B.Tech II Year 4rth Semester

Year(2022)

Branch ECE

Subject :Object-Oriented Programming **Final Semester**

Time : 3 Hour **M.M : 90**

Note : Attempt All question

1. Answer the following questions.(Very short answers) (5x2=10)
   a) What are objects? How are they created?
   b) What are the principles of function overloading?
   c) Define pure virtual function?
   d) What is a class temple? Explain the syntax and semantics. (5x3=15)
   e) Compare and Contrast late binding and early binding.
2. Answer the following questions.(Short answers)
   a) Differentiate between multilevel and hybrid inheritance.
   b) How does the operator new and delete work?
   c) What is referenced variable? What is its major use?
   d) Explain how exceptions are handle in C++ with a suitable example.
   e) What is the significance of "THIS" pointer in C++?
3. Part(a) is compulsory and attempt any one part from part (b) or part (c).
   a) Describe the object-oriented programming feature of C++? (5)
   b) Differentiate among Pass by value, pass by reference and pass by address with the help of a suitable program. (08)

   OR

   c) What are classes? Create a class with the following data members? Name of the class: Vehicle. Data members: name, model, company ,Price and variants , Member functions: putdetails() and getdetails() to set and display Vehicle details respectively? (8)
4. Part(a) is compulsory and attempt any one part from part (b) or part (c).

a) Differentiate between Structure and class? Give an example of each? (5)

b) What is a constructor ? Differentiate among constructors, copy initialization, and copy constructors? (8)

OR

c) What is Runtime polymorphism? Write a C++ program illustrating Runtime polymorphism? (8)

5. Part(a) is compulsory and attempt any one part from part (b) or part (c).
   a) What is operator overloading? Write a C++ program illustrating overloading insertion and extraction operators. (5)
   b) Describe the three different inheritance behaviors achieved through the use of pure virtual , ordinary virtual and non-virtual functions? (8)
   system.

   OR

   c) Imagine a publishing company that markets both books and audiocassette versions of its works. Create a class publications that store the title (a string) and price (type float) of the publication. From this class derive two classes: book which adds a page-count (type int); and tape, which adds a playing-time-in-minutes (type float). Each of these three classes should have a getdata() function to get its data from the user at the keyboard and a putdata() function to display its data. Write a main()

program to test the book and tape classes by creating instance of them, asking the user to fill in data with getdata() and then displaying with putdata(). (12)

6. Part(a) is compulsory and attempt any one part from part (b) or part (c).
   a) What is an abstract class? When do we use the protected visibility specifiers to a class member? (5)
   b) Explain the following I/O stream functions with suitable examples. (8)

      i) Width()
      ii) Precision()
      iii) Stef()
      iv) Fill()

OR

   c) What is a virtual base class? Why it is important to make a class virtual. Write a C++ program illustrating virtual base classes? (8)

7. Part(a) is compulsory and attempt any one part from part (b) or part (c).
   a) What is an exception? Describe the meaning of try, catch and throw. (5)
   b) Write a program containing a possible exception. Use a try block to throw it and a catch block to handle it properly?

OR

   c) Create a function called swap() that interchanges the values of the two arguments sent to it. (You probably want to pass these arguments by reference) Make the function into a template, so it can be used with all numerical data types (char,int,float, and so on). Write a main() program to exercise the function with several types. (8)