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10MCA11

First Semester MCA Degree Examination, June / July 2013
Problem Solving Using C

Time: 3 hrs. Max. Marks:100

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

1 a. What is an algorithm? Explain the characteristics of an algorithm. **(06 Marks)**

b. Name the different categories of symbols used in a flow chart. Explain any two in each of the categories. **(06 Marks)**

c. Explain the basic structure of a C program. **(04 Marks)**

d. Briefly explain the need for qualifiers – const and volatile. **(04 Marks)**

2 a. What is a variable? List the rules for naming variables. Give at least two examples for each valid and invalid name. **(06 Marks)**

b. What is meant by overflow and underflow of data? Give examples in each case. **(06 Marks)**

c. Find the errors if any ; i) double = p, q ii) exponent alpha, beat iii) m, n, z : INTEGER iv) short char c ; v) long int m ; count ; vi) long float temp ; vii) char char ; viii) real x, y ; **(08 Marks)**

3 a. With examples, explain the use of i) logical operator's ii) Bitwise operators. **(06 Marks)**

b. Find the output of the following if
char text [ ] = "Programming in C is a challenging and creative activity!" **(06 Marks)**
i) printf ("%s", text) ; ii) printf ("% 20s", text) ; iii) printf ("%.20s", text) ;
iv) printf ("% 20.10s", text) ; v) printf ("% -20.10s", text) ; vi) printf ("% -20s", text).

c. Write a C program to find all the prime numbers between a given ranges. **(08 Marks)**

4 a. What are arrays? Explain the different ways of declaration and initialization of arrays. **(10 Marks)**

b. Write a C program to read two matrices A and B and find their product. **(10 Marks)**

5 a. Write a C program that outputs a list of ASCII code for the input that has been typed in without using built – in functions. **(06 Marks)**

b. Explain any four string handling functions, with examples. **(08 Marks)**

c. Write a C program to check whether a given string is palindrome without using built in functions. **(06 Marks)**

6 a. What are user defined functions? Explain the different categories of the functions. **(12 Marks)**

b. What is recursion? Write a C program to find the factorial of a number using recursion. **(08 Marks)**

7 a. What is a structure? Write the syntax for defining a structure in C. Explain how the individual members of the structure are accessed. **(06 Marks)**

b. Given the following declaration int x = 10, y = 10 ; int * p1 = &x ; int * p2 = &y ; what is the value of the following expressions i) (* p1) + + ; ii) --(* p2) ; iii) * p1 + (* p2) -- ; iv) + + (* p2) - * p1 ; **(04 Marks)**

c. Write a C program to compute the sum of two complex numbers by passing a structure to a function. **(10 Marks)**

8 Write short notes on :

a. C Preprocessor.

b. Dynamic memory allocation functions.

c. Fie access modes.

d. While and Do – while loops. **(20 Marks)**

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