

END TERM EXAMINATION

FIRST SEMESTER [MCA] DECEMBER 2019

Paper Code: MCA 103

Subject: Programming in C

Time : 3 Hours

Maximum Marks : 75

Note: Attempt five question in all including Q. No. 1 which is compulsory. Select one question from each unit.

- Q1. Answer **any ten** of the following questions briefly: (2.5x10=25)
- a) Write a function to check if a number input by the user is a perfect number or not through an exit controlled loop?
 - b) Explain the structure stat defined in <sys/types.h>
 - c) With an example explain the concept of variable size arrays in C?
 - d) Explain the difference between exit() and atexit() function calls?
 - e) Write a function call that accepts a filename and provides other users read only access, group users read and write access and owner all permissions on a file.
 - f) With an example explain the different tokens available in C?
 - g) Write a C program that simulates the cd command of UNIX?
 - h) Write a program to find the size of a file input by the user?
 - i) Explain the usage of typedef keyword?
 - j) What is a read-only function explain with an example?
 - k) Explain the difference between const and volatile qualifiers?

Unit-I

- Q2. a) Write a function to arrange the words constituting a string in lexicographical order? (6)
- b) Write a C Program to read a decimal number from the user. Write a function to convert this decimal number to its binary equivalent using recursion. (6.5)
- Q3. a) With an example explain the advantages of register storage class. What are the restrictions on a register variable? (6)
- b) Write a C function to generate a Pascal's triangle for variable number of rows? (6.5)

```

      1
     1 1
    1 2 1
   1 3 3 1
  
```

Unit-II

- Q4. a) Write a program that calls a function search() to search for a name in a given array of names. The array and the name to be searched should be as function parameters. (6)
- ```

int search(char * names[], char* name);

```
- b) Explain the difference between calloc() and malloc() through appropriate examples. (6.5)

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Q5. a) Explain how one can create a pointer to a function. What is the advantage of calling a pointer to a function instead of the normal function call? (6)

b) 

```
struct Point { int x; int y; };
```

 Write a program that reads in a list of points (given by their x and y coordinates) and determines the pair i.e. the farthest apart. (6.5)

Unit-III

Q6. a) Explain with an example the usage and need of #define, #ifdef and #ifndef? (6)

b) Write a program to read a file from the user and encrypt its contents. The encrypted file should be displayed to the user and the user should be provided only one chance to guess the encryption key. (6.5)

Q7. a) Explain the need and usage of the variable errno as well as the function ferror() and perror()? (6)

b) Write a program to delete specific line number as desired by the user from a specific file using temporary file. (6.5)

Unit-IV

Q8. a) Write a program that creates a thread to calculate sum. Accept the integer numbers for which sum has to be calculated as a command line argument. (6)

b) Explain with an appropriate example how one can retrieve following information about a file like file size, time of last access, time of last modification, owner of the file and group to which a file belongs through a C program? (6.5)

Q9. a) Write a program that creates a child process and displays the processed and parent process of both. Also ensure that the parent process displays its data only after the child process terminated? (6)

b) With an appropriate example explain how we can check through a C program that the directory hierarchy leading to a particular file is searchable or not? (6.5)

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