

(English Version)

- Instructions :** 1. *This question paper consists of four Parts – A, B, C and D. Part – D consists of two Sections. Section – I and Section – II.*
2. *All the Parts are compulsory.*
3. *Draw diagrams wherever necessary. Unlabelled diagrams or illustrations do not attract any marks.*

PART – A

Answer the following questions in **one word or one sentence each**
(10 × 1 = 10)

- 1) Name the reproductive cycle that occur in non-primates.
- 2) Name the layer of the uterus that exhibits strong contractions during parturition.
- 3) Which chromosome of man has the least number of genes?
- 4) Write the infectious forms of Plasmodium which enter human body through mosquito bite.
- 5) Give an example for an inter-specific hybrid animal.
- 6) Write the scientific name of the source organism for citric acid.
- 7) Mention a gene that codes for insecticidal protein in Bt cotton.
- 8) Name the plasmid present in Agrobacterium tumefaciens.
- 9) What is the main aim of Montreal Protocol?
- 10) Name the type of food chain that is the major conduit for energy flow in an aquatic ecosystem.

PART – B

Answer **any five** of the following questions in **3 to 5** sentences **each**, wherever applicable : **(5 × 2 = 10)**

- 11) What is embryogenesis? Mention two important events that occur during embryogenesis.
- 12) Define point mutation. Give an example for point mutation.
- 13) What are the conclusions drawn by T.H. Morgan from the crossing experiments in Drosophila with respect to linkage?
- 14) What is an allergy? Name the two chemicals released by mast cells in the body during allergy.
- 15) Mention the four traits for which plant breeding is done.
- 16) With an example, explain the convention for naming restriction endonucleases scientifically.
- 17) A prey develops defense against a predator. Justify the statement with two examples in animals.
- 18) Mention any two mechanisms how human body compensates low oxygen availability at higher altitude.

PART – C

Answer **any five** of the following questions in about **40 to 80** words **each**, wherever applicable : **(5 × 3 = 15)**

- 19) Write three advantages offered by the seeds to angiosperms.
- 20) Draw a neat labelled diagram of the sectional view of human mammary gland.

- 21) DNA is the better genetic material than RNA. Justify the statement with three comparative reasons.
- 22) Enumerate on convergent and divergent evolution with suitable examples in plants.
- 23) What are carcinogens? Mention any two groups of carcinogens with one example for each.
- 24) a) Mention four tools required for recombinant DNA technology. (2)
b) With reference to gel electrophoresis, what is elution? (1)
- 25) Ecological pyramids have limitations. Justify the statement with three reasons.
- 26) Describe three factors which affect on decomposition.

PART – D

SECTION – I

Answer **any four** of the following questions in about **200 to 250** words **each**, wherever applicable : (4 × 5 = 20)

- 27) What is megasporogenesis? Explain the development of eight nucleate embryosac in flowering plants.
- 28) What are contraceptives? Explain four different non-surgical contraceptive methods.
- 29) What is incomplete dominance? Explain it with reference to flower colour in snapdragon.

- 30) a) Explain the role of three organisms as biocontrol agents. (3)
b) What is the significance of BOD? (1)
c) Give an example for a fungus found in mycorrhiza. (1)
- 31) Explain five benefits of creating transgenic animals.
- 32) a) Tropical region has greater biodiversity than temperate region. Justify the statement with three reasons. (3)
b) The use of CNG is better than petrol or diesel. Give four reasons. (2)

SECTION – II

Answer **any three** of the following questions in about **20** to **250** words **each**, wherever applicable : (3 × 5 = 15)

- 33) a) Write the schematic representation of spermatogenesis. (3)
b) Write the two events that occur in the ovary and uterus during the follicular phase of menstrual cycle. (2)
- 34) 'DNA replication is said to be semiconservative'. Why? Describe the experimental proof of Messelson and stahl to show DNA replication is semiconservative.
- 35) a) Draw a neat labelled diagram of Miller's experiment. (3)
b) Mention two assumptions of oparin and Haldane with reference to 'origin of Life'. (2)
- 36) Name the technology that can successfully increase the herd size of cattle in a short time and explain the steps involved in this technology.
- 37) a) Mention four 'Evil Quartet' which cause depletion of biodiversity. (2)
b) Write two suspended activities in animals against abiotic stresses with suitable examples. (2)
c) Among vertebrates, which group of animals has the highest number in global biodiversity? (1)