

Name:

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Roll No:

Department of Computer Science & Engg  
CS645 Object-Oriented System Development  
Quiz 1

15<sup>th</sup> February 2006, 8:00-8:50 a.m.

Answer all questions. Maximum marks: 40

*No cellphones or calculators permitted.*

0. Choose the best answer regarding the Iran controversy.

[1]

- a) Iran already has nuclear weapons
- b) Iran should be allowed to develop nuclear weapons
- c) Iran should not be allowed to develop nuclear weapons
- d) Iran has no intention of developing nuclear weapons
- e) Iran is not capable of developing nuclear weapons

1. Select the 3 reasons from the following that account for the complexity of software. [3]

- (a) the limitations of human intellectual capacity
- (b) the flexibility possible in software
- (c) the nature of the problem domain
- (d) the extensive use of abstraction
- (e) the difficulty in managing the development process
- (f) the hiding of essential information by encapsulation

2. Fill in the blanks with the correct term for each of the following definitions.

[5]

- (a) An object template: \_\_\_\_\_
- (b) The generic message-sending scheme that allows flexibility in design: \_\_\_\_\_
- (c) The scheme for sharing operations and data between related classes: \_\_\_\_\_
- (d) A high-level instruction to perform an operation on an object: \_\_\_\_\_
- (e) The implementation of a high-level operation for a specific class of objects: \_\_\_\_\_

3. (a) What is a model?

(b) Give 3 reasons why we model a problem.

[4]

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4. All objects have identity and are distinguishable. For each of the following collections of objects, describe an identifier by which they could be distinguished for the specified purpose.

[4]

(a) All persons in the world for the purpose of sending post

(b) All persons in the world for the purpose of criminal investigation

(c) All telephones in the world for the purpose of making telephone calls

(d) All customers of a telephone company for the purpose of billing

5. (a) List 3 types of categorisation.

[3]

(b) List the major elements of the object model

[4]

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6. Draw the UML symbols for:

[4]

(a)package

(b)component

(c)state

(d)concurrency

7. In the requirements given below, (a) indicate any phrases/sentences that are actually design decisions, and (b) list the classes and their relationships.

[4]

A desktop publishing system is needed, based on the what-you-see-is-what-you-get principle. The system will support text and graphics. Graphics includes lines, squares, boxes, polygons, circles and ellipses. Internally, a circle is represented as a special case of an ellipse and a square as a special case of a box.

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8. Differentiate between OOP and OOL.

[2]

9. In the figure below

(a) add multiplicity balls wherever appropriate

(b) add each of the following operations to all classes where it belongs: hire, heat, reserve, clean, cancel, takeoff.

[6]

