

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2022

B.Tech-IV Semester (BT)

COURSE CODE (CREDITS): 18B11BT411(4)

MAX. MARKS: 35

COURSE NAME: Cell Biology & Culture Technologies

COURSE INSTRUCTORS: Dr. Udayabanu/ Dr. Hemant

MAX. TIME: 2 Hours

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

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Q1. How somatic hybrid of mango and peach would be produced having disease resistance and seedless feature from mother plants? Explain the methodologies for the screening of desirable somatic hybrids and their regeneration into complete plants? [2.5 + 2.5 Marks] (CO3)

Q2. Explain the methodology for the production of double homozygous haploids of *Aconitum heterophyllum*. What are the factors responsible for their reproducibility and how? [2.5 +2.5 Marks] (CO1 &2)

Q3. For the production of clones of seedless Papaya, which technology you would like to apply and how you will get 100 clones for the same? Which factors should be considered for the inheritance of all these traits in the daughter plants and how you would like to apply those during research interventions? [2.5+2.5 Marks] (CO4)

Q4. How you can produce the virus free plants of orchids? How you can indexed these virus free plants and carry out large scale production in the fields. [1.5+1.5 Marks] (CO1 &2)

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. Three types of accessory proteins modulate cycling of G-proteins between GTP/GDP. Briefly discuss what are they and the mechanism behind the regulation. [3 Marks] (CO 1,3)

Q8. 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] (CO 5,6)

Q9. Protein carriers, which can transport two substances at the same time in opposite directions are called? What will happen to a RBC when placed in a Hypotonic solution? [2 Marks] (CO 1,3)