

Seat  
No.

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मधुर - 041

**Microprocessor & Microcontroller System (1040) /  
Electronic Circuits Design (Old)**

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet 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. Draw neat diagram whenever necessary.
5. Assume suitable data if necessary.
6. Attempt **any two** sub-question from each unit.

**UNIT - I**

1. a) i) Explain flag register structure of 8085  $\mu p$ . 5  
ii) Explain various addressing modes of 8085  $\mu p$  with suitable example. 5  
b) i) Give the function of following pins of 8085  $\mu p$ . 6  
i)  $IO/\overline{M}$                       ii) TRAP                      iii) ALE  
ii) Explain the following instructions of 8085  $\mu p$ . 4  
i) LHLD                      ii) RRC  
c) 16-bit numbers are stored at memory locations 6500H and 6501H & another 16-bit number is stored at 6502H and 6503H. MSB of these numbers stored at 6501H and 6503H. Write an ALP to add these two 16-bit numbers. Store the results at memory location 6504H (LSB) and 6505H (MSB). Draw flow chart. 10

**UNIT - II**

2. a) i) Explain following Jump instructions for 8051  $\mu c$ . 6  
i) LJMP                      ii) SJMP                      iii) AJMP  
ii) Explain the dual role of port 3. 4  
b) Assume that on-chip ROM has a message "ENGINEERING". Write a program for 8051  $\mu c$  to copy it from code space into the memory space starting at 20H ROM space starts at 200H. 10

- c) i) Assume 8-switches are connected to port 1 and 8-LEDs are connected to P2. Read status of switches, complement it and send to LEDs. Draw flow chart. 6
- ii) Explain following instructions of 8051  $\mu$ c with example. 4
- i) SWAP ii) CJNE

### UNIT - III

3. a) Explain the structure of SCON register of 8051  $\mu$ c . Hence, explain generation of baud rate of 8051. 10
- b) Write an ALP to generate rectangular waveform of 2 kHz with 60% duty cycle. Use T0 in mode 1. Waveform should appear at P1.5. Assume crystal = 11.0592 MHz. 10
- c) i) Explain interrupt method and polling method. 6
- ii) Explain structure of IE register of 8051. 4

### UNIT - IV

4. a) Show interfacing of 7-segment display. Write an ALP of 8051 to display O-F on 7 segment module continuously Draw flow-chart. 10
- b) Explain Half stepping mode and full stepping mode of stepper motor. Interface stepper motor with 8051. Write an ALP to rotate stepper motor clockwise continuously for full stepping mode. 10
- c) i) Explain control word register format of 8255. 5
- ii) Interface 2Kx8 RAM memory IC with 8051. Assume starting address 2000H. 5

### UNIT - V

5. a) Write a note on : 10
- i) RS-232C
- ii) Serial Peripheral Interface.
- b) Draw and explain block diagram of 24CXX. Also show interfacing of 24CXX with 8051. 10
- c) i) State advantages of RS 485 over RS-232. 4
- ii) What is PIC ? Explain features of PIC controller. 6

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