

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2024

B.Tech-4 Semester (BT)

COURSE CODE: Cell Biology and Culture Technology (4)

MAX. MARKS: 35

COURSE NAME: 18B11BT411

COURSE Coordinator: Dr Hemant /Dr Udaybanu

MAX. TIME: 2 Hrs

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*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated against each question in square brackets.*

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Q1. Cell culture involves a complex of processes of cell isolation from their natural environment (in vivo) and subsequent growth in a controlled environmental (in vitro). Justify the importance of the following: (CO5)

- a. Inorganic salts in the culture media (2 Marks)
- b. Fetal calf serum (2 Marks)
- c. DMSO (2 Marks)
- d. Trypsin & EDTA (2 Marks)

Q2. You are given a sample of cells and given a task to identify whether they are undergoing apoptosis or necrosis. Design a strategy and explain the process/steps to differentiate apoptosis and necrosis. Discuss the confirmatory tests for apoptosis. (7 Marks) (CO6)

Q3. Classify proteins of the plasma membrane based on their function. Explain with examples. (2.5 Marks) (CO1,2)

Q4. How would you like to produce secondary metabolites by using cell cultures of *Swertia* ? Conceptualize the methodologies for the same along with diagram (2.5+3.5 ) (CO3,4)

Q5. Which technique would you like to use for the production of somatic hybrid of cherry having flavor and plum with large size? How would you like to carry out the authentication of developed desired hybrids? (3.5+3.5 ) (CO6)

Q6. Which method of plant genetic transformation is most suitable for the development of transgenic plants ? Explain the methodology with its pros and cons. (4.5)(CO5)