

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2023

MSc-I Semester (BT/BI)

COURSE CODE (CREDITS): 20MS1BT113 (2)

MAX. MARKS: 25

COURSE NAME: Plant and Animal Biotechnology

COURSE INSTRUCTORS: Dr. Uday & Dr. Hemant

MAX. TIME: 1 Hour 30 Minutes

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*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*

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1. How you will carry out the production of disease-free Orchid plants in a stirred tank bioreactor? Conceptualize the methodology for the production of plants at a large scale for the farmers. [2+3 Marks]
2. How somaclonal variants of turmeric plants for alkaline soil can be prepared by using callus cultures? What are the factors responsible for the development of somaclonal variations and why? [3+2 Marks]
3. The zygotic embryo culture of *Swertia chirayita* is not producing commercially viable results for germplasm conservation and multiplication of plants. How you would like to provide alternate embryo culture technology for the large-scale multiplication and long-term storage and conservation of the medicinal plant? [5 Marks]
4. (a) If there are 4000 cells stained blue with Trypan blue. Calculate the % viability of cells. Total No. of cells are 10000. [2 Marks]  
(b) Explain the mechanism and application of MTT assay. [3 Marks]
5. What is in a vaccine? Briefly, discuss the history of vaccination. Explain with example different types of vaccines. [5 Marks]