

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-IV Examination June- 2010****Subject code: 140704****Subject Name: Object Oriented Concepts and Programming****Date: 21 /06 /2010****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Give the objectives of object model, dynamic model and function model 07
and clear the relationship among them.
- (b) Define a circle class with radius as data member, necessary constructors 07
and member function to compute area of circle. Class should overload the
= = operator to compare two circle objects whether they are equal in
radius. Demonstrate its use in main().

- Q.2** (a) Write a class to create array objects with given size. Overload the operator 07
* to multiply the elements of an array object with scalar value. Use them
in main() to perform operation like s*a1, where s is scalar value and a1 is
array object.
- (b) Explain the following object oriented terms with example: Object, Class, 07
Attributes, Operations

OR

- (b) Explain the generalization and inheritance concepts with use of proper 07
example.

- Q.3** (a) What is parameterized constructor? How is it useful in dynamic 07
initialization of objects? Explain with example of point class defined with
x and y coordinates.
- (b) Explain the constant argument, constant member function and constant 07
object with suitable example.

OR

- Q.3** (a) What are default arguments to functions? Show them with example. Can 07
we use them with constructors? If yes, show its use with example.
- (b) Clear the following with appropriate examples. 07
Abstract class, Virtual function, Virtual base class

- Q.4** (a) Assume that circle is defined using radius and cylinder is defined using 07
radius and height. Write a circle class as base class and inherit the cylinder
class from it. Develop classes such that user can compute the area of circle
objects and volume of cylinder objects. Area of circle is radius*radius,
while volume of cylinder is $\pi \times (\text{radius})^2 \times \text{height}$.
- (b) What is friend function? Give an example. What is the advantage of 07
overloading binary operator as friend function?

OR

- Q.4** (a) Assume that vehicle class is defined as base class with price and year of 07
manufacturing. Derive two classes namely bus and truck from base class
with bus with seating capacity and truck with loading capacity. Develop
classes with necessary member functions to get and put data. Demonstrate
its use in main().

(b) What is type conversion? Explain the basic to object conversion with proper example. 07

Q.5 (a) Explain dynamic modeling using simple example. 07

(b) What do you mean by links and association? What is multiplicity? Clear with example. 07

OR

Q.5 (a) Explain function modeling using simple example. 07

(b) Develop an object model for the university running engineering, pharmacy, MBA and MCA courses. 07
