

**VIT**Vellore Institute of Technology
(Established in the University sector under the UGC Act, 1956)

REG.NO.:

SCHOOL OF BIOSCIENCES AND TECHNOLOGY
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2026-2027

Programme Name & Branch : BBT Biotechnology
Course Code and Course Name : BABIT101, Biochemistry
Slot(s) : E1 +TE1
Faculty Name(s) : Dr. Kuntal Pal
Class Number(s) : 5870
Date of Examination : 13.08.26
Exam Duration : 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- Students were allowed to use scientific calculators.
- **Course Outcomes**
 1. Understand the foundations of biochemistry and the importance of solvents
 2. Classify biomolecules based on their structure and properties
 3. Describe the biochemical pathways
 4. Infer the structure-function relation of biomolecules
 5. Demonstrate the biochemical behavior of biomolecules

Q. No	Question	M
1.	Answer in one line. (1 mark each) a) Which class of bacteria is also known as extremophiles? b) Name a single membranous organelle. c) Cytoplasm is dynamic in nature. Write one point to justify the statement. d) Define metabolomics. e) How are organisms classified based on the source of energy? f) Define conformation of a biomolecule. g) Why are metal ions critical in metabolism? h) Name the type of common mutations that contribute to evolution. i) Define Homolog, Paralog and Orthologue j) What is the role of enzyme in metabolic pathways?	10
2.	You need to produce a buffer solution that has a pH of 5.270. You already have a solution that contains 10.0 mmol (millimoles) of acetic acid. How many millimoles of sodium acetate will you need to add to this solution? The pKa of acetic acid is 4.752.	10
3.	a) Discuss the different type of molecular interactions predominant in biomolecules.	5
	b) What is endosymbiont theory? Describe the evidence supporting endosymbiont theory.	5
4.	a) Draw the Haworth projections of α -D glucose and β -D fructose and show the anomeric carbon.	5
	b) Interpret the role of heteropolysaccharides in bacterial cell wall formation.	5
5.	Demonstrate the role of glycosidic bond formation in carbohydrates. Identify the types of glycosidic bonds present in maltose, sucrose and glycogen.	10
