Reg. No: ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code: U5B01

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Fifth Semester

BIOMEDICAL ENGINEERING

21UBM501- EMBEDDED SYSTEMS AND IOMT

(Regulations 2021)

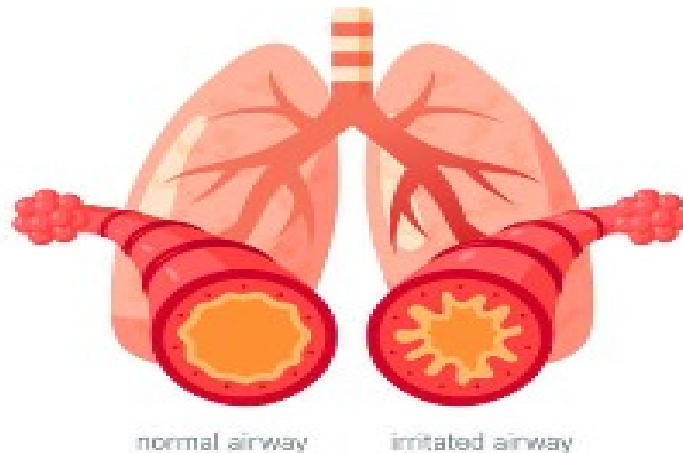Duration: Three hours   Maximum: 100 Marks

PART A - (10 x 2 = 20 Marks)

1.	Differentiate SRAM and DRAM	CO1-U
2.	Write the Mechanism of four cycle handshake	CO1-U
3.	Write the functions of timers in LPC2148	CO1-U
4.	Write the key components of an SPI interface?	CO1-U
5.	Differentiate the application software and system software.	CO1-U
6	Draw the notations of the state machine diagram along with its functions	CO1-U
7	What is Trojan horse and list out the maintenance procedure to prevent the system.	CO1-U
8	Define cyber security and Write about the various types of hackers and their functions	CO1-U
9	List out the Biomedical applications in Embedded system	CO1-U
10	Write the applications of stepper motor	CO1-U

PART – B (5 x 16= 80Marks)

11. (a) (i) With neat diagram explain about the Harvard Architecture and Von Neumann Architecture.   CO1- U   (8)

(ii) Explain briefly about the flash memory and its operations. With neat diagram   CO1- U   (8)

Or

(b) (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)

12. (a) (i) Write a Program to initialize and configure the ADC on the LPC2148?   CO2- App   (8)

(ii) Write Program to Generate the Square waveform using LPC2148.   CO2- App   (8)

Or

(b) (i) Write a Program to initialize and configure the DAC on the LPC2148.   CO2- App   (8)

(ii) Write Program to Generate the Triangular wave using LPC2148.   CO2- App   (8)

13. (a) How can state diagrams be used in testing and debugging software systems? Explain the state Machine diagram of Hospital Management system.   CO1 U   (16)

Or

(b) Define IDE and explain the key components and features of IDE in common also give some popular IDE tools used in current scenario.   CO1 U   (16)

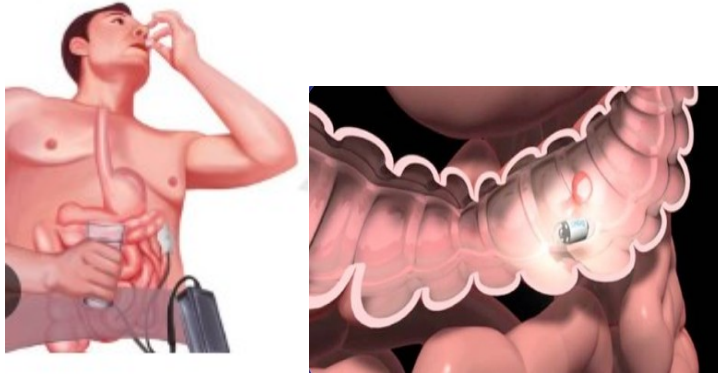14. (a)   CO3- App   (16)

normal airway   irritated airway

Identify the disease associated with the above diagram and design and develop the smart device to treat them also explain the procedure and working of the device with neat diagram.

Or

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(b) CO3- App (16)

i) Identify the medical procedure in the given diagram also explain the technology and its working procedure of the above process.

ii) What are some of the common gastrointestinal conditions that can be diagnosed or evaluated using above procedure?

15. (a) With neat circuit diagram Design and Develop the Pulse oximeter using Arduino and Display the Results on Serial Monitor   CO2- App   (16)

<div align="center">Or</div>

(b) Brief the vital signs and health parameters are commonly monitored by patient monitoring systems? Write a Embedded C Program to Display on the any of the health parameter Using LCD 16x2   CO2- App   (16)

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