

**A10.1-R3: INTRODUCTION TO OBJECT ORIENTED PROGRAMMING AND C++**

**NOTE:**

1. There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
2. **PART ONE** is to be answered in the **TEAR-OFF ANSWER SHEET** only, attached to the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book.
3. Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the answer sheet for **PART ONE** is returned. However, candidates, who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE**.

**TOTAL TIME: 3 HOURS**

**TOTAL MARKS: 100**  
**(PART ONE – 40; PART TWO – 60)**

**PART ONE**  
**(Answer all the questions)**

1. Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the “tear-off” answer sheet attached to the question paper, following instructions therein. (1 x 10)

1.1 Which of the following cannot be passed to a function?

- A) Reference variables
- B) Objects
- C) Header files
- D) Array

1.2 Which of the following contains **overloaded** insertion operator?

- A) iostream
- B) ostream
- C) fstream
- D) bufferstream

1.3 Which of the following **operator** can't be **overloaded**?

- A) new
- B) delete
- C) +
- D) ?:

1.4 Which of the following is not a visibility **modifier**?

- A) private
- B) public
- C) Char
- D) Protected

1.5 **Operator overloading** is called

- A) Runtime polymorphism
- B) Compile time polymorphism
- C) Complex overloading
- D) Abstract overloading

1.6 A process of a class can contain object of another class is called

- A) Nesting
- B) Friend
- C) Data Abstraction
- D) Encapsulation

1.7 Find out the function which describes special task to an operator

- A) operate
- B) operand
- C) operator
- D) opfun

1.8 Which of the following is a method which belong to a **string class**?

- A) Equals ( )
- B) Compare ( )
- C) Length ( )
- D) Substring ( )

1.9 Which of the following loop cause the **execution** of the code at least once?

- A) While
- B) Do...While
- C) While.... Do
- D) For

1.10 Which of the following way are legal to access a class data member using this pointer?

- A) this.x
- B) \*this.x
- C) \*(this.x)
- D) (\*this).x

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the “tear-off” sheet attached to the question paper, following instructions therein. (1 x 10)

- 2.1 C++ requires **const** to be initialized.
- 2.2 When we are using manipulator we are in fact calling a member function.
- 2.3 We can inherit a new class from the class template.
- 2.4 When an exception is not caught, the program is aborted.
- 2.5 A class can inherit the attributes of two or more classes, is known as multilevel inheritance.
- 2.6 A constructor can be used to convert a class type to basic type data.
- 2.7 NULL is a keyword.
- 2.8 The static member variables must be defined outside the class.
- 2.9 Pure virtual functions can never have a body.
- 2.10 Creating a derived class from a base class requires a fundamental change to the base class.

3. Match words and phrases in column X with the closest related meaning/ word(s)/phrase(s) in column Y. Enter your selection in the “tear-off” answer sheet attached to the question paper, following instructions therein. (1 x 10)

X		Y	
	Object	A.	Is an associative container
	Friend function	B.	Can't be used to overload operator
	Destructor	C.	Is an operator
	Pointer	D.	Is an insulation of data from direct access by the program
	Data hiding	E.	Is not used to create objects
	Abstract class	F.	Can be passed as function argument.
	Sub class	G.	Is a constant
	Setw	H.	Is used to de-allocate memory that was allocated for an object.
	Map	I.	Is a process of binding of data and functions together into a single class-type variable
	Encapsulation	J.	Is a variable
		K.	Has a link to a more general class
		L.	Is an example of a manipulator

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the “tear-off” answer sheet attached to the question paper, following instructions therein. (1 x 10)

<b>A.</b>	Lifetime	<b>B.</b>	Ostream	<b>C.</b>	Calling
<b>D.</b>	Structures	<b>E.</b>	One	<b>F.</b>	Abstract class
<b>G.</b>	Two	<b>H.</b>	Class name	<b>I.</b>	Private
<b>J.</b>	Default constructor	<b>K.</b>	Class	<b>L.</b>	Constant
<b>M.</b>	Visibility	<b>N.</b>	Variable	<b>O.</b>	Void

- 4.1 A(n) \_\_\_\_\_ is user defined data type, which holds both the data and function.
- 4.2 Member functions defined inside a class specifier are \_\_\_\_\_ by default.
- 4.3 Storage classes concerned with the lifetime are \_\_\_\_\_ of a variable.
- 4.4 A function that doesn't return anything has return type \_\_\_\_\_.
- 4.5 Character 'A' occupies \_\_\_\_\_ bytes.
- 4.6 Sending a message to an object is same as \_\_\_\_\_ member function.
- 4.7 Data and member function are public in \_\_\_\_\_ but private in classes, by default.
- 4.8 A constructor's name is the same as \_\_\_\_\_.
- 4.9 Cerr and clog are standard streams of type \_\_\_\_\_.
- 4.10 An address of a variable is \_\_\_\_\_.

**PART TWO**  
(Answer any **FOUR** questions)

**5.**

- a) Explain polymorphism and data hiding in c++ with suitable examples.
- b) What happens if we don't use virtual function in inheritance? Explain importance of virtual function with this reference.
- c) Explain with suitable example pointer to object. How can we access function or variable with the help of pointer to object?

**(5+5+5)**

**6.**

- a) What is an abstract class? How do you create an abstract class? Explain it using example.
- b) Explain copy constructor with example. What is its use?
- c) Write a program for class implementation, which takes an age, name and salary of employee. Use a constructor for initialization of objects. Define a destructor.

**(5+5+5)**

**7.**

- a) Write a class number. Calculate the power to be raised of that number.
- b) Define a **class publisher** that stores the name of the title and another **class, sales**, which stores number of sales for three months. Derive two classes: **book** and **tape**, which inherit from both **publisher** and **sales**. Define functions in the appropriate classes to get and print the details.
- c) Distinguish clearly between scanf() & printf() in cin & cout in C++.

**(4+7+4)**

**8.**

- a) Explain operator overloading with example.
- b) What is inline function? How does it differ from ordinary function? Explain merits and demerits of it.
- c) Create a class month for taking a birth date between 1 to 12 month and display it.

**(5+5+5)**

**9.**

- a) Explain the difference between private, protected and public access scope with respect to the class itself, its derived class and its object.
- b) Explain the technique of type conversion from one class type to another class type with example.
- c) Explain the use of except in handling in C++ program developed. Illustrate with example.

**(5+5+5)**