

Bio - Botany

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

PART - I

Note : 1. Answer all the questions. 2. Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer :- $8 \times 1 = 8$

- Which Mendelian idea is depicted by a cross in which the F_1 generation resembles both the parents ?
(a) Inheritance of one gene (b) Incomplete dominance (c) Co-dominance (d) Law of dominance
- Match the following:
(1) Totipotency (i) Reversion of mature cells into meristem
(2) Dedifferentiation (ii) Bio-chemical and structural changes of cells
(3) Explant (iii) Properties of living cells develops into entire plant
(4) Differentiation (iv) Selected plant tissue transferred to culture medium
(a) (1)-(ii), (2)-(i), (3)-(iv), (4)-(iii) (b) (1)-(iii), (2)-(i), (3)-(iv), (4)-(ii)
(c) (1)-(iv), (2)-(ii), (3)-(iii), (4)-(i) (d) (1)-(i), (2)-(iii), (3)-(ii), (4)-(iv)
- Depletion of which gas in the atmosphere can lead to an increased incidence of skin Cancer ?
(a) Ammonia (b) Methane (c) Nitrous Oxide (d) Ozone
- Assertion (A) :** Gamma rays are generally used to induce mutation in wheat varieties.
Reason (R) : Because they carry lower energy to non-ionize electrons from atom.
(a) (A) is wrong, (R) is correct (b) (A) and (R) are correct
(c) (A) and (R) are wrong (d) (A) is correct, (R) is wrong
- Which of the following is incorrectly paired?
(a) Wheat - Himgiri (b) Milch breed - Sahiwal (c) Rice - Ratna (d) Pusa Komal - Brassica
- Which of the following is not a Sedimentary cycle?
(a) Nitrogen cycle (b) Phosphorous cycle (c) Sulphur cycle (d) Calcium cycle
- Coleorhiza is found in
(a) Paddy (b) Beans (c) Pea (d) Tridax
- In soil, water available for plants is
(a) Gravitational water (b) Chemically bound water (c) Capillary water (d) Hygroscopic water

PART - II

Note : Answer any four questions :-

$4 \times 2 = 8$

- Name the chemicals used in gene transfer.
- What is PAR ?
- Differentiate Primary introduction from Secondary introduction.
- Name the humors that are responsible for the health of human beings.
- What is back cross?
- What is vivipary? Name a plant group which exhibits vivipary.

PART - III

Note : Answer any three questions. Questions number 19 is compulsory :-

$3 \times 3 = 9$

- Write short notes on Cryopreservation.
- What is seed ball?
- Draw and label the parts of cut opened dicot seed.
- What is carbon capture and storage (CCS) ?
- What is the difference between missense and nonsense mutation?

PART - IV

Note : Answer all the questions :-

$2 \times 5 = 10$

- Describe dominant epistasis with an example. (OR)
Mention the applications of Biotechnology.
- Give the characteristic features of Anemophilous plants. (OR)
What are the King and Queen of spices ? Write their uses.

Note : (i) Answer all the questions.

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

1. The phenomenon of "Industrial Melanism" demonstrates:
(a) Natural Selection (b) Induced Mutation (c) Reproductive Isolation (d) Geographical Isolation
2. 'SMOG' is derived from : (a) Smoke (b) Fog (c) Both (a) and (b) (d) Only (a)
3. The relationship between sucker fish and shark is : (a) Commensalism (c) Predation (b) Parasitism (d) Competition
4. Match the following:

Column I

- (1) *Leishmania donovani*
- (2) *Wuchereria bancrofti*
- (3) *Trypanosoma gambiense*
- (4) *Entamoeba histolytica*

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

5. Patau's Syndrome is also referred to as : (a) 13 - Trisomy (b) 18 - Trisomy (c) Turner's Syndrome (d) 21 - Trisomy
6. If Buds are formed on the outer surface of the parent body, it is called as :
(a) Gemmules (b) Endogenous budding (c) Fragmentation (d) Exogenous budding
7. Enzyme used for removing oily stains from the clothes : (a) Cellulase (b) Pectinase (c) Protease (d) Lipase
8. Lympho granuloma venereum is caused by
a) Bacteria b) Virus c) Protozoa d) Fungi

PART - I

Note: Answer any FOUR questions.

4x2=8

9. Differentiate Leading strand and lagging strand.
10. What is meant by Sameer?
11. What is Bioremediation? Name any one microorganism involved in Bioremediation.
12. Draw a neat labelled diagram of Human Sperm.
13. What is amniocentesis?
14. What is the most important application of human stem cells ?

PART - III

Note: Answer any THREE questions. Question number 19 is compulsory.

3x3=9

15. Mention any three goals of the human genome project.
16. Write the differences between r-selected and K-selected species
17. 'Red data book' - What do you know about it?
18. Differentiate between External and Internal fertilization.
19. Mention any three applications of karyotyping.

PART - IV

Note: Answer all the questions.

2x5=10

20. a) Explain the various phases of the Menstrual Cycle. (or)
b) Write objections to Darwinism.
21. a) How can we contribute to promote biodiversity conservation? (or)
b) Explain the structure of immunoglobulin with suitable diagram.