Central Tribal University of Andhra Pradesh
End Semester Examinations-Nov-2024

Name of the Programme: B.Sc. Artificial Intelligence   **SEMESTER: III**

Name of the Subject: Object Programming using "C++"   **Subject Code: BAI 201**

Max.Time: 3 Hours   **Credits: 3**   **Max. Marks: 70**

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Part-A

Answer the following questions. Each Carries 1 mark   1 M X 10=10 M

1. Differentiate between local and global variable ?
2. Define Encapsulation ?
3. Identify the error in the following code ?
   ```
   #include <iostream.h>
   void main()
   {
      int x = 10;
      int y = 15;
      cout << " "<< (x, y)
   }
   ```
4. What is the default value of static variable?
5. Name various types of Inheritance ?
6. Define virtual base class ?
7. The purpose of ifstream class ?
8. Use of operator keyword ?
9. Define virtual inheritance ?
10. What happens if the following C++ statement is compiled and executed?
    ```
    int *ptr = NULL;
    delete ptr;
    ```

Part-B

Answer any four short answer questions. Each question carries 5 marks.   5 M x 4=20 M

11. Explain about the following concepts in C++ ?
    i) Arrays   ii) Break, continue, goto and return statements.
12. Demonstrate about the following concepts in C++?
    i) Destructors   ii) Friends to a class
13. What is inheritance? Explain in detail about various forms of inheritance with example for each?
14. Differentiate between Error and Exception ? How to handle exceptions in C++?
15. Write a C++ program to calculate the area of rectangle, square using function overloading and pointers concept?
16. Explain about the concept of Structures and Unions in C++ with an example for each?

Part-C

Answer all the long answer questions either A or B each carrying 10 marks.   10 M x 4=40 M

17. a) Write the following programs in C++ ?
    i)   Write a C++ program to demonstrate the usage of scope resolution operator.

ii)   Write a C++ program to find out whether the given number is Armstrong number or not?

(OR)

b) i) Briefly demonstrate about OOP concepts with suitable example for each ?
    ii) Write a C++ program to demonstrate about the concept of references in C++.

18. a) Write the following ?
    i)   Define a static member function outside the class using the scope resolution operator
    ii)   Abstract Data type and information hiding concept in C++

(OR)

b) Explain about the following concepts in C++?
    i)   Dynamic creation and destruction of objects
    ii)   Write a C++ program to demonstrate the usage of a constructor and destructor in a class.

19. a) Explain about the following concepts in C++ ?
    i)   Virtual base class and Virtual Destructor
    ii)   Write a C++ program to use pointer for both base and derived classes and call the member
            function. Use Virtual keyword.

(OR)

b) i) Write a C++ program to create multilevel inheritance
   ii) How to implement Static and Dynamic binding in C++?

20. a) i) Write a C++ program to overload + operator to add two complex numbers.
        ii) Write a C++ program on how to handle Arithmetic Exception and String Exceptions ?

(OR)

b) i) Given that an EMPLOYEE class contains following members: data members: Employee
      number, Employee name, Basic, DA, IT, Net Salary read the data of N employee and
      compute Net salary of each employee (DA=52% of Basic and Income Tax (IT) =30% of the
      gross salary).
   ii) Write a C++ program to check whether a given number is prime number or not ?

*********************** ALL THE BEST ***********************