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BIEL-008

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

Term-End Examination

00096

June, 2015

BIEL-008 : MICROCONTROLLERS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks.*

1. (a) Differentiate between microprocessor and microcontroller.

(b) What is RISC processor ? Give the advantages of RISC processor over CISC processor. *2×5=10*

2. (a) With the help of neat diagrams, discuss the CISC architectures.

(b) Discuss the criteria for selecting a microcontroller for a particular application. *2×5=10*

3. (a) Describe the block diagram of 8051 microcontroller.

(b) Compare and contrast the 8051 microcontroller with its family member microcontrollers. *2×5=10*

4. (a) In 8051 microcontrollers, discuss which is the best for a home development environment.

(b) Why do we always write programs starting with ORG 0000 ? *2×5=10*

5. (a) What is the result of the following code :

```
MOV R4, # 25H
MOV A,  # 1FH
ADD A,  R4
```

(b) Find the value of the PSW register after the execution of the instructions :

```
MOV  A, #95
ADD  A, #120
```

2×5=10

6. Show the stack and stack pointer for each line of the following program : *10*

```
    ORG 0
MOV SP, #70H
MOV R5, #66H
MOV R2, #7FH
MOV R7, #5DH
PUSH  5
PUSH  2
PUSH  7
CLR   A
MOV   R2, A
MOV   R7, A
POP   7
POP   2
POP   5
```

7. (a) The crystal frequency of 8051 microcontroller is 16 MHz. Determine the period of machine cycle.

(b) Describe the data types of C for 8051 microcontroller. *2×5=10*

8. Assume that XTAL = 11·0592 MHz. What value do we need to load into the timer's registers if we want to have a time delay of 5 ms (milliseconds) ? Write the program for timer '0' to create a pulse width of 5 ms. *10*

9. (a) Write the advantages of serial communication over parallel communication.

(b) Write a program to transfer a letter 'Y' serially at 9,600 baud continuously and also send a letter 'N' through port 0, which is connected to a display device. *2×5=10*

10. (a) How does the busy flag aid in making the LCD program more efficient ?

(b) Write the steps to identify the key pressed. *2×5=10*