

2016

ZOOLOGY

[Honours]

PAPER – III

Full Marks : 90

Time : 4 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

[OLD SYLLABUS]

GROUP – A

Answer any two questions of the following : 15 × 2

(Turn Over)

1. What is ecological pyramid? When will an ecological pyramid be inverted? Mention the contrasting features of a grass land and a lake ecosystem on the basis of biomass. Explain ecotone with suitable example. Discuss the energy flow in an autotroph based ecosystem. $1 + 2 + 2 + 4 + 6$
2. Define 'Niche'. What do you mean by niche overlap and niche shift? How does competition influence the niche of a population? Mention the factors determining the carrying capacity of a population? Which is a K-selected population. $2 + 4 + 6 + 2 + 1$
3. (a) Describe why mosquitoes and ticks are good vectors of different diseases.
- (b) Write a note on control measures of them. $(4 + 4) + (3\frac{1}{2} + 3\frac{1}{2})$
4. (a) Distinguish between autogenic and allogenic succession. Give an account of general process of succession indicating the phenomenon like nudation, invasion, ecesis and interaction. $2 + 6$

- (b) Write a note on climax community indicating its attributes. What are pro-climax and post-climax? 4 + 3
5. (a) What is conservation? State the difference between *in-situ* and *ex-situ* conservation. Describe the present status of tiger conservation in India. 2 + 4 + 4
- (b) What are the criteria for declaring an eco-zone to be Biodiversity hot spots. Name the major hot spots in India. 3 + 2
6. What is meant by primary and secondary responses in antigen-antibody interaction? Explain the process of precipitation and complement Fixation in terms of antigen antibody reaction. What is 'Sandwich ELISA'? State the application of ELISA. 2 + 4 + 4 + 3 + 2
7. (a) With labelled diagram, describe the life cycle of *Leishmania* sp. 2 + 5

- (b) Write about the pathogenicity and control measures of the said parasite. 5 + 3

GROUP – B.

Answer any *five* questions of the following : 8×5

8. Define Biome. State how grazing and natural regeneration play significant roles in maintaining a grassland community. Describe a typical grassland community with suitable examples. 1 + 3 + 4
9. Classify viruses on the basis of nucleic acid composition and mode of replication with examples. 5 + 3
10. Explain circadian rhythm with suitable examples. Discuss how birds navigate during migration. 4 + 4
11. Define parasitism. Give an account of different levels of parasitisms in nature with examples. Compare and contrast the commensalism and mutualism. 1 + 4 + 3

12. What is Vaccination ? Describe different types of vaccines. 1 + 7
13. With suitable illustration, describe the life cycle of *Wuchereria bancrofti*. 2 + 6
14. Write a note on epidemiology, pathogenesis and control measures of shigellosis. 2 + 4 + 2
15. Differentiate between single immunodiffusion and double immunodiffusion. What is Zone of equivalence. 6 + 2
16. Define ecosystem. "Ecosystems are capable of self-maintenance and self regulation" discuss with suitable examples. 2 + 6
17. Explain the mechanism of toxin (Bt) produced by *Bacillus thuringiensis*. State the methods of application of Bt and its products. Discuss about the advantages and threats to the use of toxin as pesticides. 3 + 2 + 2 + 1

GROUP – C

Answer any *five* questions of the following : 4 × 5

18. Write a note on acid fast bacteria. 4
 19. What is pasteurization? How milk could be pasteurized? 4
 20. Mention the principal classes of lymphocytes with their function. 4
 21. What are *J*-shaped and *S*-shaped growth curves? 4
 22. Comment on Monoclonal antibody technique. 4
 23. Write on medical importance of anopheles mosquito. 4
 24. Mention the attributes of a Biosphere reserve. 4
 25. Write a short note on the pathogenicity and control measures of cholera. 4
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