PARAMVEER HI-TECH MATRIC HR SEC SCHOOL PAUPPARAPATTI

A

STD: XII **PUBLIC QUESTION PAPER- MARCH-2025** **MARK: 70**

SUBJECT: BIOLOGY **TIME: 3.00 HRS**

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: Candidate 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. **8x1=8**

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

1. Linkage group in sweet pea:
   a) 7 b) 2 c) 10 d) 4
2. Solar energy used by green plants for photosynthesis is only
   a) 3 – 10% b) 2 – 8% c) 2 – 9% d) 2 – 10%
3. Parthenocarpic fruits lack
   a) Mesocarp b) Endocarp c) seed d) Epicarp
4. Southern Blotting technique is used to separate _____.
   a) RNA b) Protein c) Lipid d) DNA
5. Virus free plants are developed from
   a) Protoplast culture b) Organ culture
   c) Cell suspension culture d) Meristem culture
6. People's movement for the protection of environment in Sirsi of Karnataka is
   a) Appiko movement b) Chipko movement
   c) Forest man of india movement d) Amirtha Devi Bishwas movement
7. Pedogenesis refers to
   a) Fossils b) Water c) Population d) Soil
8. Which one of the following is an example of polygenic inheritance?
   a) Pod shape in garden pea b) Flower colour in Mirabilis Jalapa
   c) Skin Colour in humans d) Production of male honey bee

SECTION – II

Note: Answer any four of the following questions. **4x2=8**

9. What is Mellitophily?
10. Write short note on Pollen kitt.
11. Mention any two significance of Ploidy.
12. Give the examples for micro propagation performed plants .
13. Mention any two objectives of Plant Breeding.
14. Differentiate bio-medicines and botanical medicines.

SECTION – III

Note: Answer any three of the following questions. Question No. 19 is compulsory. **3x3=9**

15. Draw the diagram of any three different types of aneuploidy.
16. Write any three advantages of Artificial seeds.
17. Give four examples of plants cultivated in commercial agroforestry.
18. Write a note on heterosis.
19. Write the economic importance of rice.

SECTION – IV

Note: Answer all the questions. **2x5=10**

20. a) Describe Dihybrid cross.

(OR)

b) Write the advantages and disadvantages of Bt cotton.

21. a) List out any five morphological adaptations of halophytes.

(OR)

b) i) Define Food web

ii) Write the significance of food web.

Part-II (Bio-Zoology) (Marks: 35)

SECTION – I

NOTE: (i) Answer all the questions. **8x1=8**

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

1. PCR proceeds in three distinct steps governed by temperature, they are in order of :
   (a) Primer Annealing, Synthesis, Denaturation (b) Denaturation, Primer Annealing, Synthesis
   (c) Denaturation, Synthesis, Primer Annealing (d) Synthesis, Primer Annealing, Denaturation
2. In which mode of reproduction, variations are seen?
   (a) Asexual (b) Parthenogenesis (c) Sexual (d) Both (a) and (b)
3. Which of the following rule is used to calculate the number of Barr bodies in a cell ?
   (a) N-1 Rule (b) Allen's Rule (c) N+1 Rule (d) Jordan's Rule
4. Read the given Statements and select the correct option.

Statement 1: Diaphragms, cervical caps and vaults are made of rubber and are inserted into the female reproductive tract to cover the cervix before coitus.

Statement 2: They are chemical barriers of conception and are reusable.

   (a) Statement 1 is correct but Statement 2 is incorrect.
   (b) Both Statements 1 and 2 are correct and Statement 2 is the correct explanation of Statement 1.
   (c) Both Statements 1 and 2 are incorrect.
   (d) Both Statements 1 and 2 are correct but Statement 2 is not the correct explanation of Statement 1
5. The maximum reproductive capacity of an organism under optimum environmental conditions is called
   (a) Biotic potential (b) Carrying capacity
   (c) Capacitation (d) Environmental resistance
6. Meselson and Stahl's experiment proved
   (a) DNA is the genetic material (b) Transduction
   (c) Semi conservative nature of DNA replication (d) Transformation
7. Which of the following micro-organism is used for production of citric acid in industries ?
   (a) Aspergillus niger (b) Lactobacillus bulgaricus
   (c) Rhizopus nigricans (d) Penicillium citrinum
8. Assertion (A) : Head of the sperm consists of Acrosome and Mitochondria.
   Reason (R): Acrosome contains spiral rows of Mitochondria.
   (a) (A) is true. (R) is false. (b) (A) and (R) are true. (R) is the correct explanation of (A).
   (c) Both (A) and (R) are false. (d) (A) and (R) are true. (R) is not the correct explanation of (A)

SECTION – II

Note: Answer any four of the following questions. **4x2=8**

9. What is mass extinction?
10. Differentiate Complete parthenogenesis from incomplete parthenogenesis.
11. Expand the following: (a) ZIFT (b) ICSI
12. State any two salient features of Human Genome project.
13. What are homologous organs? give an example.
14. What is pre-pro insulin?

SECTION – III

Note: Answer any three of the following questions. Question No. 19 is compulsory. **3x3=9**

15. What is inhibin? state its functions.
16. What are the symptoms of phenylketonuria?
17. Mention any three main objections to Darwinism.
18. List any three adaptations seen in terrestrial animals.
19. Which test is highly sensitive and can detect antigens in the range of nanogram? Mention the added advantages it possesses.

SECTION – IV

Note: Answer all the questions. **2x5=10**

20. a) Give a schematic representation of gametogenesis in humans.

(OR)

b) Differentiate active immunity from passive immunity.

21. a) What is the technique used for settling parental dispute? What are the steps involved in this technique?

(OR)

b) List all the wastes that you generate, at home, school or during your trip to other places. Could you very easily reduce the generation of these wastes? Which would be difficult or rather impossible to reduce?