Chapter 2 - Expressions & Conditionals

A fragment of code that produces a value is called an expression. Every value written literally is an expression. for ex: 77 or "Harry"

Operators in JavaScript

1. Arithmetic operators

+	Addition
-	Subtraction
*	Multiplication
**	Exponentiation
/	Division
%	Modulus
++	Increment
--	Decrement

2. Assignment Operators

=	x = y
+=	x = x + y
-=	x = x - y
*=	x = x * y
/=	x = x / y
%=	x = x % y
**=	x = x ** y

3. Comparison Operators

==	equal to
!=	not equal
===	equal value and type
!==	not equal value or not equal type
>	greater than
<	less than
>=	greater than or equal to
<=	less than or equal to
?	ternary operator

4. Logical Operators

&&	logical and
||	logical or
!	logical not

Apart from these, we also have type and bitwise operators. Bitwise operators perform bit by bit operations on numbers.

operands

7 + 8 = 15 → Result

↳ operator

Comments in JavaScript

Sometimes we want our programs to contain a text which is not executed by the JS Engine

Such a text is called comment in Javascript

A comment in Javascript can be written as follows :

```
let a = 2; // this is a single line comment
```
→ Single line Comment

```
/*
  I am a
multiline comment
*/
```
} Multiline comment

Sometimes comments are used to prevent the execution of some lines of code

```
let switch = true;
// switch = false
```
→ Commented line wont execute

Conditional Statements

Sometimes we might have to execute a block of code based off some condition.
For example a prompt might ask for the age of the user and if its greater than 18, display a special message.

In JavaScript we have three forms of if ... else statement.

1. if statement
2. if ... else statement
3. if ... else if ... else statement

If statement

The if statement in JavaScript looks like this:

```
if (condition) {
    // execute this code
    }
```

The if statement evaluates the condition inside the ( ). If the condition is evaluated to true, the code inside the body of if is executed else the code is not executed.

if- else statement

The if statement can have an optional else clause. The syntax looks something like this

```
if (condition) {
    // block of code if condition true
    }
else {
    // block of code if condition false
    }
```

If the condition is true, code inside if is executed else code inside else block is executed

if - else if statement

Sometimes we might want to keep rechecking a set of conditions one by one until one matches. We use if else if for achieving this.

Syntax of if...else if looks like this

```
if (age > 0) {
    console.log("A valid age");
}
else if (age > 10 && age < 15) {
    console.log("but you are a kid");
}
else if (age > 18) {
    console.log("not a kid");
}
else {
    console.log("Invalid Age")
}
```

JavaScript ternary Operator
Evaluates a condition and executes a block of code based on the condition

Condition ? exp1 : exp2

Example Syntax of ternary operator looks like this:

(marks > 10) ? 'yes' : 'No'

↳ if marks are greater than 10, you are passed else not

Chapter 2 - Practice Set

1. Use logical operators to find whether the age of a person lies between 10 and 20?

2. Demonstrate the use of switch case statements in JavaScript

3. Write a Java Script program to find whether a number is Divisible by 2 and 3.

4. Write a JavaScript program to find whether a number is Divisible by either 2 or 3.

6. Print "You can Drive" or "You cannot Drive" based on age being greater than 18 using ternary operator.

Code No: RT21051 **R13** SET - 1

II B. Tech I Semester Supplementary Examinations, June - 2015
OBJECT ORIENTED PROGRAMMING THROUGH C + +
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

~~~~~~

PART-A

1. a) Define stream
   b) What are the principles of function overloading?
   c) With a sample program create an array of objects?
   d) Give three operators that cannot be overloaded?
   e) What are the advantages of inheritance?
   f) What are the advantages of templates?

PART-B

2. What the concepts are of object oriented programming? Explain in detail

3. Write a C++ program to find the area of a circle, rectangle and triangle using function overloading?

4. What is a friend function? Write a C++ program to add two complex numbers using friend functions?

5. a) What is copy constructor? Explain
   b) Discuss about anonymous objects?

6. a) Explain about virtual base class?
   b) Explain about virtual destructors?

7. a) Explain about file manipulators?
   b) Explain about adaptors in C++?

|''|'''||''||'''||||
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Code No: RT21051 **R13** SET - 2

II B. Tech I Semester Supplementary Examinations, June - 2015
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2. Answer **ALL** the question in **Part-A**
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PART-A

1. a) Define class and object?
   b) What are the advantages of inline function?
   c) Give function prototype of a function **foo** which is having two objects of class **sam** as arguments and returning reference of an object as parameter?
   d) Give the order of calling of constructors?
   e) What are iterators?
   f) What are the different file opening modes?

PART-B

2. Differentiate between C and C++ programs? Illustrate with sample programs?

3. a) Explain about scope resolution operator?
   b) Discuss about name space?

4. Write a C++ Program to demonstrate the usage of static data member and static member function?

5. Write a c++ Program to overload + operator to add two matrices using friend functions?

6. a) Explain about function overriding?
   b) What are the rules for virtual functions?

7. What is an Exception? Explain about try, throw and catch with example?

|"|'"||"||"'||||
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Code No: RT21051 **R13** SET - 3

II B. Tech I Semester Supplementary Examinations, June - 2015
OBJECT ORIENTED PROGRAMMING THROUGH C + +
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

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2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

~~~~~~

PART-A

1. a) Give examples of user defined manipulators?
   b) With a sample program explain about default arguments?
   c) Define friend function?
   d) Can we have more than one constructor in a class? Discuss?
   e) Explain about Pure virtual function?
   f) Explain about container classes?

PART-B

2. a) What are the member functions of istream class?
   b) Discuss about flags without bitfields?

3. With a sample program explain the concept of return by reference?

4. a) Can we overload member function? Illustrate?
   b) Explain about constant classes?

5. Write a C++ Program to copy the contents of one object into another using copy constructor?

6. Define inheritance? Explain different types of inheritance?

7. Write a c++ Program to add two integers, two floats and two complex numbers using class templates?

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Code No: RT21051 **R13** SET - 4

II B. Tech I Semester Supplementary Examinations, June - 2015
OBJECT ORIENTED PROGRAMMING THROUGH C + +
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

~~~~~~

PART-A

1. a) Discuss about the structure of C ++ program?
   b) Discuss about 4 operators in C++ which are not present in C?
   c) C++ allows nested classes are not? If Possible give an example?
   d) What is the purpose of destructor?
   e) Define abstract class?
   f) Define staic binding?

PART-B

2. a) Discuss about formatted console I/O operations and unformatted console I/o operations
   b) Explain about manipulators?

3. Write a C++ Program to swap two number s using call by value, call by reference and call by address mechanism?

4. a) Explain about static classes?
   b) What happens if we declare all member functions as private in a class?

5. Write a C++ program to overload two increment operators (pre and post)?

6. Define virtual function? Illustrate with a C++ Program?

7. a) What are the principles of exceptional; handling? Explain
   b) Explain the need of templates?

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Code No: RT21051 **R13** SET - 1

II B. Tech I Semester Regular Examinations, Jan - 2015
OBJECT ORIENTED PROGRAMMING THROUGH C + +
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Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

~~~~~~

PART-A

1. a) What is a pointer? Write its syntax.
b) What are input and output streams.
c) What is type conversion?
d) What are objects? How are they created?
e) What is reference variable? What is its major use?
f) What are the steps involved in using a file in C++ program.
(3M+4M+4M+4M+4M+3M)

PART-B

2. a) Discuss the important features of OOPS. Explain the organization of data and Functions in OOP.
b) List a few domain application of OOP technology. (8M+8M)

3. a) Explain the four different types of storage classes.
b) Differentiate between user defined data types and derived data types. (8M+8M)

4. a) What is a class? Hoe does it accomplish data biding?
b) What is a friend function? What are the merits and demerits of using a friend function?
(7M+9M)

5. a) What is a constructor? Write the syntax of declaring the constructor?
b) What are the special characteristics of constructor function? (9M+7M)

6. Explain different forms of inheritance. Illustrate with an example each type with an example.
(16M)

7. a) Write a program to create files using constructor function.
b) What is a file mode? Describe the various file mode options available. (8M+8M)
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Code No: RT21051 **R13** SET - 2

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Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

~~~~~~

PART-A

1. a) Why do we need the preprocessor directive #include <iostream>
   b) What is a stream? Discuss
   c) Why does C++ have type modifiers?
   d) What are the advantages of using new operator as compared to the function alloc().
   e) How do we invoke a constructor function?
   f) What does polymorphism mean in C++ language? (3M+4M+4M+3M+4M+4M)

PART-B

2. a) What are the major advantages of object oriented programming paradigm?
   b) Describe briefly the features of I/O system supported by C++. (7M+9M)

3. a) List at least four new operators added by C++ which aid OOP and explain the application of the scope resolution operator:: in C++.
   b) What is reference variable? What is its major use? Explain with a example. (8M+8M)

4. a) Explain the data hiding in classes.
   b) Differentiate between a member function and a normal function. (8M+8M)

5. a) Differentiate between the parameterized constructor and constructor function.
   b) Illustrate the dynamic initialization of objects for long term fixed deposit system program. (6M+10M)

6. a) Differentiate between multilevel inheritance and multiple inheritance with an example.
   b) Differentiate between hierarchical inheritance and hybrid inheritance with an example (8M+8M)

7. a) Why it is necessary to include the file i/o stream in all our program. Write its Characteristics.
   b) write a program for Bubble Sort using Template Functions (8M+8M)
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Code No: RT21051 **R13** SET - 3

II B. Tech I Semester Regular Examinations, Jan - 2015
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(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Why it is necessary to include the file I/O stream in all our programs.
b) Why is an array called a derived data type.
c) How to achieve function overloading.
d) What are the merits and demerits of using friend function?
e) How is polymorphism achieved at runtime?
f) Compare early binding and late binding. (3M+4M+4M+3M+4M+4M)

PART-B

2. a) Discuss about formatted console I/O and unformatted console I/O.
b) Discuss the advantages and functions of OOPS. (8M+8M)

3. a) Explain how a inline function differ from a preprocessor macro? Explain significant advantage of inline function.
b) When do we need to use default arguments in a function. What is the main advantage of passing arguments by reference? (8M+8M)

4. a) Write a program to illustrate the nesting of a number function.
b) What is a operator member function. Write the syntax of private member function. (8M+8M)

5. a) What is a destructor? Illustrate memory allocation to an object using destructor?
b) How to overload the binary operators. Explain. (8M+8M)

6. a) Write the syntax for defining a derived constructor.
b) Differentiate between derived constructor and base constructor. (8M+8M)

7. a) Explain the components of Standard Template Library(STL).
b) Write a function template for finding the minimum value contained in an array. (10M+6M)
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Code No: RT21051 **R13** SET - 4

II B. Tech I Semester Regular Examinations, Jan - 2015
OBJECT ORIENTED PROGRAMMING THROUGH C + +
(Com. to CSE, IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Compare class template and template class.
b) How is exception handled in C++.
c) What are the advantages of using exception handling mechanism in a program?
d) When do we use multiple catch handlers?
e) What should be placed inside a catch block?
f) What should be placed inside a try block? Give the syntax. (4M+3M+4M+4M+3M+4M)

PART-B

2. a) What are the different unformatted I/O operations? Explain.
b) Differentiate between dynamic binding and message passing. (8M+8M)

3. a) What is meant by function overloading? Why it is known as function polymorphism in OOP.
b) What is meant by function prototyping? Explain the importance of call by value. (8M+8M)

4. a) What is static data member? What are the important characteristics of the static member variable?
b) Differentiate between static data member and static member functions. (8M+8M)

5. a) List of the rules for overloading operators.
b) Write a program for data conversion using C++. (6M+10M)

6. a) What is a virtual base class? Why it is important to make a class virtual.
b) What is abstract class? When do we use the protected visibility specifiers to a class member? (8M+8M)

7. Write a main program that calls a deeply nested function containing an exception handling. Explain in detail what exceptions mechanism can be used to handle exception. Justify why other mechanism are not used. (16M)
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Code No: RT21051 **R13** SET - 1

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2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Define stream
   b) What are the principles of function overloading?
   c) With a sample program create an array of objects?
   d) Give three operators that cannot be overloaded?
   e) What are the advantages of inheritance?
   f) What are the advantages of templates?

PART-B

2. What the concepts are of object oriented programming? Explain in detail

3. Write a C++ program to find the area of a circle, rectangle and triangle using function overloading?

4. What is a friend function? Write a C++ program to add two complex numbers using friend functions?

5. a) What is copy constructor? Explain
   b) Discuss about anonymous objects?

6. a) Explain about virtual base class?
   b) Explain about virtual destructors?

7. a) Explain about file manipulators?
   b) Explain about adaptors in C++?

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Code No: RT21051 **R13** SET - 2

II B. Tech I Semester Supplementary Examinations, June - 2015
OBJECT ORIENTED PROGRAMMING THROUGH C + +
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Time: 3 hours Max. Marks: 70

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2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Define class and object?
   b) What are the advantages of inline function?
   c) Give function prototype of a function **foo** which is having two objects of class **sam** as arguments and returning reference of an object as parameter?
   d) Give the order of calling of constructors?
   e) What are iterators?
   f) What are the different file opening modes?

PART-B

2. Differentiate between C and C++ programs? Illustrate with sample programs?

3. a) Explain about scope resolution operator?
   b) Discuss about name space?

4. Write a C++ Program to demonstrate the usage of static data member and static member function?

5. Write a c++ Program to overload + operator to add two matrices using friend functions?

6. a) Explain about function overriding?
   b) What are the rules for virtual functions?

7. What is an Exception? Explain about try, throw and catch with example?

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Code No: RT21051 **R13** SET - 3

II B. Tech I Semester Supplementary Examinations, June - 2015
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Time: 3 hours Max. Marks: 70

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2. Answer **ALL** the question in **Part-A**
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PART-A

1. a) Give examples of user defined manipulators?
   b) With a sample program explain about default arguments?
   c) Define friend function?
   d) Can we have more than one constructor in a class? Discuss?
   e) Explain about Pure virtual function?
   f) Explain about container classes?

PART-B

2. a) What are the member functions of istream class?
   b) Discuss about flags without bitfields?

3. With a sample program explain the concept of return by reference?

4. a) Can we overload member function? Illustrate?
   b) Explain about constant classes?

5. Write a C++ Program to copy the contents of one object into another using copy constructor?

6. Define inheritance? Explain different types of inheritance?

7. Write a c++ Program to add two integers, two floats and two complex numbers using class templates?

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Code No: RT21051 **R13** SET - 4

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OBJECT ORIENTED PROGRAMMING THROUGH C + +
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Time: 3 hours Max. Marks: 70

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3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Discuss about the structure of C ++ program?
   b) Discuss about 4 operators in C++ which are not present in C?
   c) C++ allows nested classes are not? If Possible give an example?
   d) What is the purpose of destructor?
   e) Define abstract class?
   f) Define staic binding?

PART-B

2. a) Discuss about formatted console I/O operations and unformatted console I/o operations
   b) Explain about manipulators?

3. Write a C++ Program to swap two number s using call by value, call by reference and call by address mechanism?

4. a) Explain about static classes?
   b) What happens if we declare all member functions as private in a class?

5. Write a C++ program to overload two increment operators (pre and post)?

6. Define virtual function? Illustrate with a C++ Program?

7. a) What are the principles of exceptional; handling? Explain
   b) Explain the need of templates?

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PART-A

1. a) What is a pointer? Write its syntax.
b) What are input and output streams.
c) What is type conversion?
d) What are objects? How are they created?
e) What is reference variable? What is its major use?
f) What are the steps involved in using a file in C++ program.
(3M+4M+4M+4M+4M+3M)

PART-B

2. a) Discuss the important features of OOPS. Explain the organization of data and Functions in OOP.
b) List a few domain application of OOP technology. (8M+8M)

3. a) Explain the four different types of storage classes.
b) Differentiate between user defined data types and derived data types. (8M+8M)

4. a) What is a class? Hoe does it accomplish data biding?
b) What is a friend function? What are the merits and demerits of using a friend function?
(7M+9M)

5. a) What is a constructor? Write the syntax of declaring the constructor?
b) What are the special characteristics of constructor function? (9M+7M)

6. Explain different forms of inheritance. Illustrate with an example each type with an example.
(16M)

7. a) Write a program to create files using constructor function.
b) What is a file mode? Describe the various file mode options available. (8M+8M)
~~~~~~

Code No: RT21051 **R13** SET - 2

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OBJECT ORIENTED PROGRAMMING THROUGH C + +
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2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Why do we need the preprocessor directive #include <iostream>
   b) What is a stream? Discuss
   c) Why does C++ have type modifiers?
   d) What are the advantages of using new operator as compared to the function alloc().
   e) How do we invoke a constructor function?
   f) What does polymorphism mean in C++ language? (3M+4M+4M+3M+4M+4M)

PART-B

2. a) What are the major advantages of object oriented programming paradigm?
   b) Describe briefly the features of I/O system supported by C++. (7M+9M)

3. a) List at least four new operators added by C++ which aid OOP and explain the application of the scope resolution operator:: in C++.
   b) What is reference variable? What is its major use? Explain with a example. (8M+8M)

4. a) Explain the data hiding in classes.
   b) Differentiate between a member function and a normal function. (8M+8M)

5. a) Differentiate between the parameterized constructor and constructor function.
   b) Illustrate the dynamic initialization of objects for long term fixed deposit system program. (6M+10M)

6. a) Differentiate between multilevel inheritance and multiple inheritance with an example.
   b) Differentiate between hierarchical inheritance and hybrid inheritance with an example (8M+8M)

7. a) Why it is necessary to include the file i/o stream in all our program. Write its Characteristics.
   b) write a program for Bubble Sort using Template Functions (8M+8M)
~~~~~~

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2. Answer **ALL** the question in **Part-A**
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PART-A

1. a) Why it is necessary to include the file I/O stream in all our programs.
b) Why is an array called a derived data type.
c) How to achieve function overloading.
d) What are the merits and demerits of using friend function?
e) How is polymorphism achieved at runtime?
f) Compare early binding and late binding. (3M+4M+4M+3M+4M+4M)

PART-B

2. a) Discuss about formatted console I/O and unformatted console I/O.
b) Discuss the advantages and functions of OOPS. (8M+8M)

3. a) Explain how a inline function differ from a preprocessor macro? Explain significant advantage of inline function.
b) When do we need to use default arguments in a function. What is the main advantage of passing arguments by reference? (8M+8M)

4. a) Write a program to illustrate the nesting of a number function.
b) What is a operator member function. Write the syntax of private member function. (8M+8M)

5. a) What is a destructor? Illustrate memory allocation to an object using destructor?
b) How to overload the binary operators. Explain. (8M+8M)

6. a) Write the syntax for defining a derived constructor.
b) Differentiate between derived constructor and base constructor. (8M+8M)

7. a) Explain the components of Standard Template Library(STL).
b) Write a function template for finding the minimum value contained in an array. (10M+6M)
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Code No: RT21051 **R13** SET - 4

II B. Tech I Semester Regular Examinations, Jan - 2015
OBJECT ORIENTED PROGRAMMING THROUGH C + +
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Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

~~~~~~

PART-A

1. a) Compare class template and template class.
b) How is exception handled in C++.
c) What are the advantages of using exception handling mechanism in a program?
d) When do we use multiple catch handlers?
e) What should be placed inside a catch block?
f) What should be placed inside a try block? Give the syntax. (4M+3M+4M+4M+3M+4M)

PART-B

2. a) What are the different unformatted I/O operations? Explain.
b) Differentiate between dynamic binding and message passing. (8M+8M)

3. a) What is meant by function overloading? Why it is known as function polymorphism in OOP.
b) What is meant by function prototyping? Explain the importance of call by value. (8M+8M)

4. a) What is static data member? What are the important characteristics of the static member variable?
b) Differentiate between static data member and static member functions. (8M+8M)

5. a) List of the rules for overloading operators.
b) Write a program for data conversion using C++. (6M+10M)

6. a) What is a virtual base class? Why it is important to make a class virtual.
b) What is abstract class? When do we use the protected visibility specifiers to a class member? (8M+8M)

7. Write a main program that calls a deeply nested function containing an exception handling. Explain in detail what exceptions mechanism can be used to handle exception. Justify why other mechanism are not used. (16M)
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