

BIOLOGY

(Theory)

Time Allowed : 3 Hrs.

Max. Marks 60

Special Instructions :-

1. You must write question paper series in the circle at top left side of title page of your Answer-book.
2. While answering your question, you must indicate on your answer book same question No. as appears in your question paper.
3. Do not leave blank page / pages in your Answer-book.
4. All the questions are compulsory and are divided into four sections.
5. Answers should be to the point.
6. Que No. 1 to 5 (Section-A) are of one mark each and are of MCQ type.
7. Que No. 6 to 15 (Section-B) are of 1½ marks each. Answer each of them in 30-40 words.
8. Que No. 16 to 23 (Section-C) are of 2½ marks each. Answer each of them in about 80 words.
9. Que No. 24 & 25 (Section-C) are of 3 marks each. Answer each of them in about 120 words.
10. Que No. 26 (Section-D) is of 4 marks. Answer in about 140 words.
11. Que No. 27 & 28 are of 5 marks each. Answer in about 150-170 words.
12. Draw diagrams wherever necessary.

Section-A

- Q1. Cllistogamous flower are
- (a) Male flower which never opens
 - (b) female flower which never opens
 - (c) Bisexual flower which never opens
 - (d) Open bisexual flower which perform self pollination in bud condition.
- (1)
- Q2. An 'O' blood group child can not have parents of blood group
- | | |
|-------------|--------------|
| (a) B and B | (b) A and B |
| (c) O and O | (d) AB and O |
- (1)
- Q3. Single cell protein (SCP) represents
- | | |
|---|---|
| (a) Protein extracted from a micro-organism | (b) Protein from a clone of cells |
| (c) Protein mass from single cell animal | (d) Biomass from growth of a micro-organism |
- (1)

- Q4. Addition of foreign gene in to a crop is
 (a) Genetic Engineering (b) Biotechnology
 (c) Tissue culture (d) Immunisation (1)
- Q5. Pyramid of number deals with
 (a) Species in an area (b) Individuals in a Community
 (c) Individual in a trophic level (d) Sub species in a Community (1)

Section-B

- Q6. What is Colostrum ? What are its main functions ?
 OR
 What are Leydig cells ? What is their function ? (1½)
- Q7. How is a sickle cell carrier at an advantage over the rest of human population in a malaria ridden area ? (1½)
- Q8. What are transgenic bacteria ? Illustrate using one example.
 OR
 Explain principle and function of ELISA. (1½)
- Q9. Briefly describe Predator food chain. (1½)
- Q10. Define :
 (a) Dominant trait. (b) Recessive trait (c) Homozygous
 OR
 Write one function of each.
 (a) Promotor gene (b) t RNA (c) Exons (1½)
- Q11. What is triple fusion ? What is its significance ? (1½)
- Q12. Microbes can be used to decrease the use of chemical fertilizer and pesticides ?
 Explain how this can be accomplished ? (1½)
- Q13. Define the following terms :
 (a) Biopatent (b) Biopiracy (c) Genitically modified food (1½)
- Q14. Outline salient features of Carbon Cycle in nature. (1½)
- Q15. What is gene therapy ? (1½)

Section-C

Q16. What is aminocentesis ? What is its significance ? (2½)

Q17. What are Homologous organs ? Explain with examples. (2½)

Q18. What are biofertilizer, explain ? (2½)

Q19. Define : (a) Scavenging (b) Commensalism (c) Symbiosis
(d) Predation (e) Proto co-operation

OR

Write one example for each of the following :

(a) Heliophyte (b) Viviparous plant (c) Edothermic animals
(d) Ectothermic animals (e) Sciophyle (2½)

Q20. What is biotechnology ? How does old biotechnology differs from modern biotechnology ? (2½)

Q21. Define Mendal's law of Independent assortment. Explain with suitable example.

OR

Write the application of Recombinant DNA technology. (2½)

Q22. Differentiate between spermatogenesis and oogenesis. (2½)

Q23. Describe hot spots of biodiversity with species reference to India. (2½)

Q24. Descibe an inducible operon with example and differentiate from repressible operon. (3)

Q25. What do you understand by acid rain ? What are its effects on the vegetation ? (3)

Section-D

Q26. What is Atavisim also write the name of atleast four vestigeal organ present in human body.

OR

Describe Darwin Theory of 'Natural Selection'. (4)

Q27. (a) Write expanded forms of :
(1) AMIS (2) CMIS (3) NACO
(b) List any four danger signals of Cancer.

OR

- (a) Name and explain briefly any three types of Cancer.
- (b) Differentiate between antibodies and interferons. (3+2)

Q28. (a) Recapitulation theory was proposed by

- (1) Van Bear (2) Darwin
- (3) Haeckel (4) Aristotle
- (b) Draw labelled L.S. of angiospermic ovule.
- (c) What are Cry Protein ? Name the organism that produces them. (1+2+2)

BIOLOGY

(Practical)

Time Allowed : 3 Hrs.

Max. Marks 25

General Instructions :-

1. All the questions are divided into two sections. Section A and Section B. Perform any two experiments from Section-A.
2. All the questions of Section-B are compulsory.

SECTION-A

- Q1. Perform an experiment to study the soil samples from different sites for their texture and moisture content. (3)
- Q2. Perform an experiment for the study of plant population density by quadrat method. (3)
- Q3. Perform an experiment to study pH and water holding capacity of soil. (3)
- Q4. Perform an experiment to study pH clarity and presence of any living organism from different samples of water. (3)

SECTION-B

- Q5. Prepare a slide to show pollen germination. (2)
- Q6. Prepare temporary mount of onion root tip for the study of mitosis. (2)
- Q7. Identify, comment and draw well labelled diagrams of slides and specimens A, B, C and D. (1½+1½+1½+1½)
- Q8. Record of Investigatory Project and Viva based on the project. (5)
- Q9. Practical record and viva based on the experiments. (4)