

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY WAKNAGHAT

TEST -3EXAMINATION- MAY-2025

M.Tech -2nd Sem (BT)

COURSE CODE(CREDITS):21M1WBT231(3)

MAX. MARKS: 35

COURSE NAME: Plant Biotechnology

COURSE INSTRUCTORS: Dr Hemant Sood

MAX. TIME: 2 Hours

Note: a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

	Question	Marks
Q1	For the production of high-yielding and for Lycopene enriched variety, the HR -1 gene was identified in local varieties of Tomatoes. Conceptualize a complete protocol for the production of the hybrid variety. What kind of transgenesis took place here and how it is carrying out the successful development of transgenic plants .	3.5+3.5
Q2	Genes for the Phenolic compounds biosynthesized in highly expressed in <i>Malus domestica</i> (Apple) plant cells? Draw the outline for the production of these compounds in Strawberry by using chloroplast transformation system. Explain the complete methodology for the transformation.	2+2+3
Q3.	Explain the following with suitable reasons: A. Which Cloning techniques is most reproducible in plant system? B. Why HPLC is one of the effective method used for quantification of phytochemicals? C. Why Hairy root is utilized in Ginsenoside production at commercial scale? D. Why metabolic engineering should be explored more for the production of anti-cancerous compounds?	2+2+2+2
Q4	Mention two commercial products and the technologies used for their production via Biopharming. What are the negatives and positives of this technology? Do you think that biosafety and bioethical code should be used before the release of products?	2+2+3
Q5	How you can produce virus resistant plant of maize? Conceptualize the methodology for the production of Somatic seed and its cryopreservation.	6