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SECOND YEAR (BSC Computer Science)
COM23101: Object Oriented Programming using C++
(Semester III)

Program: B.Sc Computer Science

Program Specific: BSc(comp05)

Course Type: S.Y.B.Sc(Computer Science)

Paper: COM23101 Major-I Object Oriented Programming using C++

Credits: 4

Time: 3 Hours

Max. Marks: 60

SET: A

Instructions to the candidate:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Draw a well labeled diagram wherever necessary.

SECTION: A

Q1) Answer the following

[1 X 10 =10]

1. Define constructor in C++.
2. "Private member of the class is accessible only inside the class where it is declared" State true or false.
3. List down access specifiers in C++.
4. Define insertion and extraction operator.
5. Give the types of constructors in C++.
6. "Object is the blueprint of class" State true or false.
7. State different data types in C++.
8. new keyword is used for which purpose?
9. Write a syntax to create objects in C++.
10. Explain the purpose of the destructor in C++ .

SECTION: B

Q2) Answer the following (Attempt any 5/7)

[5 X 2 = 10]

1. Describe namespace concept in C++ .
2. Write syntax to create a class.
3. State advantages of using an inline function in C++.
4. Differentiate between public and private access specifiers.
5. Define Operator Overloading in C++.
6. Describe multiple inheritance..
7. Write advantages of OOPs.

SECTION: C

Q3) Answer the following (Attempt any 5/7)

[5 X 3 = 15]

1. Explain file handling in C++.
2. Give the syntax to create an inline function with suitable example.
3. Create class Car with data members as price, color. Also write a copy constructor.
4. State the use of this pointer .
5. Explain function overloading with suitable example,
6. State the use of reference variable and syntax to create reference variable.
7. Describe static data members in C++ .

SECTION: D

Q4) Answer the following (Attempt any 3/5)

[3 X 5 = 15]

1. Write a C++ class Book with a constructor that prints "Book created" and a destructor that prints "Book destroyed". In the main() function, create an object of the Book class and observe the output when the object is created and destroyed.
2. Describe the use of try and catch block with suitable example.
3. Write a C++ program that demonstrates function overloading with different numbers of parameters. Create a function multiply () :
 - a. One version that takes two integers and returns their product.
 - b. Another version that takes three integers and returns their product.In the main() function, call both versions of multiply () with appropriate arguments and print the results.
4. Explain an array of objects with suitable example.
5. Write a class Customer having private data member budget. Write another class Product having private data member price. Write friend function to print whether Customer can buy product or not. If budget is greater than or equal to price print "Customer can buy" else print "Customer can not buy".

SECTION: E

Q5) Answer the following (Attempt any 2/4)

[2 X 5 = 10]

1. Write C++ program that includes a base class called Animal with a member function makeSound(), which prints "Animal sound". Derive a class Dog from Animal and override the makeSound() function to print "Bark". In the main() function, create an object of type Dog and call its makeSound() function.
2. Create a C++ class Box with private data members for length, width, and height. Overload the << operator to output the dimensions of the box. Implement the class with a constructor to initialize these dimensions and the overloaded << operator to format the output. In the main() function, create a Box object and print its dimensions using the overloaded << operator.
3. Write a C++ program that demonstrates basic exception handling. Create a function divide() that takes two integers and returns their quotient. If the divisor is zero, throw an exception with a message "Division by zero!". In the main() function, call divide() with a zero divisor inside a try block, and handle the exception with a catch block to print the error message.
4. Write a C++ program that creates a file named example.txt and writes the following text into it: "Hello, File Handling!". After writing the text, close the file. In the main() function, demonstrate how to open the file, write to it, and then close it.
