2018

ZOOLOGY - PAPER-I

Time Allowed : 3 Hours

Full Marks : 200

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) Give the distinctive characters of Ophidia.
b) Comment on the significance of ascidian tadpole in the chordate phylogeny.
c) Would a blinded bat blunder against large obstacles and die of starvation?
d) State the differences between protostomia and deuterostomia with examples.
e) Comment on the aortic arches of teleost.
f) Comment on the accessory respiratory organs in Clarias and Channa.
g) Distinguish pronephros and opisthonephros.
h) How niche can be considered as 'n' dimensional hypervolume?
i) The human survivorship curve is highly convex'-explain.
j) Write short note on 'ground water pollution'.
k) Write short note on account of conjugation in Paramoecium sp.
l) What is coefficient of correlation? State the importance of 't' test in statistical analysis.
m) Comment on the migratory restlessness. 4x10

Group -B

Answer any four questions

2. Distinguish between :
a) Wolffian and Mullerian duct.
b) Schizocoelom and Enterocoelom.
c) Ductus caroticus and ductus arteriosus.
d) Physostomous and physocleistous swimbladder.

3. Writes notes on the following : 5x4
a) Notochord.
b) Setae.
c) Statocyst.
d) Lateral line sense organ.
e) Mammalian hair.

4. a) Discuss affinities of Limulus to justify its systemic position. 4x5
b) Briefly elucidate the polymorphism in Cnidarians. Add a note on the functional significance of polymorphism. 10

5. a) Give explanatory note on 'Role of microfibrils in amoeboid movement' 6+4
b) Write on the characteristic features of ctenophore.
c) Describe poison apparatus of snakes with diagram.

6. a) How birds locate their migratory routes? 8+4+8
b) Discuss biting mechanism of snakes.
c) Describe the structure and function of ruminant stomach. 6+8+6

7. a) Discuss about the basic differences in gross morphology of gills in Chondrichthyes and Osteichthyes.
   b) Write notes on Axolotl larva and its significance.
   c) Mention the characteristic properties of Cyclostomata. 8+6+4

8. a) What is sexual trimorphism? How castes are formed in a bee colony?
   b) Justify the inclusion of Balanoglossus under nonchordates in an independent phylum.
   c) Describe the structure of Organ of Bojanus. 6+8+6

Group - C

Answer any four questions

9. Distinguish between :
   a) r-selected and k-selected species.
   b) Autogenic and allogenic succession.
   c) Detritus and grazing food chain.
   d) Monoclimax and polyclimax theory. 5x4

10. Differentiate between :
   a) Alpha and Beta diversity.
   b) Ecotype and ecocline.
   c) National Park and Biosphere Reserve.
   d) Habitat and Niche. 5x4

11. a) Write notes on :
      i) Central tendency.
      ii) Standard error and standard deviation with example.
   b) State briefly the formation and effects of photochemical smog.
   c) Discuss resource partitioning with the help of suitable graphical models.
   d) Distinguish between acute and chronic toxicity. (5+5)+4+4+2

12. a) Distinguish between :
      i) Density independent and density dependent regulation.
      ii) In situ and ex situ conservation.
   b) Differentiate BOD and COD.
   c) Discuss on demerits of mass utilization of ground water resource.
   d) Discuss about rules of Zoological nomenclature. (3+3)+4+5+5

13. a) Add a brief note on Rhinoceros conservation.
   b) Discuss about schedules under wild life (protection) act.
   c) State different measures of water pollution.
   d) Discuss about the depletion of ozone layer. 5+5+5+5

14. a) Elaborate Holotype and paratype.
   b) Add a note on remote sensing for sustainable diversity.
   c) Describe different steps in the formation of allopatric species.
   d) What is Chi-square? What is ANOVA? 4+4+6+6