This question paper contains 3 printed pages.

3348 *Your Roll No.....*

B.Tech. (EEC) / III
(P/T) **J**
Paper VI - DIGITAL SYSTEMS AND MICROPROCESSORS
(EEC - 306)

Time : 3 hours *Maximum Marks :70*

(Write your Roll No. on the top immediately on receipt of this question paper.)

Question No. 1 is compulsory.
Attempt any four from the remaining questions.

1. a) Explain the function of HLDA & READY Pins of 8085 microprocessor.

   b) Explain the steps involved while executing CALL instruction with an example.

   c) Draw & explain the state diagram of JK flip flop.

   d) Explain XTHL instruction and state its addressing modes ?

   e) What is software interrupt & state its use.

   f) State the ways to initialise stack pointer.

   g) What do you mean by full decoding & Partial decoding.
   2 x 7

2 a) Draw & explain the timing diagram of RST N instruction. *07*

P.T.O

b) Write a Program to count 0 to 9 with one second delay between each count. At the count of 9, the counter should reset itself to zero and repeat the sequence continuously. Assume clock frequency of microprocessor to be 1MHz. *07*

3 a) With neat diagram discuss the interrupt structure of 8085 microprocessor. Give the vector addresses for all vectored Interrupts. *07*

b) Design a memory map with addresses given to the memory chips of 8k, 2k & 4k bytes in sequence with out any fold back. Draw a neat logic diagram indicating connection lines of memory system with range of addresses assigned to above three memory chips. *07*

4 a) Draw an interfacing diagram to interface a seven segment display unit through 8255 to 8085 microprocessor. Write a program to display 0 to 9 on this seven segment display with a delay of 2 seconds between each number. *07*

b) Discuss Mode - 2 operation of 8255 interfacing IC and give their control word and status word format. *07*

5 a) Draw the function block diagram of 8279 IC & explain its all three input modes. *10*

b) What is BSR mode in 8255. State its use. *04*

6 a) With neat block diagram of 8253, Programmable interval Timer, explain how it can be used to generate square wave of 1kHz from counter 1. *10*

b) What is Read back command in 8254 ? Give its command format & status byte. *04*

7 a) Explain how 8237 can be used for transfer of 64k bytes of data per channel with eight address lines. Give the Index. *10*

b) Explain the advantage of using DMA controller in transforming data between memory & I/O than other methods of data transfer. *04*

8 Write notes on any two of the following : *7 x 2*

a) I/O mapped I/O v/s memory mapped I/O

b) Use of RIM & SIM instruction.

c) Programmable Interrupt Controller.