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BIEL-031

DIPLOMA – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (DECVI)/ADVANCED LEVEL CERTIFICATE COURSE IN ELECTRONICS AND COMMUNICATION ENGINEERING (ACECVI)

Term-End Examination

00376 **December, 2014**

BIEL-031 : MICROCONTROLLER

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt **five** questions in all. Question no. **1** is **compulsory**. Attempt remaining **four** questions out of Q. 2 to Q. 8.*

1. (a) A high on which pin resets the 8051 microcontoller is

(i) Reset

(ii) PSEN

(iii) RST

(iv) RSET

(b) When 8051 is reset and $\overline{EA}$ line is high, the PC points to first program instruction in the

(i) Internal code memory

(ii) External code memory

(iii) Internal data memory

(iv) External data memory

(c) IC 8255 is

(i) PCI

(ii) PPI

(iii) DMA Controller

(iv) PIC

(d) The following program will cause the 8051 to be stuck in a loop :

```
LOOP : MOV A, #00H
       JNZ LOOP
```

(i) True

(ii) False

(e) MOV A, @ RI will

(i) copy RI to the accumulator.

(ii) copy the accumulator to RI.

(iii) copy the contents of memory whose address is in RI to the accumulator.

(iv) copy the accumulator to the contents of memory whose address is in RI.

(f) To interface external EPROM memory for applications, it is necessary to demultiplex the address/data lines of the 8051.

(i) True

(ii) False

(g) The total amount of external code memory that can be interfaced to the 8051 is

(i) 32 K

(ii) 64 K

(iii) 128 K

(iv) 256 K

7×2=14

2. Explain flags and registers of 8051 microcontroller and draw the internal RAM structure of 8051. *14*

3. What is the function of IC 8255 ? Draw its block diagram and explain its operating modes. *14*

4. Describe the evolution of microcontroller terminology and explain Harvard and Von-Neumann architecture in detail with the help of block diagrams. *14*

5. (a) Compare programmed data transfer scheme and DMA data transfer scheme. Mention the types of DMA data transfer schemes and explain any one them. *7*

   (b) Explain the concept of handshaking in Asynchronous data transfer. *7*

6. (a) Explain the power saving options of 8051 microcontroller. *7*

   (b) Compare the features of 8155, 8355 and 8755. *7*

7. (a) Describe the function of following instructions : *7*

   (i) JZ radd,

   (ii) DAA,

   with examples.

   (b) What is the role of assembler and linker in 8051 programming ? *7*

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(i) RISC and CISC

(ii) 8051 Data types

(iii) Directives in 8051

(iv) Interfacing of Stepper motor with 8085

(v) EEPROM and FLASH

(vi) Role of IC 8355