

(3 Hours)

[Total Marks: 80]

- N.B. : (1) Question No. 1 is **compulsory**.
 (2) Solve any **three** questions from the remaining **five**
 (3) **Figures** to the **right** indicate **full** marks
 (4) Assume suitable data if necessary and mention the same in answer sheet.

- Q.1** a) Write a program to display message "Mumbai University" on IBM PC. Use INT 21H function AH =09 with string of message at DS:DX and terminated by "\$". [5]
 b) Differentiate minimum and maximum mode of 8086. [5]
 c) Compare assembly language and higher level language programming. [5]
 d) Determine control word register (CWR) of 8255 to initialize PORTA, PORTB and PORTC as output with Mode-0. [5]
- Q.2** a) Explain interrupt structure of 8086. [10]
 b) Explain various addressing modes of 8086 with examples. [10]
- Q.3** a) Draw and explain the interfacing of Math co-processor with 8086. [10]
 b) 10 different numbers are stored in data segment. Each number is 8 bit wide. Write an assembly language program to store the largest number in AL register. [10]
- Q.4** a) Draw and explain interfacing of DAC-0808 with 8086. Write assembly language program to generate square wave at output of DAC. [10]
 b) Explain segmentation of 8086 microprocessor. For 8086 microprocessor based system CS: 8000H, DS: A000H, ES: C000H and ES: EE00H, determine ending physical address for each segment. [10]
- Q.5** a) Design an 8086 based system with following specifications. [10]
 i. 8086 CPU working at 3 MHz
 ii. 16 KB EPROM using 8K device
 iii. 32 KB SRAM using 8K device
 b) Draw and explain microprocessor based system. [10]
- Q.6** a) Explain 8086 based data acquisition system. [10]
 b) Explain block diagram of Programmable interval Timer 8254. [10]
