

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- April-2023

B.Tech-4th Sem (BT)

COURSE CODE(CREDITS): 18B11BT411

MAX. MARKS: 25

COURSE NAME: Cell Biology and Culture Technology

COURSE INSTRUCTORS: Dr Hemant & Dr Uday

MAX. TIME: 1hour 30 minutes

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

- Q1. How do you carry out a large-scale production of shoots of *Valeriana* sp? Which bioreactor would be utilized for the same and what modification do you suggest for a good yield? (CO2) (3.5)
- Q2. Somatic embryogenesis is carried out for the production of artificial seeds in Neem. Develop a protocol for the production of artificial seeds and mention the advantages and disadvantages of the technique. (CO3) (3.5)
- Q3. Explain the steps for carrying out the development of triploid Apple plants. How you can produce seedless varieties of the same plants by using any such techniques? (CO2 &3)(3.5)
- Q4. What could be the genetic causes of somaclonal variation in vitro raised *Musa* sp.? Explain any two causes. (CO4) (2)
- Q5. Smooth muscles are relaxed under what condition? Explain the phenomenon with a neat diagram. (2.5) (CO1 &2)
- Q6. Cell death occurs by two major mechanisms. Differentiate necrosis and apoptosis. (2.5) (CO1 &2)
- Q7. The compartmentalization of Ran-GDP and Ran-GTP assists nuclear import and export of cargo. Justify. (2.5) (CO4 &5)
- Q8. With a neat sketch, explain the “road-map” of the biosynthetic-secretory and endocytic pathway. (2.5) (CO1)
- Q9. The structural elements of the cytoskeleton are microtubules, microfilaments and intermediate filaments. Differentiate and write their importance. (2.5) (CO1 &2)