

Reg. No.:

Name :



VIT[®]
B H O P A L
www.vitbhopal.ac.in

TERM END EXAMINATIONS (TEE) – MAY 2022

Programme	: B.Tech. – BAC, BCE	Semester	: Winter 2021-22
Course Name	: Object Oriented Programming With C++	Course Code	: CSE2001
Faculty Name	: Ashish Ranjan	Slot / Class No	: B11+B12+B13 / 0429
Time	: 1½ hours	Max. Marks	: 50

Answer ALL the Questions

Q. No.	Question Description	Marks
--------	----------------------	-------

PART - A (30 Marks)

- | | | |
|---|---|----|
| 1 | (a) What is object oriented programming? How is it different from procedure-oriented programming? | 10 |
|---|---|----|

OR

- | | | |
|--|---|----|
| | (b) Create two classes DM and DB which store the value of distances. DM stores distances in metres and centimetres and DB in feet and inches. Write a program that can read values for the class objects and add the object of DM with another object of DB. Use friend function to carry out addition operation. The object that stores the results may be DM or DB object, depending on the units in which the results are required. The display should be in the format of feet and inches or metres and centimetres depending on the object on display. | 10 |
|--|---|----|

- | | | |
|---|--|----|
| 2 | What are classes? Create a class with the following data members- Name of the class: | 10 |
|---|--|----|

- | | | |
|--|--|--|
| | (a) student, Data members: name, roll number, branch, year, and college name, Member functions: put_details() and get_details() to set and display student details respectively? | |
|--|--|--|

OR

- | | | |
|--|--|----|
| | (b) What is runtime polymorphism? How virtual function can be used to implement the runtime polymorphism? Explain with the help of suitable example. | 10 |
|--|--|----|

- | | | |
|---|--|----|
| 3 | (a) Write a class template to represent a generic vector. Include member functions to perform the following tasks: | 10 |
|---|--|----|

- i) To create the vector.
- ii) To modify the value of a given element.
- iii) To multiply by a scalar value.
- iv) To display the vector in the form (10,20,30.....).

OR

- | | | |
|--|--|----|
| | (b) A file contains a list of mobile numbers in the following form | 10 |
|--|--|----|

John 9923675467
Mohan 9989776656
Ahmad 8767653442
:
:.....

The names contain only one word and names and mobile numbers are separated by white spaces. Write a program to read the file and output the list in two columns. The name should be left-justified and the numbers right-justified.

PART - B (20 Marks)

- 4 Create a base class called shape. Use this class to store two double type values that could be used to compute areas of the figures. Derive two specific classes called triangle and rectangle from the base class shape. Add to the base class a member function `get_data()` to initialize base class data members and another member function `display_area()` to compute and display the area of the figures. Make `display_area()` as virtual function and redefine this function in the derived classes to suit their requirements. Using the three classes design a program that will accept dimensions of a triangle or a rectangle interactively, and display the area. The two values given as input will be treated as length of two sides in case of rectangle whereas base and height in case of triangle. 10
- 5 Write a C++ program illustrating overloading of templates functions? 10

