UG Odd Semester (CBCS) Exam., December—2017

COMPUTER SCIENCE

(3rd Semester)

Course No. : MCSCC–304

(Microprocessor and Assembly Language Programming)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

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

UNIT—I

1. *(a)* What is the advantage of using a CPU register for temporary data storage over using a memory location? 6

(b) If the stack segment register contains 3000 H and the stack pointer register contains 8434 H, what is the physical address of the top of the stack? 5

(c) What is the main difference between the 8086 and 8088 microprocessors? 3

2. *(a)* Describe the function of the 8086 queue. 5

(b) How does the queue of 8086 speed up processing? 4

(c) Why is DMA data transfer faster than doing the same data transfer with program instructions? 5

UNIT—II

3. *(a)* List three methods of passing parameters to a procedure and give the advantages and disadvantages of each method. 8

(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. 6

4. *(a)* Discuss different types of FAR call for a procedure. 6

(b) Show the 8086 instructions or group of instructions which will—

(i) initialize the stack segment register to 4000 H and stack pointer register to 8000 H;

(ii) call a near procedure named FIXIT;

(iii) save BX and BP at the start of a procedure and restore them at the end of the procedure;

(iv) return from a procedure and automatically increment the stack pointer by it. 8

UNIT—III

5. *(a)* Discuss the internal architecture of 8255 A programmable parallel port device. 10

(b) Discuss the methods of parallel data transfer. 4

6. *(a)* When connecting peripheral devices such as printers, terminals, etc. to a computer, why is it very important to connect the logic ground and the chassis ground together only at the computer? 8

(b) Why data must be sent to a printer on a handshake basis? 6

UNIT—IV

7. *(a)* List and describe in general terms the steps an 8086 microprocessor will take when it responds to an interrupt. 6

(b) Why is it necessary to PUSH all registers used in the procedure at the start of an interrupt-service procedure and to POP them at the end of the procedure? 8

8. *(a)* Briefly describe the condition(s) which cause(s) the 8086 microprocessor to perform each of the following types of interrupts : 10

type 0, type 1, type 2, type 3, type 4

(b) Describe the main use of the 8086 type 1 interrupt. 4

UNIT—V

9. *(a)* Define the term 'modem' and explain why a modem is required to send digital data over standard switched phone lines. 6

(b) Draw the block diagrams of 8251 A, USART and give pin descriptions. 8

10. *(a)* What are the main differences between a UART and a USART? 4

(b) What are the differences between a baseband network and a broadband network? 6

(c) Describe the operation of a codec. 4

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