

**KABARAK**



**UNIVERSITY**

**EXAMINATIONS**

**2008/2009 ACADEMIC YEAR**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER  
SCIENCE**

**COURSE CODE: COMP 320**

**COURSE TITLE: OBJECT ORIENTED ANALYSIS AND DESIGN**

**STREAM: Y3S2**

**DAY: MONDAY**

**TIME: 2.00 - 4.00 P.M.**

**DATE: 08/12/2008**

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**INSTRUCTIONS:**

Answer **question one** and **any** other **two** questions

# PLEASE TURN OVER

## Question One (30mks)

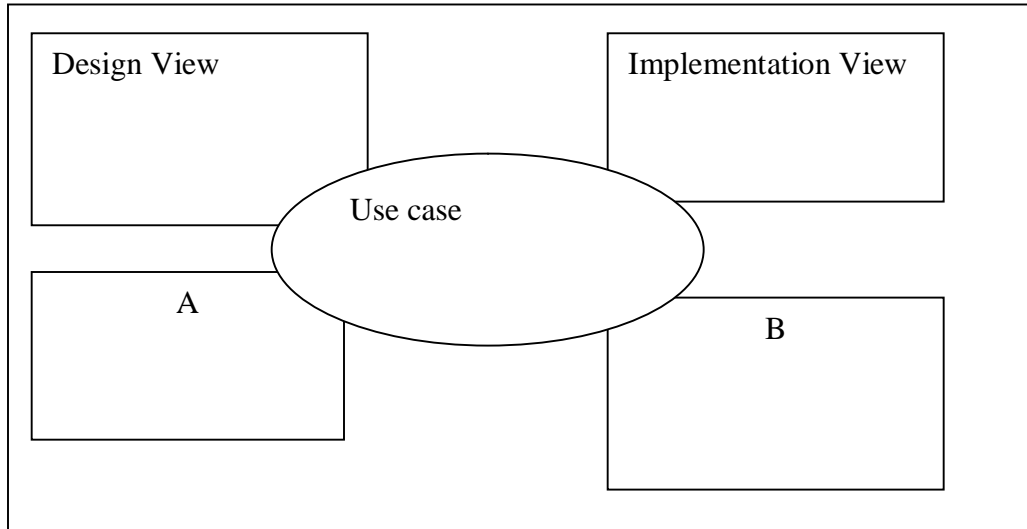
- a) Which of the following is not the reason why we model systems? [1mk]
- i. Communicate the desired structure and behavior of our systems
  - ii. Visualize and control the system's architecture
  - iii. Understand system for simplification and reuse
  - iv. Manage risks
- b) The language for visualization, specification, constructing, and documentation is known as what? [1mks]
- c) The table below shows the building blocks of the Unified Modeling Language (UML). Study it carefully and name only the missing parts. [9mks]

Building blocks	Kinds	Examples
1. Things	a) Structural	i. Class ii. .... iii. Interface iv. Use Case v. .... vi. .... vii. Active Class
	b) Behavioral	i. Interaction ii. ....
2. Relationships	c) Dependencies	
	d) .....	
	e) Realization	
3. Diagrams		i. Class, ii. .... iii. object, iv. .... v. Sequence vi. .... vii. State Chart viii. Deployment ix. ....

- d) Which of the following is not a reason why reuse is hard [2mks]
- i. Easy to find suitable components existing
  - ii. Trust of components
  - iii. Difficult to search problems
- e) Describe the following characteristics that can be measured when assessing Object Oriented Design.
- i. Size [2mks]
  - ii. Complexity [3mk]
  - iii. Cohesion [2mks]
- f) State and explain the elements of activity diagrams [10mks]

**Question Two (20mks)**

- a) Briefly describe the elements of object oriented design pattern [10mks]  
b) The diagram below shows the views of system's Architecture Model. Study it and answer the questions that follow.



- iii. Describe the steps of modeling the architecture of the system [6mks]

**Question Three (20mks)**

Students have a student number and are on a particular course e.g. BSc Computer Science. Courses have duration (number of years) and may be regular or School-Based. Regular courses run from Monday to Friday. School-Based run on April, August and December holidays for three weeks.

- a) Using the above analysis, draw clear class diagrams with attributes and operation showing possible relationships. [6mks]  
b) Briefly describe why system reuse is hard [4mks]

**Question Four (20mks)**

- a) State and explain the views of modeling system architecture [5mks]  
b) State and explain the principles of modeling [5mks]

**Question Five (20mks)**

Briefly explain the following terms

- a) Sequence diagram [4mks]  
b) Collaboration diagram [4mks]  
c) CRC [4mks]  
d) Activity diagram [4mks]  
e) Component-Based Design [4mks]