

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2025

MZL3C07 – Physiology

(2022 Admission onwards)

Time: 3 hours

Max. weightage : 30

I. Answer any eight of the following: (Weightage-1)

1. Write notes on BMR and its significance
2. Comment on renal clearance and its significance
3. Distinguish between inspiratory reserve volume and expiratory reserve volume
4. What is reflex arc? Add notes on its components
5. Briefly describe tracheal system in insects
6. List the types of papillae found on the tongue that contain the taste buds
7. Write notes on Myopia
8. Comment on the effect of CO on oxygen binding to haemoglobin
9. Write short notes on deglutition
10. Mention the characteristic features of Parkinson's disease
11. Provide a brief account on environmental stressors
12. Briefly discuss the principle of ECG

(8X1=8 Weightage)

II. Answer any four of the following: (Weightage-3)

13. Write an account on basal ganglia and its functions
14. Explain the digestion and absorption of lipids in GIT
15. Briefly discuss the process of Glomerular filtration. Add notes on the factors affecting it
16. Describe the mechanism of pulmonary ventilation
17. Explain the renal regulation of acid- base balance
18. Discuss the formation and composition of lymph
19. Explain the mechanism of stimulation of pain receptors

(4X3=12 Weightage)

III. Answer any two of the following: (Weightage-5)

20. Explain association areas of cerebral cortex and their functions
21. Discuss various temperature regulating mechanisms under hot and cold conditions. Add notes on the role of hypothalamus in temperature regulation
22. Describe physiological anatomy of cardiac muscles. Add notes on cardiac cycle
23. Discuss the structure of olfactory membrane and physiology of olfaction.

(2X5=10 Weightage)

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2025

MZL3C08 – Microbiology & Biotechnology

(2022 Admission onwards)

Time: 3 hours

Max. weightage : 30

I. Answer any eight of the following: (Weightage - 1) (8X1=8 Weightage)

1. Describe the structural organization of bacterial flagella.
2. How does turbidity functions as a measure of microbial cell concentration?
3. How DNA viruses and enveloped viruses differ from each other.
4. Explain the main mechanisms by which bacteria develop antibiotic resistance.
5. Explain the concept of microbial bioremediation. Cite an example.
6. What is the role of microbes in food fermentation.
7. What are expression vectors? How they differ from shuttle vectors?
8. What are molecular probs? How are they important to recombinant DNA technology?
9. How dot blots differ from slot blots?
10. Discuss various applications of PCR.
11. How RFLP and RAPD differ from each other?
12. How does gene knockout achieve gene silencing?

II. Answer any four of the following: (Weightage - 3) (4X3=12 Weightage)

13. Explain the key phases of a bacterial growth curve. Outline at least three different methods used to measure bacterial growth.
14. Discuss in detail about various disinfecting methods.
15. Explain the microbiological processes involved in a biogas plant, detailing the four stages of anaerobic digestion.
16. What are cloning vectors? Discuss about atleast three important cloning vectors used in recombinant DNA technology.
17. Describe about different methods used for the construction of chimeric DNA molecule.
18. Explain the concept of molecular markers and describe different types.
19. Compare and contrast *Bacillus thuringiensis* (Bt) and baculoviruses (specifically NPV) as microbial biopesticides.

II. Answer any two of the following: (Weightage - 5)

(2X5=10 Weightage)

20. Discuss in detail the structure of peptidoglycan cell wall with respect to gram positive and gram negative bacteria. Describe about three structures located outside the bacterial cell wall.
21. Explain in detail the idea of the bacterial growth curve and describe the influence of various environmental factors on bacterial growth.
22. Discuss how biotechnology enhances human welfare by exploring its applications in healthcare, agriculture, environment, and industry.
23. Outline the essential components and steps of basic PCR. Describe four PCR variants highlighting the unique principle behind each.

1M3N25472

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2025

MZL3E01(5) – Wildlife Biology I Biodiversity & Biota

(2022 Admission onwards)

Time: 3 hours

Max. weightage : 30

I. *Answer eight of the following questions: - (Weightage-1)*

1. Sambar
2. Sloth bear
3. Brood parasitism
4. Barn owl
5. Darter
6. Dolphin
7. Drongo
8. Gharial
9. Gibbon
10. Gondwana hypothesis
11. Hornbill
12. Hot spots

(8x1=8 weightage)

II. *Answer any four of the following questions: - (Weightage-3)*

13. Comment on the ecological roles of Owl and Vulture.
14. Briefly explain the breeding behaviour of Baya weaver bird and Sunbird.
15. Describe the major threats to the survival of Grizzled giant squirrel.
16. Give an account of the salient features of Artiodactyla and Perisodactyla.
17. Critically evaluate Satpura hypothesis.
18. Give an account of the endemic fishes of Western Ghats.
19. Describe the biology and distribution of Lion tailed macaques.

(4x3=12 Weightage)

III. Answer *any two of the following* questions:- (Weightage-5)

20. Describe the sociobiology of Deer.
21. Give an account of Apes and Monkeys.
22. Write an essay on endangered and endemic amphibians of Western Ghats
23. Explain the population status, threats and conservational significance of Tiger.

(2x5=10 Weightage)