Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 120003

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Fifth Semester
Biotechnology
U19BMOE10 – TELEMEDICINE
(Regulation 2019)

Time: Three Hours Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List the elements of typical bio-telemetry system.	2	K1	CO1
2.	Outline the electromagnetic field strength limits defined by American National Standards Institute.	2	K2	CO1
3.	Define biosensor.	2	K1	CO2
4.	Interpret the term "pyroelectric materials". What role does it have in pyroelectric biosensors?	2	K2	CO2
5.	What is the purpose of using numerical phantoms in simulations?	2	K1	CO3
6.	Classify the types of intrabody communication transmission methods.	2	K2	CO3
7.	Draw the block diagram of general scheme for health information exchange.	2	K1	CO4
8.	Show the steps in lossless image compression algorithm.	2	K2	CO4
9.	Name three types of self-care activities that can be supported through telemedicine.	2	K1	CO5
10.	Compare between any two different project planning methodologies in the context of telemedicine.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Summarize on how to integrate biomedical telemetry into a healthcare system.	13	K2	CO1
		(OR)			
	b)	Compare and contrast the different data transmission methods used in telemedicine.	13	K3	CO1
12.	a)	Explain the working principle of electrochemical biosensors & their components.	13	K2	CO2
		(OR)			
	b)	Analyse the technological advancements in invasive & Implantable biosensors for telemedicine applications.	13	K4	CO2
13.	a)	Examine the necessity of realistically shaped numerical phantoms for accurate simulations of EM performance in biomedical telemetry systems.	13	K4	CO3
		(OR)			
	b)	Describe the power management strategy for an ingestible antenna. How would you ensure continuous operations?	13	K2	CO3
14.	a)	Design a wearable health monitoring system for patients with cardiovascular diseases or respiratory diseases. Outline the key components and data collection methods.	13	K4	CO4
		(OR)			
	b)	Analyse the different types of electromagnetic interference and their sources in medical environment.	13	K4	CO4
15.	a)	Discuss the advantages & limitation of telecardiology in healthcare. How does it improve patient outcomes?	13	K3	CO5
		(OR)			
	b)	Define teleoncology and discuss its key components. How does it support the diagnosis, treatment & management of cancer patients remotely?	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Analyse the major security protocols & standards used in telemedicine to safeguard patient information.	15	K4	CO4
		(OR)			
	b)	Examine the benefits of robotic surgery, including improved precision and reduced recovery time with the help of an application.	15	K4	CO5