



# 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

## **SECTION A (COMPULSORY)**

### **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