

COURSE CODE (CREDITS): 18B11BI311 (3)

MAX. MARKS: 25

COURSE NAME: CELL AND MOLECULAR BIOLOGY

COURSE INSTRUCTOR: DR. JATA SHANKAR

MAX. TIME: 1 Hour 30 minutes

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*Note: (a) All questions are compulsory.*

*(b) Marks are indicated against each question in square brackets.*

*(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

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Q1. What is the role of amino acid residues at N- and C-terminal in the protein sorting? How the signals are recognize in protein trafficking? Explain with the example for the protein bound to nucleus [2 marks] CO II.

OR

What are the different lipid bilayer models have been proposed till now, illustrate with the relevant diagram [2 marks] CO I

Q2. The composition of the phospholipids in the lipid bilayer is different and is asymmetrical in nature, explain? [2 marks] CO I

Q3. Define signal and receptors, TIM and TOM complex in transportation of proteins into the mitochondria? [2 marks] CO II

Q4. What is oncogene? Describes the role of tumor suppressor gene, *p53*, in the onset of lung cancer? [2 marks] CO I & II

Q5. Notes on the following (2.5 marks each) CO I & II

- Draw the structure of two phospholipids
- Draw the structure of the cholesterol
- Uniport and symport transport system
- Different types of Active transport
- Role of KDEL signal in protein sorting
- Glycosylated protein

Q6. Why animal derived fats are solid in comparison to the plant derived fat which remains liquid at normal temperature? [2 marks] CO II