Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U5B01

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Fifth Semester

Biomedical Engineering

21UBM501- EMBEDDED SYSTEMS AND IoMT

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	Explain the concept of BOTTLE NECK.	CO1- U
2.	Differentiate SRAM and DRAM.	CO1 -U
3.	Define ARM.	CO1- U
4.	Explain about the Piconet and scatternet with neat diagram	CO1- U
5.	Explain about the three states of UML.	CO1- U
6	Give some examples of application sofware and system software.	CO1- U
7	Differentiate HDMI and RCA connecters	CO1- U
8	Explain about the functions of Middleware layer.	CO1 -U
9	List out the Biomedical applications in Embedded system.	CO1 -U
10	Define Body sensor network.	CO1- U

PART – B (5 x 16= 80 Marks)

11.	(a)	(i) Define Memory. Write briefly about the Memory devices and their types.	CO1 - U	(8)
		(ii) Write short notes on POST. Also explain the typical POST beeps and their corresponding meanings.	CO1 - U	(8)
		Or		
	(b)	Discuss briefly about the challenges in embedded system design.	CO1 - U	(16)

12.	(a)	(i) With neat diagram Explain briefly about the Programmed IO and Memory mapped IO.	CO1 - U	(8)
		(ii) Write a Program to initialize and configure the ADC on the LPC2148.	CO2- App	(8)
		Or		
	(b)	(i) Explain Briefly about the Watch Dog timer and its various modes for detecting the malfunction.	CO1 - U	(8)
		(ii) Write Program to Generate the Square waveform using LPC2148.	CO2- App	(8)
13.	(a)	Draw and explain the architecture of sensor nodes and write the functions of each blocks in the architecture.	CO1- U	(16)
		Or		
	(b)	Briefly explain about the cyber Security and its various functional layers.	CO1- U	(16)
14.	(a)	Obtain the state model of the mechanical system shown Draw and explain the architecture of sensor nodes and write the functions of each block in the architecture.	CO1 -U	(16)
		Or		
	(b)	Briefly explain about the cyber Security and its various functional layers.	CO1 -U	(16)
15.	(a)	Write an Embedded C program to Measure the body temperature using arduino and display the results on LCD also explain it with the neat circuit diagram	CO2 -App	(16)
		Or		
	(b)	Write an Embedded C program to run a stepper motor interface using any target boards also explain the procedure for interfacing of stepper motor.	CO2 -App	(16)