B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

00203   **Term-End Examination**

June, 2018

BIEE-010 : MICROCONTROLLERS

Time : 3 hours   *Maximum Marks : 70*

Note : *Answer any **five** questions. All questions carry equal marks. Assume data wherever required.*

1. (a) Give differences between $2 \times 3\frac{1}{2} = 7$

    (i) Microprocessors and Microcontrollers

    (ii) Harvard and Von-Neumann architecture

   (b) Draw block diagram of 8051 microcontroller and give brief description of each pin.   *3+4=7*

2. (a) Write the differences between assembly language and machine language.   7

   (b) What is stack and bank 1 conflict ? How can it be resolved ? Explain the steps involved.   7

3. (a) Write short notes on addressing modes of the 8051. 7

   (b) Write a program to multiply the numbers 0ECH by 25H using the technique of repeated addition. 7

4. (a) (i) LEDs are connected to bits P1 and P2. Write an 8051 C program that shows the count from 0 to FFH on the LEDs. $3\frac{1}{2}$

   (ii) How is the TMOD register modified to make each of the timers operate as counters ? $3\frac{1}{2}$

   (b) A square wave is generated at pin P1·2. This square wave is to be sent to a receiver connected in serial form to this 8051. Write a program for this. 7

5. (a) Explain what happens if a low-priority interrupt is activated while the 8051 is serving a higher-priority interrupt. 7

   (b) How is DAC-0808 interface with MCS-51 ? Also write a program to generate saw-tooth waveform using this IC. 7

6. (a) Discuss the role of :
   (i) EA pin
   (ii) PSEN
   (iii) P0 and P2
   in providing addresses to the 8051. 7

(b) Find the organization and chip capacity for each ROM with the indicated number of address and data pins : 7

(i) 14 address, 8 data

(ii) 16 address, 8 data

(iii) 12 address, 8 data

7. (a) Explain internal RAM structure of the 8051. What do you understand by bit-addressable and byte-addressable memory ? 7

(b) Write a program to divide a 16-bit number by an 8-bit number. 7

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