

General Instructions

- (i) This question paper contains 9 questions. All questions are compulsory.
- (ii) It comprises 4 single-correct multiple-choice questions.
- (iii) Attempt every question; detailed solutions are provided in the companion solutions booklet.

1(a). Which organ in flower represents the female reproductive organ?

- (A) Gynoecium
- (B) Androecium
- (C) Anther
- (D) Tapetum

1(b). Which of the following characteristics of a flower is suitable for insect pollination?

- (A) Light weighted pollen grains
- (B) Coloured attractive corolla
- (C) Multiple ovule
- (D) Small pollen grains

1(c). How many years did Gregor Mendel conduct experiments on garden pea plants?

- (A) Five years
 - (B) Two years
 - (C) Seven years
 - (D) Eleven years
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1(d). Sickle cell anaemia disease is an example of which type of mutation?

- (A) Point mutation
 - (B) Euploidy
 - (C) Deletion
 - (D) Translocation
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2(a). Malaria disease is transmitted by which organism?

2(b). Write the complete form of the BOD abbreviation.

2(c). Give one example of commensalism.

2(d). Who proposed the chromosomal theory of inheritance?

2(e). Write the name of any one transgenic animal.

3(a). What is a pest resistant plant? Give one example.

3(b). What is an external parasite? Explain with one example.

3(c). Write the names of any two atmospheric nitrogen-fixing microorganisms.

3(d). Write the names of any two projects to save rivers from pollution.

3(e). What is gel electrophoresis? Explain.

4(a). Describe the ecological pyramid in brief.

4(b). Describe the process of decomposition with a diagram.

4(c). State the importance of the artificial insemination technique.

4(d). Describe the Hardy-Weinberg principle.

5(a). Write a short note on transfer RNA (tRNA).

5(b). Describe palaeontological evidence with an example.

5(c). Describe polyembryony with an example.

5(d). Draw a labelled diagrammatic sectional view of seminiferous tubules.

6(a). What is allergy? Explain with an example.

6(b). Describe the false fruit with a diagram.

6(c). Describe the symptoms of Down syndrome.

6(d). Explain convergent evolution with an example.

7. What is cancer? Describe its causes and diagnosis in detail.

OR

Describe the life cycle of Plasmodium with a diagram.

8. What is DNA fingerprinting technique? Describe in detail with a diagram.

OR

Write an essay on the applications of biotechnology in agriculture.

9. What is an ecosystem? Describe the components of an ecosystem.

OR

Write explanatory notes on: (i) Productivity (ii) Consumers.