

(3 Hours)

[Total Marks 100

- N.B. :-** (1) Question No. 1 is **compulsory**.
(2) Answer any **four** questions from remaining **six** questions.

1. Design an 8085 based system with following specifications. 20
 - (a) CPU working at 3 MHz
 - (b) 16 KB EPROM using 4K device
 - (c) 8 KB SRAM using 4K device
 - (d) Two I/O devices using handshake signals.
 - (e) One Interrupt controller

2. (a) Draw and explain timing diagram for following Instruction. 10
RST 1
(b) What are the control signals in 8085 based system ? Why they are necessary ? 5
How they are generated ? Explain with necessary diagram.
(c) Why the address bus and data bus is multiplexed ? Explain, how they are 5
demultiplexed.

3. (a) Write a program to convert given hex number to BCD number without using DAA 10
instruction.
(b) What is subroutine ? What are the advantages and disadvantages of subroutine ? 10
Explain various types of subroutines.

4. (a) What is INTR interrupt of 8085 ? Explain how it is handled by 8085 using additional 8
hardware ?
(b) Write a program to transmit a character using SOD pin of 8085. 8
(c) Explain various data transfer techniques with their advantages and disadvantages 4
in brief.

5. (a) Develop a scheme to interface 4×4 matrix keyboard with 8085 using 8255. Write 12
a program to sense the key pressed and store the key number in A register.
(b) What is square wave generation mode of 8254 ? Write a program to generate 8
square wave of 1 kHz frequency using 8254.

6. (a) Draw and explain internal architecture of 8259 PIC. 10
(b) Draw and explain how 8155 can be used to design 8085 based minimum system ? 10

7. (a) Develop a scheme to interface a stepper motor to 8085 using 8255. Write a program 8
to rotate the motor in CW or ACW direction.
(b) Explain various priority modes and transfer modes of DMA controller. 8
(c) Explain transmitter section of 8251 USART. 4