No. of Printed Pages : 3

**BIEL-015**

# B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING

00086

## (BTECVI)

## Term-End Examination

## June, 2015

## BIEL-015 : MICROPROCESSOR AND ITS APPLICATIONS

*Time : 3 hours* *Maximum Marks : 70*

***Note :*** *Attempt any **seven** questions. All questions carry equal marks. Assume suitable missing data, if any. Question no. **1** is **compulsory**.*

1. (a) Write the difference between Interpreter and Compiler.

   (b) What is the format of instructions that are used in 8085 microprocessor ?

   (c) State the salient features of USART.

   (d) Write the functions of DSR and CTS in 8251A.

   (e) What is the significance of MN/MX pin in 8086 microprocessor ? *5×2=10*

2. (a) Draw the pin diagram of 8085 and explain the functions of each pin.

(b) Write an assembly language program using the logical instructions XOR, AND and arithmetic instructions to display a number in BCD format. *5+5=10*

3. (a) Explain the concept of memory segmentation .

(b) Describe the conditions that cause the 8086 to perform each of the following types of interrupts :

Type-0, Type-1, Type-2, and Type-4. *5+5=10*

4. Write an 8085 assembly language program to find out the 2's complement of a binary number. *10*

5. Design the hardwave interface circuit for interfacing 8251 with 8086. Set the 8251 in asynchronous mode as a transmitter and receiver with even parity enabled, 2 stop bits, 8-bit character length, frequency 160 kHz and baud rate 10k.

(a) Write an assembly language program to transmit 100 bytes of data string starting at location 2000 : 5000 H.

(b) Write assembly language program to receive 100 bytes of data string and store it at 3000 : 4000 H. *5+5=10*

6. (a) Define the machine cycle and instruction cycle. Identify the machine cycle in the instruction IN 02H and draw the timing diagram for the same.

(b) Draw the timing diagram of I/O read operation for 8085. *5+5=10*

7. (a) Explain the working of 8257 DMA controller in burst mode of transfer.

   (b) Draw the architecture of a typical 16-bit microprocessor (Intel 8086). *5+5=10*

8. (a) Distinguish between a software interrupt and a hardware interrupt. Draw the block diagram of 8259A.

   (b) An 8-bit successive approximation ADC is interfaced to 8086 microprocessor through an 8255 chip. The port addresses of 8255 are ranging from 80H to 83H. The start of conversion signal of ADC is connected to PC0 bit and the end of conversion signal is connected to PC7 bit. Write an assembly language program to read the digital data from the ADC chip for the given Analog input. *5+5=10*

9. (a) What do you understand by memory mapped I/O and I/O mapped I/O ?

   (b) Briefly define micro instructions, instruction cycle, machine cycles, and T states. *5+5=10*

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

   (a) Block Diagram of 80486, its features and applications

   (b) Interfacing Seven Segment Display

   (c) DMA Operations

   (d) Comparison between Z-80 and 8085 μP

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