UG Odd Semester (CBCS) Exam., December—2016

COMPUTER SCIENCE

(3rd Semester)

Course No. : MCS–304 (C)

(Microprocessor and Assembly Language Programming)

Full Marks : 75
Pass Marks : 30

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Describe the function of the 8086 queue. How does the queue speed up processing? 8

(b) What is the advantage of using assembly language instead of writing a program directly in machine language? 7

2. *(a)* Describe the operation an 8086 will perform when it executes ADD AX, BX. 5

(b) What determines whether a micro-processor is considered an 8-bit, a 16-bit or a 32-bit device? 5

(c) What types of programs are usually written in assembly language? 5

UNIT—II

3. *(a)* Write an assembly language program to compute the average of 4-bytes stored in an array in memory. 7

(b) Write an assembly language program to compute the average of any number of bytes in an array in memory. The number of bytes to be added is in the first byte of the array. 8

4. *(a)* Discuss about the different types of CALL instructions for the procedures. 10

(b) Discuss about the 8086 RET instruction. 5

UNIT—III

5. *(a)* Why are the port lines of programmable port devices automatically put in the input mode when the device is first powered up or reset? 7

(b) Describe the three major tasks needed to get meaningful information from a matrix keyboard. 8

6. *(a)* Why are strain gauges usually connected in a bridge configuration? Why do you use a differential amplifier to amplify the signal from a strain-gauge bridge? 8

(b) Calculate the full-scale output voltage for the simple D/A converter. 7

UNIT—IV

7. *(a)* List and describe in general terms the steps an 8086 will take when it responds to an interrupt. 8

(b) Describe the purpose of the 8086 interrupt vector table. 7

8. *(a)* Describe the response an 8086 will make if it receives an NMI interrupt signal during a division operation which produces a divide-by-zero interrupt. 8

(b) What addresses in the interrupt vector table are used for a type 2 interrupt? 4

(c) Why is the 8086 INTR input automatically disabled when the 8086 is RESET? 3

UNIT—V

9. *(a)* Why do telephone companies transmit signals over long distances in digital form rather than in analog form? Discuss. 7

(b) How does the receiver in the HDLC system tell the transmitter that an error was found in a transmitted frame? 8

10. *(a)* Briefly describe the operation of the integrated services digital network. 8

(b) Define the term modem and explain why a modem is required to send digital data over standard switched phone lines. 7

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