

11. Which of the following is true about if-else statement in C?
- It can only have one condition
 - It executes the code in the else block if the condition is true
 - It is used for decision making between two choices
 - It always requires a switch statement to work
12. Which of the following is the correct format for a function prototype?
- function myFunc(int x, int y)
 - myFunc (int x, int y) -> int;
 - int myFunc (int x, int y){ }
 - int myFunc (int x, int y);
13. What is the output of following program?
- ```

#include <stdio.h>
int sum(int n){
 if(n==1){
 return 1;
 }
 return n+sum(n-1);
}
void main(){
 printf("%d",sum(5));
}

```
- 0
  - 120
  - 15
  - 5
14. The default storage class for local variables in C is \_\_\_\_\_.
- extern
  - auto
  - static
  - register
15. What is the correct way to initialize an array in C?
- int arr[]= {5,4,3,2};
  - int arr[]=(5,4,3,2);
  - int arr(4)=(5,4,3,2);
  - int arr(4)= {5,4,3,2};
16. Which of the following is true about arrays in C?
- Arrays can store elements of same data types
  - The size of an array is determined at runtime
  - Arrays can store elements of different data types
  - Array elements are always initialized to 0 by default
17. What is the correct way to declare an array of structures in C?
- struct Student s[5];
  - Student e[5];
  - struct Student [5] s;
  - array struct Student s[5];
18. What is the output of following program:
- ```

void main() {
    int *ptr, i;
    i=12;
    *ptr=i * i;
    ++i;
    printf("%d %d", i, *ptr);
}

```
- 12, 144
 - 13, 144
 - 144, 12
 - 144, 13

19. What happens if you try to access a structure member using an uninitialized pointer?
- a. The program runs without errors
 - b. It assigns a random value to the structure member
 - c. Undefined behavior, may cause a segmentation fault
 - d. Compiler gives an error

20. What will be the output of following code snippet?

```
#include<stdio.h>
struct Human {
    int age;
    char name[20];
};
void main(){
    struct Human h = {20, "Ram"};
    printf("%s", h.name);
}
```

- a. 20 b. Ram c. 20, Ram d. Ram, 20

KATHMANDU UNIVERSITY

End Semester Examination

March, 2025

SOSc.

Level : B.Sc.

Year : I

Time : 2 hrs. 30 mins.

25 MAR 2025

Course : COMP 102

Semester : I

F. M. : 40

SECTION "B"

[6 Q × 4 = 24 marks]

Attempt *ANY SIX* questions.

1. Define identifier and keywords in C. Explain basic data types supported by C with suitable example. [2+2]
2. List out different types of operators in C. Explain logical and conditional operators with suitable example. [2+2]
3. Define formatted input/output in C. Explain different formatted input/output functions available in C with suitable example. [1+3]
4. Write a menu driven program to perform basic arithmetic operations such as addition, subtraction, multiplication and subtraction. [4]
5. Write a program to calculate factorial of a given number using recursive function. [4]
6. Define storage class in C. Explain different types of storage class in C programming. [1+3]
7. Explain the importance of dynamic memory allocation (DMA) with the help of **calloc()** and **malloc()** function. [4]

SECTION "C"

[2 Q × 8 = 16 marks]

Attempt *ANY TWO* questions.

8.
 - a. Write a program to input name, address, roll, marks and age of 10 students and display the information of students whose age is less than or equal to 20 years in proper format using the structure. [4]
 - b. Write a program to count the even and odd numbers in an integer array using pointer. User inputs the required array. [4]
9.
 - a. What are the importances of loops in programming? Explain entry control and exit control loops in C programming with suitable example. [4]
 - b. Explain about arguments pass by value and pass by reference with suitable example. [4]
10. Define multidimensional array. How multidimensional array is declared and initialized? Write a program to multiply two matrices using function. User inputs the size of two matrices and if multiplication is possible, the function returns the resulting matrix. [1+1+6]

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KATHMANDU UNIVERSITY
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Marks Scored:

Level : B.E.

Course : COMP 117

Year : I

Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date

25 MAR 2025

SECTION "A"

[20 Q. × 0.5 = 10 marks]

Choose and Mark [X] the most appropriate answer.

- Which symbol is used for input / output statements in a flow chart?
 circle diamond rectangle parallelogram
- What is true regarding Python primarily?
 Low-level language. Compiled language.
 High-level, interpreted language. High-level, database query language.
- What does the following code do?

```
my_string = "Hello, World!"
print(my_string[7:])
```

 Prints "Hello" Prints "World!"
 Prints "Hello, Wor" Prints "o, World!"
- What is the data type of the variable x after the following assignment: `x = "123"`?
 Integer Float String Boolean
- Which of the following will be printed by the given code?

```
a= 17
b= 3
print x/y
```

 5.0 5.67 4.67 6.0
- Which is the correct way to define a multiline string?
 Using single quotes ('...') Using double quotes ("...")
 Using triple quotes (""""...""") Using backticks (...)
- Which of the following operations would result in a TypeError?
 `[1, 2, 3].append(4)` `(1, 2, 3)[1] = 4`
 `{1, 2, 3}.add(4)` `{'a': 1, 'b': 2}['a']`
- Which of the following statements about dictionary keys is false?
 Keys must be immutable.
 Keys must be unique within a dictionary.
 Keys can be any data type.
 Accessing a non-existent key raises a KeyError.
- What will be the output of the following code?

```
my_set = {1, 2, 3}
my_set.update([3, 4, 5])
print(len(my_set))
```

 3 5 6 7

10. Which of the following is a valid Python statement for an if condition?
 if x then: if (x): if x { if x:
11. What happens if an elif condition is true, but a previous if condition was also true?
 Both blocks are executed. Only the elif block is executed.
 Only the if block is executed. An error occurs.
12. Which of the following is true about the *else* blocks in Python?
 An else block is mandatory in every if statement.
 An else block can have multiple conditions.
 An else block is executed if all previous conditions are false.
 An else block can be followed by an elif block.
13. What will the following code print?

```
for i in range(1, 5):
    if i == 3:
        pass
    else:
        print(i, end=" ")
```

 1 2 4 1 2 3 4 1 2 1 2 3
14. What is the correct output for the following code?

```
x = 5
while x > 0:
    x -= 1
    if x == 2:
        break
else:
    print("Loop completed")
```

 Loop completed Nothing
 An error The loop runs infinitely
15. Which keyword is typically used to terminate a loop immediately, regardless of whether all items have been processed?
 continue return break pass
16. A function called `my_func` is in the file called `file1.py`. How do you access it from another file after the import step?
 `file1().my_fun` `file1.my_func()` `my_func` `my_func()`
17. What is the scope of a variable defined inside a function that is also declared as global within that function?
 Only within the function.
 Only within the module where the function is defined.
 Within the entire program, including other modules.
 Within the function and any nested functions.
18. What happens when a module is imported multiple times in the same program?
 The module's code is executed each time it's imported.
 The module's code is executed only the first time it's imported.
 An error is raised.
 The module's variables are reset each time it's imported.

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19. What is the primary advantage of using NumPy arrays over standard Python lists?
- Storing elements of different data types.
 - Significantly faster performance for large numerical operations.
 - NumPy arrays are mutable, while Python lists are immutable.
 - NumPy arrays handle data serialization automatically.
20. Which Matplotlib function is used to create a simple line plot?
- | | |
|---|--|
| <input type="checkbox"/> matplotlib.scatter() | <input type="checkbox"/> matplotlib.bar() |
| <input type="checkbox"/> matplotlib.plot() | <input type="checkbox"/> matplotlib.hist() |

