



Printed Pages : 4

TCS - 403

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

**PAPER ID : 1069**

Roll No.

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### B. Tech.

(SEM. IV) EXAMINATION, 2006 - 07

### OBJECT ORIENTED SYSTEMS

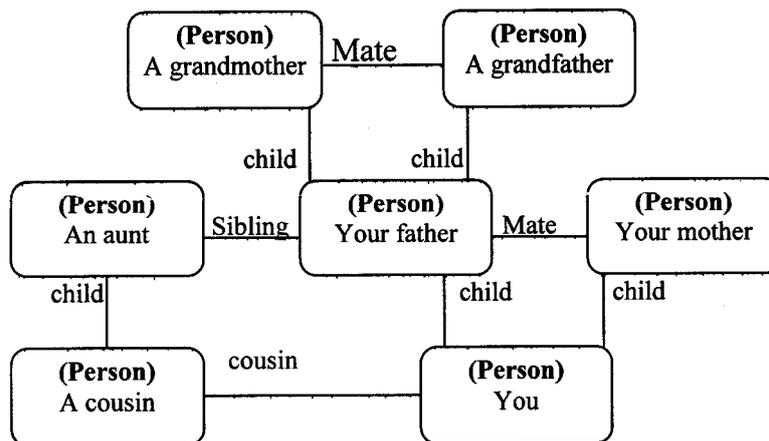
Time : 3 Hours]

[Total Marks : 100

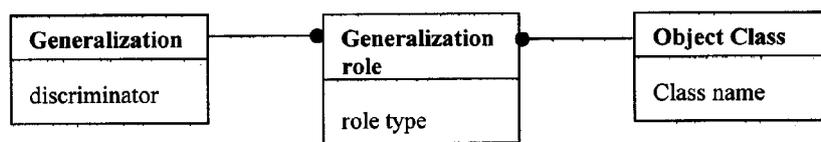
- Note :
- (1) Attempt *all* questions.
  - (2) All questions carry *equal* marks.
  - (3) This question paper contains *two* pages.

1 Attempt any **two** parts of the following :

- a) Prepare a class diagram from the following instance diagram :



- b) A directory file contains information about files in a directory, including both ordinary files as well as other directory files. Prepare an object diagram which models directory files and ordinary files. Since a directory plus a file name as a qualifier.
- c) Following portion of a metamodel describes a generalization. A generalization is associated with several generalization roles, which are the roles that object classes play in generalization relationships. Role type is either subclass or superclass. Does this model support multiple inheritance? Explain your answer.



2 Attempt any **two** parts of the following :

- a) Write scenarios for the following activities :
- i) Moving a bag of corn, a goose, and a fox across a river in a boat. Only one thing may be carried in the boat at a time. If the goose is left alone with the corn, the corn will be eaten. If the goose is left alone with the fox, the goose will be eaten. Prepare a scenario in which everything is safely transported across the river.
  - ii) An elevator ride to the top.

- b) An extension ladder has a rope, pulley, and latch for raising, lowering and locking the extension. When the latch is locked, the extension is mechanically supported and you may safely climb the ladder. To release the latch, you raise the extension slightly with the rope. You may then freely raise or lower the extension. The latch produces a clacking sound as it passes over rungs of the ladder. The ladder may be reengaged while raising the extension by reversing direction just as the latch is passing a rung. Prepare a state diagram of an extension ladder.
- c) Explain the following terms, with example.
  - (i) dynamic model
  - (ii) aggregation
  - (iii) nested diagram.

**3** Attempt any **two** parts of the following :

- a) Discuss various features of OMT.
- b) Compare SA/SD and JSD (Jackson structured development) methodologies.
- c) Prepare a data flow diagram for computing the volume and surface area of a cylinder. Inputs are height and radius of the cylinder. Outputs are volume and surface area. Discuss two ways of implementing the data flow diagram.

**4** Attempt any **two** parts of the following :

- (a) What are the different layouts available in Java? Explain each with suitable skeleton code.

- (b) Write a procedure to create and import the package in a java program. Which event handling model is used by Java, and why?
- (c) How images are handled by Java? Write a program to open any supported image format and change its contrast and brightness to the values entered by the user. Display original and modified images.

**5** Attempt any **two** parts of the following

- a) Discuss the various features of the Lavatron applet and scrabbles.
- b) Discuss any six methods available in Dynamic Billboard applet.
- c) Explain the procedure of JDBC connectivity in Java with Windows database. A data of 100 students having following fields in records is to be imported in Java.

Record structure :

Name : Character array of 100

Address : Character array of 200

Roll Number : integer

Amount Due : Float

Marks : Integer

Grade : Single character having values from 'A' 'B' 'C' 'D' or 'E'.

Write a java program to import these records from windows and send them to output text file.