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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester M.Sc Zoology Degree Examination, April 2024
MZL2C04 - Molecular Biology
(2022 Admission onwards)

Time: 3 hours

Max. weightage : 30

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

1. What is SOS response?
2. Differentiate monocistronic and polycistronic mRNA.
3. What is Pribnow box? Mention its significance.
4. Explain Wobble hypothesis.
5. What are molecular chaperons?
6. Write a brief note on CRISPR-Cas system.
7. Define Cot value.
8. Give an account of the organization of interrupted genes.
9. Explain the concept of an evolutionary clock.
10. Comment on retroviruses.
11. What is the role of Rec A protein in genetic recombination?
12. What are the applications of whole genome sequencing in humans?

(8x1=8 Weightage)

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

13. Discuss the special features of human mitochondrial genome.
14. Comment on the organization of globin gene and its expression in man.
15. Briefly explain the basic features of tryptophan operon.
16. Give an account of post-transcriptional modification of RNA.
17. Comment on the enzymes/proteins involved in the replication of DNA.
18. Explain biogenesis of ribosome in eukaryotes.
19. Write a note on transposons in bacteria.

(4x3=12 Weightage)

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

20. What are the differences in protein synthesis between prokaryotes & eukaryotes.

21. Explain molecular mechanisms involved in recombination of DNA.

22. Give a detailed account of the models of DNA replication.

23. Describe the following

a. IS elements

b. Alu family

c. SINE

d. P elements in *Drosophila*

(2x5=10 Weightage)

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester M.Sc Zoology Degree Examination, April 2024
MZL2C05 - Ecology & Ethology
(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

I. Answer any eight questions (Weightage – 1)

1. Explain the law of limiting factors.
2. Comment on pollination syndromes.
3. What is ecological succession?
4. Explain the methods to demonstrate genetic basis of behaviour.
5. Comment on species -area relationship.
6. What is ecological modeling?
7. What are the methodologies used in ethology?
8. What do you mean by molecular ecology?
9. What is Resource partitioning.
10. List out the bio geographical zones in India.
11. Give the peculiarities of Western Ghats?
12. What are anti-predator adaptations?

(1x 8=8 weightage)

II. Answer any four questions (Weightage – 3)

13. Explain resource partitioning.
14. Write notes on life history strategies.
15. Explain r & k selection.
16. Explain the term green technology.
17. Concept of climax.
18. What are pheromones? Explain the pheromones in animals.
19. Explain sexual selection and sexual strategies?

(4 x 3=12 weightage)

III. Answer any two questions (Weightage – 5)

20. Explain the major forest types in India with their peculiar features?

21. Explain the nature of communities?

22. Describe the major environmental issues in the world.

23. Explain the terrestrial biomes with their characteristic features.

(2x5=10 weightage)

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
 Second Semester M.Sc Zoology Degree Examination, April 2024
 MZL2C06 - Developmental Biology & Endocrinology
 (2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

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

1. Differentiate between potency and commitment of a cell.
2. Explain different types of specifications of development.
3. What is the influence of Bone Morphogenetic Protein 8B on Spermatogenesis ?.
4. Describe the significance of reversibility of patterns of gene activity.
5. What is meant by heterochrony?.
6. What are teratogenic effects of Bisphenol A
7. Describe the physical characteristics of hormones..
8. Briefly describe the pathophysiological conditions of parathyroid gland.
9. Write notes on cell surface molecules of sea urchin for sperm-egg interaction.
10. What is blastema? Describe its formation.
11. Describe the endocrine functions of liver.
12. Give an account on Eicosanoids.

(8x1=8 weightage)

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

13. Describe the structure of pancreas and add a note on the secreted hormones.
14. Describe RTK pathways of cellular interactions.
15. Describe the limb formation in Chick.
16. Describe the hormonal control of female reproductive cycle.
17. Describe the formation and functions of endorphins.
18. What is FAS? Describe its features and causes.
19. Describe the gastrulation process in Amphibia.

(4x3=12 weightage)

III. Answer any *two* questions. (Weightage-5)

20. Describe the axis formation and anterior-posterior patterning in Amphibians.
21. Explain the cellular changes occurring during Ageing.
22. Describe the cell signaling pathways of hormone action.
23. Describe the synthesis, structure and metabolism of androgens.

(2x5=10 weightage)