Pre University Test  
(Object Oriented Techniques ECS-503) 

TIME: 3 Hours  
Total Marks: 100  
All Questions Compulsory.

1. Attempt any two parts: [10*2=20]

(a)  
(i) What do you mean by encapsulation? How does the object-oriented concept of message passing help to encapsulate the implementation of an object including its data?

(ii) What do you mean by polymorphism? Is this concept only available to object oriented systems? Explain.

(b)  
(i) What is modeling? What are the purposes served by the models discuss with an example?

(ii) Explain the principles of modeling. Write the names of any 4 UML diagrams and explain their use.

(c)  
(i) What do you mean by an object? Explain. Discuss the various characteristics of objects with suitable example.

(ii) Give the conceptual model of UML

2. Attempt any two parts: [10*2=20]

(a)  
(i) What do you understand by architectural modeling? Explain its various concepts and diagrams with suitable example.

(ii) Write a short note on use case diagram with suitable example and explain their utility in system design.

(b)  
(i) What do you mean by activity diagram? What are the two special states shown in an activity diagram? Explain with an example.

(ii) What is the difference between Link and Association? What is their significance in object modeling? Discuss.

(c)  
(i) Explain class and object diagrams with examples.

(ii) How broadcast messages and callback mechanism is implemented using sequence diagram. Discuss.
3. Attempt any two parts: [10*2=20]

(a) (i) Define object oriented modelling (OOM). Describe various steps involved in OOM process. Explain.

(ii) Write short notes on SA/SD

(b) (i) Compare procedural programming with object oriented programming with examples.

(ii) Write a short note on Jackson structured development (JSD).

(c) What are the three models in OMT? How is the object-oriented analysis and design attached with OMT? Explain with an example.

4. Attempt any two parts: [10*2=20]

(a) (i) Define an abstract class. When it is required to create an abstract class? Explain with an example.

(ii) What do you mean by multiple inheritances? Explain it with an example. Can you implement multiple inheritances in Java?

(b) (i) Write a program in Java to display the longest word in a given sentence of at least having 9 words.

(ii) Design a class using Java to create a singly linked list. Then also write the methods for adding a node to the linked list in the beginning and also to search a given node.

(c) Write a program in Java to display the frequency of vowels in a given sentence. The program should display the vowels with maximum and minimum frequencies. Also give the algorithm for the same.

5. Attempt any two parts: [10*2=20]

(a) What is an applet? Explain lifecycle of an applet with method declaration. Write a java program which shows a simple Applet.

(b) What do you understand by the database connectivity? Give the connectivity model. Also discuss JDBC in detail with an example.

(c) Write short notes on

i. AWT v/s Swing
ii. Java Servlets

--------Best Of Luck---------
Model Paper For Pre University Test
(Object Oriented Techniques ECS-503)

TIME: 3 Hours                               Total Marks: 100
All Questions Compulsory.

1. Attempt any two parts:                   [10*2=20]
   (a) What do you mean by polymorphism. Explain with an example?
   (b) Discuss the concept of encapsulation with suitable example.
   (c) What is UML? Mention the different kinds of modelling diagrams used.

2. Attempt any two parts:                   [10*2=2]
   (a) (i) Write short notes on architectural modeling with suitable example and diagrams.
        (ii) Define state. Give state diagram for phone line.
   (b) (i) What do you mean by generalization and inheritance? Use some examples to explain.
        (ii) Draw Use case diagram for a Restaurant System.
   (c) Write short notes on following with suitable example using diagrams
       i. multiplicity
       ii. role names
       iii. ordering
       iv. qualification

3. Attempt any two parts:                   [10*2=20]
   (a) What is the difference between Procedure based programming language and Object oriented programming language.
   (b) (i) Write short notes on SA/SD
        (ii) Write a short note on Jackson structured development (JSD).
(c) What are the three models in OMT? How is the object-oriented analysis and design attached with OMT? Explain with an example.

4. Attempt any two parts: [10*2=20]

(a) (i) Explain major features of Object Oriented programming.

(ii) Strings are immutable. Explain the statement.

(b) (i) Explain operator overloading with suitable examples.

(ii) Explain abstract method and abstract class. Write a program for employee class salary as an abstract method with full implementation.

(c) Explain multithreading in Java. What is the effect in program when we use multithreading in a program. Write a java program for z=sin(x) +cos(x) using multithreading.

5. Attempt any two parts: [10*2=20]

Write short notes on

(a) AWT v/s Swing
(b) Java Servlets
(c) JDBC

--------------Best Of Luck--------------