(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID: 1069 Roll No.

#### B.Tech.

#### FOURTH SEMESTER EXAMINATION, 2005-2006

### **OBJECT ORIENTED SYSTEMS**

Time: 3 Hours

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Total Marks: 100

Note: (i) Attempt ALL questions.

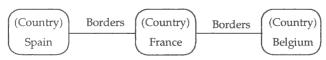
- (ii) All questions carry equal marks.
- (iii) In case of numerical problems assume data wherever not provided.
- (iv) Be precise in your answer.
- 1. Attempt *any four* parts of the following : (5x4=20)
  - (a) What is object oriented methodology? Discuss the various stages in it.
  - (b) Explain the following terms with a suitable example:
    - (i) Abstraction
    - (ii) Encapsulation
    - (iii) Inheritance
    - (iv) Identity
    - (v) Polymorphism

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(c) Explain class diagram and Instance diagram with a suitable example. Prepare a class diagram from the instance diagram in the following figure.



- (d) Explain the following terms:
  - (i) Links
  - (ii) Associations
  - (iii) Link Attribute
  - (iv) Multiplicity
  - (v) Role Name
- (e) Differentiate among the following by taking a suitable example.
  - (i) Aggregation and Association
  - (ii) Aggregation and generalization.
- (f) Prepare a portion of an object diagram for a library book checkout system that shows the date a book is due and the late charges for an over due book as derived objects.
- 2. Attempt *any four* parts of the following : (5x4=20)
  - (a) Explain event and state by taking a suitable example.
  - (b) What do you mean by event trace? Explain Event trace for a phone call.
  - (c) What is state diagram? Draw the state diagram for phase line.

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- (d) What do you mean by scenario? Write scenarios for the following activities.
  - (i) Getting ready to take a trip in your car.
  - (ii) An elevator ride to the top floor.
  - (e) What are nested state diagrams? Explain by taking a suitable example.
  - (f) Write in short about the following:
    - (i) Event Generalization
    - (ii) Concurrency.
- 3. Attempt *any four* parts of the following: (5x4=20)
  - (a) Prepare a data flow diagram for computing the volume and surface area of a cylinder. Inputs are the height and radius of the cylinder. Outputs are volume and surface area. Discuss several ways of implementing the data flow diagram.
  - (b) Compare between SA/SD and OMT modelling.
  - (c) Compare between JSD and OMT methodologies.
  - (d) Differentiate between actor and data store with in a data flow diagram.
  - (e) Prepare a data flow diagram for computing the roots of the quadratic equation.

$$ax^2 + bx + c = 0.$$

Real numbers, a, b and c are inputs. Outputs are values of  $x=R_1$  and  $x=R_2$ , Which satisfy the equation.  $R_1$  and  $R_2$  may be real or complex depending on the values of a, b and c.

(f) What do you mean by operation in functional modelling? Explain the different type of operations.

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What is a Thread? Discuss Java Thread (iv) Model.

(v)

(i)

(b)

(i)

(ii)

(iii)

overriding.

suitable example.

character streams.

- 0
  - 3 4 6

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output.

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What is an exception? Discuss how exception handling is done in JAVA language.

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Differentiate between overloading and

What is an inner class? Explain with a

What is a package in JAVA language?

Differentiate between Bytestreams and

Write a Java program to print the following

Explain with a suitable example.

(c) Write short notes on the following: (i) Applet

(ii)

- (ii) Layout Manager
- AWT (iii)
- String handling (iv)
- (v) Event handling

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# uptuonline.com Attempt any two parts of the following: uptuonline.com (10x2=20)

- (a) (i) Discuss the reasons for migrating from C++ to JAVA.
  - (ii) What are JAVA beans? What are the steps that must be followed to create a new Bean?
  - (b) Write short notes on any two of the following:
    - (i) JDBC
    - (ii) Dynamic bill board applet
    - (iii) Lavatron Applet
- (c) (i) What is a Java servlet? Discuss the life cycle of a servlet.
  - (ii) Write in short about the following:
    - (1) Java swing.
    - (2) Scrabblets.