

KABARAK



UNIVERSITY

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: FRIDAY

TIME: 2.00 – 4.00 P.M.

DATE: 07/08/2009

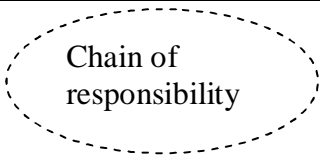
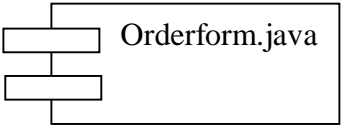
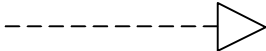


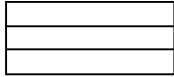
INSTRUCTIONS:

Attempt **Question ONE** and **Any other TWO**

PLEASE TURN OVER

Question one (30mks)

- a) Name the other description of an object reward from behavior and state [1mk]
- b) The table below shows the building blocks of the Unified Modeling Language (UML). Study the diagrams carefully and name each of them. [5mks]

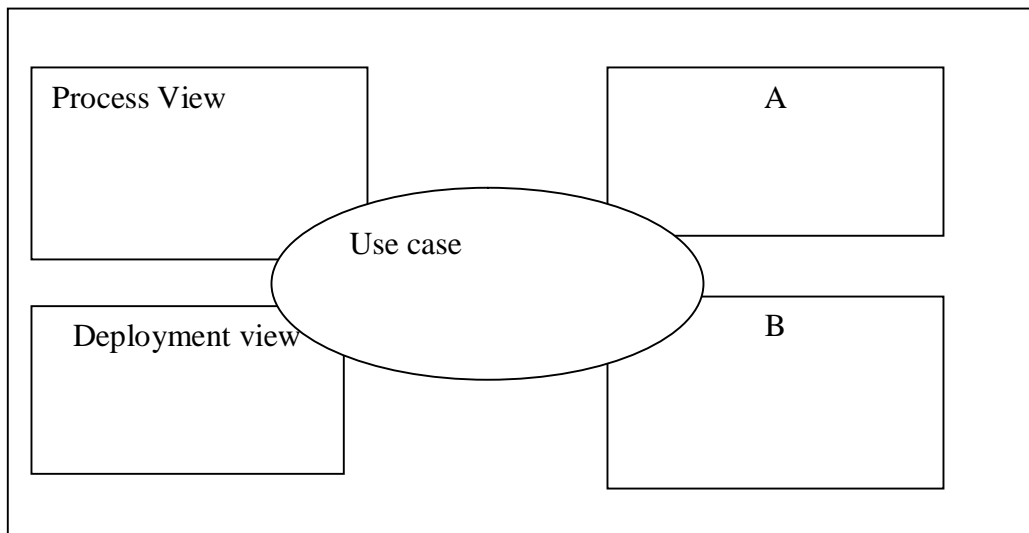
Building blocks of UML	
Diagram	Name
	Colaborations
I 
Ii 
iii 
iv 
v 

- c) The language for visualization, specification, constructing, and documentation is known as what? [1mk]
- d) High quality system is one which meets its user needs. It must be able to run on available hardware and software. Which quality is described here [1mk]
- e) Highlight two reasons why reuse is hard [2mks]
- f) Using a diagram differentiate between an actor and use case [2mks]
- g) The system architecture is an intensive system that can best be described by five interlocking views. Briefly illustrate these views [4mks]

- h) With the help of a well labeled diagram describe what you understand by a **class** as used in object oriented analysis and design [2mks]
- i) Explain the four layers of object oriented design [6mks]
- j) What basic principles are used to guide one in the design of modular architecture [6mks]

Question Two (20mks)

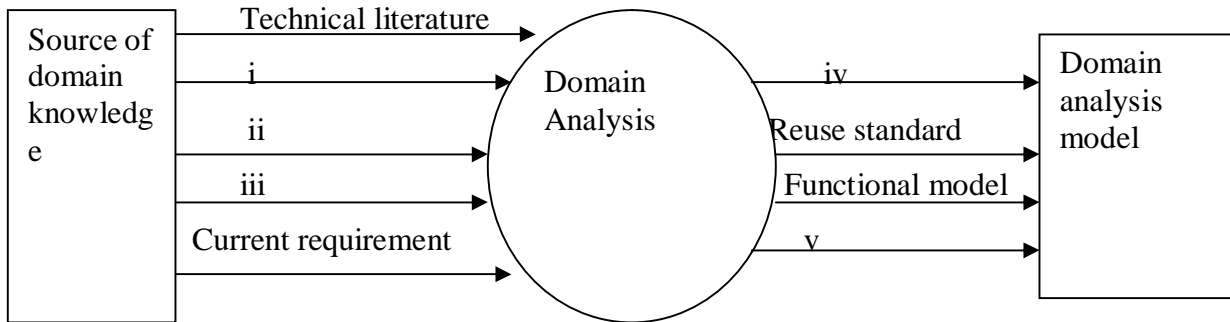
- a) Highlight two criteria that can be used to compare conventional and object oriented methods [2mks]
- b) Briefly describe the following UML diagrams
 - i. Activity diagram [2mks]
 - ii. Class diagram [2mks]
 - iii. Sequence diagram [2mks]
 - iv. Collaborative diagram [2mks]
- c) State the steps of modeling the architecture of the system [3mks]
- d) Name the qualities of a good system [4mks]
- e) The diagram below shows the views of system’s Architecture Model. Study it and answer the questions that follow.



- i. Identify the views [2mks]
 - A.....
 - B.....
- ii. Which of the views above addresses system topology and delivery [1mk]

Question Three (20mks)

a) The figure below is an input and output for domain analysis model.



Identify the inputs label i-iii and output iv and v. [5mks]

b) What are the effective approaches for reviewing a CRC model [5mks]

c) With the help of a diagram show how object oriented analysis model can be transformed to object oriented design [10mks]

Question Four (20mks)

a) Briefly explain the two strategies for integrated testing [4mks]

b) Identify the characteristics of a bug that makes it difficult in debugging [4mks]

- c) Explain the following terms in relation to object oriented testing
- i. System testing [3mks]
 - ii. Recovery testing [3mks]
 - iii. Stress testing [3mks]
 - iv. Performance testing [3mks]

Question Five (20mks)

The following is a Case Study. Use it to answer the questions that follow.

Computer Science Forth Year Students Administration

Kabarak University is considering tendering for a contract to develop a system to help the computer science department of a university administer its final year (honors) degree courses. You have been given the following description of the department's current procedures as part of the information on which to base your tender.

The current System

Towards each academic year, the syllabus committee in the department of computer science determines which modules will be available to the Fourth year (Y4) students in the following year.

At the end of each academic year, the Head of Department allocates duties to members of teaching staff and part time lecturers; in particular, one person is assigned to lecture each of the modules which are to be available next year.

Each lecturer updates the course outline for his or her module. The Y4 coordinator updates other parts of the syllabus and checks the module entries produced by the lecturers.

The undergraduate Teaching Officer (UTO) produces the paper version of the course outlines and the Y4 coordinator produces the HTML version. The UTO keeps the master list of Y4 students and updates the mailing list of the students taking Y4 modules.

The Dean of Students advises each student. Each student registers for the modules by filling in paper form and hand them to the UTO. The UTO produces lists for the lecturers of the student taking their module.

- a. Do you think the department's expectations are reasonable? [1mk]
- b. Do you think that an object oriented approach is sensible here? Give a reason for your answer [2mks]
- c. What possible queries might be required? [2mks]
- d. Draw the Use Case Model for the analysis? [4mks]
- e. Draw a conceptual level Class model [5mks]
- f. Develop the CRC card for the Use Cases and identify the operation associated with these classes. [3mks]
- g. Construct the Activity diagram for the course outline preparation. [3mks]