

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	Semester	3
Subject Code	PCIT-102	Subject Title	Object Oriented Programming using C++
Mid Semester Test (MSE) No.	2nd	Course Coordinator(s)	Prof. Harjot Kaur Prof. Sachin Bagga
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MSE	9 th November, 2023	Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Write C++ program that demonstrates the use of a try-catch block to handle a division by zero error.	CO2, L3	2
Q2	What are the basic steps to open and close a file using file streams in C++.	CO4, L2	2
Q3	Write the output of the following code. Do justify your answer. <pre>#include <iostream> class MyClass { public: static int count; int id; MyClass() { id = count; count++; } void display() { cout << "Object with id " << id << " created." << endl; } }; int MyClass::count = 1; int main() { MyClass obj1; MyClass obj2; MyClass obj3; obj1.display(); obj2.display(); obj3.display(); return 0; }</pre>	CO1, L3	4

Q4	Elaborate at least four differences between "call by value" and "call by reference" with reference to the functions used in the program.	CO4, L2	4
Q5	Design a C++ program that models a basic arithmetic calculator with support for both integer and floating-point numbers. Implement unary and binary operator overloading to enable the calculator to perform operations like addition, subtraction, multiplication, and division on user-provided operands.	CO2, L6	4
Q6	Develop a C++ program to create a simple application for managing different types of vehicles. Define a base class "Vehicle" with attributes like name, speed, and a virtual function "displayInfo" that displays the basic information about the vehicle. Then, derive two classes, "Car" and "Bike," from the base class, each with their own unique attributes and override the "displayInfo" function in each derived class to provide specific information about the vehicle type. In your program's main function, create objects of both the "Car" and "Bike" classes, and use a loop to display the information of each vehicle using the base class pointer.	CO6, CO3, L6	8

Course Outcomes (CO)

Students will be able to

1	Understand the basic concepts of classes, objects and methods as well as basic principles of object-oriented programming.
2	Create object oriented design based on the characteristics of an object-oriented programming language: data abstraction and information hiding, overloading and dynamic binding of the messages to the methods.
3	Apply the concepts of inheritance and relationship among different objects to generate the hierarchies like generalization and aggregation.
4	Investigate the concept of strings, File Handling and Exception handling of Specific Programming Problem
5	Function on a Multi-disciplinary team by using OOPs experiments and Projects.
6	Demonstrate real world applications based on the concepts of OOP in C++..

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

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Guru Nanak Dev Engineering College, Ludhiana							
Department of Information Technology							
Program	B.Tech.(IT)	Semester	3				
Subject Code	PCIT-102	Subject Title	Object Oriented Programming using C ++				
Mid Semester Test (MST) No.	1	Course Coordinator(s)	Pof. Sachin Bagga and Prof. Harjot Kaur				
Max. Marks	24	Time Duration	1 hour 30 minutes				
Date of MST	27 September 2023	Roll Number					
Note: Attempt all questions							
Q. No.	Question	COs, RBT level	Marks				
Q1	List some practical applications or scenarios where declaring and initializing arrays in C++ would be a beneficial programming approach.	CO6, L2	2				
Q2	Given a C++ code snippet: <pre>int main() { int num1 = 10; int num2 = 0; int result = num1 / num2; std::cout<< "Result: " << result << std::endl; return 0; }</pre> Identify and explain any syntax errors or logical errors that you will find in the code.	CO1, L3	2				
Q3	Elaborate the principles of structured and object-oriented development impact the efficiency and scalability of software projects in different contexts.	CO1, L2	4				
Q4	Develop a code to print a pyramid pattern with user-defined number of rows.	CO1, L6	4				
Q5	Examine the significance of member functions within a class. Illustrate your analysis by providing an example in which you thoroughly assess the role of the class's member functions and how they collectively enhance the class's overall functionality.	CO5, L4	4				
Q6	Design a menu-driven program that encompasses all functionalities: Sum of Digits and prime number checking. (Make use of concepts like user-defined functions for the stated two tasks, parameter passing)	CO2, L6	8				
Course Outcomes (CO)							
Students will be able to							
1	Understand the basic concepts of classes, objects and methods as well as basic principles of object-oriented programming.						
2	Create object-oriented design based on the characteristics of an object-oriented programming language: data abstraction and information hiding, overloading and dynamic binding of the messages to the methods.						
3	Apply the concepts of inheritance and relationship among different objects to generate the hierarchies like generalization and aggregation.						
4	Investigate the concept of strings, File Handling and Exception handling of Specific Programming Problem						
5	Function on Multi-disciplinary team by using OOPs experiments and Projects.						
6	Demonstrate real world applications based on the concepts of OOP in C++.						
RBT Classification		Lower Order Thinking Levels (LOTS)		Higher Order Thinking Levels (HOTS)			
RBT Level		L1	L2	L3	L4	L5	L6
Number							
RBT Level		Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
Name							

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	Semester	3
Subject Code	PCIT-102	Subject Title	Object Oriented Programming using C++
Mid Semester Exam (MSE) No.	1	Course Coordinator(s)	Akshay Girdhar, Sandeep Singla
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MSE	27 th September, 2022	Roll Number	<i>940920</i>

Note: Attempt all questions. All assumptions must be clearly stated.

Q. No.	Question	COs, RBT level	Marks
Q1	Evaluate the following statement with the help of code snippet (s) : "Compiler knows the value of a Boolean expression before it has evaluated all of its operands."	CO1, L5	2
Q2	What will be the output for the following code snippet: <pre>int main() { int i=1,j=1; for(i=1;i<=3;i++) { for(j=1;j<=3;j++) { if(i==2 && j==2) { continue; } cout<<i <<" "<<j; } } return 0; }</pre>	CO1, L3	2
Q3	What goes behind the scene when you attempt to get an output from a source code? Elaborate the steps with the help of diagram.	CO1, L2	4
Q4	Analyze the following statement to state the associated concepts: "In a mixed mode expression, operands are converted (automatically or explicitly) before evaluation, to maintain compatibility between data types."	CO1, L4	2+2
	Write promotion or demotion steps required for evaluating the statement: $z = i + b + j - k/3;$ (where i and j are ints, b is float, and k is double, and z is long type).		
Q5	Develop a code to swap two accepted positive integer numbers through keyboard without using a third variable with the help of bitwise operators.	CO1, L3	4
Q6	Design a menu driven code that does the following: <ul style="list-style-type: none"> If '1' is entered, code must be able to accept a positive integer number through keyboard and from the accepted number it must be able to find frequency of digits in that number. For example in the number 233- frequency of 2 is 1 and 3 is 2. If '2' is entered, code must be able to print multiplication table of positive integer numbers from 1 to n. For example if n is 5, expected output is: <pre>1 2 3 4 5 6 7 8 9 10 2 4 6 8 10 12 14 16 18 20 3 6 9 12 15 18 21 24 27 30 4 8 12 16 20 24 28 32 36 40 5 10 15 20 25 30 35 40 45 50</pre> <ul style="list-style-type: none"> If any other integer is entered, code must be able to terminate with a suitable message. 	CO6, L6	8

213
 $a7=b$
 $a=7$
 $a12=b$

$a=16$
 $a=10$
 $a12=b$
 $a12=$
 $s=$

$a7=b$ $(a=7)$

and menu is
 1. swap a, b
 2. print multiplication table
 3. return
 4. exit

$a12=b$
 $a=10$
 $s=2$
 $a=2$
 $b(a=16)$

Guru Nanak Dev Engineering College, Ludhiana
Department of Computer Science & Engineering

Program	B.Tech.(CSE)	Semester	3
Subject Code	PCCS-101	Subject Title	Object Oriented Programming
Mid Semester Test (MST) No.	1	Course Coordinator(s)	Kamaldeep Kaur, Harkomalpreet Kaur
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	26 th Sep, 2022	Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Develop a program in C++ for finding greater of two numbers using ternary operator.	CO2, L3	2
Q2	Justify the advantage of nesting of member function with example.	CO4, L5	2
Q3	Compare and contrast procedure-oriented programming with object-oriented programming.	CO1, L2	4
Q4	Demonstrate the use of a 'class' and 'array of objects' with a program.	CO1, CO3, L2	4
Q5	Discuss and compare the concepts of call by value and call by reference, along with suitable programs.	CO4, L5, L6	4
Q6	i) Distinguish between default and parameterized constructor along with a program. ii) Build a C++ program illustrating the concept of 'do while' loop.	CO1, CO2, L4, L6	8

Course Outcomes (CO)

Students will be able to

1	Compare and contrast procedure-oriented programming with object-oriented programming and understand the core concepts of OOP.
2	Use of operators, control structures, and data types with their methods.
3	Make use of arrays and string handling methods.
4	Design user defined functions, modules and packages.
5	Investigate and implement polymorphism, inheritance, dynamic memory management and exception handling techniques to solve problems.
6	Create and handle files in object-oriented programming.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
	L1	L2	L3	L4	L5	L6
RBT Level Number						
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana			
Department of Computer Science & Engineering			
Program	B.Tech.(CSE)	Semester	3 rd
Subject Code	PCCS-101	Subject Title	Object Oriented Programming
Mid Semester Test (MST) No.	2	Course Coordinator(s)	Kamaldeep Kaur Harkomalpreet Kaur
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	14 th Nov, 2022	Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Compare early and late binding in polymorphism.	CO5, L2	2
Q2	Distinguish between Multiple and Hierarchical Inheritance.	CO5, L4	2
Q3	Explain the exception handling mechanism. Write a program to catch all exceptions in a single catch block.	CO5, L2	4
Q4	Define file pointers in detail. Construct a program justifying their use.	CO6, L3	4
Q5	Build a C++ program for dynamic memory management using pointers.	CO5, L6	4
Q6	(i) Develop a C++ program to add two complex numbers using binary operator overloading. (ii) Elaborate the concept of ambiguity in Multipath Inheritance with suitable program.	CO4, CO5, L5, L6	8

Course Outcomes (CO)

Students will be able to

1	Compare and contrast procedure-oriented programming with object-oriented programming and understand the core concepts of OOP.
2	Use of operators, control structures, and data types with their methods.
3	Make use of arrays and string handling methods.
4	Design user defined functions, modules and packages.
5	Investigate and implement polymorphism, inheritance, dynamic memory management and exception handling techniques to solve problems.
6	Create and handle files in object-oriented programming.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
	L1	L2	L3	L4	L5	L6
RBT Level Number						
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Please check that this question paper contains 09 questions and 02 printed pages within first ten

[Total No. of Questions: 09]

[Total No. of Pages: 02]

Uni. Roll No.

Program: B. Tech. (Batch 2018 onward)

Semester: 1st/2nd

Name of Subject: Object Oriented Programming using C++

Subject Code: PCIT-102

Paper ID: - 16041

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

- a) Compare and contrast structured programming and object oriented programming.
- b) What is the importance of dynamic binding in the programming?
- c) Briefly explain the use of 'this' keyword in C++.
- d) How templates are useful in generic programming?
- e) Create a code segment in C++ to show the use of operator overloading.
- f) Write down the output of the following code?

```
#include <iostream>
#include <string.h>
int main()
{
```

```
    using namespace std;
```

```
    char p[]="This is a test"; cout<<sizeof(p)<<" "<<strlen(p);
```

```
}
```

15, 14

Part – B

[Marks: 04 each]

- Q2. What is the need of passing objects as arguments? Discuss different ways to pass objects as arguments to a function.
- Q3. Discuss the role of access specifiers in inheritance and their visibility when they are inherited as public, private and protected.

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EVENING

13 MAR 2019

- Q4. When do we need multiple catch blocks for a single try block? Give an example.
- Q5. Write a program in C++ to demonstrate the difference between 'break' and 'continue'.
- Q6. Write a program to create two objects using copy constructor.
- Q7. How strings are used in C++? Write a program to extract a substring from given string.

Part - C

[Marks: 12 each]

- Q8. Compare and contrast virtual functions and pure virtual functions with the help of an example.

OR

- * Explain various control statements available in C++ through proper examples.

- Q9. Write a program to differentiate function overloading and function overriding.

OR

- AA Write a program in C++ to copy the contents of one file to another.

Go to

Please check that this question paper contains nine questions and two printed pages within first ten minutes.

[Total No. of Questions: 09]
Uni. Roll No.

[Total No. of Pages: 02]

Program/ Course: B.Tech. (Sem. 3rd)
Name of Subject: Object Oriented Programming using C++
Subject Code: PCIT - 102
Paper ID: 1132

EVENING

Time Allowed: 03 Hours

27 NOV 2019

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q. 1.

- (a) How would you define classes and objects?
- (b) How would you differentiate between parameterized and copy constructors?
- (c) What are tokens, keywords and identifiers?
- (d) What actions would you take to implement inheritance in C++?
- (e) How would you explain method overriding?
- (f) Why do you think that exception handling is important in programming?

Part – B

[Marks: 04 each]

- Q. 2. How would you demonstrate static data members in a C++ program?
- Q. 3. What is the main idea of virtual function and pure virtual function?
- Q. 4. Elaborate string handling functions.
- Q. 5. Why do you think that object oriented programming is better than procedural programming?
- Q. 6. What explanation do you have for the need of pointers?
- Q. 7. How would you explain the user-defined exceptions?

Part – C

[Marks: 12 each]

- Q. 8. How can you describe the problem of ambiguity in multiple inheritance? What is its solution?

or

- Q. 9. How would you demonstrate binary operator overloading?

7

EVENING

27 NOV 2019

Q.9. How would you improve the reusability of a C++ program by using templates?

or

How can you improve the functionality a C++ program by using error handling during file operations?

8

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]

[Total No. of Pages: 2]

Uni. Roll No. ..2104514

Program: B.Tech. (Batch 2018 onward)

Semester: 3rd

Name of Subject: Object Oriented Programming Using C++

Subject Code: PCIT-102

Paper ID: 16041

Scientific calculator is Not Allowed

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1

- (a) Illustrate the role of short-circuit operators.
- (b) What goes behind the scene when you attempt to get an output from a source code?
- (c) What are the different modes in which C++ file is opened?
- (d) Briefly state the role of constructors.
- (e) If the body of a for loop is executed 'm' times, how many times is the counter updated and how many times is the condition checked?
- (f) "Inheritance supports the concept of reusability". Comment on this statement.

Part – B

[Marks: 04 each]

Q2

Differentiate between call by value and call by reference.

Q3

Illustrate the concept of explicit and implicit type conversion with the help of programs.

Q4

Write a program to find sum of digits of a positive number entered by the user.

Q5

Compare structured programming paradigm with object-oriented paradigm.

Q6. Write a program which shows how to define a class, how to access member functions and how to create and access objects.

Q7. Differentiate between overloading and overriding with the help of example(s).

Part – C

[Marks: 12 each]

Q8. Create a class whose object represents a complex number (A complex number contains a real part and an imaginary part). Develop a program so that it is possible to add two objects of this class and store the result in third object (make use of constructors, destructors, friend functions, objects as parameters, return type of function as object).

OR

Create a class called Time that has separate int member data for hours, minutes and seconds. One constructor should initialize this data to 0. and another should initialize it to fixed values. A member function should display it, in 11:59:59 format. Write a program to add time of two objects by overloading '+' operator.

Q9. Explain the concept of exception handling with the help of program. Also describe how multiple exceptions can be handled.

OR

* Explain the concept of class and function templates with the help of programs.

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]

[Total No. of Pages:2]

Uni. Roll No. 820375

Program: B.Tech. IT (Batch 2018 onward)

Semester: 3rd

Name of Subject: Object Oriented Programming using C++

Subject Code: PCIT-102

Paper ID: 16041

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

- a) What do you mean by a token?
- b) Define unary operator. Compare it with if and if-else statement.
- c) Given a C++ code snippet:

```
int main()
{ int num1 = 20;
  int num2 = 0;
  int result = num1 / num2;
  std::cout << "Result: " << result << std::endl;
  return 0; }
```

Identify and explain any syntax errors or logical errors that you will find in the code
- d) Write a program to find the largest of three numbers using ternary operator.
- e) List some practical applications or scenarios where declaring and initializing arrays in C++ would be a beneficial programming approach
- f) What is the need of Object Oriented Programming paradigm?

Part – B

[Marks: 04 each]

- Q2. Explain call by reference and call by value with example. Write a Program to swap numbers in cyclic order using call by reference .

- $$\begin{array}{r} 2 \\ 2 \\ 2 \\ 2 \\ 2 \end{array} \begin{array}{r} 11 \\ 11 \\ 11 \\ 11 \\ 11 \end{array}$$

[Marks: 12 each]

Q8) Design a menu-driven program that encompasses all functionalities: Sum of Digits and odd number checking. (Make use of concepts like user-defined functions for the stated two tasks, parameter passing)

OR

OR

Differentiate between break and continue statement. Why the use of goto statement is not good for quality programming?

Q9. Design a C++ program that models a basic arithmetic calculator with support for both integer and floating-point numbers. Implement unary and binary operator overloading to enable the calculator to perform operations like addition, subtraction, multiplication, and division on user-provided operands.

OR

Develop a C++ program to create a simple application for managing different types of food. Define a base class "Food" with attributes like name, cuisine, and a virtual function "displayInfo" that displays the basic information about the food. Then, derive two classes, "Dosa" and "Dessert," from the base class, each with their own unique attributes and override the "displayInfo" function in each derived class to provide specific information about the food type. In your program's main function, create objects of both the "Dosa" and "Dessert" classes, and use a loop to display the information of each food using the base class pointer.

Please check that this question paper contains _____ questions and _____ printed pages within first ten minutes.

[Total No. of Questions: 09]

[Total No. of Pages:]

Uni. Roll No.

Program: Btech IT

Semester: 3rd

Name of Subject: Object Oriented Programming Using C++

Subject Code: PCIT- 102

Paper ID: 16041

Time Allowed: 02 Hours

Max. Marks: 60

NOTE:

23-07-21(E)

- 1) Each question is of 10 marks.
- 2) Attempt any six questions out of nine
- 3) Any missing data may be assumed appropriately

Q1. Write a c++ program to print the following pattern using for loop:

```
* * *  
*  *  
*
```

Q2. Differentiate C and C++ with the help of examples.

Q3. Write a C++ program to display Fibonacci series using do while loop.

Q4. Illustrate the significance of scope resolution operator in C++ with the help of appropriate examples.

Q5. Elaborate the concept of pass by value and pass by reference with the help of example

Q6. Write C++ program to show the concept of multilevel inheritance.

Q7. Explain the concept of run time polymorphism with the help of an example.

Q8. Discuss the use of try, throw and catch keywords in C++.

Q9. Write a C++ program to show the implementation of ifstream and ofstream classes.

[Total No. of Questions: 09]

[Total No. of Pages: .02.]

Uni. Roll No.

MORNING

Program: B.Tech. (Batch 2018 onward)

Semester: 3rd

12 MAY 2023

Name of Subject: Object Oriented Programming using C++

Subject Code: PCIT-102

Paper ID: 16041

Scientific calculator is Allowed

Detail of allowed codes/charts/tables etc. NIL

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

- a) Compare object oriented programming with procedure oriented programming.
- b) Illustrate two string functions with the help of example (s).
- c) Discuss the role of constructor in a class in C++.
- d) Compare error and exception.
- e) Demonstrate the difference between while and do-while in C++.
- f) How templates are useful in generic programming?

Part – B

[Marks: 04 each]

- Q2.** What is the need of type conversion? Discuss different types of type conversion in C++.
- Q3.** Discuss the role of access specifiers in inheritance and their visibility when they are inherited as public, private and protected.
- Q4.** How compile time polymorphism is different from run-time polymorphism?
- Q5.** Write a program to demonstrate the use of the ternary operator in C++.
- Q6.** Write a program to swap two variables to show the use of call by value and call by reference.

- Q7. Explain the role of try, throw and catch through a code segment of C++.

MORNING
12 MAY 2023

Part – C

[Marks: 12 each]

- Q8. Explain the working of various control flow statements in C++.

OR

Explain the process of reading and writing a file in C++.

- Q9. Demonstrate the use of various formatted and unformatted I/O functions in C++.

OR

Develop a program to perform the addition of two complex numbers (use constructors, destructors, friend functions, objects as parameters, and return type of function as objects).

MORNING

[Total No. of Questions: 09]

[Total No. of Pages:2]

Uni. Roll No.

28 JUN 2023

Program: B.Tech. IT (Batch 2018 onward)

Semester: 3

Name of Subject: Object Oriented Programming using C++

Subject Code: PCIT-102

Paper ID: 16041

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

- a) What do you mean by a token?
- b) Define ternary operator. Compare it with if and if-else statement.
- c) Define class and objects.
- d) Write a program to find the factorial of a given number.
- e) Illustrate constructor.
- f) What is the need of Object Oriented Programming paradigm?

Part – B

[Marks: 04 each]

- Q2.** Explain call by reference and call by value with example. Write a Program to swap numbers in cyclic order using call by reference .
- Q3.** List out visibility of inherited members in various categories of inheritance.?
- Q4.** Write a Program to add two matrix using multidimensional arrays.
- Q5.** List out various situations for execution of base class constructor in inheritance.
- Q6.** What is Buffer? How does it affect programming? Give example.

- Q7. Compare and contrast the variables and constants in C++. What are the rules to be followed for identifiers?

Part – C

[Marks: 12 each]

- Q8. What is the need of data types in C++? Describe different data types along with their representations and size in C++.

OR

Differentiate between break and continue statement. Why the use of goto statement is not good for quality programming?

- Q9. Explain the concept of polymorphism by an example in C++

OR

What are the different ways to define member functions of a class. What is the role of scope resolution operator in the definition of member function?
