PAN AFRICA CHRISTIAN UNIVERSITY

SCHOOL OF LEADERSHIP, BUSINESS & TECHNOLOGY

BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

END OF TERM EXAMINATION

DEPARTMENT:	**COMPUTING & INFORMATION TECHNOLOGY**
COURSE CODE:	**BIT300**
CAMPUS:	**ROYSAMBU**
COURSE TITLE:	**OBJECT ORIENTED ANALYSIS AND DESIGN**
EXAM DATE:	**Friday 13th April 2018**
TIME:	**START HOUR – END HOUR 1730-2010HRS**

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other Four questions in Section **B.**
- Write only your **student number** on the answer booklet provided.
- None programmable calculators permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A: (Answer ALL questions in this section)

a. Differentiate between Generalization & Specialization (2 marks)

b. Explain four basic UML elements (8 marks)
c. Differentiate between class notation and object notation in UML (4 marks)
d. Briefly explain the following OOAD relations (6 marks)
   I. Association
   II. Aggregation

SECTION B: (Answer any FOUR (4) questions in this section)

a. Differentiate between *uses* and *extends* relationship as deployed in development of use-cases (5 marks)
b. Consider Airtel airtime update system. When you type the code the code can be accepted or rejected (if it has been used or if you type the wrong code).when accepted the system tell you it been accepted and tell you to wait. If busy it tell you to wait before trying again and if successful it informs you that you upload is successful. Draw the following diagrams (6 marks)

   I. class diagram
   II. Sequence
   III. Use case diagram

c. List the benefits Object Oriented Analysis (OOA) (4 marks)
d. Discus the importance of modelling in system development (5 marks)

QUESTION THREE

The bank clients interact with the bank system by going through the approval process. After the approval process, the bank client can perform the transaction. Here are the steps in the ATM transaction:

1. Insert ATM card.
2. Perform the approval process.
3. Ask type of transaction.
4. Enter type of transaction.
5. Perform transaction.
6. Eject card.
7. Request take card.
8. Take card.

a. Design an activity diagram to represent the above steps (6 marks)
b. Differentiate between an interface and collaboration (4 marks)
c. Using an example explain five different relations used with use case diagrams (10 marks)

QUESTION FOUR

a. Using diagrams discuss different UML dynamic diagrams (5 marks)
b. Using UMLusecase Diagrams design a simple system that a student can register to a portal, student can log in, student can view marks and send the results lips to a printer. On the same system a lecturer can upload , views and modify marks for the classs (5 marks)
c. Using a diagram discuss five type of multiplicities used with relationships when modeling classes (10 marks)

QUESTION FIVE

a. Differentiate between cohesion and coupling (5 marks)

b. Explain Database Models (5 marks)
c. A Facebook (FB) user could be authenticated in a web application to allow access to his/her FB resources. Facebook uses OAuth 2.0 protocol framework which enables web application (called "client"), which is usually not the FB resource owner but is acting on the FB user's behalf, to request access to resources controlled by the FB user and hosted by the FB server. Instead of using the FB user credentials to access protected resources, the web application obtains an access token. Web application should be registered by Facebook to have an application ID (client_id) and secret (client_secret). When request to some protected Facebook resources is received, web browser ("user agent") is redirected to Facebook's authorization server with application ID and the URL the user should be redirected back to after the authorization process. User receives back Request for Permission form. If the user authorizes the application to get his/her data, Facebook authorization server redirects back to the URI that was specified before together with authorization code ("verification string"). The authorization code can be exchanged by web application for an OAuth access token.

    i) Identify the classes in the narrative (4 marks)
    ii) Come up with the sequence diagram (6 marks)

QUESTION SIX

a. Briefly explain two types of binding (2 marks)
b. Differentiate between extend and include (3 marks)
c. What do you mean by class diagram? Where it is used and also discuss the steps to draw the class diagram with any example (10 marks)
d. Differentiate a component and a node (5 marks)

QUESTION SEVEN

a. Define Systems development and list all the Systems development activities (5marks)
b. What is the difference between static and dynamic view of a system

(4 marks)

c. Discuss the procedure of naming actors (6 marks)

d. Using an example discuss deployment diagram (5 marks)