M.Sc. Second Semester (Applied Electronics) (New) (CBS)

15019 : Microprocessor & Microcontroller : 2 AE 4

P. Pages : 2

Time : Three Hours

* 1 0 2 5 *

AU - 3184

Max. Marks : 80

Notes : 1. Answer **three** question from Section A and **three** question from Section B.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) Draw and explain the interrupt system of 8085 microprocessor in detail. 7

   b) What are the various registers of 8085? Explain function of each register. 6

OR

2. a) Discuss the functions of following signals of 8085 : 7

   i) IO / $\overline{M}$ ii) A / E

   iii) INTR iv) $\overline{INTA}$

   v) HOLD vi) So - Sg

   b) Explain the execution of subroutine. What is the role of stack & stack pointer during subroutine operation? 6

3. a) What is DMA data transfer scheme? Discuss the function of DMA data controller 8237. 7

   b) Explain BSR mode of 8255 PPI with the help of format for CWR. 6

OR

4. a) Explain 4 P IB IEEE 488 in detail. 6

   b) Specify the handshake signals and their functions in port A of 8255 A is set up as an O/P port in Mode 1. Support your answer with proper timing waveforms. 7

5. a) With the help of neat sketch, explain the interfacing of ADC 0809 with 8085 µp. 7

   b) Draw the interfacing of DAC 0808 with 8085 µp. Write an ALP to generate Sawtooth waveform. 6

OR

6. a) Draw the block schematic of successive approximation based ADC and explain the conversion process using proper signals. 6

b) Explain various applications for generating different waveform. With respect to DAC. 7

7. a) Explain the internal architecture of Input and Output ports of 8051μc . 7

b) Draw the timer structure & various modes of timer in 8051μc . 6

OR

8. a) Draw & Explain the memory structure of 8051 microcontroller. 6

b) Describe the interrupt system of μc8051 . using appropriate SFR's. Explain how to enable and select the priority of these interrupts. 7

9. a) Explain the concept of stack memory and stack pointer with example of 8051μc . 7

b) Write an ALP to copy the content of reg A to reg R_0 and R_3 of Banks using following approaches. 6

i) Direct Addressing ii) Register Addressing.

OR

10. a) Write an ALP to multiply the 8 bit data given at memory location 32 H & 33 H. Store the result at 52 H & 53 H for 8051μc . 7

b) Identify the addressing modes of following instructions. 6

1) MOV A, R_3 2) MOV R_2, # 03H

3) MOV A, @ R_0 4) DIV AB

11. a) Describe the features of 8051 serial VART interface and explain how variable band rate for serial communication is implemented. 7

b) Explain the Watch Dog Timer concept of 8051μc . 7

OR

12. a) Explain the SCON & PCON SFR of 8051μc . 7

b) Draw the interfacing of seven segment device with 8051μc . Write an ALP to display 0 to 9 with some delay. 7

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