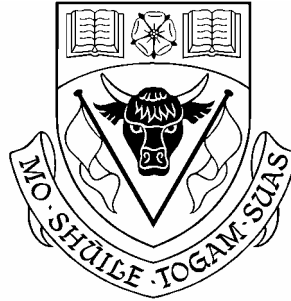


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SENG 609.23  
15/April/2002



**University of Calgary**  
Department of Electrical and Computer Engineering

**SENG 609.23: Object Oriented Analysis and Design**  
Behrouz Homayoun Far

Evaluation Test (15/April/2002)  
20:00 – 20:30 PM

**Answers**

**Instructions:**

1. This booklet has 5 pages including this cover page.
2. Please write your name and student ID number on all pages of this booklet. Pages with no name or ID number will not be marked.
3. The maximum mark in this exam is 100. There are 25 questions and each count for 4 points of the total mark allocated to this exam.
4. There are no selective questions. Please answer all questions.
5. Please write your answers on the same sheet below each question. You may use both front and back sides of the sheets. If you need extra sheets please ask the supervisor for help.
6. The examination is closed-book.
7. Absence or failing to hand in this booklet will be treated as zero mark.

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1. What are the four principles of Object-Orientation?
  - a. Abstraction, encapsulation, polymorphism, modularity
  - b. Abstraction, polymorphism, modularity, hierarchy
  - c. Encapsulation, polymorphism, hierarchy, modularity
  - d. Abstraction, encapsulation, modularity, hierarchy**
  
2. The UML is a language for ...
  - a. Visualizing, specifying, constructing, documenting the artefacts of a software system**
  - b. Visualizing, modeling, constructing, documenting the artefacts of a software system
  - c. Visualizing, documenting, modeling, encapsulating the artefacts of a software system
  - d. Visualizing, modeling, constructing, encapsulating the artefacts of a software system
  
3. Which of the followings is NOT a UML diagram?
  - a. Component diagram
  - b. State-chart diagram
  - c. Deployment diagram
  - d. Broadcast diagram**
  
4. Which of the following is NOT a characteristic of an *object*?
  - a. Identity
  - b. Behaviour
  - c. Action**
  - d. State
  
5. Encapsulation is also known as ...
  - a. Information hiding**
  - b. Interface management
  - c. Polymorphism
  - d. Aggregation
  
6. A *class* is a description of a set of objects that share the same ...
  - a. Attributes, behaviour and operations
  - b. Identity, behaviour and state
  - c. Attributes, operations and relationships**
  - d. Relationships, operations and multiplicity
  
7. Business use-cases and actors together describe ...
  - a. The static elements of the work in progress
  - b. The dynamic elements of the work in progress
  - c. The logical view of the work in progress
  - d. The business processes that the organization supports**

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8. Business object models describe ...
- The structure of the business
  - How the structural elements are used to fulfill the business use cases
  - Both the structure of the business and how those structural elements are used to fulfill the business use cases**
  - The business view that the organization supports
9. Which statement is incorrect (false)?
- Each business use case in business model is mapped to a subsystem in the analysis model
  - Each business worker in business model is mapped to a system actor in the analysis model
  - Each business entity in business model is mapped to a class in the analysis model
  - Each object model in business model is mapped to an interaction diagram in the analysis model**
10. The visible behaviour of an object is modeled by its ...
- attributes
  - responsibilities
  - messages**
  - methods
11. Which statement is correct (true)?
- A class is an encapsulation of an object
  - A class represents the hierarchy of an object
  - A class is an instance of an object
  - A class is an abstract definition of an object**
12. Polymorphism can be described as ...
- Hiding many different implementations behind one interface**
  - Inheritance
  - Aggregation and association
  - Generalization
13. What phrase best represents a generalization relationship?
- “Is a part of”
  - “Is a kind of”**
  - “Is a replica of”
  - “Is composed of”

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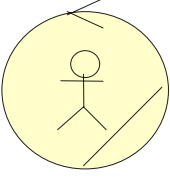
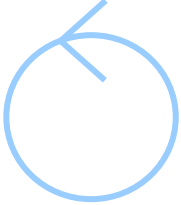
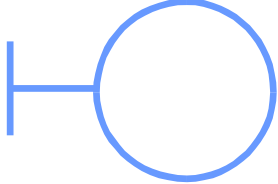
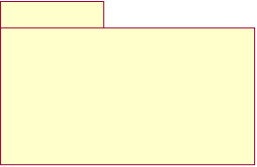
14. A subclass inherits its parents' ...
- Attributes, links
  - Attributes, operations
  - Attributes, operations, relationships**
  - Relationships, operations, links
15. If you wanted to organize elements into groups you would use which of the following?
- Package**
  - Class
  - Class and interface
  - Component
16. Which of the following diagrams describe dynamic behaviour of the software system?
- Class diagram and object diagram
  - Use-case diagram and class diagram
  - Collaboration diagram and deployment diagram**
  - Sequence diagram and collaboration diagram
17. Life cycle of a *class* is represented by ...
- Collaboration diagram
  - Statechart diagram**
  - Class diagram
  - Deployment diagram
18. Requirement artefacts include ...
- Use-case model, glossary and supplementary specification**
  - Use-case model, analysis model and design model
  - Use-case model, deployment and component models
  - Activity model, glossary and deployment model
19. In use-case model, an actor represents ...
- A role that a human, hardware device, or another system can play**
  - The same user that can perform several acts
  - A physical user regardless of its role
  - A physical system or a hardware device together with its interfaces
20. An initial attempt at defining the pieces/parts of the system and their relationships, organizing these pieces/parts into well-defined layers with explicit dependencies is called
- Use-case analysis
  - Architectural analysis**
  - Structural analysis
  - Dependency analysis

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21. Which of the followings can be represented by a *stereotype* package?
- a. An interface
  - b. A statechart diagram
  - c. An architectural layer**
  - d. A use-case model
22. Which of the following sentences is incorrect (false)?
- a. The description of use-cases is sufficient for finding analysis classes and their objects**
  - b. There should be at least one boundary object for each actor/use-case pair
  - c. There is one control class per use-case
  - d. Entity objects identified by examining the nouns and noun phrases in use-cases
23. Which of the following sentences is correct (true)?
- a. There is no restriction on multiple associations between the same two classes
  - b. There can be multiple associations between the same two classes, but they should represent different roles**
  - c. Multiple associations between the same two classes is not allowed
  - d. Multiple associations between the same two classes must be aggregated to one
24. Objects sometimes need to know when an event occurs in some “target” object, without the “target” having to know all the objects that require notification when the event occurs. This can be represented by
- a. Aggregation
  - b. Polymorphism
  - c. Subscription association**
  - d. Encapsulation

25. Write the name of the following icons in the box beneath each icon.

			
<b>Business worker</b>	<b>Control class</b>	<b>Boundary class</b>	<b>Package</b>