THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY – DIT 10M

ECS 2310: SYSTEM ANALYSIS & DESIGN IV

END OF SEMESTER EXAMINATIONS

SERIES: DECEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consist of **FIVE** questions in **TWO** sections **A & B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

Question one 20 marks

a) State any **five** activities carried out during system implementation [5 marks]

b) Explain the following entity life history basic constructs [6 marks]
   i) Sequence
   ii) Iteration
   iii) Selection

c) Explain the following terms [6 marks]
   i) Entity
   ii) Relationship
   iii) Attributes

d) State the **three** features of Structured System Analysis and Design Methodology (SSADM)
   [3 marks]

SECTION B (ANSWER ANY TWO QUESTIONS)

Question two 20 marks

a) Giving suitable examples, explain why testing should be considered a continuous process rather than a distinct stage during software development [8 marks]

b) Describe any **three** conversion strategies used to put a developed system into use, stating one advantage and disadvantage for each. [12 marks]

Question three 20 marks

a) The fundamental principle in Structured System Analysis and Design Methodology (SSADM) is that "data changes very little over time….." Explain the relevance of this statement.
   [2 marks]

b) Explain the three different views of data employed in Structured System Analysis and Design Methodology (SSADM) [6 marks]

c) In SSADM, the design stages are numbered 4, 5, and 6.
   i) Name the three design stages [3 marks]
   ii) Describe briefly the input to stage 4 from stage 3 [2 marks]
   iii) Explain briefly the activities in each of the three design stages [6 marks]
   iv) What follows SSADM stage 6 in the project life history [1 mark]

Question four 20 marks

Relational Data Analysis (RDA- also known as normalization) helps the understanding of data in a system and assists correct file design.

   i.   Describe **two** problems which may rise with unnormalized data. [6 marks]
   ii. Describe the steps in normalizing data. [4 marks]
   iii. In which stages of analysis and design would RDA be used. [2 marks]
   iv. Explain briefly how the result can be tested to ensure it is correctly normalized. [2 marks]
   v.   Explain what is meant by normalizing a data structure. [4 marks]

Question five 20 marks

a) Using suitable diagrams/illustrations, describe the following categories of logical data structures.

[9 marks]

   i)   Hierarchical
   ii) Network
   iii) Relational

b) Explain the importance of software support and reviews   [3 marks]

c) Convert the entity invoice shown below to Third Normal Form   [8 marks]
   -   Invoice number
   -   Customer number
   -   Customer name
   -   Invoice date
   -   Item number
   -   Item description
   -   Item unit price
   -   Quantity of item ordered
   -   Extended price (quantity ordered multiplied by item price)
   -   Invoice total price