Code: 15A04407 **R15**

B.Tech II Year II Semester (R15) Regular & Supplementary Examinations May/June 2018

MICROPROCESSORS & INTERFACING

(Computer Science & Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) How does the microprocessor differentiate between data and instruction?

(b) If the frequency of the crystal connected to 8085 is 6 MHz, calculate the time to fetch and execute NOP instruction.

(c) Differentiate between absolute and linear select decoding.

(d) How 16-bit address is converted into 20-bit address in 8086.

(e) State the function of MIN/MAX pin in 8086.

(f) If AL = 78H and BL = 73H, explain how DAS instruction (after subtracting BL from AL) adjusts to the BCD result.

(g) Write the format of ICW1 in 8259.

(h) Name the six modes of operations of an 8253 programmable interval timer.

(i) In the program status word of 8051, the bits RS0 and RS1 are 1 and 0, then which register bank is selected for operation.

(j) What is the size of the on-chip program memory and on-chip data memory of 8051 microcontroller?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Write an assembly language program to convert an array of ASCII code to corresponding binary (hex) value. The ASCII array is stored starting from 4200H.The first element contains number of elements in the array.

OR

3 Explain the architecture of Intel 8085 with the help of a block diagram.

UNIT – II

4 Explain the internal hardware architecture of 8086 microprocessor with a neat diagram.

OR

5 Explain any 8 addressing modes of 8086 processor with an example.

UNIT – III

6 Write an 8086 assembly language program to get an input from the keyboard for 2 Digits and convert that input into a hexadecimal number using BIOS interrupts with sample output.

OR

7 Explain how static RAM is interfaced to 8086. Give necessary interface diagram assuming appropriate signals and memory size.

UNIT – IV

8 Explain the Traffic light controller and write a program in 8086 processor to interface traffic light controller and processor.

OR

9 Explain the transistor buffer circuit used to drive 7 segment LEDs.

UNIT – V

10 Draw a diagram to interface a stepper motor with 8051 microcontroller and explain. Write a program to make the stepper motor to rotate both clockwise and anticlockwise directions.

OR

11 Write 8051 ALP to transmit ‘Hello World’ to PC at 9600 baud for external crystal frequency of 11.0592 MHz.

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