# M.Sc. ELECTRONICS
## FIRST SEMESTER
## PROGRAMMING & APPLICATIONS
## MSE-102
(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs.                                                    Full Marks : 70

## [ PART-A : Objective ]

Time : 20 min.                                                          Marks : 20

*Choose the correct answer from the following:*                    *1×20=20*

1.  Which of the following is not a valid variable name declaration?
    **a.** int _a3;                          **b.** int a_3;
    **c.** int 3_a;                          **d.** int _3a

2.  All keywords in C are in...................
    **a.** LowerCase letters                 **b.** UpperCase letters
    **c.** CamelCase letters                 **d.** None of the mentioned

3.  The format identifier '%i' is also used for......... data type.
    **a.** Char                              **b.** Int
    **c.** Float                             **d.** Double

4.  Which of the data types has the size that is variable?
    **a.** Int                               **b.** Struct
    **c.** Float                             **d.** Double

5.  What will be the output of the following C code?
    1.  #include <stdio.h>
    2.  #define a 10
    3.  int main()
    4.  {
    5.     const int a = 5;
    6.     printf("a = %d\n", a);
    7.  }
    **a.** a = 5                             **b.** a = 10
    **c.** Compilation error                 **d.** Runtime error

6.  Which of the following statement is false?
    **a.** Constant variables need not be defined as they are declared and can be defined later.
    **b.** Global constant variables are initialized to zero.
    **c.** const keyword is used to define constant values.
    **d.** You cannot reassign a value to a constant variable.

7.  Which of the following declaration is not supported by C?
    **a.** String str;                       **b.** ) char *str;
    **c.** float str = 3e2;                  **d.** Both String str; & float str = 3e2;

8.  Which of the following is a logical NOT operator?
    **a.** !                                 **b.** &&
    **c.** &                                 **d.** All of these

9. When do you need to use type-conversions?
   a. The value to be stored is beyond the max limit.
   b. The value to be stored is in a form not supported by that data type.
   c. To reduce the memory in use, relevant to the value.
   d. All of the mentioned.

10. What is the type of the following assignment expression if x is of type float and y is of type int?     y=x+y;
    a. Int                                         b. Float
    c. There is no type for an assignment expression  d. Double

11. Which of the following is an invalid assignment operator?
    a. a %= 10;                                    b. a /= 10;
    c. ) a '|= 10;                                 d. None of the mentioned

12. Which of the following is the correct order of evaluation for the given expression?
    a = w % x / y * z;
    a. % / * =                                     b. / * % =
    c. = % * /                                     d. * % / =

13. Which datatype can accept switch statement?
    a. Int                                         b. Char
    c. Long                                        d. All of these

14. Which for loop has range of similar indexes of 'i' used in for (i = 0;i < n; i++)?
    a. for (i = n; i>0; i–)                        b. for (i = n; i >= 0; i–)
    c. for (i = n-1; i>0; i–)                      d. for (i = n-1; i>-1; i–)

15. Which loop is most suitable to first perform the operation and then test the condition?
    a. For loop                                    b. While loop
    c. Do while loop                               d. None of these

16. Which of the following is a correct format for declaration of function?
    a. return-type function-name(argument type);
    b. return-type function-name(argument type){}
    c. return-type (argument type)function-name;
    d. All of the mentioned

17. What is the return-type of the function sqrt()?
    a. Int                                         b. Float
    c. Double                                      d. Depends on the data type of the parameter

18. Global variables are……………..
    a. Internal                                    b. External
    c. Both Internal and External                  d. None of the mentioned

19. Which operator connects the structure name to its member name?
    a. _                                           b. <-
    c. .(dot)                                      d. Both <- and .(dot)

20. Which of the following is not possible in C?
    a. Array of function pointer                   b. Returning a function pointer
    c. Comparison of function pointer              d. None of the mentioned

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## [ PART-B : Descriptive ]

Time : 2 hrs. 40 min.                                                          Marks : 50

### [ Answer question no.1 & any four (4) from the rest ]

1. What is an expression? Write about the different categories of operator in C.    **10**

2. Name and describe the four basic data types in C. Describe the rules to declare a variable in C. Differentiate constant and variable in C.    **4+4+2=10**

3. Write a program to display addition of two matrices.    **10**

4. a. Draw flow chart to display multiple of 19 between 100 & 200.    **5+5=10**
   b. Write a program to display swap of two real nos.

5. What is looping in C? Describe different types of looping in C. Differentiate exit and entry controlled loop.    **2+5+3=10**

6. What is argument? Write a C program to calculate value of $^nC_r$ using function.    **2+8=10**

7. What is a structure? How does a structure differ from array? Describe array of structures with an example.    **2+4+4=10**

8. What is pre-processor? Write about the different types of pre-processor directive. Describe dynamic memory management technique in C.    **2+5+3=10**

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