

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

HONOURS IN MATHEMATICS

GMAH5B23T: OBJECT ORIENTED PROGRAMMING USING C++

Time: 3 hours

Maximum Marks: 80

Part A. Answer *all* the questions. Each question carries *one* mark.

Choose the correct answer.

1. What is the term used for bundling data and methods that operate on the data in OOPS?
A) Encapsulation B) Polymorphism
C) Abstraction D) Inheritance
2. Which constructor allows the creation of an object as a copy of another object?
A) Copy Constructor B) Parameterised Constructor
C) Default Constructor D) Class Constructor
3. Which type of inheritance involves a class derived from multiple base classes?
A) Single B) Multiple
C) Multilevel D) Hierarchical
4. What is the term for associating a function call with the function definition at compile time?
A) Static binding B) Dynamic binding
C) Early binding D) Compile-time binding
5. Which operator is used to deallocate dynamic memory in C++?
A) free B) delete
C) dispose D) release

Fill in the Blanks.

6. A _____ is a blueprint from which objects are created.
7. The _____ statement is used to skip the current iteration of a loop in C++.
8. The _____ pointer refers to the current instance of the class.
9. Providing multiple definitions for a function within the same scope is called _____.
10. In C++, the keyword _____ is used to define a constant value that cannot be changed.

(10 × 1 = 10 Marks)**(PTO)**

Part B. Answer any *eight* questions. Each question carries *two* marks.

11. What is message passing in OOP?
12. What is abstraction?
13. List out the purposes of a constructor in C++.
14. How is dynamic memory managed in C++?
15. Differentiate between 'continue' and 'break' statements.
16. How do you create an object in C++?
17. Define virtual functions.
18. What is polymorphism?
19. Comment on modularity in OOP.
20. Define dynamic binding.

(8 × 2 = 16 Marks)

Part C. Answer any *six* questions. Each question carries *four* marks.

21. Enumerate the concept of operator overloading with an example.
22. Explain the types of Constructors in C++.
23. What is a type conversion? Explain different forms of type conversion in C++.
24. Describe the Virtual base class with an example.
25. What is object slicing and how can it be avoided?
26. What are friend functions? Explain with an example, the working of a friend function.
27. How do you handle exceptions in derived classes?
28. Differentiate between overloading and overriding.

(6 × 4 = 24 Marks)

Part D. Answer any *two* questions. Each carries *fifteen* marks.

29. Describe various types of inheritance in C++ with examples.
30. Discuss in detail the comparison between procedural and object-oriented programming, highlighting the advantages of OOP.
31. Describe in detail the various types of polymorphism in C++ with appropriate examples.

(2 × 15 = 30 Marks)