

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2022

B.Tech-IV Semester (BT)

COURSE CODE (CREDITS): 10B11BT412(4)

MAX. MARKS: 35

COURSE NAME: Cell Culture Technology

COURSE INSTRUCTORS: Dr. Udayabanu/ Dr. Hemant

MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1. Which different techniques would be utilized for the production of disease free plants? How you can index viruses by using molecular techniques in *in vitro* raised plants of *Gerbera jamesoni* developed from meristem tip culture? [2.5 +2.5 Marks] (CO1&2)
- Q2. How you would like to use the technology of somatic hybridization for developing Pomato? Which types of fusogens provide highly reproducible results and how? [2.5 +2.5 Marks] (CO3)
- Q3. How you can develop the genetically modified **Orchids** having longer shelf life? How you can develop its artificial seeds also for cryopreservation? [2.5+2.5 Marks] (CO3 &4)
- Q4. Which types of plants would be developed by using anthers of **Rose**? Explain the details and significance of anther developmental parameters applied in the technique for the development of double homozygous plants. [3 Marks] (CO 4)
- Q5. Differentiate adherent and suspension cell culture. Which of them requires enzymatic cell dissociation? Growth of the cells is limited by surface area or concentration of cells. [5 Marks] (CO 5,6)
- Q6. Primary culture involves different methods in cell culture process. How would you prepare a primary culture from brain tissue? How telomere is used as a target to transform normal cells to immortal cells? [5 Marks] (CO 5,6)
- Q7. Maintaining an appropriate Culture environment is essential for cell culture.
- While growing animals, the media gets exhausted. How would you assess that, when a fresh media replacement is required? [2 Marks] (CO5,6)
 - The molecular weight of Glucose is 180.156 g/mol. Calculate the amount of glucose required to prepare 1mM Glucose for 100ml media [2 Marks] (CO5,6)
 - What is a cryoprotectant? Why would you require a cryoprotectant? Explain the mechanism of a most commonly used cryoprotectant. [2 Marks] (CO5,6)
 - Does CO₂ is required for HEPES buffer? [1 Marks] (CO5,6)