K26FY0264 Pages: 2 Reg No:.....
Name:.....

Fourth Semester FYUGP Degree (Reg) Examination April 2026

KU4DSCZOO207 - CYTOGENETICS

2024 Admission onwards

Time : 1.5 hours Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. Distinguish between Endocytosis and Exocytosis.
2. Define Mycoplasma and mention their unique feature.
3. Define codominance with an example.
4. What are multiple alleles?
5. What is a metacentric chromosome?
6. What is crossing over?
7. What is deletion in chromosomes?
8. Define cytoplasmic inheritance.

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Section B

Answer any 4 questions. Each carry 6 marks.

9. Design and illustrate a detailed model of the nucleus, incorporating all major components, and justify how each component contributes to its role as the control centre of the cell.
10. Construct a comprehensive model showing the structure of the nuclear envelope and nuclear pore complex, and evaluate how their organization regulates nucleocytoplasmic transport.
11. Propose a regulatory framework for the cell cycle, and evaluate how its disruption can lead to uncontrolled cell division and cancer development.
12. Design a schematic diagram to explain different types of mutations.
13. Design an experiment to prove cytoplasmic inheritance.
14. Create a diagram explaining the role of kappa particles in cytoplasmic inheritance.

Section C

Answer any 1 questions. Each carry 14 marks.

15. Provide a detailed account of the structure of a Mitochondrion. Explain the functional coordination between the Electron Transport Chain (ETC) and Oxidative Phosphorylation in the production of ATP.

16. Critically evaluate factors affecting recombination frequency. How each facter contribute to genetic diversity.

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