

# The Islamia University of Bahawalpur

## Department of Computer Science and Information Technology

Examination: **Final Term**  
Maximum Marks: **50**  
Time: \_\_\_\_\_  
Program: **Morning**

Subject: **OOP**  
Time Allowed: **120 Minutes**  
Class: **MCS 2<sup>nd</sup>**  
Course Instructor: **Ali Haider**

Course Code: **CS-21204**  
Date:  
Session:

### Question 1: Circle the right answer

**Marks: 1×10=10**

- What is the additional feature in classes that was not in structures?  
a) Data members                      b) Member functions                      c) Static data allowed                      d) Public access specifier
- Which is not feature of OOP in general definitions?  
a) Code reusability                      b) Modularity                      c) Duplicate/Redundant data                      d) Efficient Code
- If same message is passed to objects of several different classes and all of those can respond in a different way, what is this feature called?  
a) Inheritance                      b) Overloading                      c) Polymorphism                      d) Overriding
- Which type of function among the following shows polymorphism?  
a) Inline function                      b) Virtual function                      c) Undefined functions                      d) Class member functions
- Hiding the implementation complexity can Make the \_\_\_\_\_  
a) programming easy    b) programming complex                      c) more number of features                      d) better features
- Class is \_\_\_\_\_ abstraction.  
a) Object                      b) Logical                      c) Real                      d) Hypothetical
- Abstraction can apply to \_\_\_\_\_  
a) Control and data                      b) Only data                      c) Only control                      d) Classes
- Which constructor is called while assigning some object with another?  
a) Default                      b) Parameterized                      c) Copy                      d) Direct assignment is used
- Which type of constructor can't have a return type?  
a) Default                      b) Parameterized                      c) Copy                      d) Constructors don't have a return type
- When a destructor is called?  
a) After the end of object life                      b) Anytime in between object's lifespan  
c) At end of whole program                      d) Just before the end of object life

### Question 2: Give Short Answer to the following questions

**Marks: 4×5=20**

- How multiple inheritance is different from multi-level inheritance?
- Why we need abstract classes describe with example?
- Differentiate constructor overloading and function overloading with example?
- What do you know about class template and function template describe with example?
- Describe polymorphism with appropriate example.

### Question 3: Write programs for following.

**Marks: 10**

- Write program to create a programmer derived from employee which is himself derived from person using Multilevel Inheritance. GetData(), GetEmpData(), GetProgData() functions take user inputs for Person, Employee and Programmer respectively. Display(), DisplayEmp() and DisplayProg() functions print data on scree for Person, Employee and Programmer respectively.
- Write a code by considering a Consider a scenario where Bank is a class that provides functionality to get the rate of interest. However, the rate of interest varies according to banks. For example, SBI, ICICI and AXIS banks could provide 8%, 7%, and 9% rate of interest.

### Question 4: Write a code for implementation of aggregation and inheritance for following figure.

**Marks: 10**

