

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

Answers may be given either in English or in Bengali but all answers must be in one and the same language.

GROUP-A

Answer any ten Questions.

1. a) State various types of Coral reefs and their distribution in relation to Indian Ocean.
- b) State the various Castes found in bee-colony, mentioning its significance.
- c) Give the ultrastructure of a flagellum.
- d) Define tube-feet and correlate its structure and functions.
- e) State the structural organization of accessory respiratory structures in Clarias and Protopterus.
- f) Characterize biodiversity hot-spots and its role in conservation.
- g) State the strategies of wild-life management with special reference to Rhino.
- h) Delineate Law of Priority.
- i) Characterize an wetland ecosystem & give examples of two Ramsar sites in India.
- j) What is biopiracy ?
- k) Delineate principles of bird flight.
- l) "Energy flow in ecosystem obeys Laws of Thermodynamics" --- justify.
- m) Delineate law of probability and level of significance.

4x10

GROUP-B

Attempt any four Questions.

2. Distinguish between :
 - a) Neurotoxic and cytotoxic snake venom.
 - b) Metamorphosis and metagenesis.
 - c) Proteroglyphons and solenoglyphons phangs.
 - d) Foramen Panizza and foramen ovale.

5x4

3. Write notes on the followings :

- a) Choanocytes in sponges.
- b) Green gland in Prawn.
- c) Echolocation in bat.
- d) Double respiration in birds.
- e) Kinetoplastid in Trypanosoma.

4x5

4. a) Describe the Process of Congugation in Paramoecium, mentioning its significance.
b) Discuss affinities of Onychophorans to justify its systematic Position. 10+10
5. a) What is endostyle ? State its role in ciliary feeding in lower chordates with a suitable diagram. 5+5
b) Define venous heart. Give a comparative account of heart in amniotes in ascending scale of vertebrate evolution with diagrams. 2+8
6. a) With a neat diagram describe the anatomic organization of ruminant stomach. Add a note on microflora in such stomach.
b) Describe the mechanism of Snake-bite, mentioning roles of major bones and muscles involved. 10+10
7. a) Delineate reptilian and mammalian features of monotremes to comment on its systematic Position. 8
b) Describe retrogressive metamorphosis in Ascidia, stating its evolutionary significance. 8
c) Distinguish between neoteny and Paldogenesis with suitable examples. 4
8. Make explanatory notes on :
a) polymorphism in Siphonophora and its evolutionary significance.
b) organs and Process of echolocation in cetaceans. 10+10

GROUP-C

Answer any four Questions.

9. Distinguish between :
a) Sigmoid and logistic growth forms of population.
b) r - selected and k - selected populations.
c) phenetics and cladistics.
d) Taxonomy and systematics. 5x4
10. a) Differentiate between :
i) Keystone species and umbrella species.
ii) Potential niche and realized niche.
iii) Ecotone and edge-effect.
iv) Endangered and vulnerable species.
v) Allopatric and sympatric modes of speciation. 2x5
- b) Delineate the steps of succession in development of an ecosystem in an area. Add a note on climax community. 7+3

11. a) Elaborate Gause's concept on "competitive exclusion" Principle with a suitable example.
b) Add a note on density-dependent regulation of population. 10+10
12. a) Distinguish between :
i) primary and secondary pollutants.
ii) Point and non-point source of pollution. 3+3
- b) What is biomagnification ? Discuss this phenomenon with a suitable example. 2+6
- c) Distinguish between acute and chronic toxicity with suitable examples. 6
13. a) Enumerate Linnaean hierarchy.
b) Elucidate biological species concept, mentioning its merits and demerits.
c) Add a brief note on "Project tiger". 6+8+6
14. a) Distinguish between altruism and reciprocal altruism with examples. 4
b) Add a note on FAP. 4
c) Elaborate the concept of homonym and synonym. 3
d) State the values of biodiversity. 3
e) Differentiate among mean, mode and median. 6

