JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY WAKNAGHAT

TEST -1 EXAMINATION-2026

B Tech BT -4th Sem (BT)

COURSE CODE(CREDITS): 18B11BT411 (4) MAX. MARKS: 15

COURSE NAME: Cell Biology and Culture Technologies

COURSE INSTRUCTORS: Dr Hemant Sood &Dr Udaybanu M MAX. TIME: 1 Hour

Note: a) All questions are compulsory.

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

	Question	CO	Marks
Q1	Temperate orchids are multiplied through micropropagation using nodal explants on MS medium.Under in-vitro conditions, each explant produces 4 shoots every subculture cycle of 30 days. (a) If the culture is initiated with 5 explants, calculate the total number of plantlets obtained after 3 months (3 subculture cycles). (b) Determine whether it is possible to obtain 500 genetically identical clones within 3 months. (c) If not, calculate the minimum number of initial explants required to produce 500 clones in the given time.	CO4	2.5 +2.5
Q2	Plant tissue culture media is required for in vitro organogenesis via axillary budding for micropropagation of Cherry Root stock plants. What could be the desired components of the media required for getting enhanced axillary shooting? Design media composition and protocol for the same.	CO3	(2.5)
Q3	A) Construct the packing arrangement of wedge shaped and cylinder shaped phospholipid molecules in aqueous environment. Mention the components of a typical biomembrane. B) Justify that membrane proteins are classified on the basis of membrane functions. State at least five functions.	CO2	2.5+2.5
Q4	Differentiate prokaryotes and eukaryotes. Explain any one component of eukaryote and prokaryote.	CO1	(2.5)

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