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**University Examinations 2014/2015**

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY AND BACHELOR OF COMPUTER TECHNOLOGY.

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

**CCS 3250: OBJECT ORIENTED ANALYSIS AND DESIGN**

**DATE: OCTOBER 2015 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Citing examples discuss the following UML concepts: (6 Marks)
2. Actor.
3. Association class.
4. Aggregation.
5. Use case.
6. UML provides four types of interaction diagrams. List and briefly explain. (4 Marks)
7. Citing appropriate examples discuss the following concept of object oriented software development:
8. Enumerate and briefly explain the UML building block. (3 Marks)
9. The course administrator is responsible for managing course information in the Courseware Management System. As part of managing the course information, the course administrator carries out the following activities:
10. Check if course exists.
11. If course is new, proceed to the “create Course” step.
12. If course exists, check what operation is desired-whether to modify the course or remove the course.
13. If the modify course operation is selected by the course administrator, the “Modify Course” activity is performed.
14. If the remove course operation is selected by the course administrator, the “Remove Course” activity is performed.

Draw an activity diagram for the “Manage course information” use case. (6 Marks)

1. Discuss the notation of a state diagram. (3 Marks)

**QUESTION TWO (20 MARKS)**

1. In a table format compare and contrast any four characteristics of an object diagram and a class diagram. (4 Marks)
2. Describe using an example all the notations used in an activity diagram. (4 Marks)
3. Given the following scenario, model the sequence diagram of the described activities using all notations. (8 Marks)

Step 1 and 2: Mary creates and order.

Step 3: Mary tries to add items to the order.

Step 4 and 5: Each item is checked for availability in inventory.

Step 6 and 7: If the product is available, it is added to the order.

Step 8: She finds out that everything worked.

1. Describe the functions of the following physical diagrams:
2. Component Diagram. (2 Marks)
3. Deployment Diagram. (2 Marks)

**QUESTION THREE (20 MARKS)**

1. Citing examples discuss the following UML concepts:
2. Generalization.
3. Interface.
4. Realization.
5. <<type>> (4 Marks)
6. Explain the importance of modeling in OOA&D. (5 Marks)
7. Explain the concept of MVC architecture. (4 Marks)
8. Illustrate and discuss the RUP development process framework. (5 Marks)
9. Differentiate between structural and behavioral things in UML. (2 Marks)

**QUESTION FOUR (20 MARKS)**

1. Attribute or operation lists in a class may be organized into groups with stereotypes. name and describe any three types of stereotypes used in UML diagram. (6 Marks)
2. List and draw four UML relationships types and notations that illustrates relationships between classes. (4 Marks)
3. State any four goals of UML. (4 Marks)
4. Describe the following terms as used in UML:
5. Pattern
6. Framework
7. Swimlane (6 Marks)

**QUESTION FIVE (20 MARKS)**

1. Differentiate the following concepts:
2. Modularity and Encapsulation
3. Object Oriented Analysis & Object Oriented Design. (4 Marks)
4. Using an example for each concept, illustrate the following three kinds of relations between classes:
5. Association.
6. Aggregation.
7. Composition (6 Marks)
8. Draw a use case diagram activities when a customer interacts with an ATM machine. (4 Marks)
9. Stat the least two UML diagrams that belongs to each of the following vies of a system:
10. Use case view
11. Design view
12. Process view (6 Marks)