

Exam.

TE (Comp) V (R)
Microprocessor
REVISED COURSE)

11/12/09

Con. 5317-09.

SP-8552

(3 Hours)

[Total Marks : 100]

N.B. : (1) Question No. 1 is **compulsory**.(2) Solve any **four** questions from the remaining **six** questions.

1. Design a 8086 based system consisting of the following :- 20
 - (a) 8086 microprocessor working at 8 MHz.
 - (b) EPROM of 64 KB using 32 KB devices.
 - (c) SRAM of 32 KB using 16 KB devices.
 - (d) 1 input, 1 output port (both 16 bit), interrupt devices.

Explain the design. Also show the memory and I/o map.
2. (a) Write a program using 8086 to transfer a block of data using string instructions. Also draw the flowchart of the same. 8
 (b) Explain the interrupt structure of the 8085 microprocessor with a neat diagram. 12
3. (a) Explain the necessity of a bus controller in the 8086 maximum mode system. Also explain the 8288 Bus controller in detail. 10
 (b) Show an interfacing diagram of the 8086 with the 8237 DMA controller. What are the advantages of Direct memory access ? Enumerate with two practical examples. 10
4. Explain the need of Bus arbitration. What are the various Bus arbitration schemes in loosely coupled systems ? Draw a multiprocessor system of Z-8086 modules using the 8289 Bus arbitor. Explain the diagram. 20
5. (a) Explain the following with respect to the 8259 PIC : 12
 - (i) Serial Fully Nested Mode.
 - (ii) Serial Mask Mode
 - (iii) Initialization program of the 8259
 - (iv) Function of the pin $\overline{SP/EN}$.
- (b) Draw and explain how the address/data bus is demultiplexed in the 8085. 8
6. (a) What is segmented memory ? Enumerate the advantages of segmented memory with reference to the 8086 microprocessor. 10
 (b) Compare the 8085 and the 8086 microprocessor with respect to architecture, instruction set, speed, etc. [Atleast 8 points] 10
7. Write short notes on (any **four**) :- 20
 - (a) Serial communication using the RS-232C
 - (b) Modes of operation of the 8253 PIT
 - (c) DRAM interfacing in 8086 systems
 - (d) 8284 Clock Generator
 - (e) Software interrupts in 8086
 - (f) Temperature Controller using 8086.