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University Examinations 2013/2014

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF BUSINESS INFORMATION TECHNOLOGY

BBT 2205: OBJECT ORIENTED SYSTEM ANALYSIS AND DESIGN

DATE: APRIL 2014

TIME: 2 HOURS

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

QUESTION ONE (30 MARKS)

- a) Discuss the following terms
- b) (4 marks)
 - i. Encapsulation
 - ii. Modularity
- c) Discuss the basic characteristics of an automated information system. (4 marks)
- d) Briefly explain with some examples of the following: (4 marks)
 - i. Functional requirements
 - ii. Risk Analysis
- e) In reference to software development, what is the responsibility of the system analyst? (2 marks)
- f) Briefly explain the strategies for finding objects. (4 marks)
- g) Compare and contrast structured system analysis and design, and Object oriented system analysis and design. (4 marks)
- h) Briefly discuss a UML collaboration diagram. (Please illustrate this with a diagram) (4 marks)
- i) In reference to software construction, please explain the following terms: (4 marks)
 - i. Verification
 - ii. Validation

QUESTION TWO (20 MARKS)

Analyse the following scenario and answer the questions below.

The schedule of classes for each term is produced in advance of the pre-registration date according to a time table prepared by the Records Office. By a date contained in the time table, each department in the University must submit a list of classes scheduled for the term in question. These lists are combined to form a printed class schedule. The schedule is distributed free for each department office and to each professor; students must buy theirs at the bookstore.

During the pr-registration period, students request the classes they would like to take, using a touch-tone telephone. Each class request contains the student's identifier and the identifier of the class for which the student wishes to register. If that class is not available, the student may try to enroll in a different section of the same course or in another class. After a student has registered for as many classes as possible (up to the maximum number of units permitted) a class list is printed for that student. It shows the class in which the student has been enrolled.

A class roster, containing a list of the students' names and identifier, is printed for the professor teaching each class. The list is ordered alphabetically by the students' last name.

- a) List down the functional requirements. (4 marks)
- b) Identify the actors (4 marks)
- c) Draw the use case diagram (6 marks)
- d) Draw the sequence diagram (6 marks)

QUESTION THREE – 20 MARKS

- a. Briefly discuss the software testing principles. (4 marks)
- b. Discuss waterfall model methodology indicating the deliverable at every phase. (8 marks)
- c. Briefly explain the system analysis and design activities and their corresponding deliverables. (8 marks)

QUESTION FOUR – 20 MARKS*

- a. Briefly discuss the following terms in reference to software construction.
 - i. Cohesion (3 marks)
 - ii. Coupling (3 marks)
- b. Analyse the following scenario and answer the questions below.

A local bank intends to install a new automated teller machine (ATM) to allow users (i.e bank customers) to perform basic financial transactions. Each user can have only one account

at the bank. ATM users should be able to view their account balances, withdraw cash (i.e take money out of an account) and deposit funds (place money into an account)

- i. Briefly explain the user interface components of the ATM. (3 marks)
- ii. List down the functional requirements (2 marks)
- iii. Identify the actors (3 marks)
- iv. Identify the use of cases (3marks)
- v. Draw the use case diagram (3 marks)

QUESTION FIVE – 20 MARKS

Emnet College of Technology Management has been experiencing some problems in managing the examination process. They have decided to come up with the system design to be implemented in Java or C++.

Through the normal procurement process, they have identified you as the system Analyst to give a lasting solution for the said problem.

Solution: To assist this organization you are required to come up with the following:

- a. Your role as the System Analyst (4 marks)
- b. Identify the Actors (4 marks)
- c. List the use cases or user stories (4 marks)
- d. Draw a use case program (4 marks)
- e. Show the class diagrams (4 marks)