

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.