

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B.Tech-5th Semester (BT)

COURSE CODE(CREDITS):21B1WBT531(03)

MAX. MARKS: 35

COURSE NAME: Industrial Plant Tissue Culture

COURSE INSTRUCTORS: Dr Hemant Sood

MAX. TIME: 2 Hours

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

Q1. Rhodiola imbricata was known for its dominant antioxidant property and was procured from Leh Valley. How would you like to conceptualize a methodology for the production of phytochemicals from the in-vitro-grown shoots of this herb? Explain the complete outline for the production of bioactive compounds. (7) (CO4&5)

Q2. How can you extract volatile oils from the petals of a rose? Explain the technique for the production of the same. Which different types of volatile oils can be extracted from any plant sample? Explain the with examples. (2.5+2.5+2) (CO3&4)

Q3. How primary and secondary metabolism is linked in plants? For carrying out the elicitation of phenolic compounds which parameters affect the pathways and how would you carry out the elicitations for the same? (2 +2) (CO1&2)

Q4. Which genetic modification technique you would like to use for the production of red-colored Orchids, where genes are isolated from Red rose? Design the complete methodology for the production of genetically modified plants of orchids. (7) (CO2&3)

Q5. What are the ethical objections imposed on genetically engineered plants and their products? Why you can combat those concerns? Explain with example (5) (CO2)

Q6. Why plant stem cell technology is more specifically product-oriented? Mention at least three products developed through plant stem cells. How you can classify those plant stem cells? Describe the structure along with a diagram. (6) (CO3&5)