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| **University of Kerala** | | |
| **Discipline: Biochemistry** |  | **Time: 1 Hour 30 Minutes (90 Mins.)** |
| **Course Code: UK1DSCBCH105** |  | **Total Marks: 42** |
| **Course Title: CELLULAR BIOCHEMISTRY** |  |  |
| **Type of Course: DSC** |  |  |
| **Semester: 1** |  |  |
| **Academic Level: 100-199** |  |  |
| **Total Credit: 4, Theory: 3 Credit, Practical: 1 Credit** |  |  |

**Part A. 6 Marks**. Time: 5 Minutes

Objective Type. 1 Mark Each. Answer All Questions.

(Cognitive Level: Remember/Understand)

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome (CO)** |
| 1. | What type of cell wall is present in bacterial cells? | Remember | CO 1 |
| 2. | Which molecule in the plasma membrane helps to stabilize its fluidity? | Remember | CO 2 |
| 3. | Indicate the importance of checkpoints in the cell cycle. | Understand | CO 3 |
| 4. | Relate cell division to wound healing. | Understand | CO 3 |
| 5. | Compare how normal and cancer cells respond to signals for cell death. | Understand | CO 3 |
| 6. | Interpret the potential for metastasis in benign vs. malignant tumors. | Understand | CO 3 |

**Part B. 8 Marks**. Time: 25 Minutes

Short Answer. 2 Marks Each. Answer All Questions.

(Cognitive Level: Understand/Apply)

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome (CO)** |
| 7. | Identify the main structural differences between plant and animal cells. | Understand | CO 1 |
| 8. | Apply the knowledge of plasma membrane functions to explain how a change in temperature could affect membrane fluidity. | Apply | CO 2 |
| 9. | Describe the significance of cell division in living organisms. | Understand | CO 3 |
| 10. | Apply your understanding of benign and malignant tumors to solve a scenario: If a patient is diagnosed with a benign tumor, what is the likely treatment? | Apply | CO 3 |

**Part C. 28 Marks**. Time: 60 Minutes

Long Answer. 7 Marks Each. Answer all 4 questions, choosing among options within each question.

(Cognitive Level: Apply/Analyse/Evaluate/ Create)

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome (CO)** |
| 11. | (A) Construct a comparative table to illustrate the structural organization of viruses, bacteria, plant, and animal cells.  OR  (B) Design a chart showing the functions of nucleus, mitochondria and chloroplast. | Create | CO 1 |
| 12. | (A) Prepare a labelled diagram showing the main components of the plasma membrane and apply the role of each in membrane functionality.  OR  (B) Apply your understanding of diffusion and facilitated diffusion to explain how oxygen and glucose enter a cell, and show the differences between these two types of passive transport. | Apply | CO 2 |
| 13. | (A) Analyse the different stages of the cell cycle and classify them based on their functions.  OR  (B) Compare the phases of meiosis I and meiosis II and analyse their roles in generating genetic diversity. | Analyse | CO 3 |
| 14. | (A) Consider the differences in treatment approaches between benign and malignant tumors and evaluate why these approaches differ.  OR  (B) Compare the growth behaviors and regulatory mechanisms in normal cells and cancer cells, and evaluate how these differences impact disease progression. | Evaluate | CO 3 |