

M.Sc. MATHEMATICS
SECOND SEMESTER
COMPUTER PROGRAMMING WITH C & MATHEMATICA
MSM-205

Duration : 3 hrs.

Full Marks: 70

Time : 20 min.

[PART-A: Objective]

Marks : 20

Choose the correct answer from the following:

1X20=20

1. Which is valid C expression?

- a. int my_num = 100,000;
c. int my num = 100000;

- b. int my_num = 100000;
d. None of the above

2. A C program is a combination of

- a. Statement
c. Variables

- b. Function
d. All of the above

3. scanf() is a predefined function in _____ header file

- a. stdlib.h
c. stdio.h

- b. ctype.h
d. stdarg.h

4. What is not an example of iteration in C?

- a. for
c. do-while

- b. while
d. if

5. What is the output of the following code snippet?

```
void main() {  
    int r = 20 * 6 / 2 + 6 * 2;  
    printf("%d", r); }
```

- a. 40
c. 120

- b. 60
d. 72

6. What will be the output of this statement "printf("%d", (a++));"?

- a. The value of (a + 1)
c. Error message

- b. The current value of a
d. Garbage Value

7. How many times will the following loop execute?

```
for(j = 1; j >= 10; j = j+1)
```

- a. Never
c. 0

- b. Forever
d. 1

8. Which one of the following is a loop construct that will always be executed once?

- a. for
c. if

- b. while
d. None of the above

9. What does this statement mean? $x = y + 1;$
- a. $x = x - y + 1$
 - b. $x = -x - y - 1$
 - c. $x = x + y - 1$
 - d. $x = x - y - 1$
10. How is an array initialized in C language?
- a. `int a[3]={1,2,3};`
 - b. `int a={1,2,3};`
 - c. `int a=new int[3];`
 - d. `int a(3)=[1,2,3];`
11. Study the following array definition
`int num[10] = {3, 3, 3};` Which of the following statement is correct?
- a. The value of `num[8]` is 3
 - b. The value of `num[3]` is 3
 - c. `num[9]` is the last element of the array
num
 - d. None of the above
12. A global variable is declared _____.
- a. Outside of the function
 - b. Inside of the function
 - c. With the function
 - d. Anywhere in the program
13. Who defines the user-defined function?
- a. Compiler
 - b. Computer
 - c. Compiler Library
 - d. User
14. Multiple line comment in C language begins with _____
- a. `*/`
 - b. `/`
 - c. `/*`
 - d. `//`
15. Which operator can be used for accessing the value stored at address of a pointer variable?
- a. `#`
 - b. `*`
 - c. `@`
 - d. `&`
16. Which keyword is used to transfer control from a function back to the calling function?
- a. `goto`
 - b. `return`
 - c. `switch`
 - d. `goback`
17. Character constants should be enclosed between ____
- a. Single quotes
 - b. Double quotes
 - c. Both
 - d. None of the above
18. Which symbol is used as a statement terminator in C?
- a. `#`
 - b. `:`
 - c. `;`
 - d. `,`

19. Which of the following is not an arithmetic operation?

a. $x * = 65;$

b. $x / = 42;$

c. $x ! = 56;$

d. $x \% = 2;$

20. What will be the output?

```
for (i = 15; i > 5; i = i - 2)
```

```
{ printf ("%d", i);
```

```
--i; }
```

a. 15 12 9 6

b. 15 13 11 9 7

c. 15 12 8 6

d. 15 10 5

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(PART-B : Descriptive)

Time: 2 HRS 40 MINS

Marks : 50

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

1. What are the different types of decision making statement in C language explain each with syntax and flow diagram. 10

2. a. Explain the functional difference of the following 5+5=10
 - i. Instruction and Program
 - ii. Algorithm and Flowchartb. Write down the algorithm to solve whether a student passed the exam or not and also draw flow chart for the same

3. a. Define variable and data types. What are the different data types available in C language 4+6=10
b. What are the different types of operators available in C language? Write a program to find out number of months and days from a user input number

4. a. Define the following terms: 6+4=10
 - i. break
 - ii. continue
 - iii. gotob. Explain if and switch statement with example.

5. a. Write a program to find largest among three user input number. 5+5=10
b. Write a program to print all even and odd numbers between 10 and 50.

6. a. What is an array? How array is declared? Write a program to store 10 values in an array and display them. 6+4=10
b. What is pointer? How pointer store address of any variable and point the value of that variable?

7. a. What is function? How function is declared in c language? What are the different types of function available? 5+5=10
b. What are the different aspects of function calling explain with example?

8. a. What is structure? How structure is declared? 3+5+2=10
b. Explain the memory allocation of structure with an example.
c. What are the two ways to declare structure variable?

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