

Roll No.

E-769

**M. A./M. Sc. (Third Semester)
EXAMINATION, Dec.-Jan., 2020-21**

MATHEMATICS

(Optional—A)

Paper Fifth

[Programming in ‘C’ (with ANSI Features)—I]

Time : Three Hours]

[Maximum Marks : 70

Note : Attempt all Sections as directed.

Section—A

1 each

(Objective/Multiple Choice Questions)

Note : Attempt all questions.

Choose the correct answer :

1. A preprocessor is a program :

- (a) That processes its input data to produce output that is used as input to another program
- (b) That is nothing but a loader
- (c) That links various source files
- (d) All of the above

P. T. O.

2. C-Language developed at
 - (a) AT & T's Bell Laboratories of USA in 1970
 - (b) Sun Microsystems in 1973
 - (c) AT & T's Bell Laboratories of USA in 1972
 - (d) Cambridge University in 1972
3. The format identifier "%i" is also used for data type.
 - (a) char
 - (b) int
 - (c) float
 - (d) double
4. Enum is :
 - (a) Fundamental data type
 - (b) Preprocessor
 - (c) Derived data type
 - (d) User-defined data type
5. Bitwise operators can operate upon :
 - (a) double and chars
 - (b) floats and doubles
 - (c) ints and floats
 - (d) ints and chars
6. What is the size of the double data type ?
 - (a) 2 bytes
 - (b) 8 bytes
 - (c) 16 bytes
 - (d) 4 bytes

7. What is C Tokens ?
- (a) The smallest individual units of C program
 - (b) The basic element recognized by the compiler
 - (c) The largest individual units of program
 - (d) Both (a) and (b)
8. C programs are converted into machine language with the help of :
- (a) An Editor
 - (b) An Operating System
 - (c) A Compiler
 - (d) None of the above
9. What is right way to Initialization array ?
- (a) `int num [6] = {4, 5, 8, 11, 45, 15}`
 - (b) `int n { } = {1, 2, 3, 4, 55, 57}`
 - (c) `int n {6} = {7, 9, 10}`
 - (d) `int n (6) = {2, 4, 12, 5, 45, 5.5}`
10. What is the work of break keyword ?
- (a) Halt execution of program
 - (b) Restart execution of program
 - (c) Exit from loop or switch statement
 - (d) None of the above

11. The memory allocation function modifies the previous allocated space.
- (a) `calloc()`
 - (b) `free()`
 - (c) `malloc()`
 - (d) `realloc()`
12. Recursive functions are executed in a :
- (a) First-in/first-out order
 - (b) Load balancing
 - (c) Parallel fashion
 - (d) Last-in–first-out order
13. Which is the value of the expression $15 - 11/3 + 5*3 - 1$?
- (a) 35
 - (b) 37
 - (c) 26
 - (d) 28
14. For 16-bit compiler allowable range for integer constants is
- (a) $-3.4e38$ to $3.4e38$
 - (b) -32767 to 32768
 - (c) -32768 to 32767
 - (d) -32668 to 32667

15. Which of the following shows the correct hierarchy of arithmetic operations in C ?
- (a) $/ + * -$
 - (b) $* - / +$
 - (c) $* / + -$
 - (d) $+ - / *$
16. The declaration into $(*P)[7]$; means :
- (a) P is pointer to a 7 elements integer array
 - (b) The same as $\text{int } *P[]$
 - (c) P is one-dimensional array of size 7
 - (d) None of the above
17. Which loop is faster in C Language ?
- (a) for
 - (b) while
 - (c) do---while
 - (d) All work at same speed
18. Identify wrong C keywords below :
- (a) signed, void, default, go to
 - (b) short, unsigned, continue, for
 - (c) union, const, var, float
 - (d) sizeof, volatile, do, if

19. An array elements are always stored in memory locations.
- (a) Sequential
 - (b) Random
 - (c) Sequential and Random
 - (d) None of the above
20. What is an array ?
- (a) An array is a collection of variables that are of the dissimilar data type.
 - (b) An array is a collection of variables that are of the same data type.
 - (c) An array is not a collection of variables that are of the same data type.
 - (d) None of the above

Section—B

2 each

(Very Short Answer Type Questions)**Note :** Attempt all questions.

1. What are variables in C language ?
2. What are identifiers ?
3. Write different kinds of integer constants.
4. What do you mean by logical operators ?
5. What is a conditional operator ?
6. How to initialize arrays in C language ?

Section—C

3 each

(Short Answer Type Questions)

Note : Attempt all questions.

1. Write a note on anatomy of a C function.
2. Explain fundamental data types with exmple.
3. Explain the working structure of do---while loop.
4. Explain increment and decrement operators.
5. Write a C program to find largest number among three numbers.
6. Explain malloc() and calloc() functions.

Section—D

5 each

(Long Answer Type Questions)

Note : Attempt all questions.

1. Explain the preprocessor directives and write C program to find the area of circle using macro with argument.

Or

Explain typedef and write a program to illustrate the use of typedef declaration in a program.

2. Explain if-else-if ladder with suitable example.

Or

Write a program to calculate factorial of given numbers using recursion.

3. Explain Operators and Expressions with suitable example.

Or

In a company if an employee is paid as under :

If his basic salary is less than ₹ 1,500, then HRA = 10% of basic salary and DA = 90% of basic salary. If his salary is either equal to or above ₹ 1,500, then HRA = ₹ 500 and DA = 98% of basic salary. If the employee's salary is input through the keyboard, write a program to find his gross salary.

4. Write a C program to find multiplication to two matrices.

Or

Explain one-dimensional and two-dimensional arrays in C language.