



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION
TECHNOLOGY**

**DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY – DICT
2K10J**

DIPLOMA IN INFORMATION TECHNOLOGY – DIT 2K 10J

ECS 2209/EIT 2211: SYSTEM ANALYSIS AND DESIGN III

END OF SEMESTER EXAMINATIONS

SERIES: AUGUST/SEPTEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:

This paper consist of **TWO** sections **A** and **B**

Answer question **ONE (COMPULSORY)** and any other **TWO** questions from the list of questions below

This paper consists of **THREE** printed pages

SECTION A COMPULSORY (30 MARKS)

Question 1

- a) Explain the term “system flowchart” (2 marks)
- b) Draw and name any **FOUR** process symbols used in drawing system flowcharts (8 marks)
- c) Draw a system flowchart for the following description (12 marks)

When an invoice is received from a supplier, it is checked against a file of authorized purchases. If the invoice does not match an un authorized purchase, then it is returned to the supplier with a querying letter. If the invoice matches anY authorized purchase but is for incorrect amount, then it is returned to the supplier with a standard form. If the invoice reconciles, a payment authorization is made out. A cheque is then sent to the supplier and the invoice and the authorization are filed.

- d) With the aid of appropriate notations, explain **THREE** controls structures supported by Jackson Structured Programming (JSP) technique (8 marks)

SECTION B (ANSWER ANY TWO QUESTIONS)

*This section consists of **FOUR** questions 20 marks each.
Choose any two questions*

Question 2 (20 marks)

- a) Define functional decomposition (2 marks)
- b) Explain the properties of modules developed using functional decomposition (4 marks)
- c) Explain the advantages of using functional decomposition in system development (6 marks)
- d) Explain the structured walkthrough technique (8 marks)

Question 3 (20 marks)

- a) Define a decision table (2 marks)
- b) An insurance company invites applications from motorists regarding insurance cover. Applicants submit the following details
- Name and address
 - Number of accidents in the last ten years
 - License type (provisional or full)

The acceptance rules are as follows:

1. Motorist who are 31 years or over with no accidents in the last ten years and hold full license are accepted for full cover
2. Motorists who are 31 years or over with no accidents in the last ten years and hold a provisional license are accepted for third party cover
3. All others are rejected

Construct a full limited entry decision table and reduce it using the dash rule (18 marks)

Question 4 (20 marks)

- a) Define “system design” (2 marks)
- b) Explain the basic activities involved in detailed system design (15 marks)
- c) State any **THREE** characteristics of a good computer interface (3 marks)

Question 5 (20 marks)

- a) Define a decision tree (2 marks)
- b) In the case of an order from a retail electrical store chain, a discount of 4% is allowed if the order is less than \$2000, 6% if the order is between \$200 and \$5000 and 10% if the order is \$5000 and more. There is a further discount of 5% if there is only one delivery address. A note of the invoice is sent to the manager if the total amount invoiced is greater than \$1000 with all other types of customer, a 4% discount is given if the order is more than \$3000. A 5% discount is also allowed if the delivery is within 50 miles 3% discount is allowed if no other discounts have been made and the customer has an annual turnover of over \$100,000. A note of any invoice in excess of \$5000 is sent to the manager.

Draw a decision tree for this policy (18 marks)