CBCS SCHEME

USN | | | | | | | | | | |

BBOK407

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

Time: 3 hrs. 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.	Define cell. Explain the structure and function of plant cell with neat diagram.	08	L2	CO1
	b.	Define Stem Cell. Discuss the types and application of stem cells.	06	L2	CO1
	c.	Describe the properties and functions of hormones.	06	L2	CO1
		OR			
Q.2	a.	Discuss the properties and functions of nucleic acids in cellular processes.	07	L2	CO1
	b.	Discuss the properties and functions of enzymes.	07	L2	CO1
	c.	Discuss the properties of vitamins and its supplies.	06	L2	CO1
		Module – 2			
Q.3	a.	Apply the knowledge of nucleic acid in DNA finger printing in forensic applications.	08	L3	CO1
	b.	Discuss whey protein and plant based protein as protein based food.	06	L2	CO1
	c.	Write a note on PLA as bioplastic.	06	L1	CO1
		OR			
Q.4	a.	Apply your knowledge of lipids and outline the process of obtaining biodiesel from lipids.	07	L3	CO1
	b.	Define vaccine. Discuss the mechanism of RNA vaccine for COVID-19.	07	L2	CO1
	c.	Write a note on enzyme based biosensors.	06	L1	CO1
		Module – 3			
Q.5	a.	Compare human brain with computer's CPU.	07	L3	CO2
	b.	Explain lungs as a purification system.	07	L2	CO2
	c.	Write a note on dialysis systems of kidney.	06	L1	CO2
		OR			

Q.6	a.	Illustrate the engineering solutions available for Parkinson's disease.	07	L3	CO2
	b.	Explain heart as a pumping system.	07	L2	CO2
	c.	Write a note on optical correction and materials used for lens.	06	L1	CO2
		Module – 4			
Q.7	a.	Illustrate the HBOCs and PFCs as human substituents.	07	L3	CO3
	b.	Explain how the structure of shark skin reduces drag and how these properties have been applied to improve swim suit.	07	L2	CO3
	c.	Explain the term GPS and aircrafts technology as bio inspired by bird fly.	06	L2	CO3
		OR			
Q.8	a.	Compare the uses of ultrasonography and sonars.	07	L3	CO3
	b.	Discuss the king fisher beak shaped bullet train to the reduction of noise and improve the stability.	06	L2	CO3
	c.	Explain the term superhydrophobic and self-cleaning in lotus leaf effect.	07	L2	CO3
		Module – 5			
Q.9	a.	Explain bioimaging and artificial intelligence technique in disease diagnosis.	08	L2	CO4
	b.	Explain the working principles of electrical tongue and electrical nose in food industry.	06	L2	CO4
	c.	Write a note on bioengineering of Muscular dystrophy and oseteoporosis.	06	L1	CO4
		OR			
Q.10	a.	Explain the process of biomining via microbial surface adsorption.	07	L2	CO4
	b.	Describe the concept of DNA origami and its role in bio-computing.	06	L2	CO4
	c.	Write a note on self healing bio-concrete and bio-mineralization processes.	07	L1	CO4

* * * * *