Printed Pages: 02 **Sub Code: KCA-102**

Paper Id: 233357 **Roll No.** | | | | | | | | | | |

M.C.A.
(SEM I) THEORY EXAMINATION 2022-23
PROBLEM SOLVING USING C

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

(a) Explain the features of C.
(b) Explain the types of constant used in C.
(c) Explain the advantages of recursion.
(d) Explain formatted I/O functions.
(e) Explain how the pointer variable declared and initialized.
(f) When null pointer is used?
(g) Specify the use of Enumerated data type.
(h) Compare a structure with an array.
(i) Why files are needed?
(j) Explain the fseek() function.

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

(a) How a high level programming language is useful for a systematic development of programs? Explain.
(b) Explain the difference between for, while and do-while loops.
(c) Write a program to concatenate two strings without using standard library function.
(d) Explain the local and external variables. Explain different storage classes used in C.
(e) Explain the following graphics functions supported by C language:
  (i) initgraph()
  (ii) rectangle()
  (iii) line()

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Define an Algorithm. Write the characteristics of a good algorithm.
(b) Explain the following with proper example:
  (i) break
  (ii) continue
  (iii) goto

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Write a program to accept elements of an array from user and sort and display them in ascending order.
(b) Define union. Explain the differences between union and structure.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the following functions of dynamic memory allocation:
  (i) malloc()
  (ii) calloc()
  (iii) realloc()
  (iv) free()
(b) Discuss about the following operators in C language with example.
  (i) Bitwise operators
  (ii) Increment and decrement operators
  (iii) Logical operators

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is type conversion? Explain two types of conversion with suitable examples.
(b) How to declare and initialize a Two-dimensional array? Discuss with examples.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the following:
  (i) Nested structures
  (ii) Array of structures
(b) Explain different categories of pre-processor directives used in C.