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Question Paper Code: U5303

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

Fifth Semester

Electrical and Electronics Engineering

21UEE503 - MICROPROCESSORS AND MICROCONTROLLER PROGRAMMING

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Why data bus is Bi-directional? CO1-U
2. Mention the interrupts available in 8085 CO1-U
3. Write any two real time applications of microcontroller. CO1-U
4. Compare Microprocessors and Microcontrollers CO1-U
5. How does the 8051 microcontroller differentiate between accessing data from external RAM and external ROM? CO1-U
6. Explain the purpose of an external memory interface in a microcontroller. CO1-U
7. Infer the basic purpose of Capture/Compare/PWM module in the PIC 16F877 microcontroller. CO1-U
8. Differentiate between I²C and SPI communication protocols in terms of their key characteristics. CO1-U
9. Explain the term TDMI. CO1-U
10. Describe the concept of the pipeline in ARM processors and how it improves instruction execution speed. CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the timing diagram for opcode fetch and IO write machine cycles with neat diagram. CO1- U (16)
Or
(b) Illustrate the pin outs of 8085 with neat sketch. CO1- U (16)

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| 12. | (a) Explain the Pin outs of Microcontroller 8051 with relevant diagrams. | CO1- U | (16) |
| | Or | | |
| | (b) Discuss the internal memory organization of 8051 microcontroller. | CO1- U | (16) |
| 13. | (a) Explain the functional block diagram of 8255 PPI interface with neat sketches and analyze its modes of operation. | CO1- U | (16) |
| | Or | | |
| | (b) Explain the functional block diagram of 8279 with neat sketches and analyze its modes of operation. | CO1- U | (16) |
| 14. | (a) Draw and explain the architecture of on chip ADC of PIC micro controller in detail and write a suitable assembly language program for configuring the ADC | CO1- U | (16) |
| | Or | | |
| | (b) Discuss in detail about the memory organization of PIC micro controller. | CO1- U | (16) |
| 15. | (a) Identify the type of instructions which uses the “load – store” concept in a specific processor and explain its addressing modes with example. | CO3- Ana | (16) |
| | Or | | |
| | (b) Identify the type of processor which is suitable for mobile phone and explain its architecture with its instruction set. | CO3- Ana | (16) |