

Con. 5359-09.

SP-8063

(3 Hours)

[Total Marks : 100

- N.B. :**
- (1) Question No. 1 is **compulsory**.
 - (2) Answer any **four** out of remaining **six** questions.
 - (3) **Assumptions** made should be **clearly** stated.
 - (4) Assume any **suitable** data wherever **required** but **justify** the same.
 - (5) **Figure** to the **right** indicate **full** marks.
 - (6) Illustrate answers with **sketches** wherever **required**.
1. (a) Design an 8086 based system with following specifications – (10)
 - (i) System required 5 MHz clock, ready and reset inputs
 - (ii) 32KB SRAM using 8 KB devices
 - (iii) 64KB EPROM using 16KB devices.
 Draw neat interfacing circuit diagram and give memory map.
 - (b) Explain the serial communication for 8051 Microcontroller. (10)
 2. (a) Draw and explain the minimum mode system of 8086 with input output timing diagram. (10)
 - (b) Explain the hardware and software principles of microcomputer. (10)
 3. (a) What is an embedded system ? Give examples. Explain the characteristics of embedded system. (10)
 - (b) Explain the power saving modes of 8051 with neat circuit diagrams. (10)
 4. (a) Explain the addressing modes of 8051 with example instructions. (10)
 - (b) Explain in brief the functions of following instructions of 8051 with suitable examples – (10)
 - (i) SWAP A, (ii) MOVC A, @A+DPTR (iii) MOVX A, @R1 (iv) XCHD A, @R0, (v) SETB C.
 5. (a) What is meant by assembler directives ? Give list of any five assembler directives and explain its use in assembly language programming. (10)
 - (b) Explain the functions of following 8086 instructions and give suitable example – (10)
 - (i) XLAT, (ii) LES, (iii) ESC (iv) LOCK, (v) CBW.
 6. (a) Give the list of all special function registers of 8051 with their addresses and explain their use in 8051 based system. (16)
 - (b) Explain the advantages of segmentation in 8086 based system. (04)
 7. Write short note on any **Two** of the following – (20)
 - (i) Design challenges in embedded system
 - (ii) Interfacing of 8086 with 8087 NDP
 - (iii) I/O Ports of 8051.