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MCS-011

MASTER OF COMPUTER APPLICATIONS/BACHELOR OF COMPUTER APPLICATIONS (REVISED) (MCA/BCA)

Term-End Examination

June, 2023

MCS-011 : PROBLEM SOLVING AND PROGRAMMING

Time : 3 Hours *Maximum Marks : 100*

Weightage : 75%

Note : *Question No. **1** is compulsory. Answer any **three** questions from the rest.*

1. (a) Write an algorithm to calculate simple interest. Also draw flow chart for this algorithm (**Hint :** SI = (PTR)/100). 10

   (b) Write a C program to create a structure to store name, rollnumber, address and course (BCA, MCA) of ten students. Use array of structure to display details of the students.

10

(c) Write a C program which read an array of ten integer values and search a given value in the array. If that value exist in the array display its square otherwise display. "The value is missing." 10

(d) Write a program in 'C' using printers to find the length of a given string. 10

2. (a) Write a C program to find the sum of the following series upto 20 terms : 6

$1 + 4 + 7 + 10 + 13$ .....

(b) Briefly explain *two* categories of constants in C. 4

(c) Write a C program for multiplication of two 4×4 matrices. 10

3. (a) Explain the difference between a++ and ++a. Also find the value that would be printed by the following code : 6

```
int a = 4;
int b = 2;
int c = 0;
a = c++;
a = a + b++;
printf ("a = %d ", a);
```

(b) Explain the use of conditional operator with the help of an example. 4

(c) What is for loop ? How is it different from do ..... while loop ? Explain with the help of an example. Also explain use of "break statement". 10

4. (a) Write a 'C' program, using structures, to calculate the gross salary and net salary if Basic, D. A., T. A. and deduction are given as input. 10

(b) Write the syntax and explain the use of the following functions in C : 2×4=8

(i) return

(ii) malloc

(iii) isupper

(iv) fclose

(c) Define a macro to find the cube of a given number. 2

5. (a) Write C program which take a string as input and print it in reverse order, without using any in-built function. 5

(b) Write a C program to check whether a file whose name is given exist or not in the given list of file names. 5

(c) Explain the following with the help of a suitable example for each : $4 \times 2\frac{1}{2} = 10$

(i) File access modes

(ii) Array of pointers

(iii) Automatic variable

(iv) Size of operator