

**2021**

**COMPUTER SCIENCE — HONOURS**

**Paper : CC-10**

**(Microprocessor and its Applications)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Answer **question nos. 1 and 2** and **any three** from the rest.

1. Answer **any five** questions from the following : 2×5
- (a) What are the functions of  $IO/\overline{M}$ ?
  - (b) How many register pairs are there in 8085?
  - (c) What is interrupt?
  - (d) How many flag registers are there? What is the necessity of flag register?
  - (e) What is ALE?
  - (f) What are the functions of PUSH and POP?
  - (g) Which type of data transfer technique is used if the speed of I/O devices do not match the speed of the microprocessor?
2. Write short notes on the following (**any two**) : 5×2
- (a) Address bus-Data bus
  - (b) Interrupt-driven Data transfer Scheme
  - (c) Instruction cycle
  - (d) Programmable Peripheral Interface (PPI).
3. (a) How many machine cycles are required for the following instructions?
- (i) MOV  $r_1, r_2$ ;
  - (ii) MVI  $r, data$ ;
  - (iii) LXI  $rp, data$ .
- (b) Explain the requirement of Programme Counter and Stack Pointer. 6+4

**Please Turn Over**

4. (a) Show interfacing of memory and I/O devices, using decoder 74138. Explain how to determine memory addressing and I/O addressing locations for various zones.  
(b) What is memory mapped I/O scheme? 8+2
5. (a) What are the differences between 'Burst mode' and 'Cycle stealing' techniques of DMA data transfer scheme?  
(b) Compare and contrast between Synchronous and Asynchronous data transfer schemes. 6+4
6. (a) What are the various interrupt lines of 8085? Discuss their main features.  
(b) Explain enabling, disabling and masking of interrupts. 5+5
7. (a) Interface a 4 kbyte EPROM with microprocessor 8085 in the memory range  $FOOO_H$  and  $FFFF_H$ .  
(b) What are the instructions used to access data from the ports in I/O mapped I/O method in microprocessor 8085? Explain with examples. 6+4
8. (a) What is the function of 8255?  
(b) State briefly the function of 8279. 5+5
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