



TECHNICAL UNIVERISTRY OF MOMBASA

# Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:  
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY  
(BTIT 14S J-FT&S-PT)

**EIT 4206: SYSTEM ANALYSIS & DESIGN**

END OF SEMESTER EXAMINATION  
SERIES: DECEMBER 2014  
TIME: 2 HOURS

**Instructions to Candidates:**

You should have the following for this examination

- Answer Booklet

This paper consists of **FIVE** questions. Attempt 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

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**Question One (Compulsory)**

a) Distinguish data modeling and process modeling (4 marks)

b) Name and describe the function of the following objects in data flow diagrams:



(2 marks)



(2 marks)



(2 marks)



(2 marks)

c) Describe FOUR important qualities of information (4 marks)

(4 marks)

d) Giving examples, illustrate THREE different types of decision that are made in an organization (6 marks)

(6 marks)

- e) Compare and contrast the role of a system analyst with that of a programmer (2 marks)
- f) Compare and contrast the waterfall method and spiral method of developing information systems, indicating clearly the strengths and weakness of each.

### Question Two

- a) List FOUR important skills a system analyst should have and show at what stage these skills are applied in development of an IS (4 marks)
- b) Discuss TWO reasons that would cause failure of an information system development project (4 marks)
- c) Differentiate between Entity-relationship diagrams and decision tables, giving examples where each may be applied (4 marks)
- d) Explain the importance of having different levels of DFDs e.g. level 0, level 1, level 2 (2 marks)
- e) Draw a level 0 dfd for the following narrative ‘When a student join a college he pays fees, registers for a programme using an I.S. The lecture’s can log in to the system and print a list of all students in a particular programme.’

### Question Three

- a) Analyze THREE reasons that cause difficulty in the detection and prevention of computer fraud. (6 marks)
- b) Discuss THREE methods to secure data in an information system (4 marks)
- c) Explain steps that can be taken to recover in case of a disaster to ensure that the information system can be restored to normal operations. (4 marks)
- d) Compare and contrast TWO types of systems changeover that offer lowest and the highest risk respectively. (6 marks)

### Question Four

- a) Explain the changes in the IT world over the last forty years (since 1970) and indicate what impact these changes have had in relation to information system development (8 marks)
- b) Differentiate between:
  - (i) Transaction processing system (2 marks)
  - (ii) Management Information System (2 marks)
  - (iii) Decision Support System (2 marks)
- c) Describe THREE different types of system testing (3 marks)

### Question Five

- a) Distinguish between inputs, processes and outputs of an information system, using examples to illustrate your answer. (3 marks)
- b) Explain FOUR major costs incurred during development of a new IS, and explain how the methodology chosen can help to lower these costs (2 marks)
- c) Explain the difference between a context diagram and a level 0 data flow diagram. (2 marks)

- d) Draw a data flow diagram for the following 'Waterstone bookshops wishes to sell some books via the web. Their web page should allow customers to register, login, browse catalogue, order for book and pay for book using visa online payment (credit card)' **(6 marks)**