

17443

**11920**

**3 Hours / 100 Marks**

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

**1. (A) Attempt any SIX of the following :**

**12**

- (a) Draw the labelled format of flag register of 8085.
- (b) Define direct addressing mode with suitable example.
- (c) Draw the format of SIM instruction of 8085.
- (d) List any four features of 8155.
- (e) List any four features of 8255.
- (f) List any four features of 8085.
- (g) Define machine cycle and instruction cycle.
- (h) Classify the data transfer techniques.

**(B) Attempt any TWO of the following :**

**8**

- (a) Differentiate between I/O mapped I/O and memory mapped I/O. (any four points).

- (b) Write the control word of 8255 for the following :
- (i) All port as input in mode 0.
  - (ii) Port A and Port B as output in mode 1.
- (c) Draw the interfacing diagram of DAC using 8255 with 8085. Write an assembly language program to generate square wave.

**2. Attempt any FOUR of the following :**

**16**

- (a) Describe demultiplexing of  $AD_0-AD_7$  address/data bus in 8085 with suitable diagram.
- (b) Describe the function of following instruction with suitable example :
  - (i) STA
  - (ii) LHLD
- (c) Write an assembly language program for multiplication of two 8 bit numbers. Assume suitable address.
- (d) Write a delay subroutines using one 8 bit register only. Calculate the delay generated by same subroutine. Assume suitable count value in register.
- (e) Interface 2K byte of RAM to 8085. State the memory map.
- (f) Describe BSR mode of 8255.

**3. Attempt any FOUR of the following :**

**16**

- (a) Describe the function of program counter and stack pointer.
- (b) Describe DAA instruction with suitable example.
- (c) Write an assembly language program to exchange the lower nibble and upper nibble of byte.
- (d) Draw the format of RIM instruction and state the function of each bit.
- (e) Generate control signals using decoder for 8085.
- (f) State any four features of 8355.

**4. Attempt any FOUR of the following :****16**

- (a) State the function of following pins of 8085 :
  - (i)  $\overline{RD}$
  - (ii)  $IO/\overline{M}$
  - (iii) HOLD
  - (iv) READY
- (b) Draw the timing diagram of memory read operation of 8085.
- (c) Write an assembly language program to subtract two 8 bit numbers. Assume suitable memory location.
- (d) List interrupt related instructions. Describe any two of them.
- (e) Describe the control word format of I/O mode of 8255.
- (f) Interface 8155 to 8085. State the address of all ports of 8155.

**5. Attempt any FOUR of the following :****16**

- (a) Describe the function of instruction register and instruction decoder of 8085.
- (b) Write an assembly language program to find smallest number from five numbers. Stored in memory location starting from D100H onward and store result i.e. smallest number in memory location D106H.
- (c) Write the interrupts of 8085 with their priority and vector address.
- (d) Describe I/O mapped I.O interfacing technique with suitable diagram.
- (e) Compare 8155, 8355 and 8255 (any four points).
- (f) Draw the neat labelled minimum system using 8155, 8355 and 8255.

**P.T.O.**

**6. Attempt any FOUR of the following :****16**

- (a) Describe DMA controlled data transfer.
  - (b) Write an assembly language program to find 2<sup>nd</sup> complement of 8 bit number. Stored in memory location C000H and store result in memory location C001H.
  - (c) Write any four advantages of subroutine.
  - (d) LED is connected to SOD line of 8085. Write an instruction of 8085 to 'ON' the LED.
  - (e) Interface 4 K byte of RAM using 2 K byte of RAM to 8085. State memory map for same.
  - (f) Draw the interfacing of stepper motor with 8085 using 8255. Write an assembly language program to rotate stepper motor in clockwise direction with 4 step sequence.
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