

Name \_\_\_\_\_ Index No. \_\_\_\_\_ / \_\_\_\_\_

2920/201  
SYSTEMS ANALYSIS AND DESIGN  
November 2015  
Time: 3 hours

Candidate's Signature \_\_\_\_\_

Date \_\_\_\_\_



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

MODULE II

SYSTEMS ANALYSIS AND DESIGN

3 hours

**INSTRUCTIONS TO CANDIDATES**

*Write your name and index number in the spaces provided above.*

*Sign and write the date of examination in the spaces provided above.*

*Answer any **FIVE** of the following **EIGHT** questions in the spaces provided on this question paper.*

*All questions carry equal marks.*

*Candidates should answer the questions in English.*

**For Examiner's Use Only**

Question	1	2	3	4	5	6	7	8	Total Score
Candidate's score									

**This paper consists of 16 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

1. (a) Outline **four** roles of a systems analyst as a change agent. (4 marks)

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(b) Explain **two** characteristics of deterministic systems. (4 marks)

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(c) Distinguish between *waterfall* and *phased* approaches as used in system development. (4 marks)

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(d) A well-designed user documentation would yield better results when used in an organization. Explain **four** good qualities that could be in this documentation. (8 marks)

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2. (a) Define each of the following terms as used in system analysis and design:  
(i) sub-system; (2 marks)

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(ii) environment. (2 marks)

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(b) Explain **two** economic challenges experienced during systems development. (4 marks)

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(c) Differentiate between *State Transition Diagram* (STD) and *Entity Life History* (ELH) as used in system design. (4 marks)

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- (d) In the design of a user interface for an information system, certain input considerations should be considered. Explain **four** of these considerations. (8 marks)

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3. (a) Outline **four** security concerns that could be addressed in the design of an information system. (4 marks)

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- (b) Explain **two** circumstances under which soft system thinking could be used in an organization. (4 marks)

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- (c) Differentiate between *HIPO charts* and *IPO charts* as used in information systems. (4 marks)

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- (d) Figure 1 shows a closed loop control system used in information systems. Explain the functions of the parts labelled (i), (ii), (iii) and (iv). (8 marks)

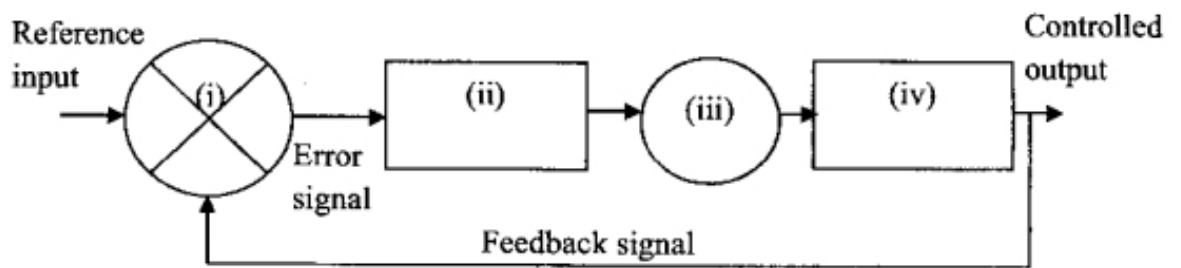


Figure 1 [Edunotes.co.ke](http://Edunotes.co.ke)

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4. (a) Outline **four** limitations of prototyping as used in system design. (4 marks)

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(b) Explain **two** disadvantages of *direct* changeover technique as used in systems implementation. (4 marks)

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(c) With the aid of sketches, explain **two** types of relationships used in ER diagrams. (8 marks)

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(d) The Strategic Plan Steering Committee of Hazel Ltd. intends to acquire a new information system for the organization. Explain **four** factors that should be considered when choosing the system. (8 marks)

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5. (a) Outline **four** limitations of telephone interview as a data collection tool. (4 marks)

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(b) Explain **two** issues addressed by the operational feasibility study of an information system. (4 marks)

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(c) Distinguish between *black box testing* and *white box testing* as used in systems development. (4 marks)

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(d) With the aid of a diagram, outline the stages of Soft System Methodology. (8 marks)

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6. (a) Explain **two** benefits that could be derived from using an adaptive information system. (4 marks)

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- (b) Distinguish between *Jackson Structured Programming (JSP)* and *Jackson System Development (JSD)* as used in systems development. (4 marks)

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- (c) Jewel Company Ltd. intends to train its employees in order to improve the overall performance of the organization. Explain **two** types of users that could be trained. (4 marks)

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- (b) Explain **two** disadvantages of payback analysis as used in systems analysis and design. (4 marks)

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- (c) Explain **two** circumstances under which record inspection could be most appropriate in data collection. (4 marks)

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- (d) Table 1 shows activities of a building construction project. Using the Critical Path Method, represent the project activities on a network diagram showing the EST and LST for each activity. (8 marks)

Task	Preceding task	Duration
A	-	5
B	A	4
C	A	3
D	C	7
E	D	6
F	B	9
G	F	5
H	G, E	3

Table 1

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8. (a) Distinguish between *usability* and *readability* as used in systems design. (4 marks)

- (b) In the development of an information system, sometimes the project is derailed due to other external factors. Outline **four** factors that could lead to project derailment. (4 marks)

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- (c) Systems review is a significant step for an information system staff to carry out. Explain **two** roles that could be played by this activity. (4 marks)

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- (d) The following is information about a tour agent who deals in bus and hotel reservations. Use it to answer the question that follows.

A tour agency arranges holidays for clients. Reservations are made directly by clients. When a client makes an approach, the Client Service clerk selects appropriate bus details and hotel details from a list which are regularly updated. The details are entered onto a Reservation file. The client must confirm these reservations within three days by sending a deposit of 40% of the costs. On receipt of the deposit, the reservation office transfers the details from the Reservation file to the Confirmed Booking file. Two weeks before the bus is due, Accountant sends an invoice to the client for the remaining costs. Accounts notify Client Service when the full payment is received and Client Service then sends tickets and joining instructions to the client.

