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Question Paper Code: U5B01

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

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 software and system software. CO1- U
7. Differentiate HDMI and RCA connectors 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)