

2025

M.Sc. 1st Semester Examination

ZOOLOGY

Paper : ZOOE405A1/B1

Full Marks : 35

Time : 1 Hour 30 Minutes

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Paper : ZOOE405A1

[Biotechnology and Public Health]

Group - A

Answer any five questions : 2×5=10

1. Mention the purview of red, green, blue and white biotechnology with one example for each.
2. What is meant by nocturnal periodicity of microfilariae? What may be the reason for this periodicity?
3. What is golden rice? Which foreign genes are introduced in rice endosperm cells for production of golden rice?
1+1
4. Name the plasmids present in oil-degrading superbug and state their respective function.

P.T.O.

(2)

5. Name two indigenous and two exotic species of earthworms used for vermicomposting in India. 1+1
6. What is the difference between a killed vaccine and an attenuated vaccine? Cite examples.
7. Define endemic and pandemic with example.
8. What is pernicious malaria?

Group - B

Answer any *three* questions : 4×3=12

9. What is transgenesis? Describe DNA microinjection technique of transgenic fish production. 1+3
10. Differentiate 'bio-augmentation' and 'bio-stimulation' with examples. 2+2
11. How was the oral polio vaccine (OPV) formulated by Albert Bruce Sabin? Mention two advantages of OPV over injectable polio vaccine (IPV). 3+1
12. Describe the successive steps of transesterification reaction for production of biodiesel.
13. Write the principle and application of Agarose Gel Electrophoresis.

(3)

Group - C

Answer any *one* question : $8 \times 1 = 8$

14. Highlight the salient features of an active insulin molecule.
Explain with suitable illustration the production of human insulin using recombinant DNA technology. $2+6$
15. What is cyclopropagative transmission? Give example.
Describe the life cycle of *Leishmania donovani*. $2+6$

Internal Assessment : 5 marks

P.T.O.

(4)

Paper : ZOOE405B1

[Insect Vector and Management]

Group - A

Answer any *five* questions : $2 \times 5 = 10$

1. What is sensillum? What is its function?
2. What do you mean by cyclopropagative transmission?
3. Distinguish between salivarium and cibarium.
4. Define vectorial capacity.
5. What are IGRs?
6. Name the major sutures present on insect head.
7. What is Johnston's organ?
8. What are allelochemicals?

Group - B

Answer any *three* questions : $4 \times 3 = 12$

9. Write short note on :
 - (i) Sponging type mouth parts in insect
 - (ii) Antennal diversity of insects
10. Describe the bionomics of the vector of Leishmaniasis.
Suggest few controlling measures against sandfly. $2+2$

(5)

11. Distinguish between apposition and superposition type of compound eye.
12. Discuss the life cycle of human lice. Write down the mechanisms by which body lice transmit major human pathogens.
13. How do the different mouthparts modified for piercing and sucking in mosquitoes? What do you mean by *Telmophages*? 3+1

Group - C

Answer any *one* question : 8×1=8

14. Mention two merits and demerits of biological control. Give a brief account on Sterile Insect Technique (SIT). Illustrate the role of light traps in vector management. 3+2+3
15. Describe the life history and bionomics of the vector of Dengue. Comment on the control measures of the vector responsible for Dengue transmission. 5+3

Internal Assessment : 5 marks
