



## Microprocessor & Microcontroller Interfacing (174112 / 224112)

P. Pages : 2

Time : Three Hours

Max. Marks : 80

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** questions from each unit.
5. Assume suitable data if necessary.
6. Figure to the right side indicates full marks.

### UNIT - I

1. a) Define device driver. Also explain structure of device driver with neat sketch. 8  
b) Draw and explain block diagram of 8255 PPI. 8  
c) Solve following problems :
  - i) Explain use of Port C of 8255 if port A and port B of 8255 are programmed in mode 1 i.e. strobed I/O. 4
  - ii) Elaborate function of all the three ports of 8255 along with their mode of operation if its control word is 82H. 4

### UNIT - II

2. a) Enlist all the operating modes of 8254. Explain any two operating modes with appropriate waveforms. 8  
b) What do you mean by TSR programs ? Write an ALP for divide by zero interrupt. 8

- c) Explain following signals of 8251 USART 8
- i)  $\overline{\text{CTS}}$
  - ii)  $\overline{\text{RTS}}$
  - iii)  $\overline{\text{CD}}$
  - iv) TxD

### UNIT – III

3. a) Draw & explain CPU nucleus logic in detail. 8
- b) Explain in detail Raster scan basics. 8
- c) Draw & explain block diagram of CGA. 8

### UNIT – IV

4. a) Draw and explain multiplexed approach for 7 segment display interface. 8
- b) Explain overall operation of floppy disk subsystem. 8
- c) Explain any eight HDC commands. 8

### UNIT - V

5. a) Interface 8 LEDs with Port 0 of 8251. Also write an ALP to flash all the LEDs ON and OFF for 1 second each. 8
- b) Explain keys and keyboard interfacing with 8051 microcontroller with neat sketch. 8
- c) Interface an ADC 0808/0809 with 8051 ports. Write an ALP for reading digital equivalent of analog inputs applied at channel 0 & channel 5 and store them in  $R_0$  &  $R_1$ . 8

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