

4/6/07
P4/RT-Ex-07-40

T.E (E) sem IV R
Microprocessor & Systems.

10/10

Con. 2944-07.

[REVISED COURSE]

ND-1951

(3 Hours)

[Total Marks : 100

MOSAB

N.B

1. Question No.1 is compulsory.
2. Attempt any four out of remaining six questions.
3. Assumptions made should be clearly stated.
4. Assume any suitable data wherever required but justify the same.
5. Figures to the right indicate marks.
6. Illustrate answer with sketches wherever required.
7. Answer to questions should be grouped and written together.
8. Use a blue/black ink pen to write answers. Use pencil only to draw sketches and graphs.

T.E (E) sem IV R Microprocessor & Systems 4/6/07

- Q.1
- a) Explain why control lines are normally active low. 2
 - b) What is the advantage of microprocessor control system over hardwired control system? 2
 - c) Explain various types of cause and effect signals in microprocessor. 3
 - d) What will happen if HOLD and TRAP signals are activated simultaneously? Explain the sequence of operation. 2
 - e) Explain the function of the program counter. Can you use program counter to access stack? 2
 - f) Differentiate between I/O mapped and memory mapped I/O. 3
 - g) Explain with examples the purpose of WZ register pair in control unit of 8085. 2
 - h) Explain how spikes on IR inputs are ignored by 8259A. 2
 - i) Explain why the blanking is required in 8279. 2
- Q.2
- a) Design 8085 based temperature control system. Show hardware interface in detail. Write a program to control the temperature of the oven system if it exceeds 200°C. Show address decoding logic. Draw flowchart. 12
 - b) Explain different operating modes of 8255. Give details of strobed input-output mode. 08
- Q.3
- a) Explain various techniques used to pass parameters to subroutines. 10
 - b) Write a program to transmit ten, 7 bit ASCII characters to the peripherals via SOD line. The asynchronous format is given below: 10
 - (i) Baud rate: 110 bauds, (ii) Number of start bits: -one, (iii) Number of stop bits: two,
 - (iv) Even parity bit, (v) CPU clock frequency : 3MHz.
- Q.4
- a) Design UP/DN counter to count from 0 to 9 and 9 to 0 continuously with a 5 second delay between each count and display the count at one of the output ports. Draw flow chart and write main program and subroutines. 10
 - b) Design interrupt driven real time clock using RST 7.5 interrupt. 10
- Q.5
- a) Explain the various machine cycles in 8085 microprocessor-based system. Draw the timing diagram and explain the operation with timing diagram of INR M instruction. 10
 - b) Write an assembly language program to generate a square-wave of 1 Hz using 8254. Use counter 0 and counter 1 in cascade, show its connections. Assume system clock frequency 5 MHz. 10
- Q.6
- a) Two phase bipolar winding stepper motor is to be interfaced with 8085 microprocessor. Draw the interfacing diagram. 05
 - b) Compare and contrast between a) RET and INTR, b) JMP and CALL. 05
 - c) Write a program to generate triangular waveform of peak value 5V using DAC interfaced with 8155. 10
- Q.7 Write detailed note on (any two): 20
- a) Interrupt Structure of 8085 and operation
 - b) Methods of Time delays.
 - c) 8085 microprocessor based minimum system.