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Time : 3.00 hrs.

Half-Yearly Common Examination - 2019

Max. Marks : 70

BIOLOGY

Instructions : 1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately. 2) Use Blue or Black ink to write and underline and pencil to draw diagrams.

Note : Candidates should answer Part - I (Bio-Botany) & Part - II (Bio-Zoology) in separate answer - books.

PART - I (BIO - BOTANY) (Marks : 35)**SECTION - I**

Note : (i) Answer all the questions.

8 x 1 = 8

(ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

Match the following :

(1) Green Sulphur Bacteria

(i) Chromatium

(2) Purple Sulphur Bacteria

(ii) Methano Bacterium

(3) Purple Non-Sulphur Bacteria

(iii) Chlorobium

(4) Archae Bacteria

(iv) Rhodospirillum

(a) (1)-(i), (2) - (ii), (3) - (iii), (4) - (iv)

(c) (1)-(iii), (2) - (i), (3) - (iv), (4) - (ii)

(b) (1)-(ii), (2)-(iii), (3) - (iv), (4) - (i)

(d) (1)-(iv), (2) - (i), (3) - (ii), (4) - (iii)

2. The other name for Verticillate type of phyllotaxy is :

(a) Opposite decussate (b) Opposite Superposed (c) Whorled (d) Bifarious

3. Sequences of which of the following is used to know the phylogeny ?

(a) mRNA (b) rRNA (c) tRNA (d) HnRNA

4. Who sequenced the first protein insulin ?

(a) Linus Pauling (b) Robert Corey (c) Gerardus Johannes Mulder (d) Fred Sanger

5. The Apical cell theory is proposed by : (a) A. Schmidt (b) Hanstein (c) Hofmeister (d) Clowes

6. The water loss in Cuticular transpiration is : (a) 90 - 95% (b) 0.1% (c) 5-10% (d) 40 - 45%

7. Which Chlorophyll molecule does not have a phytol tail ?

(a) Chl - a (b) Chl - b (c) Chl - c (d) Chl - d

8.is the most powerful growth inhibitor. (a) Ethanol (b) Cytokinin (c) ABA (d) Auxin

SECTION - II

Answer any four questions.

4 x 2 = 8

9. Define - Aestivation.

10. What is Bio systematics ?

11. What is Eustele ?

12. Write notes on Hydroponics.

13. Write notes on Radial Vascular bundle.

14. Define Cell Cycle.

SECTION - III

Answer any three of the following questions. Question No. 19 is compulsory.

3 x 3 = 9

15. Draw the floral diagram and write the floral formula of Allium cepa.

16. Draw and label the structure of Mitochondria.

17. Differentiate Cyclic and Non-cyclic photophosphorylation.

18. Explain photo periodism.

19. How do mangrove species survive in salt water ?

SECTION - IV

Answer the following questions.

2 x 5 = 10

20. (a) Explain sexual reproduction in Bacteria. (OR) (b) Explain the protein structure.

21. (a) Explain Glycolysis or EMP pathway. (OR)

(b) (i) Which wood is responsible for the vital function of the plant ? Explain.

(ii) How do trees increase in width ? Explain.

PART - II (BIO - ZOOLOGY)**SECTION - I**

Note : (i) Answer all the questions.

8 x 1 = 8

(ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

1. Nephridia of earthworms are performing the same functions as :

(a) Gills of prawns (b) Flame cells of Planaria (c) Trachea of insects (d) Nematoblasts of hydra

2. Buccopharyngeal respiration in frog :
 - (a) is increased when nostrils are closed (b) stops when there is pulmonary respiration
 - (c) is increased when it is catching fly (d) stops when mouth is opened
3. Which of the following statements are true about surfactants ?
 - (i) Thin non-cellular films made of protein and phospholipids - covering alveolar membrane.
 - (ii) Their synthesis begins only after the 25th week of gestation.
 - (iii) They lower the surface tension in the alveoli and prevents the lungs from collapsing.
 - (iv) They are synthesised and secreted by type II cells of the squamous epithelial cells of alveoli.
 - (a) (i) and (ii) are true, (iii) and (iv) are false (b) (ii) and (iii) are true, (i) and (iv) are false
 - (c) All are true (d) All are false
4. Identify the wrong match. *TEN*
 - (a) Bowman's Capsule - Glomerular filtration (b) DCT - Absorption of glucose (c) Henle's loop - concentrated condition of urine (d) PCT - Absorption of N⁺
5. At any given time there is more blood in the venous system than that of arterial system. Which of the following features of veins allows this ?
 - (a) Relative lack of smooth muscles (b) Presence of valves (c) Proximity of the veins to lymphatic's
 - (d) Thin endothelial lining
6. Which one of the following is not a factor for skeletal muscle contraction ?
 - (a) Nerve impulse from the CNS. (b) Release of acetylcholine at neuro muscular junction.
 - (c) Availability of ATP at muscles (d) Release of Na from sarcoplasmic reticulum.
7. Half-life period of insulin in plasma is (i) and it is cleared from circulation within (ii)
 - (a) (i) 7 mins (ii) 8-10 mins
 - (b) (i) 6 mins (ii) 10 - 15 mins
 - (c) (iii) 5 mins (ii) 15 - 30 mins
 - (d) (iv) 10 mins (ii) 15 - 30 mins
8. Aquaponics is a technique which is :
 - (a) A combination of fish culture and aquaculture (b) A combination of aquaculture and hydroponics
 - (c) A combination of vermiculture and hydroponics (d) A combination of prawn culture and aquaculture

SECTION - II

Note : (i) Answer any four questions. (ii) Question no. 14 is compulsory.

4 x 2 = 8

9. Cornea transplant in human is almost never rejected. State the reason.
10. What is the connection between taxonomy and publishing of book "Origin of Species" ?
11. What are lateral hearts ?
12. Breathing through nose is healthier than breathing through mouth. Why ?
13. List any four functions of Skeletal System.
14. Alimentary canal is lined with glandular epithelium. What is the significance of presence of glandular epithelium in alimentary canal ?

SECTION - III

Note : (i) Answer any three questions. (ii) Question no. 19 is compulsory.

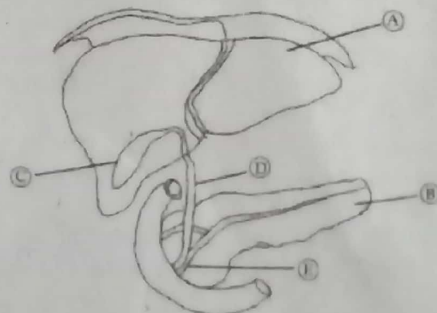
3 x 3 = 9

15. Write the advantages of vermicompost.
16. How will you differentiate male and female cockroach ?
17. Draw the L.S. of human eye and label the parts.
18. Why insulin is called 'hypoglycemic hormone' ?
19. Write a note on positive feedback action of ADH.

Answer the following questions.

2 x 5 = 10

20. (a) A person met with an accident with severe head injury. He is taken to hospital, where doctors declared 'dead'. But his heart is functioning. Explain the amazing property of heart. **(OR)**
 (b) A research scholar identified a new animal in his locality. How can he identify and classify the animal ? Explain.
21. i) Draw and Label the given diagram ii. List the functions of the liver **(OR)**



(OR) (b) Give the economic importance of fishes.