2007 ANDHRA UNIVERSITY
B.TECH COMPUTER SCIENCE ENGINEERING
III B.TECH I SEMESTER
MICRO PROCESSORS-II

TIME: 3 HOUR
MARK: 70

> ➢ **First Question Is Compulsory**
> ➢ **Answer Any Four From The Remaining Questions**
> ➢ **All Questions Carry Equal Marks**
> ➢ **Answer All Parts Of Any Question At One Place**

1. a) Give important specifications of a semiconductor memory device.

b) How a bit stored in a FAMOS device can be erased?

c) Distinguish between μP, interfacing and I/O interfacing

d) Give the status register details of peripheral IC – 8279

e) A 12-bit ADC is operating with 1 μSec. clock period and the total conversion time is seen to be 14 μSecs. Write the type of this ADC with a brief justification.

f) What are the important features of 8051 ?

g) Distinguish between BIOS Function call and DOS Function call.

2. a) Give the I/O diagram, Functional Block diagram, Function table, memory cell, and Read Timing diagram for 2K x 8 SRAM Explain its working.

b) Design 16k x 8 SRAM memory interface at 4000H Using 2k x 8 SRAMS with 8085 based system with fully decoded addressing logic. Give memory address range for each SRAM

3. a) What do you understand by "Interfacing an I/O device to a μP." ? Give the characteristics and functions of different types of interfaces with respect to a μP. system. Outline briefly the procedure for interfacing an I/O device to a μP-based system.

b) Compare and contrast various I/O programming methods.

4. The 8255 PPI is to be used to interface a single seven segment LED display unit and an 8-bit DIP switch to an 8085-based system.

a) Draw a logic diagram showing all connections between the LED, the DIP switch, the 8255. and the system bus. Show also any additional components needed, such as driver circuits.

b) Write an I/O program that reads the DIP switch and if bit i is switched on, cause the corresponding decimal digit i to be displayed by the LED display unit.

5. Assume that two similar μP-based systems are to be linked for exchanging messages. Consider a message as a sequence of maximum 100 data bytes that must be transfeffed from main memory of one system to that of the other system. Message transfer is accomplished by each system treating the other as one of its I/O devices. Usiug either 8085 or 8086 to implement the host μPs., carry out the following:

a) Design a suitable hardware interface for intersystem commumcation based on programmable interface circuits such as the 8255 or 8251

b) Write the structure of software needed for message transfer, explaining clearly how the activities of the two μPs. are synchronized.

6. a) Write clearly the complete specifications of 8-bit DAC device and 8-bit ADC device

b) Write both hardware and software to implement 8-bit ADC using 8-bit DAC by interfacing 8-bit DAC to 8085-based system.

7. a) Write briefly 8051 architectural features. Write 8051 assembly language program to read 4-bit binary number from an input port and display its 2's complement value on a 7-segment LED display at an output port.

b) Briefly discuss about hardware organization of IBM compatible PC. Write either assembly language program or high level language program to read a character from keyboard and display on the screen of PC continuously using DOS function calls.

8. Write short notes on the following:

a) Programmable Logic Devices

b) 8253 Timer Architecture

c) Programming 8279

d) ROM BIOS