F–14372

Register No. | | | | | | | | |

BE Degree Examination November 2016

Third Semester

Computer Science and Engineering

14CST32 – OBJECT ORIENTED PROGRAMMING USING C++

(Regulations 2014)

Common to BTech Information Technology

Time: Three hours Maximum: 100 marks

Answer all Questions

Part – A (10 × 2 = 20 marks)

1. What will be the output of the following code snippet?

```
for (int i=0;i<10;i++);
        cout<<i<<"\t";
for(int i=1;i<5;++i)
    if(i==3)
        Continue;
    else cout<<i+1;
```

2. Give the output for the following code

```
int main(){
    int choice = 49;
     case 1: cout<<"\nCase-1";break;
     case '1':cout<<"\nCase-2";break;
     default: cout<<"Wrong choice";}
     return 0;}
```

3. Write an example for using conditional operator.
4. Mention the use of default copy constructor.
5. Write the syntax for operator overloading.
6. Differentiate public and private inheritance.
7. What is the use of virtual function?
8. Write a code snippet to access and display the following array elements using a pointer

```
int a[5]={51, 1, 5, 20, 25};
```

9. How do you open a new binary file for writing data?
10. Differentiate put() and get() functions of stream class.

Part – B (5 × 13 = 65 marks)

11. a. i) Highlight the features of object oriented principles. (7)

    ii) List the advantages of using an inline function. Write an example to illustrate inline function. (6)

(OR)

b. i) Write a C++ program to find the sum of n numbers recursively. (7)

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

ii) Discuss about the storage classes used in C++. (6)

12. a. i) Demonstrate the work of constructors and destructors with valid examples. (8)

ii) Illustrate the use of static data member with example. (5)

(OR)

b. Create a class called distance that contains two members: feet and inches. One constructor should initialize this data to zero and another should initialize it to fixed values. A member function named addDistance() takes an object of type Distance as an argument, finds the sum of two Distance objects and returns a Distance object and another member function named showDistance() to display the values of Distance object. Write a C++ program to implement the same. (13)

13. a. i) Demonstrate the following standard C++ string class methods with example (6)

1) Erase 2) replace 3) insert

ii) Illustrate the way of overriding a member function with an example. (7)

(OR)

b. Discuss about the various types of inheritance supported in C++ with appropriate example. (13)

14. a. i) Write a program to find the sum of two objects of the class ComplexNumber using friend function. (6)

ii) Show the use of virtual base classes through an example. (7)

(OR)

b. Create a class named Shape that contains a pure virtual function named "area". Create class named Square, Rectangle, Circle, Triangle, all inheriting from Shape class. Compute the area for each shapes and invoke the area function of respective classes with a pointer object of the shape class. (13)

15. a. i) Write a C++ program to write character data into a file and also to read the data from the file. (8)

ii) What are exceptions? How can you handle exceptions in C++? (5)

(OR)

b. Write a C++ program to create a class template STACK with push, pop, display member functions. using it implement a stack and characters. Demonstrate the implementation by displaying the status and contents of the stack after every operation. (13)

Part – C ($1 \times 15 = 15$ marks)

16. a. Write a C++ program to create a class called DATE. Accept two valid dates in the form dd/mm/yy. Overload the operator '–' to display the number of days between two objects of class DATE. (15)

(OR)

b. Create a RestaurantMeal class that holds the name and price of a food item served by a restaurant. Its constructor requires arguments for each field. Create a HotelService class that holds the name of the service, the service fee and the room number to which the service was supplied. Its constructor also requires arguments for each field. Create a RoomServiceMeal class that inherits from both of the above class. Whenever you create a RoomServiceMeal object, the constructor assigns the string "room service" to the name of the service field and $4.00 is assigned to the service fee inherited from HotelService. Include a display() in RoomServiceMeal that displays all of the fields in a RoomServiceMeal by calling display functions from the two parent classes. Additionally, the display function should display the total of the meals plus the room service fee. In the main() function, insantiate a RoomServiceMeal object that inherits from both classes. (15)