

KATHMANDU UNIVERSITY
End Semester Examination [C]
June/July 2024

Level : B.E./B.Sc./B.Tech.
Year : I
Time : 2 hrs. 30mins.

Course : COMP 116
Semester : II
F. M. : 40

SECTION "B"
[6Q. × 4 = 24 marks]

Attempt *ANY SIX* questions.

1. Write a C++ program to convert inch into centimeter. [4]
2. What is method overriding? Why it is used in OOP? Explain with an example. [1+1+2=4]
3. Write a program that illustrates the concept of operator overloading. [4]
4. What is Friend Function? Why it is used in OOP? Explain with an example. [1+1+2=4]
5. Define a class called "Circle" with following attributes: [4]
 - radius
 - Also include the following member functions:
void setSize(float radius); // this function should set the value of radius of the Circle.
float getArea(); // this function should return the area of the circle.
float getPerimeter(); // this function should return the perimeter of the circleWrite a complete program.
6. Write a program that illustrates the concept template in C++. [4]
7. Describe about the multilevel inheritance with suitable program. [4]

SECTION "C"
[2Q. × 8 = 16 marks]

Attempt *ANY TWO* questions.

8. When do we use the concept of function overloading and constructor overloading? Illustrate with example. [2+6=8]
9. Define a virtual base class. Write a program to create a base class i.e. Employee. Derive two classes: administrative and academic from the base class. Derive another class HOD from these two derived classes. Create appropriate data members and member functions in each class to show the implementation of a virtual base class. [2+6=8]
10. Describe with examples. [4+4=8]
 - a. Exception handling
 - b. Pure Virtual function

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Marks Scored:

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Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date

01 JUL 2024

SECTION "A"

[20Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate option from the given choices.

- Which of the following is not a valid function name in C++?
a. int sum();
b. int sum(int a, int b);
c. char sum();
d. int sum(int,int);
- What will be the output of the following C++ code?

```
#include<iostream>
using namespace std;
int main()
{
    int a=10, b, c;
    b=a++
    c=a;
    cout<<a<<" "<<b<<" "<<c<<endl;
}
```


a. 10 11 11 b. 11 11 11 c. 11 10 11 d. 10 10 10
- Which of the following is the logical and operator?
a. || b. & c. ! d. &&
- Which of the following OOP features indicates the code reuseability?
a. Abstraction b. Polymorphism c. Encapsulation d. Inheritance
- For which of the following, "PI++;" code will fail?
a. #define PI 3.14 b. char *PI = "A"; c. float PI = 3.14; d. float PI= 3.1428
- What will be the output of the following C code?

```
main()
{
    char ch[] = "Interviewbit Scaler";
    int l = strlen(ch);
    cout << l << endl;
}
```


a. 18 b. 19 c. 20 d. 21
- We must use initializer list in a constructor when _____
a. There is a reference variable in class
b. There is a constant variable in class
c. There is an object of another class. And the other class doesn't have default constructor.
d. All of the above

8. When the inheritance is private, which of the following statement is true?
- the private methods in base class are protected in the derived class.
 - the private methods in base class are accessible in the derived class.
 - the private methods in base class are public in the derived class.
 - d the private methods in base class are inaccessible in the derived class.
9. Which of the following is the correct syntax for template function?
- template return_type Function_Name(Parameters)
 - template return_type (Parameters)
 - template return_type Function_Name
 - template return_type Function_Name(void)
10. What is the difference between delete and delete[] in C++?
- delete is syntactically correct but delete[] is wrong and hence will give an error if used in any case
 - delete is used to delete normal objects whereas delete[] is used to pointer objects
 - delete is a keyword whereas delete[] is an identifier
 - delete is used to delete single object whereas delete[] is used to multiple(array/pointer of) objects
11. Which is the **CORRECT** statement about operator overloading?
- Only arithmetic operators can be overloaded
 - Only non-arithmetic operators can be overloaded
 - Precedence of operators are changed after overloading
 - Associativity and precedence of operators does not change
12. Which of the following can be considered as the correct syntax for declaring an array of pointers of integers that has a size of 5 in C++?
- int arr=new int[5];
 - int *arr=new int*[5];
 - int **arr=new int*[5];
 - int *arr=new int[5];
13. Which feature of OOP is indicated by the following code?
- ```
class student{int marks;}
class topper: public student{int age; topper(int age) {this.age=age;}};
```
- Encapsulation and inheritance
  - polymorphism
  - Inheritance and polymorphism
  - inheritance
14. How many types of access specifier are provided in C++?
- 4
  - 3
  - 2
  - 1
15. Which is the most significant feature is used in the multilevel inheritance?
- code efficiency
  - code reusability
  - code readability
  - flexibility
16. What is encapsulation in OOP?
- It is a way of combining various member functions into a single unit.
  - It is a way of combining various data members into a single unit.
  - It is a way of combining various data members and member functions into a single unit which can operate on any data.
  - It is a way of combining various data members and member functions that operate on those data members into a single unit.

17. What is the correct syntax of accessing a static member of a class Base in C++?  
a. Base->value      b. Base^value      c. Base.value      d. Base::value
18. Which of the following is not **TRUE** about polymorphism?  
a. Increases overhead of function definition always  
b. It is feature of OOP  
c. Ease in readability of program  
d. Helps in redefining the same functionality
19. Which among the following can show polymorphism?  
a. overloading &&      b. overloading <<  
c. overloading ||      d. overloading +=
20. What is the inheritance type in which A class can inherits properties from more than one class?  
a. single      b. multilevel      c. multiple      d. hierarchical

