

Reg. No.: .....



Name: .....

**University of Kerala**

U8825

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

**BIOTECHNOLOGY**

**UK2DSCBIT110 - Basics of Cell biology**

Academic Level: 100-199

**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      | What is the function of lysosome                                  | RE | 2  |
| 2      | Which is the classical experiments investigating origin of life ? | RE | 1  |
| 3      | <b>Explain satellite DNA</b>                                      | UN | 3  |
| 4      | <b>What is the main function of the Krebs cycle?</b>              | UN | 4  |
| 5      | Discuss the major event occurs in mitochondria?                   | UN | 2  |
| 6      | <b>What is “S” phase in cell cycle</b>                            | UN | 5  |

**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      | Describe “central dogma                                                                    | UN | 4  |
| 8      | <b>What is the nuclear pore complex, and what is its function?</b>                         | UN | 2  |
| 9      | <b>Which experiment supported the chemical development of life with experimental data?</b> | AP | 1  |
| 10     | <b>Explain how telomeres influence cell ageing</b>                                         | AP | 3  |

**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)<br><b>Interpret the strength and limitations of RNA world hypothesis.</b> | AP | 1, 1 |

| Qn No. | Question                                                                                                                                                                                                                                            | CL | CO   |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|
|        | OR<br>B)<br><b>Demonstrate the significance of the Miller-Urey experiment in understanding the origin of life</b>                                                                                                                                   |    |      |
| 12     | A)<br><b>Illustrate the Fluid Mosaic Model of cell membranes</b><br>OR<br>B)<br><b>Analyze the functional roles of membrane proteins.</b>                                                                                                           | AN | 2, 2 |
| 13     | A)<br><b>Describe glycolysis and asses its significance in cellular respiration.</b><br>OR<br>B)<br><b>Describe the central role of Krebs cycle in metabolism</b>                                                                                   | EV | 4, 4 |
| 14     | A)<br>Construct a model to illustrate the structure of a eukaryotic chromosome, including, histones, nucleosomes and chromatin<br>OR<br>B)<br><b>Predict the contribution of the solenoid model's to your understanding of chromatin structure.</b> | CR | 3, 3 |