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BIEL-008

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

00059

December, 2017

BIEL-008 : MICROCONTROLLERS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Missing data may be suitably assumed.*

1. (a) Explain the organisation of the internal RAM of microcontroller 8051. *5*

   (b) Explain the significance of Program Status Word. Briefly discuss, PSW register of 8051. *5*

2. Differentiate between the following instructions of 8051 microcontroller : *5×2=10*

   (a) SWAP and XCHG

   (b) MOVX and MOVC

   (c) Bit Level ANL and Byte Level ANL

   (d) LCALL and ACALL

   (e) PUSH and POP

3. (a) Write a look-up table using the DPTR as the base, to convert the BCD digits into a 7-segment code. 5

(b) Explain different data types in 8051 microcontroller. 5

4. (a) Discuss the need for stack memory in microcontrollers. How are stacks operated in 8051 ? 5

(b) Design an interfacing circuit to connect a memory of capacity 8K × 8 bit to 8051. Specify the address range. 5

5. (a) Write the hardware required to demultiplex the address bus of 8051. 5

(b) Explain the different ranges of jump instructions available in 8051 microcontroller. 5

6. (a) What is the difference between RET and RETI instructions ? What happens if we use RET as the last instruction of an interrupt service routine ? 5

(b) Give the format of SCON register in 8051. Indicate the significance of each bit of SCON register. 5

7. (a) List out and briefly explain different assembler directives in ALP. *5*

(b) Write a program to set the carry flag to 1, if the number in register A is even and reset the carry flag to 0, if the number in register A is odd. Use the assembly language of 8051. *5*

8. (a) What is Baud Rate ? Which timer of 8051 is used to set the baud rate ? *5*

(b) What is serial communication ? How is this achieved with 8051 using RS-232C standards ? *5*

9. Interface an LCD display to 8051 and write an ALP to display the message 'VERY GOOD'. *10*

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) Bit Addressable Instructions

(b) Built-in Timers

(c) DMA
