2017

M.Sc.

2nd Semester Examination

COMPUTER SCIENCE

PAPER—COS-204

Full Marks : 50

Time : 2 Hours

The questions are of equal value.

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Module—1

(INTRODUCTION TO PROGRAMMING)

(Marks : 25)

Answer any *two* questions :   2×10

1. (a) What are the functions of program counter and instruction register ?

   (b) Differentiate between primary and secondary memories.

(Turn Over)

(c) A computer has 128 MB of memory. Each word in this computer is 8 bytes. How many bits are needed to address any single word in memory ?

(2+2)+3+3

2. Convert the following numbers : $4 \times 2\frac{1}{2}$

(a) $(237.14)_8 = (?)_{16}$.

(b) $(139.41)_{10} = (?)_2$ upto 4 decimal point.

(c) Perform binary subtraction (without complement) 1100100 − 101.

(d) Perform binary subtraction (with 2's complement) 10101100 − 10101.

3. (a) Develop a flowchart to determine the sum of digits of a given integer.

(b) What do you mean by pseudo-code ? Construct the pseudo-code to multiply two integers if only addition operator is availabe to use.

4+(2+4)

4. (a) Write an algorithm for binary search technique to search an element in a sorted array.

(b) Define stack and queue.

(c) Write an algorithm to insert an element in a queue.

4+(1+1)+4

[Internal Assessment : 5 Marks]

Module—2

(C PROGRAMMING)

(Marks : 25)

Answer any *two* questions : 2×10

1. (a) Briefly explain for loop, while loop and do while loop with examples.

    (b) What is the difference between while loop and do while loop ?

    (c) Write a C program to print all even numbers from 1 to 100.

    3+2+5

2. (a) What is the role of preprocessor in C ? Name any two preprocessor directives.

    (b) Explain if-else statement with an example.

    (c) Write a C program to check whether a number is a prime number or not. 3+2+5

3. (a) What is a pointer ? Declare a pointer to an integer and initialize it.

   (b) What is a function ? Declare any function that takes two float as arguments and returns an int.

   (c) Write a C function using pointers that swaps the value of two integer variables.

   3+2+5

4. (a) What is an array ? Initialize a two dimensional array of integers.

   (b) What is a string in C ? Write down any four string handling inbuilt functions in C.

   (c) Write a C program to take two matrices as input and display their multiplication matrix.

   3+2+5

[Internal Assessment : 5 Marks]

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