

M.Sc. Electronics
First Semester
C PROGRAMMING
(MSE-03)

Duration: 3Hrs.

Full Marks: 70

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any five questions

5x2=10

- a. What are Relational operators? Explain?
- b. What is the minimum number of iterations that
 - i. While loop could make?
 - ii. Do-while loop could make?
- c. Discuss the implementation of two dimension arrays in memory.
- d. Explain 'Call a Function by reference'
- e. How can a function return a pointer to its calling function?
- f. What is the purpose of the typedef feature? How is this feature used with structures?
- g. Write down the functionality of ftell() and fseek() functions.

2. Answer any Five questions

5X3=15

- a. What is for loop? Under what circumstances is the for loop used to construct a looping in C?
- b. What is static memory allocation? How is it different from dynamic memory allocation?
- c. What is a function and list out the advantages of using functions in C.
- d. Differentiate between malloc() and calloc().
- e. What is meant by a Union? Differentiate between a structure datatype and Union.
- f. What is the difference between fprintf() and fwrite() functions?
- g. What is meant by opening a data file? How is this accomplished?

3. (Answer any Five questions)

5x5=25

- a. Mention the primary data types supported in C programming language giving an example of each along with their memory requirements.
- b. What do you understand by storage class of a variable? Explain the different storage classes available in C.

- c. How will you compare if-else statement with switch statement? Explain with a suitable example.
- d. Explain the syntax and working of the functions fread() and fwrite().
- e. Write a program to find the factorial of a number x.
- f. Define a structure named student with two elements-roll no(integer) and marks(three element integer array). Declare a variable of this structure type. Next declare a pointer to this structure variable. Write statements to display the value of all three elements of the array marks.
- g. Write a program to count the number of characters contained in an existing text file. The name of the existing file is to be taken from the command line.

M.Sc. ELECTRONICS
First Semester
Programming in C - I
(MSE - 03)
PART A: Objective

Duration: 20 minutes

Marks – 20

Select the correct answer:

1 × 15 = 15

- 1) In C which character is used to terminate the instruction
 - a) .
 - b) ;
 - c) :
 - d) ,
- 2) C programs are converted into machine language with the help of
 - a) Compiler
 - b) Interpreter
 - c) Operating system
 - d) Assembler
- 3) C language is a language of
 - a) High level
 - b) Low level
 - c) Middle level
 - d) None of these
- 4) Which of the following is the correct usage of conditional operators used in C
 - a) $a > b ? c = 30 : c = 40;$
 - b) $a > b ? c = 30;$
 - c) $\max = a > b ? a > c ? a : c : b > c ? b : c$
 - d) $\text{return } (a > b) ? (a : b)$
- 5) A do-while loop is useful when we want that the statements within the loop must be executed:
 - a) Only once
 - b) Atleast once
 - c) More than once
 - d) None of the above
- 6) A function that calls itself for its processing is known as
 - a) Inline Function
 - b) Nested Function
 - c) Overloaded Function
 - d) Recursive Function
- 7) Strings are character arrays. The last index of it contains the null-terminated character
 - a) \a
 - b) \t
 - c) \0
 - d) \1
- 8) If the two strings are identical, then strcmp() function returns
 - a) -1
 - b) 1
 - c) 0
 - d) Yes

- 9) Which is the correct way to define a pointer?
- a) `int_ptr x;`
 - b) `int *ptr;`
 - c) `*int ptr`
 - d) `*x;`
- 10) In the expression `float *fptr;` which is represented as type `float`
- a) The variable `fptr`
 - b) The address of `fptr`
 - c) The variable pointed to by `fptr`
 - d) None of the above.
- 11) A pointer is
- a) Address of variable
 - b) A variable for storing address
 - c) An indication of the variable to be accessed next
 - d) None of these
- 12) Identify the most appropriate sentence to describe Unions
- a) Unions are like structures
 - b) Unions contain members of different datatypes which share the same storage area in memory.
 - c) Unions are less frequently used in programs.
 - d) Unions are used for set operations.
- 13) The statement `FILE *fptr;`
- a) Defines a pointer to pre-defined structure type `FILE`
 - b) Defines a pointer to user defined structure type `FILE`
 - c) Defines a pointer to pre-defined data type `FILE DESCRIPTOR`
 - d) None of the above
- 14) The function `fgets()` and `fputs()`
- a) Reads and write strings from or to data files
 - b) Reads and write strings from or to input/output stream.
 - c) Reads and writes records from or to data files
 - d) None of the above
- 15) A file must be opened so that
- a) The program knows how to access the file
 - b) The operating system knows what files to access
 - c) Communications areas are established for communicating with the file
 - d) All of the above

16. State whether True or False

5 × 1 = 5

- a) The while and for loops tests the termination condition at the bottom of the loop. (True/False)
- b) "A" is a string but 'A' is a character. (True/False)
- c) An array declared as `A[100][100]` can hold a maximum of 1000 elements. (True/False)
- d) The value of a local variable is available to other functions also. (True/False)
- e) The dot operator connects a structure variable name with the member of the structure. (True/False)
