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

Question Paper Code: R5B01S

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

Fifth Semester

R21UBM501–EMBEDDED SYSTEMS AND IOMT

Biomedical Engineering

(Regulations R2021)

Duration: Three hours | Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Define an Embedded system.	CO 1-U
2.	Differentiate SRAM and DRAM	CO 1-U
3.	Write the functions of timers in LPC2148.	CO 1-U
4.	Illustrate about the Piconet and scatternet with neat diagram	CO 1-U
5.	Give some examples of application software and system software	CO 1-U
6.	How would you define cross compiler?	CO 1-U
7.	Define IoT and how its works.	CO 1-U
8.	Define cyber security and Write about the various types of hackers and their functions.	CO 1-U
9.	Draw the Pin diagram of LM35.	CO 1-U
10.	Define Cloud computing.	CO 1-U

PART – B (5 x 16= 80 Marks)

11.	(a)	(i) With neat diagram explain about the CISC and RISC architecture.	CO1-U	(8)
		(ii) Explain about the BIOS and its functions also explain the duties of BIOS during the POST.	CO1-U	(8)
		Or		
	(b)	Explain the various forms of memories present in an embedded systems.	CO1-U	(16)

12.	(a)	i) Explain Briefly about the Watch Dog timer and its various modes for detecting the malfunction.	CO1-U	(8)
		ii) With neat diagram Explain briefly about the Programmed IO and Memory mapped IO .	CO1-U	(8)
		Or		
	(b)	Elaborate the architecture of CAN with necessary sketch	CO1-U	(16)
13.	(a)	Write down the steps involved in getting the embedded software into the target system with an example.	CO1-U	(16)
		Or		
	(b)	Provide a detailed explanation of the state diagram for a healthcare appointment system. which includes the	CO1-U	(4)
		(i) state definitions		
		(ii) State transitions	CO1-U	(4)
		(iii) State diagram with illustrations.	CO1-U	(8)
14.	(a)	Explain the basic architecture of an IoT system. What are the key components.	CO1 - U	(16)
		Or		
	(b)	Describe some real-world examples of IoMT implementations and their positive outcomes.	CO1-U	(16)
15.	(a)	Write an Embedded C program to run a stepper motor interface using any target boards also explain the procedure to interfacing of stepper motor.	CO2-App	(16)
		Or		
	(b)	With neat circuit diagram Design and Develop the Portable ECG Monitor using electrodes.	CO2-App	(16)