

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 same language.

GROUP - A

Answer any ten questions :-

1. (a) Give the distinctive features of the protozoan phylum in which Paramecium belongs to.
- (b) State the difference between a coelomate, pseudocoelomate and coelomate animals with examples of each.
- (c) Write in brief about metamerism in annelida.
- (d) State three external and three internal differences between osteichthyes and chondrichthyes. Give examples of each.
- (e) Comment on the digestion of cellulose by ruminants.
- (f) Write a note on endostyle.
- (g) Distinguish between poisonous and non-poisonous snakes with examples of each.
- (h) Explain briefly the factors controlling the population density.
- (i) How does a primary pollutant differ from a secondary pollutant? Give an example of each in relation to air pollution.
- (j) Write in brief about types of learned behaviour.
- (k) Define biodiversity hotspot. Name the biodiversity hotspots in India.
- (l) Explain the rules of binomial nomenclature with example. What is tautonym?
- (m) What are the various measures of central tendency? Which measure of central tendency is the most appropriate for qualitative data? For any data set, which measure of central tendency can have multiple values?

4 x 10

GROUP - B

Answer any four questions :-

2. Write the systematic position (upto class) of the following animals mentioning at least one diagnostic character for each taxon :-
 - (a) Sea anemone,
 - (b) Sea hare,
 - (c) Sea fan,
 - (d) Sea mouse,
 - (e) Sea lily.

4 x 5

3. Distinguish between :-

- (a) Prototheria and Metatheria
- (b) Perissodactyla and Artiodactyla
- (c) Horn and antler
- (d) Proteroglyphous snake and Solenoglyphous snakes.

5 x 4

4. Write notes on the following :-

- (a) Malpighian tubules
- (b) Osphradium
- (c) Integumentary glands in mammals
- (d) Types of poison in snakes.

5 x 4

5. (a) What are the three main types of coral reefs ? Mention their salient features.
 (b) Briefly discuss about the factors that influence formation of coral reefs.
 (c) Add a note on the distribution of different types of coral reefs on Earth. 8 + 6 + 6
6. (a) Onychophorans represent an example of living connecting link between the two phyla-annelida and arthropoda - Discuss.
 (b) Define eusociality. Briefly discuss the social organization in termites and comment whether they exhibit eusociality. 10+(2+8)
7. (a) Give a comparative account of filter-feeding mechanism in hemichordata and urochordata.
 (b) Describe the aortic arches found in bony fish, amphibia and typical reptile with proper diagram. 10+(3+3+4)
8. (a) What are air sacs in birds ? Name the air sacs found in pigeon ? Write the functional significance of air sacs.
 (b) Draw and describe the structure of typical flight feather.
 (c) Describe the anatomical specializations of cetaceans which aid in echolocation. (1+3+3)+7+6

GROUP - CAnswer any four questions :-

9. Distinguish between :-

- (a) Exponential and logistic growth patterns of population
 (b) Potential and realized natality
 (c) Innate behaviour and learned behaviour
 (d) Selfishness and altruism. 5 x 4

10. Write notes on the following :-

- (a) Keystone species
 (b) Eutrophication
 (c) Biosphere reserves
 (d) Cladistics. 5 x 4

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11. (a) Describe the process of ecological succession encompassing the events of

- (i) nudation,
 (ii) invasion,
 (iii) competition and coaction,
 (iv) reaction
 (v) stabilization of species.

- (b) What is the difference between fundamental and realized niche ?
 (c) How can resource partitioning allow coexistence of species ? 10 + 5 + 5

12. (a) Name four green-house gases (GHGs). How do GHGs contribute to global warming ?

- (b) Name the pollutants responsible for acid rain. Describe the effects of acid rain.
 (c) What is the difference between point source and nonpoint source water pollution ?
 (d) Distinguish between LD₅₀ and LC₅₀ ? (2+4)+(2+4)+4+4

-: 3 :-

13. (a) Comment on arsenic pollution in lower Gangetic plains.
 (b) Explain the characteristic features of Fixed Action Pattern (FAP) with suitable example.
 (c) Critically evaluate the success of Project Tiger.
 (d) Comment on man-animal conflict in West Bengal. 5+5+5+5

14. (a) Define species. Discuss the merits and demerits of biological species concept.
 (b) Find the mean number of leaves per plant from the following data :-

Number of leaves	5	10	15	20	25
Number of plants	3	5	7	3	2

- (c) Two curly winged flies when mated produce 61 curly and 35 straight winged progeny. Use a X^2 -square test to determine whether these numbers fit a 3 : 1 ratio.

(Given: X^2 0.05, df 1 = 3.84)

(1+5)+7+7

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