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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester M.Sc Zoology Degree Examination, April 2025
MZL2C04 - Molecular Biology
(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

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

1. What is site specific recombination?
2. Comment on selfish DNA
3. What is splicing?
4. What is degeneracy of genetic code ?
5. What are Pseudogenes?
6. Write a brief note on tumor suppressor genes.
7. What is frameshift mutation?
8. Give an account of the organization of rRNA gene in *Xenopus*.
9. Explain Mu phage as a transposable element.
10. Explain translational proof-reading.
11. What is the role of chromatin in regulating gene expression?
12. What are Okazaki fragments?

(8x1=8 Weightage)

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

13. Briefly explain Biogenesis of Ribosome.
14. Give an account of major kinds of DNA damage and its causes.
15. Briefly explain eukaryotic genome.
16. Write a note on the complex multigene family.
17. Comment on the translational inhibitors in prokaryotes and eukaryotes.
18. Explain special features of chloroplast genome.
19. Comment on Human genome mapping.

(4x3=12 Weightage)

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

20. Give a detailed account of organization and special features of interrupted genes.

Add a note on its evolution.

21. Explain mechanism of transcription of mRNA in prokaryotes

22. Give a detailed account of DNA replication enzymes.

23. Discuss the basic features of tryptophan, arabinose and galactose operons.

(2x5=10 Weightage)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester M.Sc Zoology Degree Examination, April 2025

MZL2C05 - Ecology & Ethology

(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

I. Answer any eight questions (Weightage – 1)

1. What are biotic and abiotic factors?
2. Differentiate between mutualism and commensalism.
3. What is the concept of climax?
4. Explain the methods to demonstrate environmental basis of behaviour.
5. What are the theories of island biogeography?
6. Give the analytical and simulation models in ecology.
7. Give an introduction to ethology.
8. Enlist factors influencing effects of hormones on behaviour.
9. What are the applications of molecular ecology?
10. Give the characteristic features of Himalayan and desert zones.
11. Give the account of Islands near shoreline.
12. Differentiate Instinct & FAP

(1 x 8=8 weightage)

II. Answer any four questions (Weightage – 3)

13. Explain character displacement with examples.
14. Write notes on life tables.
15. Explain environmental pollution.
16. Explain ecological foot printing.
17. Write notes on edges and ecotones.
18. Explain the anthropogenic impacts on behaviour.
19. Explain altruism and kinship selection?

(4 x 3=12 weightage)

III. Answer any two questions (Weightage – 5)

20. What is mineral recycling? Explain nitrogen and water cycles.
21. Explain major terrestrial biomes briefly.
22. Describe anthropogenic pressures on global climate change.
23. Explain the various types of species interactions.

(2x5=10 weightage)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester M.Sc Zoology Degree Examination, April 2025
MZL2C06 - Developmental Biology & Endocrinology
(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

I. Answer any *eight* questions.(Weightage-1)

1. Differentiate between cell fate and potency.
2. Explain the role of morphogenetic gradients.
3. Explain the reversibility of patterns of gene activity.
4. Describe different types of regeneration.
5. Differentiate between heterotopy and heterochrony.
6. Describe the production of steroid hormones.
7. Describe the functions of adrenal gland.
8. Describe endorphins.
9. Explain role of hormones in parturition.
10. Describe the pathophysiological conditions of male endocrine system
11. Explain the endocrine function of corpus luteum.
12. Give an account on physiological roles of hormones.

(8x1=8)**II. Answer any *four* questions. (Weightage-3)**

13. Explain vitellogenesis in amphibians
14. Explain slow block and fast block mechanism to prevent polyspermy.
15. Describe RNA interference method for control of gene expression.
16. Describe the hormonal control of amphibian development.
17. Comment on teratogenesis and teratogenic agents.
18. Describe hormone action of Eicosanoids.
19. Describe hypophyseal portal system, and its role in endocrine function.

(4x3=12)**III. Answer any *two* questions. (Weightage-5)**

20. Describe the anterior -posterior patterning mechanism in *Drosophila*
21. Describe the cell interaction pathways during development.
22. Write an account of cell signaling pathways and different second messengers.
23. Describe the structure and endocrine functions of Pancreas.

(2x5=10)