Department of Computer Science and Engineering
2nd year 1st Semester Final Examination-2020
Session: 2018-19
Course Name (Course Code): Object Oriented Programming Language (CSE 2103)

Full Marks : 60 Time Allowed: 3 Hours

[Answer any five (5) from the following questions. Figures to the right indicate full marks. Answer each part of the question consecutively. Writing anything in the question is strictly prohibited.]

1. Choose the correct answer [1.2*10=12]

a. Correct way of creating an object of a class named car is
i) Car obj ii) Car*obj=new Car() iii) Obj Car iv) A and B both

b. Which of the following statements is correct?
i) Base class pointer cannot point to derived class.
ii) Derived class pointer cannot point to base class.
iii) Pointer to derived class cannot be created.
iv) Pointer to base class cannot be created.

c. In C++ class object created statically(Car obj) and dynamically (Car* obj=new Car()) are stored in memory
i)Stack ,Heap ii) Heap ,Heap iii)Heap, Stack iv) Stack, Stack

d. Inheritance allow in C++ Program
i)Class Re-usability ii) Crating a hierarchy of classes iii) Extendibility iv)All

e. Class A
{
}
Class B
{
}
Class C: public A, public B
{
}
Consider the above C++ program and choose the correct one from the following
i)Multilevel Inheritance ii) Multiple Inheritance iii)Single Inheritance iv) None

f. Which of the following is not the member of class?
i)Friend function ii) Static Function iii)virtual function iv) None

g. Which of the following is not a type of constructor
i)Friend Constructor ii)Copy Constructor iii)Default Constructor iv) All

h. How many instances of an abstract class can be created?
i)5 ii) 0 iii) 1 iv) 10

i. Which of the following cannot be friend?
i)Function ii)Class iii)object iv)Operator function

j. Which of the following concepts of OOPS means exposing only necessary information to client?

i)Encapsulation ii)Abstraction iii)Data hiding iv)Data binding

2. a. Briefly describe the concept of object-oriented Programming language.
b. Is C++ an object-oriented programming language? Explain your answer.
c. Define the following terms:

Address
+int :housebumber +int :countryname
Set1() displaystudent()

Student
+int :Sage +int :Sname
Set1() displaystudent()

c. Declare display function as friend function and also explain when we need to used friend function [4]

Human
+age:int +name:string
Set() display()

5. a. Briefly explain operator overloading. Consider the given class diagram, create 3 object ob1, ob2, ob3 of this class and create ob4 as the summation of this three object. Write C++ code. [4]

Subject
+mark1:int +mark2:int
display()

b. Consider the following class diagram and write the C++ code to overload the operator using friend function and short hand operator. Where display function show the value of mark after adding bonus mark 20 and after subtracting mark 10 [4]

Marks
-mark:int
Display()

c. Consider the following class diagram and write C++ code by applying overloading C++ function call operator [4]

Marks
-mark:int
Display()

6. a. Consider the following class diagram .Write C++ program for overload stream extraction and insertion operator [2+2=4]

Person
-name:string -int:age

b. Explain the use of string stream class and write C++ code using this class [1+3=4]

c. Consider a function Human() and declare the class given below inside this function [4]

Person
+int:age +int:name
Set() displayPerson()

7. a. What are the access specifiers used in C++. [3]
Define the accessibility or visibility level of class members of these specifiers using a comparison table.

b. Explain different types of inheritances with proper example and codes. [4]

c. Explain the term "data abstraction" with proper example including C++ code. [3]

d. Differentiate between aggregation and composition. [2]

8. a. A class called Account, which models a bank account, is designed as shown in the class diagram. It contains: [8]

- Two private data members: accountNumber (int) and balance (double), which maintains the current account balance.
- Public functions credit() and debit(), which adds or subtracts the given amount from the balance, respectively. The debit() function shall print "amount withdrawn exceeds the current balance!" if amount is more than balance.
- A public function print(), which shall print "A/C no: xxx Balance=xxx" (e.g., A/C no: 991234 Balance=$88.88), with balance rounded to two decimal places.

b. Consider a class called **Circle** . It contains two data members: radius (of type double) and color (of type String); and three member functions: getRadius(), getColor(), and getArea(). Three instances of Circles called c1, c2, and c3 shall be constructed with their respective data members. Write C++ code based on this scenario [4]