

- N.B. : 1. Question no. 1 is compulsory  
 2. Solve any three from the remaining five questions.  
 3. Assume suitable additional data if necessary.

- Q1. a) Explain flag register used in 8085 processor (5marks)  
 b) Define the Instruction cycle, Machine cycle & T state? (5 marks)  
 c) What is REP prefix? How it functions for string instructions? (5marks)  
 d) Explain the difference between a JMP instruction and CALL instruction. (5marks)
- Q2. a) Design a 8086 based system with following specifications  
 • CPU at 10MHz in minimum mode operation  
 • 32 KB SRAM using 8 KB devices  
 • 64 KB EPROM using 16 KB devices  
 • One 8255 PPI for keyboard interface  
 Design system with absolute decoding. Clearly show memory address map and I/O address map. Draw a neat schematic for chip selection logic. (20 Marks)
- Q3. a) Explain the Interrupt structure of 8086 processor? (10marks)  
 b) Discuss the various addressing modes of 8086. What are displacement, base and index? What is an effective address or offset? (10marks)
- Q4. a) Write program to find out largest number in an array. (10 marks)  
 b) Write program to find number of times letter 'e' exist in the string 'exercise', Store the count at memory. (10 marks)
- Q5. a) Explain the interfacing of 8087 co-processor with 8086 processor? (10marks)  
 b) Sketch and explain the interface of PPI 8255 to the 8086 microprocessor in minimum mode. Interface four 7 segment LEDs to display as a BCD counter (10 marks)
- Q6. Write Short Note on  
 a) Explain the function of various flags of 8086 microprocessor. (5marks)  
 b) The function of the pins S2, S1 & S0 of 8086. (5marks)  
 c) Operation modes of 8237 DMA Controller (5marks)  
 d) Draw and explain the instruction template format of 8086. (5marks)