Model Question Paper-I with effect from 2017-18

USN | | | | | | | | | | | **15EE52**

Fifth Semester B.E.(CBCS) Examination
Microcontroller

(Core Course, E&EE)

Time: 3 Hrs Max.Marks: 80

Note: Answer any FIVE full questions, choosing at least ONE question from each module.

Module-1

1. **(a)** What is microcontroller? List out the difference between CISC and RISC **(06 Marks)**

   (b) Explain the 8051 block diagram and its features. **(06 Marks)**

   (c) Explain the PSW Register. **(04 Marks)**

OR

2. **(a)** With the help of neat diagram, explain how to interface external 64Kbytes RAM memory with 8051. **(06 Marks)**

   (b) Explain the following addressing modes with an examples.
   i) Indirect Addressing Mode ii) Indexed Addressing Mode
   iii) Direct Addressing Mode. **(06 Marks)**

   (c) Explain PUSH and POP instruction with an example. **(06 Marks)**

Module-2

3. **(a)** List out and explain different assembler directives used in an ALP. **(06 Marks)**

   (b) Explain the following instructions with an example
   i) SWAP A ii) RRC A iii) DIV AB iv) XCHD A,@R_i v) DA A **(10 Marks)**

OR

4. **(a)** Write an ALP to convert unpacked BCD to Packed BCD Number. **(05 Marks)**

   (b) Explain Checksum byte in ROM, with an example. **(06 Marks)**

   (c) Name the addressing modes of the following instructions
   i) MOV F0H, #29H ii) ADD A, 30H iii) MOV 35H,@R0
   iv) SUBB A, R1 v) XRL A,@R1. **(05 Marks)**

Module-3

5. **(a)** Give the bit size and Data range details for the widely used C Data types of 8051. **(07 Marks)**

   (b) Write an 8051 C program to toggle all the bits of P1 continuously. **(05 Marks)**

   (c) Write an 8051 C program to convert packed BCD 0x29 to ASCII and display the bytes on P1 and P2. **(04 Marks)**

OR

6. **(a)** What is the difference between timer and counter? Explain the function of each bit in TMOD Register. **(05 Marks)**
   (b) write an ALP to generate square wave of 3KHZ frequency with 50% duty cycle on Pin P2.1 using timer 1 mode 1 operation, Assume XTAL=12MHZ and show the delay calculation. **(07 Marks)**
   (c) what is the advantage and disadvantages of MODE 2 operation of 8051 when compared to Mode 1 Operation. **(04 Marks)**

Module-4

7. **(a)** write the steps required for programming 8051 to transfer and receive data serially. **(10 Marks)**
   (b) write an ALP to transfer letter "Y" serially at 9600 baud rate, continuously **(06 Marks)**

OR

8. **(a)** Explain the importance of TI and RI flag. **(08 Marks)**
   (b) Define interrupt, and mention the difference between interrupt and polling method and also write the steps in executing interrupt **(08 Marks)**

Module-5

9. **(a)** Explain DAC interface with diagram and also write a C program to generate staircase waveform**.** **(08 Marks)**
   (b) Show the interfacing circuit and functional pins of LCD **.** **(08 Marks)**

OR

10. **(a)** Draw the pin diagram of 8255 and briefly explain the signals. **(06 Marks)**
    (b) Explain about stepper motor interface with diagram, and also write a c program if motor takes 90 steps to complete one revolution and show the calculation (Clockwise Direction) **(10 Marks)**

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