

SIXTH SEMESTER EXAMINATION - 2006

MICROPROCESSOR AND MICROCONTROLLER

Full Marks - 70

Time : 3 Hours

Answer question No. 1 which is compulsory and any five from the remaining questions.

The figures in the right-hand margin indicate marks for the questions.

1. Answer the following questions : 2×10
- (i) How much memory can 8086 directly address ?
How large is the I/O address space of 8086 ?
 - (ii) Distinguish between minimum mode 8086 system and maximum mode 8086 system

P.T.O.

- (iii) What are the different special purpose registers and register pairs used in 8085 microprocessor ?
- (iv) Distinguish between an idle state and wait state.
- (v) What is the difference between char and string data types ?
- (vi) State the function of signals S_0 and S_1 in 8085.
- (vii) Write the linear address, 1234A in the segmented form in two ways.
- (viii) What is the reason for having segmentation in 8086 ?
- (ix) What is meant by stack and stack pointer ? What are the instructions associated with these ?
- (x) What are the new flag bits and new control registers added to the pentium microprocessor ?

2. (a) Draw and explain the timing diagram of the STA 2300 H instruction. 5
- (b) Write a program in 8085 assembly language to complement only the upper nibble of the accumulator. 5
3. (a) Give the schematic diagram of interfacing the 8257, DMA controller to 8085. 5
- (b) Discuss possible methods to achieve speed compatibility with a slow memory or I/O device. 5
4. (a) What are the interrupt facilities available in 8085 ? 6
- (b) Explain the use of the instructions, EI, DI, SIM and RIM. 4
5. (a) Describe important features of the microcontroller 8051. 5
- (b) Design a decoding circuit to obtain 64 K address space (memory mapped I/O) using 2764 EPROM and 6264 static RAM. 5

6. What is the difference between the functions of the status and control flags ? Make a list of the status and control flags provided in 8086. Describe the functions of each of these. 3+3+4

7. (a) Explain the demultiplexing of the buses of 8086 microprocessor. 5

(b) Explain the READ & WRITE cycle of 8086 microprocessor. 5

8. (a) Explain logical, linear and physical address spaces of 80386. 4

(b) What do you mean by EFFECTIVE ADDRESS (EA) of an operand in 80386 ? 3

(c) Explain linear address components for paging mechanism. 3