A (+) : Species B (+)
14. A typical angiosperm embryo sac at maturity is:
1. 7-nucleate and 7-celled
  2. 8-nucleate and 8-celled
  3. 8-nucleate and 7-celled
  4. 7-nucleate and 8-celled
15. The first stable product of CO<sub>2</sub> fixation in sorghum is:
1. Succinic acid
  2. Phosphoglyceric acid
  3. Pyruvic acid
  4. Oxaloacetic acid
16. Plants follow different pathways in response to environment or phases of life to form different kinds of structures. This ability is called:
1. Plasticity
  2. Maturity
  3. Elasticity
  4. Flexibility
17. Match List - I with List - II
- | List - I                 | List - II              |
|--------------------------|------------------------|
| (a) Protoplast fusion    | (i) Totipotency        |
| (b) Plant tissue culture | (ii) Pomato            |
| (c) Meristem culture     | (iii) Somaclones       |
| (d) Micropropagation     | (iv) Virus free plants |
- Choose the correct answer from the options given below.
- |     |     |     |     |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
|-----|-----|-----|-----|
1. (iii) (iv) (i) (ii)
  2. (iv) (iii) (ii) (i)
  3. (iii) (iv) (ii) (i)
  4. (ii) (i) (iv) (iii)

18. Which of the following is not an application of PCR (Polymerase Chain Reaction)?

1. Purification of isolated protein
2. Detection of gene mutation
3. Molecular diagnosis
4. Gene amplification

19. Which of the following algae produce Carrageen?

1. Red algae
2. Blue-green algae
3. Green algae
4. Brown algae

20. The production of gametes by the parents, formation of zygotes, the  $F_1$  and  $F_2$  plants, can be understood from a diagram called:

1. Punnett square
2. Net square
3. Bullet square
4. Punch square

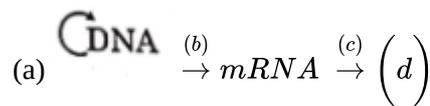
21. Which of the following is an incorrect statement?

1. The perinuclear space forms a barrier between the materials present inside the nucleus and that of the cytoplasm.
2. Nuclear pores act as passages for proteins and RNA molecules in both directions between nucleus and cytoplasm.
3. Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles.
4. Microbodies are present both in plant and animal cells.

22. Gemmae are present in:

1. Some Gymnosperms
2. Some Liverworts
3. Mosses
4. Pteridophytes

23. Complete the flow chart on central dogma



1. (a) - Replication; (b) - Transcription; (c) - Translation; (d) - Protein
2. (a) - Transduction; (b) - Translation; (c) - Replication; (d) - Protein
3. (a) - Replication; (b) - Transcription; (c) - Transduction; (d) - Protein
4. (a) - Transcription; (b) - Replication; (c) - Transcription; (d) - Transduction

24. Which of the following is a correct sequence of steps in a PCR (Polymerase Chain Reaction)?

1. Extension, Denaturation, Annealing
2. Annealing, Denaturation, Extension
3. Denaturation, Annealing, Extension
4. Denaturation, Extension, Annealing

25. During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out:

1. Histones
2. Polysaccharides
3. RNA
4. DNA

26. Mutations in plant cells can be induced by:

1. Gamma rays
2. Zeatin
3. Kinetin
4. Infrared rays

27. Which of the following statements is not correct?

1. Pyramid of energy is always upright.
2. Pyramid of numbers in a grassland ecosystem is upright.
3. Pyramid of biomass in sea is generally inverted.
4. Pyramid of biomass in sea is generally upright.

28. Match List-I with List-II.

| List-I               | List-I                  |
|----------------------|-------------------------|
| (a) Lenticels        | (i) Phellogen           |
| (b) Cork cambium     | (ii) Suberin deposition |
| (c) Secondary cortex | (iii) Exchange of gases |
| (d) Cork             | (iv) Phelloderm         |

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
1. (ii) (iii) (iv) (i)
  2. (iv) (ii) (i) (iii)
  3. (iv) (i) (iii) (ii)
  4. (iii) (i) (iv) (ii)

29. The site of perception of light in plants during photoperiodism is:

1. Axillary bud
2. Leaf
3. Shoot apex
4. Stem

30. The factor that leads to Founder effect in a population is:

1. Mutation
2. Genetic drift
3. Natural selection
4. Genetic recombination

31. The amount of nutrients, such as carbon, nitrogen, phosphorus, and calcium present in the soil at any given time, is referred as:

1. Standing state
2. Standing crop
3. Climax
4. Climax community

32. Match List - I with List-II.

| List-I              | List-II                                      |
|---------------------|--|
| (a) Cohesion        | (i) More attraction in liquid phase          |
| (b) Adhesion        | (ii) Mutual attraction among water molecules |
| (c) Surface tension | (iii) Water loss in liquid phase             |
| (d) Guttation       | (iv) Attraction towards polar surfaces       |

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
1. (iii) (i) (iv) (ii)
  2. (ii) (i) (iv) (iii)
  3. (ii) (iv) (i) (iii)
  4. (iv) (iii) (ii) (i)

33. When gene targeting involving gene amplification is attempted in an individual's tissue to treat disease, it is known as:

1. Molecular diagnosis
2. Safety testing
3. Biopiracy
4. Gene therapy

34. Genera like *Selaginella* and *Salvinia* produce two kinds of spores. Such plants are known as

1. Homosporous
2. Heterosporous
3. Homosorus
4. Heterosorus

35. Which of the following plants is monoecious?

1. *Marchantia polymorpha*
2. *Cycas circinalis*
3. *Carica papaya*
4. *Chara*

36. What is the role of RNA polymerase III in the process of transcription in eukaryotes?

1. Transcribes precursor of mRNA
2. Transcribes only snRNAs
3. Transcribes rRNAs (28S, 18S and 5.8S)
4. Transcribes tRNA, 5s rRNA and snRNA

37. Which of the following statements is correct?

1. Organisms that depend on living plants are called saprophytes.
2. Some of the organisms can fix atmospheric nitrogen in specialized cells called sheath cells.
3. The fusion of two cells is called Karyogamy.
4. Fusion of protoplasts between two motile on non-motile gametes is called plasmogamy.

38. Match Column-I with Column- II.

| Column I         | Column II  |
|------------------|--|
| (a) Nitrococcus  | (i) Denitrification<br>(ii) Conversion of ammonia to nitrite<br>(iii) Conversion of nitrite to nitrate<br>(iv) Conversion of atmospheric nitrogen to ammonia |
| (b) Rhizobium    |  |
| (c) Thiobacillus |  |
| (a) Nitrobacter  |  |

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
1. (iii) (i) (iv) (ii)
2. (iv) (iii) (ii) (i)
3. (ii) (iv) (i) (iii)
4. (i) (ii) (iii) (iv)

39. Plasmid pBR322 has a PstI restriction enzyme site within gene amp<sup>R</sup> that confers ampicillin resistance. If this enzyme is used for inserting a gene for  $\beta$ -galactoside production and the recombinant plasmid is inserted in an E.coli strain,

1. it will lead to the lysis of host cells.
2. it will be able to produce a novel protein with dual abilities.
3. it will not be able to confer ampicillin resistance to the host cell.
4. the transformed cells will have the ability to resist ampicillin as well as produce  $\beta$ -galactoside.

40.

Match Column-I with Column-II

| Column-I   | Column-II      |
|--|----------------|
| a $\% \overset{\text{♂}}{\text{K}}_{(5)} \overset{\text{♀}}{\text{C}}_{1+2+(2)} \overset{\text{♂}}{\text{A}}_{(9)+1} \overset{\text{♀}}{\text{G}}_1$ | i Brassicaceae |
| b $\oplus \overset{\text{♂}}{\text{K}}_{(5)} \overset{\text{♀}}{\text{C}}_{(5)} \overset{\text{♂}}{\text{A}}_5 \overset{\text{♀}}{\text{G}}_2$       | ii Liliaceae   |
| c $\oplus \overset{\text{♂}}{\text{P}}_{(3+3)} \overset{\text{♀}}{\text{A}}_{3+3} \overset{\text{♂}}{\text{G}}_{(3)}$                                | iii Fabaceae   |
| d $\oplus \overset{\text{♂}}{\text{K}}_{2+2} \overset{\text{♀}}{\text{C}}_4 \overset{\text{♂}}{\text{A}}_{2-4} \overset{\text{♀}}{\text{G}}_{(2)}$   | iv Solanaceae  |

Select the correct answer from the options given below.

(a) (b) (c) (d)

- (ii) (iii) (iv) (i)
- (iv) (ii) (i) (iii)
- (iii) (iv) (ii) (i)
- (i) (ii) (iii) (iv)

41.

Which of the following statements is incorrect?

- ATP is synthesized through complex V.
- Oxidation-reduction reactions produce proton gradient in respiration.
- During aerobic respiration, the role of oxygen is limited to the terminal stage.
- In ETC (Electron Transport Chain), one molecule of  $\text{NADH} + \text{H}^+$  gives rise to 2ATP molecules, and one  $\text{FADH}_2$  gives rise to 3 ATP molecules.

42.

Match List -I with List - II.

| List-I                     | List-II                  |
|----------------------------|--------------------------|
| (a) Protein                | I. C-C double bonds      |
| (b) Unsaturated fatty acid | II. Phosphodiester bonds |
| (c) Nucleic acid           | III. Glycosidic bonds    |
| (d) Polysaccharides        | IV. Peptide bonds        |

Choose the correct answer from the options given below.

(a) (b) (c) (d)

- (ii) (i) (iv) (iii)
- (iv) (iii) (i) (ii)
- (iv) (i) (ii) (iii)
- (i) (iv) (iii) (ii)

43.

DNA fingerprinting involves identifying differences in some specific regions in DNA sequence, called as

- Single nucleotides
- Polymorphic DNA
- Satellite DNA
- Repetitive DNA

44.

Match List-I with List-II

| List-I              | List-II   |
|---------------------|---|
| (a) S phase         | I. Proteins are synthesized                                     |
| (b) $G_2$ phase     | II. Inactive phase  |
| (c) Quiescent stage | III. Interval between mitosis and initiation of DNA replication |
| (d) $G_1$ phase     | IV. DNA replication   |

Choose the correct answer from the options given below.

(a) (b) (c) (d)

- (iv) (i) (ii) (iii)
- (ii) (iv) (iii) (i)
- (iii) (ii) (i) (iv)
- (iv) (ii) (iii) (i)

45.

Identify the correct statement.

1. The coding strand in a transcription unit is copied to an mRNA.
2. Split gene arrangement is characteristic of prokaryotes.
3. In capping, methylguanosine triphosphate is added to the 3' end of hnRNA.
4. RNA polymerase binds with the Rho factor to terminate the process of transcription in bacteria.

46.

Select the correct pair.

1. Cells of medullary rays that form part of a cambial ring - Interfascicular cambium
2. Loose parenchyma cells rupturing the epidermis and forming a lens-shaped opening in the bark - Spongy parenchyma
3. Large colorless empty cells in the epidermis of grass leaves - Subsidiary cells
4. In dicot leaves, vascular bundles are surrounded tissue by large thick-walled cells - Conjunctive tissue

47.

Which of the following statements is incorrect?

1. Grana lamellae have both PSI and PS II.
2. Cyclic photophosphorylation involves both PS I and PS II.
3. Both ATP and  $\text{NADPH} + \text{H}^+$  are non-cyclic synthesized during photophosphorylation.
4. Stroma lamellae have PS I only and lack NADP reductase.

48.

Now a days it is possible to detect the mutated gene causing cancer by allowing the radioactive probe to hybridise its complementary DNA in clone of cells, followed by its detection using autoradiography because:

1. mutated gene does not appear on a photographic film as the probe has no complementarity with it.
2. mutated gene does not appear on photographic film as the probe has complementarity with it.
3. mutated gene partially appears on a photographic film.
4. mutated gene completely and clearly appears on a photographic film.

49.

In the exponential growth equation  $N_t = N_0 e^{rt}$ ,  $e$  represents :

1. The base of natural logarithms
2. The base of geometric logarithms
3. The base of number logarithms
4. The base of exponential logarithms

50.

In some members of which of the following pairs of families, pollen grains retain their viability for months after release?

1. Poaceae; Solanaceae
2. Rosaceae; Leguminosae
3. Poaceae; Rosaceae
4. Poaceae; Leguminosae

51.

Match List - I with List - II

| List - I                  | List - II         |
|---------------------------|-------------------|
| (a) Aspergillus Niger     | (i) Acetic Acid   |
| (b) Acetobacter aceti     | (ii) Lactic Acid  |
| (c) Clostridium butylicum | (iii) Citric Acid |
| (d) Lactobacillus         | (iv) Butyric Acid |

Choose the correct answer from the options given below.

- |    |       |       |       |       |
|----|-------|-------|-------|-------|
|    | (a)   | (b)   | (c)   | (d)   |
| 1. | (ii)  | (iii) | (i)   | (iv)  |
| 2. | (iv)  | (ii)  | (i)   | (iii) |
| 3. | (iii) | (i)   | (iv)  | (ii)  |
| 4. | (i)   | (ii)  | (iii) | (iv)  |

52.

If Adenine makes 30% of the DNA molecule, what will be the percentage of Thymine, Guanine and Cytosine in it?

1. T:30 ; G:20 ; C:20
2. T:20 ; G:25 ; C:25
3. T:20 ; G:30 ; C:20
4. T:20 ; G:20 ; C:30

53.

Which one of the following is an example of Hormone releasing IUD?

1. Cu 7
2. Multiload 375
3. CuT
4. LNG 20

54.

Which one of the following characteristic is incorrect with respect to cockroach?

1. In females, 7<sup>th</sup> - 9<sup>th</sup> sterna together form a genital pouch.
2. 10<sup>th</sup> abdominal segment in both sexes, bears a pair of anal cerci.
3. A ring of gastric caeca is present at the junction of midgut and hind gut.
4. Hypopharynx lies within the cavity enclosed by the mouth parts.

55.

Identify the incorrect pair.

1. Lectins - Concanavalin A
2. Drugs - Ricin
3. Alkaloids - Codeine
4. Toxin - Abrin

56.

Veneral diseases can spread through:

- (a) Using sterile needles
- (b) Transfusion of blood from infected person
- (c) Infected mother to foetus
- (d) Kissing
- (e) Inheritance

Choose the correct answer from the options given below.

1. (b) and (c) only
2. (a) and (c) only
3. (a), (b) and (c)
4. (b), (c) and (d)

57. Chronic auto immune disorder affecting neuro muscular junction leading to fatigue, weakening and paralysis of skeletal muscle is called as:
1. Myasthenia gravis
  2. Gout
  3. Arthritis
  4. Muscular dystrophy
58. With regard to insulin choose correct options.
- (a) C-peptide is not present in mature insulin.
- (b) The insulin produced by rDNA technology has C-peptide.
- (c) The pro-insulin has C-peptide.
- (d) A-peptide and B-peptide of insulin are interconnected by disulphide bridges.
- Choose the correct answer from the options given below.
1. (a), (c) and (d) only
  2. (a) and (d) Only
  3. (b) and (d) only
  4. (b) and (c) only
59. Which of the following statements wrongly represents the nature of smooth muscle?
1. Communication among the cells is performed by intercalated discs
  2. These muscles are present in the wall of blood vessels
  3. These muscle have no striations
  4. They are involuntary muscles
60. The centriole undergoes duplication during:
1. Metaphase
  2. G<sub>2</sub> phase
  3. S-phase
  4. Prophase
61. Dobson units are used to measure thickness of:
1. Ozone
  2. Troposphere
  3. CFCs
  4. Stratosphere
62. The organelles that are included in the endomembrane system are:
1. Golgi complex, Mitochondria, Ribosomes and Lysosomes
  2. Golgi complex, Endoplasmic reticulum, Mitochondria and Lysosomes
  3. Endoplasmic reticulum, Mitochondria, Ribosomes and Lysosomes
  4. Endoplasmic reticulum, Golgi complex, Lysosomes and Vacuoles
63. Which of the following RNAs is not required for the synthesis of protein?
1. rRNA
  2. siRNA
  3. mRNA
  4. tRNA

64.

Match List - I with List - II

| List - I         | List - II        |
|------------------|------------------|
| (a) Metamerism   | (i) Coelenterata |
| (b) Canal system | (ii) Ctenophora  |
| (c) Comb Plates  | (iii) Annelida   |
| (d) Cnidoblasts  | (iv) Porifera    |

Choose the correct answer from the options given below.

(a) (b) (c) (d)

- (iii) (iv) (ii) (i)
- (iv) (i) (ii) (iii)
- (iv) (iii) (i) (ii)
- (iii) (iv) (i) (ii)

65.

Which stage of meiotic prophase shows terminalisation of chiasmata as its distinctive feature?

- Diakinesis
- Pachytene
- Leptotene
- Zygotene

66.

Persons with 'AB' blood group are called as "Universal recipients". This is due to:

- Presence of antibodies, anti-A and anti-B, on RBCs
- Absence of antibodies, anti-A and anti-B, in plasma
- Absence of antigens A and B on the surface of RBCs
- Absence of antigens A and B in plasma

67.

The partial pressures (in mm Hg) of oxygen (O<sub>2</sub>) and carbon dioxide (CO<sub>2</sub>) at alveoli (the site of diffusion) are :

- pO<sub>2</sub>=95 and pCO<sub>2</sub> = 40
- pO<sub>2</sub> = 159 and pCO<sub>2</sub> =0.3
- pO<sub>2</sub> = 104 and pCO<sub>2</sub>=40
- pO<sub>2</sub> = 40 and pCO<sub>2</sub>=45

68.

Succus entericus is referred to as:

- Gastric juice
- Chyme
- Pancreatic juice
- Intestinal juice

69.

Receptors for sperm binding in mammals are present on:

- Perivitelline space
- Zona pellucida
- Corona radiata
- Vitelline membrane

70.

Match the following

| List-I          | List-II                   |
|-----------------|---------------------------|
| (a) Physalia    | I. Pearl oyster           |
| (b) Limulus     | II. Portuguese Man of War |
| (c) Ancylostoma | III. Living fossil        |
| (d) Pinctada    | IV. Hookworm              |

Choose the correct answer from the options given below.

(a) (b) (c) (d)

- (ii) (iii) (iv) (i)
- (i) (iv) (iii) (ii)
- (ii) (iii) (i) (iv)
- (iv) (i) (iii) (ii)

71. In a cross between a male and female, both heterozygous for sickle cell anaemia gene, what percentage of the progeny will be diseased?
1. 25%
  2. 100%
  3. 50%
  4. 75%
72. Read the following statements.
- (a) Metagenesis is observed in Helminths.
  - (b) Echinoderms are triploblastic and coelomate animals.
  - (c) Round worms have organ-system level of body organization
  - (d) Comb plates present in ctenophores help in digestion.
  - (e) Water vascular system is characteristic of Echinoderms.
- Choose the correct answer from the options given below.
1. (a), (d) and (e) are correct
  2. (b), (c) and (e) are correct
  3. (c), (d) and (e) are correct
  4. (a), (b) and (c) are correct
73. Sphincter of oddi is present at :
1. Gastro-oesophageal junction
  2. Junction of jejunum and duodenum
  3. Ileo-caecal junction
  4. Junction of hepato-pancreatic duct and duodenum
74. Which enzyme is responsible for the conversion of inactive fibrinogens to fibrins?
1. Epinephrine
  2. Thrombokinase
  3. Thrombin
  4. Renin
75. Which one of the following belongs to the family Muscidae?
1. Cockroach
  2. House fly
  3. Fire fly
  4. Grasshopper
76. The fruit fly has 8 chromosomes ( $2n$ ) in each cell. During the interphase of Mitosis if the number of chromosomes at  $G_1$  phase is 8, what would be the number of chromosomes after the S phase?
1. 4
  2. 32
  3. 8
  4. 16
77. Which of the following is not an objective of Biofortification in crops?
1. Improve vitamin content
  2. Improve micronutrient and mineral content
  3. Improve protein content
  4. Improve resistance to diseases

78.

A specific recognition sequence identified by endonucleases to make cuts at specific positions within the DNA is:

1. Palindromic Nucleotide sequences
2. Poly(A) tail sequences
3. Degenerate primer sequence
4. Okazaki sequences

79.

Match List-I with List-II

| List-I        | List-II   |
|---------------|---|
| (a) Vaults    | I. Entry of sperm through the Cervix is blocked |
| (b) IUDs      | II. Removal of Vas deferens                     |
| (c) Vasectomy | III. Phagocytosis of sperms within the Uterus   |
| (d) Tubectomy | IV. Removal of the fallopian tube               |

Choose the correct answer from the options given below.

(a) (b) (c) (d)

1. (ii) (iv) (iii) (i)
2. (iii) (i) (iv) (ii)
3. (iv) (ii) (i) (iii)
4. (i) (iii) (ii) (iv)

80.

For effective treatment of the disease, early diagnosis and understanding its pathophysiology is very important. Which of the following molecular diagnostic techniques is very useful for early detection?

1. ELISA Technique
2. Hybridization Technique
3. Western Blotting Technique
4. Southern Blotting Technique

81.

Select the favorable conditions required for the formation of oxyhemoglobin at the alveoli.

1. High  $pO_2$ , high  $pCO_2$ , less  $H^+$ , higher temperature
2. Low  $pO_2$ , low  $pCO_2$ , more  $H^+$ , higher temperature
3. High  $pO_2$ , low  $pCO_2$ , less  $H^+$ , lower temperature
4. Low  $pO_2$  high  $pCO_2$  more  $H^+$ , higher temperature

82.

During the process of gene amplification using PCR, very high temperature is not maintained in the beginning, then which of the following PCR will be affected first?

1. Denaturation
2. Ligation
3. Annealing
4. Extension

83.

Which is the "Only enzyme" that has "Capability to catalyze Initiation, Elongation, and Termination in the process of transcription in prokaryotes?"

1. DNA Ligase
2. DNase
3. DNA dependent DNA polymerase
4. DNA dependent RNA polymerase

84.

Which one of the following organisms bears hollow and pneumatic long bones?

1. Macropus
2. Ornithorhynchus
3. Neophron
4. Hemidactylus

85. Erythropoietin hormone which stimulates R.B.C. formation is produced by:
1. The cells of bone marrow
  2. Juxtaglomerular cells of the kidney
  3. Alpha cells of the pancreas
  4. The cells of the rostral adenohypophysis
86. Which of the following secretes the hormone, relaxin, during the later phase of pregnancy?
1. Foetus
  2. Uterus
  3. Graafian follicle
  4. Corpus luteum
87. The Adenosine deaminase deficiency results into:
1. Digestive disorder
  2. Addison's disease
  3. Dysfunction of Immune system
  4. Parkinson's disease
88. Which of these is not an important component of initiation of parturition in humans?
1. Release of Oxytocin
  2. Release of Prolactin
  3. Increase in estrogen and progesterone ratio
  4. Synthesis of prostaglandins
89. Which one of the following statements about Histones is wrong?
1. Histones are rich in amino acids - Lysine and Arginine.
  2. Histones carry a positive charge in the side chain.
  3. Histones are organized to form a unit of 8 molecules.
  4. The pH of histones is slightly acidic.
90. Statement I: The codon 'AUG codes for methionine and phenylalanine.  
Statement II: AAA' and 'AAG are both codons that code for the amino acid lysine.
- In the light of the above statements, choose the correct answer from the options given below.
1. Statement I is correct but Statement II is false
  2. Statement I is incorrect but Statement II is true
  3. Both Statement I and Statement II are true
  4. Both Statement I and Statement II are false
91. Following are the statements with reference to 'lipids'.
- (a) Lipids having only single bonds are called unsaturated fatty acids.
  - (b) Lecithin is a phospholipid.
  - (c) Trihydroxy propane is glycerol.
  - (d) Palmitic acid has 20 carbon atoms including carboxyl carbon.
  - (e) Arachidonic acid has 16 carbon atoms.
- Choose the correct answer from the options given below.
1. (b) and (c) only
  2. (b) and (e) only
  3. (a) and (b) only
  4. (c) and (d) only

92.

Following are the statements about prostomium of earthworm.

- (a) It serves as a covering for mouth.
- (b) It helps to open cracks in the soil into which it can crawl.
- (c) It is one of the sensory structures.
- (d) It is the first body segment.

Choose the correct answer from the options given below.

- 1. (a), (b), (c) and (d) are correct
- 2. (b) and (c) are correct
- 3. (a), (b) and (c) are correct
- 4. (a), (b) and (d) are correct

93.

Which of the following is not a step in Multiple Ovulation Embryo Transfer Technology (MOET)?

- 1. Cow is fertilized by artificial insemination
- 2. Fertilized eggs are transferred to surrogate mothers at 8-32 cell stage
- 3. Cow is administered hormone having LH like activity for super ovulation
- 4. Cow yields about 6-8 eggs at a time

94.

Match List-I with List-II

| List-I                       | List-II                    |
|------------------------------|----------------------------|
| (a) Allen's Rule             | (i) Kangaroo rat           |
| (b) Physiological adaptation | (ii) Desert lizard         |
| (c) Behavioural adaptation   | (iii) Marine fish at depth |
| (d) Biochemical adaptation   | (iv) Polar seal            |

Choose the correct answer from the options given below.

|    | (a)  | (b)   | (c)   | (d)   |
|----|------|-------|-------|-------|
| 1. | (iv) | (i)   | (ii)  | (iii) |
| 2. | (iv) | (iii) | (ii)  | (i)   |
| 3. | (iv) | (ii)  | (iii) | (i)   |
| 4. | (iv) | (i)   | (iii) | (ii)  |

95.

Match List-I with List-II

| List-I               | List-II                   |
|----------------------|---------------------------|
| (a) Scapula          | (i) Cartilaginous joints  |
| (b) Cranium          | (ii) Flat bone            |
| (c) Sternum          | (iii) Fibrous joints      |
| (d) Vertebral column | (iv) Triangular flat bone |

Choose the correct answer from the options given below.

|    | (a)  | (b)   | (c)   | (d)  |
|----|------|-------|-------|------|
| 1. | (iv) | (ii)  | (iii) | (i)  |
| 2. | (iv) | (iii) | (ii)  | (i)  |
| 3. | (i)  | (iii) | (ii)  | (iv) |
| 4. | (ii) | (iii) | (iv)  | (i)  |

96.

**Assertion (A) :**

A person goes to high altitude and experiences 'altitude sickness' with symptoms like breathing difficulty and heart palpitations.

**Reason (R) :**

Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen.

In the light of the above statements, choose the correct answer from the options given below.

- 1. (A) is true but (R) is false
- 2. (A) is false but (R) is true
- 3. Both (A) and (R) are true and (R) is the correct explanation of (A)
- 4. Both (A) and (R) are true but (R) is not the correct explanation of (A)

97.

Match List-I with List-II

| List-I         | List-II                    |
|----------------|----------------------------|
| (a) Filariasis | (i) Haemophilus influenzae |
| (b) Amoebiasis | (ii) Trichophyton          |
| (c) Pneumonia  | (iii) Wuchereria bancrofti |
| (d) Ringworm   | (iv) Entamoeba histolytica |

Choose the correct answer from the options given below.

|    | (a)   | (b)   | (c)   | (d)   |
|----|-------|-------|-------|-------|
| 1. | (i)   | (ii)  | (iv)  | (iii) |
| 2. | (ii)  | (iii) | (i)   | (iv)  |
| 3. | (iv)  | (i)   | (iii) | (ii)  |
| 4. | (iii) | (iv)  | (i)   | (ii)  |

98.

Identify the types of cell junctions that help to stop the leakage of the substances across a tissue and facilitation of communication with neighbouring cells via rapid transfer of ions and molecules.

- Adhering junctions and Tight junctions, respectively.
- Adhering junctions and Gap junctions, respectively.
- Gap junctions and Adhering junctions, respectively.
- Tight junctions and Gap junctions, respectively.

99.

During muscular contraction which of the following events occur?

- 'H' zone disappears
- 'A' band widens
- 'I' band reduces in width
- Myosine hydrolyzes ATP, releasing the ADP and Pi
- Z-lines attached to actins are pulled inwards

Choose the correct answer from the options given below.

- (b), (c), (d), (e) only
- (b), (d), (e), (a) only
- (a), (c), (d), (e) only
- (a), (b), (c), (d) only

100.

Match List-I with List-II

| List-I                                | List-II  |
|---------------------------------------|--|
| (a) Adaptive radiation                | (i) Selection of resistant varieties due to excessive use of herbicides and pesticides |
| (b) Convergent evolution              | (ii) Bones of forelimbs in Man and Whale   |
| (c) Divergent evolution               | (iii) Wings of Butterfly and Bird  |
| (d) Evolution by anthropogenic action | (iv) Darwin Finches  |

Choose the correct answer from the options given below.

|    | (a)   | (b)   | (c)   | (d)   |
|----|-------|-------|-------|-------|
| 1. | (ii)  | (i)   | (iv)  | (iii) |
| 2. | (i)   | (iv)  | (iii) | (ii)  |
| 3. | (iv)  | (iii) | (ii)  | (i)   |
| 4. | (iii) | (ii)  | (i)   | (iv)  |

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