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MCS-011

00647

MCA (Revised)

Term-End Examination

December, 2010

MCS-011 : PROBLEM SOLVING AND PROGRAMMING

Time : 3 hours *Maximum Marks : 100*

(Weightage 75%)

Note : *Question number **1** is **compulsory**. Attempt **any three** questions from the rest.*

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1. (a) Write an algorithm, in C to sort a given list of numbers in ascending order using bubble sort. **10**

   (b) What is a pointer ? Give example. Write a program to swap the values using "pass by value" and "pass by reference" method. **10**

   (c) Explain file handling in C. What is EOF and its value ? Write a program to copy one file to another. **10**

   (d) Explain (with example) :- **2.5x4=10**

   (i) Unary Operators in C

   (ii) Array

   (iii) Syntax and semantic errors.

   (iv) Size of operator

2. (a) Write a program in C to display the following output :- 8

```
        1
      2 1 2
    3 2 1 2 3
  4 3 2 1 2 3 4
    3 2 1 2 3
      2 1 2
        1
```

(b) Write a program to subtract 2 matrices of size 3×3. 8

(c) Explain function prototype with examples. 4

3. (a) What are various storage classes in C, give an example of each. 6

(b) Write loops that calculate the sum of given series :- 7

1+2+4+7+11+16+_ _ _ _ _ _ with :-

(i) do - while loop.

(ii) for loop.

(c) Using an example, give steps to calculate the average and worst case complexity of an algorithm. 7

4. (a) Differentiate between :- 2.5x4=10

(i) & and & &

(ii) text and binary file

(iii) pointer to function and function pointer.

(iv) linker and loader.

(b) A C program contains the following declaration :- 5x1=5

```
int arr [3][2] =
{ {1,2,}, {3,4}, {5,6} };
```

What is the meaning of the following :

(i) * (arr + 2)

(ii) * (* (arr) + 1) + 1)

(iii) * (* (arr) + 2))

(iv) arr

(v) (* (arr) + 2) + 1)

(c) Write a program in C to concatenate 2 strings without using strcat ( ) function. 5

5. (a) Write a program in 'C' to implement binary search in a given list of numbers. Also give the average complexity of binary search. 10

(b) Using the concept of structures, write a program to display the salary, department, and other details of employees of an organisation. Make necessary assumptions wherever necessary. 5

(c) Explain dynamic memory allocation with examples. 5