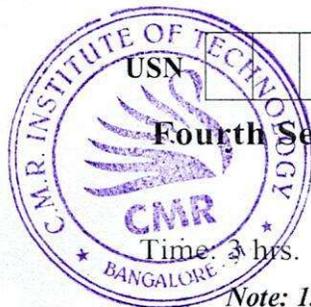


# CBCS SCHEME



BBOC407

**Fourth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025**  
**Biology for Engineers (CSE)**

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.  
 2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	What is stem cell? Explain its types and list its applications.	7	L2	CO1
	b.	Explain in detail the properties and functions of nucleic acids.	6	L2	CO1
	c.	Explain the importance of special biomolecules.	7	L2	CO1
<b>OR</b>					
Q.2	a.	What is a biomolecule? Explain the classifications of biomolecule.	7	L2	CO1
	b.	Explain the properties and functions of carbohydrates.	6	L2	CO1
	c.	Describe the structure and functions of a cell with a neat diagram.	7	L3	CO1
<b>Module – 2</b>					
Q.3	a.	What is the role of lipids? Outline the process of obtaining biodiesel from lipids.	7	L3	CO2
	b.	Differentiate between PHA and PLA as a bioplastic materials.	6	L4	CO1
	c.	Explain the role of DNA vaccine for rabies and RNA vaccine for COVID-19.	7	L2	CO1
<b>OR</b>					
Q.4	a.	What are the key properties, advantages and limitations of cellulose based water filters.	7	L3	CO2
	b.	How can DNA finger printing be applied to evaluate its effectiveness and reliability in forensic applications.	6	L4	CO1
	c.	Describe the use of meat analogue and plant protein as food.	7	L2	CO2
<b>Module – 3</b>					
Q.5	a.	Deliberate the functioning of brain as CPU system.	7	L3	CO2
	b.	Write a short note on spirometry and ventilator.	6	L2	CO2
	c.	Explain heart as pump system.	7	L3	CO2

OR

Q.6	a.	Explain eye as a camera system.	7	L3	CO2
	b.	Write a short note on cardiac pacemaker.	6	L2	CO2
	c.	Explain kidney as purification system.	7	L3	CO2

Module – 4

Q.7	a.	Describe the materials used and engineering applications of Velcro technology.	7	L3	CO3
	b.	Compare the process of photosynthesis to the functioning of photovoltaic cells.	6	L4	CO3
	c.	Explain the HBOCs and PFCs as human blood substituents.	7	L3	CO3

OR

Q.8	a.	Explain the terms lotus leaf effect and bird flying.	7	L3	CO3
	b.	Compare biological echolocation and technological echolocation highlighting their applications in navigation and detection.	6	L4	CO3
	c.	Explain the terms shark skin, swim suits and bullet train using biological concepts.	7	L3	CO3

Module – 5

Q.9	a.	Compare the functioning of electrical tongue and human tongue.	7	L4	CO4
	b.	Explain muscle cells as scaffold for tissue growth.	6	L2	CO4
	c.	Explain bioremediation and biomining via microbial surface adsorption.	7	L2	CO4

OR

Q.10	a.	Illustrate the basic steps of bioprinting process and list the various types of bioprinting techniques. <b>CMRIT LIBRARY</b> BANGALORE - 560 037	7	L4	CO4
	b.	Write a short note on: i) Importance of DNA origami ii) Self healing bioconcrete.	6	L2	CO4
	c.	Discuss the applications of artificial intelligence in the diagnosis of disease.	7	L2	CO4

\*\*\*\*\*