JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

B.Tech-7th Semester (BT/BI)

COURSE CODE (CREDITS): 14B1WBT741 (3) MAX. MARKS: 35

COURSE NAME: BIO-RESOURCE & INDUSTRIAL PRODUCTS

COURSE INSTRUCTORS: AKN MAX. TIME: 2.0 Hours

Note: *(a) All questions are compulsory.*

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

Q.No	Question	CO	Marks
	Section I		
Q1	a) Which animal tissue is a source of collagen for medical use? Name an animal-derived enzyme used in industry.	COIII	0.5+0.5=1
	b) Which microbe is used for the commercial production of insulin? Give one example of a microbe used in biofertilizers.	COII	0.5+0.5=1
	c) Which microbial species is used in cheese or yogurt production? Give an example of a microbe producing a commercially important vitamin.	COII	0.5+0.5=1
	d) Why is yeast commonly used in bioethanol production? Name two bacterial genera that are commonly used in the bioethanol production from biomass.	COIII	0.5+0.5=1
	e) How do PHAs differ from PLAs in terms of microbial origin?	COIV	1
	Section II		
Q2	Bio-lubricants have higher lubricity than petroleum-based oils. Explain Why? What limits the thermal stability of bio-lubricants, and how can it be improved?	COIII, COV	3
Q3.	Enlist the major chemical ingradients present in synthetic cosmetics and their effects on human health. What makes biocosmetics safer	COV	3

	compared to synthetic cosmetics?		
Q4.	Lignin is often considered a waste product in the paper industry. Evaluate the potential of lignin valorization in creating a circular biorefinery model. Enlist the major products obtained from lignin valorization.	COIII	3
Q5	How do the biopreservatives increase the shelf life of the consumable food during storage? What makes the bacteriocin to be used as biopreservatives?	COIV	3
Q6	How do fermentative microorganisms improve the nutritional value and quality of beverages? Give some example of fermented beverage obtained from cereal grains.	COIV	3
	Section III		
Q7	Evaluate whether current large-scale honey production practices are sustainable or not. Describe honey as an animal-based bioresource and analyze its nutritional, medicinal, and industrial applications.	COIV	5
Q8	Compare biofibers obtained from agricultural residues with traditional wood fibers in terms of composition, pulping behavior, and paper quality.	COIII	5
Q9	Evaluate whether fungal-derived or bacteria-derived bioadhesives offer a more viable long-term alternative to synthetic adhesives. What are the underlying adhesion mechanisms, environmental impact, and performance characteristics of bioadhesives over synthetic one?	COIV	5
	Total		35