

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

**Term-End Examination**

**December, 2024**

**MCS-011 : PROBLEM SOLVING AND  
PROGRAMMING**

*Time : 3 Hours*

*Maximum Marks : 100*

*Weightage : 75%*

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**Note :** (i) *Question No. 1 is compulsory.*

(ii) *Answer any **three** questions from the rest.*

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1. (a) Write an algorithm and draw a corresponding flowchart to check whether the given year is a leap year or not. 10
- (b) Write a function in C to swap the values of 2 variables. 6
- (c) Write a program in C to search an element in a given set of elements using linear search. 10

- (d) Define recursion. Explain it with example of Fibonacci series code in C. 10
- (e) Write a short note on “ternary” operator with an illustration. 4
2. Differentiate the following with an example for each :  $5 \times 4 = 20$
- (i) Macro *vs.* Function
- (ii) Nested if *vs.* Multiple if
- (iii) Structure *vs.* Union
- (iv) Puts *vs.* Gets
3. (a) Write a program in C to convert lower case letter to upper case in a given string, without using any inbuilt function. Also check whether the given string is a palidrome or not. 15
- (b) What are global variables and static variables ? Explain with the help of an example of C code segment. 5
4. (a) Using file handling concept, write a program to copy one file to other file. 8
- (b) Explain the concept of ‘call by value’ and differentiate it with ‘call by reference’. 6
- (c) Explain the use of the following function in C : 6
- (i) malloc()

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(ii) fseek()

(iii) ftell()

5. (a) Write a program in C to display string 'IGNOU' in the following pattern using loop control statement : 10

I

I G

I G N

I G N O

I G N O U

- (b) Write down a program to calculate salary of an employee based on Basic pay, TA, DA, Grade pay and other allowances using structure. 7
- (c) Explain the use of switch statement with an example. 3

x x x x x x x