(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 *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

(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.

(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.

4. Attempt *any two* parts of the following : **(10x2=20)**

(a) (i) Differentiate between overloading and overriding.

(ii) What is an inner class ? Explain with a suitable example.

(iii) What is a package in JAVA language ? Explain with a suitable example.

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

(v) Differentiate between Bytestreams and character streams.

(b) (i) Write a Java program to print the following output.

0

1 2

3 4 5

6 7 8 9

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

(c) Write short notes on the following :

(i) Applet

(ii) Layout Manager

(iii) AWT

(iv) String handling

(v) Event handling

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5. Attempt *any two* parts of the following : (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.

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