Reg. No.

B.E./ B.TECH. DEGREE EXAMINATIONS, MAY 2024
Second Semester
IT18201 – OOPS USING C++ AND PYTHON
(Information Technology)
(Regulation2018/2018A)

TIME:3 HOURS   **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Examine the features and basics of OOPS.	2
CO 2	Apply the various features of object oriented programming to construct applications in C++.	3
CO 3	Develop the software using advanced features of Object oriented programming to solve real time problems.	4
CO 4	Develop the programs to implement the basics of python.	4
CO 5	Choose the data structures and design patterns to construct applications using python.	3

PART- A(10x2=20Marks)
(Answer all Questions)

		CO	RBT LEVEL
1.	Justify the need of constructor with an example.	1	2
2.	When and why you might use a friend function in a C++ program.	1	2
3.	Why is the new operator necessary when malloc() is already available?	2	2
4.	Is Abstract base class used to create objects? Justify your answer.	2	3
5.	Write a C++ program that throws an exception when attempting to divide by zero.	3	3
6.	Design a function template to swap two values, and call the function of int, float and char values.	3	3
7.	Does Python programs require indentation? Justify your response.	4	4
8.	Write a method in python to exchange the values of two variables without employing a third variable.	4	3
9.	Given two tuples tuple and tinytuple, where tuple as ('apple', 42, 3.14, 'banana', 7.5) and tinytuple as (99, 'cherry'). What will be the output when concatenating tuple and tinytuple?	5	3
10.	Write a python code to Check whether a value 200 exists in a dictionary.	5	3

PART- B (5x 14=70Marks)

		Marks	CO	RBT LEVEL
11. (a)	Discuss the concept of static within a class. Create a C++ program that utilizes a static class member to monitor the total count of objects instantiated from a Student class.	(14)	1	2

(OR)

(b)	Write a C++ program to demonstrate: a. A scenario where a global function is accessible to two classes. b. An instance where a member function is accessible to another class. c. An example where all member functions are accessible to another class.	**(14)**	1	2

12. (a) Write a C++ Program to compare Two Strings and numbers using Overloading. **(14)** 2 3

(OR)

(b) Illustrate Hierarchical Inheritance and Multi-level Inheritance with suitable examples. **(14)** 2 3

13. (a) Write a program to define the function template for calculating the sum of two numbers with different data types. **(14)** 3 3

(OR)

(b) Develop a C++ program that utilizes the vector container from the Standard Template Library (STL) to maintain a collection of names. Use iterators to traverse the vector and display its contents. **(14)** 3 3

14. (a) Define a python class Employee with data members as empno, name, and designation. Derive a class Qualification from Employee that has data members UG, PG, and Experience. Create another class Salary which is derived from both these classes to display the details of the employee and compute their increments based on their experience and educational qualification. **(14)** 4 3

(OR)

(b) Explain in detail about the modules and packages in python. Write a python program to compute the prime number series for a given number using the concept of Modules. **(14)** 4 3

15. (a) Discuss the various ways of creating sets. Implement the intersection, union, update, add, and remove operations on sets. Illustrate using a python program. **(14)** 5 3

(OR)

(b) Write a python program to create a tuple of integers, characters and string to perform the operations slice, concatenate, nested tuples, count the elements, index() and deletion of the elements. **(14)** 5 3

PART- C (1x 10=10Marks)
(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Develop an application for Hospital Management system using Python.	**(10)**	5	3

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