

Reg. No.:

Name:



University of Kerala

Third Semester FYUGP Degree Examination, November 2025

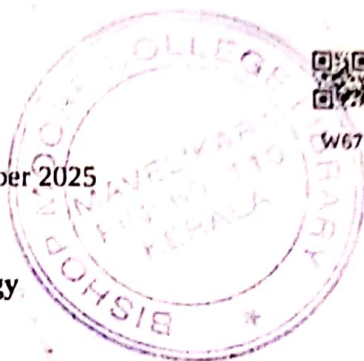
Discipline Specific Core Course

BIOTECHNOLOGY

UK3DSCBIT206 - Cell and Molecular Biology

Academic Level: 200-299

2024 Admission



Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark Each.Answer all questions

Qn No.	Question	CL	CO
1	Name any two double membrane bound cell organelle	RE	1
2	What are introns	RE	4
3	Give any two-post translational modification of protein	UN	5
4	Describe how the H1 histone is involved in the nucleosome structure.	UN	4
5	List the two types of ER in the cell, how do they differ in their functions?	UN	1
6	Describe the role of Cdk as the master regulator of the cell cycle	UN	2

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Comment on how meiosis contributes to maintenance of chromosomes number in organisms	UN	2
8	Explain the role of spliceosomes in mRNA processing.	UN	4
9	Illustrate in brief the function of mitochondria in cellular respiration	AP	1
10	Illustrate how the absence of a 5' cap would affect mRNA stability in eukaryotic cells.	AP	4

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11 A)		AP	1, 1

Qn No.	Question	CL	CO
	Apply your understanding of chloroplast function to explain how a decrease in sunlight exposure would affect the energy production and growth of a plant cell. OR B) How would a mutation in GPCR alter downstream gene expression?		
12	A) Analyse how mutations in the operator sequence affect gene expression in both operons. OR B) Analyse the role of proteolytic processing in determining the protein function	AN	5, 5
13	A) Evaluate the impact of mutations in the enzymes involved in DNA replication process OR B) Assess the role of post-translational modifications in protein stability, activity, and interactions.	EV	4, 5
14	A) Construct a flowchart that integrates meiosis with gametogenesis. OR B) Propose a strategy to modify the cell cycle in cancer cells so that they can no longer divide uncontrollably	CR	2, 2