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10MCA11

First Semester MCA Degree Examination, February 2013
Problem Solving Using 'C'

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

1 a. Define Algorithm. What are the characteristics of a good algorithm? **(06 Marks)**

b. Write a flow chart for finding biggest of 3 numbers. **(04 Marks)**

c. Write a structure of a C program. **(05 Marks)**

d. What are symbolic constants? Explain with examples. **(05 Marks)**

2 a. Explain following operators with examples : i) ? : ii) >>. **(06 Marks)**

b. Find the values stored in the variables after executing following code segment :

```
int x, y;
float a, b;
x = 12.6;
a = x + 0.5;
y = x + 0.5;
b = a + y;
```

(04 Marks)

c. With suitable examples, explain various unformatted console I/O functions. **(07 Marks)**

d. Find the output of the following code segment :

```
int x = 1234;
float a = 12.6876;
print f ("% 06d in", x);
print f ("% 0.3f in", a);
print f ("% 8.2f", a);
```

(03 Marks)

3 a. Explain following with examples and flow chart : i) Simple if statement ii) Nested if statement iii) Else if ladder iv) Switch statement. **(08 Marks)**

b. Write a program to check whether a given integer is prime number or not. **(06 Marks)**

c. Differentiate while loop and do – while loops. Give one example for each. **(06 Marks)**

4 a. What are arrays? Explain initialization of one – dimensional and two – dimensional arrays, with examples. **(06 Marks)**

b. Write a program to reverse the contents of an integer array without using another array. **(06 Marks)**

c. Write a program to check whether a string is palindrome or not, without using any built – in string functions. **(08 Marks)**

5 a. Explain the need for user – defined functions. **(05 Marks)**

b. Write a program to find product of two matrices of order m × n and n × p respectively. Write different functions to read matrix, display matrix and to multiply two matrices. **(10 Marks)**

c. Write a short note on recursive functions. **(05 Marks)**

6 a. Differentiate structure and union, with suitable example. **(05 Marks)**

b. What are bit – fields? Explain their significance. **(05 Marks)**

c. What are two different techniques of passing arguments to function? Explain with examples. **(10 Marks)**

7 a. Write a program to find sum and average of elements stored in an array, using pointers. **(06 Marks)**

b. Explain various file opening modes. **(06 Marks)**

c. Write a program to copy the contents of one file into the other file. **(08 Marks)**

8 a. Explain the concept of dynamic memory allocation along with the functions used for the same. **(10 Marks)**

b. What is pre – processor? Explain various pre – processor directives, with examples. **(10 Marks)**

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