

2920/201  
SYSTEMS ANALYSIS AND DESIGN  
November 2018  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL  
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY  
MODULE II

SYSTEMS ANALYSIS AND DESIGN

3 hours

**INSTRUCTIONS TO CANDIDATES**

*This paper consists of EIGHT questions  
Answer any FIVE questions in the answer booklet provided.  
All questions carry equal marks.  
Candidates should answer the questions in English.*

**This paper consists of 4 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** rules that should be observed when drawing a *data flow diagram*. (4 marks)
- (b) Explain **three** responsibilities of a project manager in an Information Communication Technology project. (6 marks)
- (c) Nina, a system analyst at Faida Company, developed a system documentation. Explain **three** purposes of this documentation. (6 marks)
- (d) Techbriz Company is undertaking an Information Communication Technology project that is almost failing. Explain **two** signs exhibited by such projects. (4 marks)
2. (a) Outline **four** advantages of using questionnaires in data gathering. (4 marks)
- (b) Table 1 shows activities completion time and preceding activities of a project. Use it to answer the questions that follow:

Activity	Completion time (weeks)	Preceded by
A	2	-
B	3	-
C	4	A
D	3	A
E	8	B,C
F	3	D
G	2	E

Table 1

- (i) Draw a network diagram for the project. (4 marks)
- (ii) Determine the critical path for the project using the earliest and latest times. (2 marks)
- (c) Differentiate between *preventive* and *perfective* system maintenance. (4 marks)
- (d) Diztech Company has acquired a new system and would like to train the users. Describe **three** categories of such users. (6 marks)
3. (a) Outline **four** advantages of using a *Gantt chart* during project management. (4 marks)
- (b) Baraka Company limited has acquired a *Management Information System* (MIS). Explain **two** benefits that the company would realise from this system. (4 marks)
- (c) (i) With the aid of a diagram, describe the waterfall model as used in system design. (4 marks)
- (ii) Explain **two** benefits of carrying out a feasibility study in system development. (4 marks)

- (d) Hillary used *top down analysis methodology* on an ICT project. Outline **four** reasons for his choice. (4 marks)
4. (a) (i) Describe **one** component of a *user manual*. (2 marks)
- (ii) Faith, a system designer, used the *Jackson Structured Programming* to design a system. With the aid of a sketch, describe **two** notations that she could have used. (4 marks)
- (b) A team leader of an ICT project realised that they may not achieve the laid down objectives. Explain **three** strategies that the leader would apply to achieve the objectives. (6 marks)
- (c) A system analyst prepared the terms of reference for a system. Outline **four** items that the analyst could have included in this document. (4 marks)
- (d) Distinguish between *leasing* and *outsourcing* system acquisition methods. (4 marks)
5. (a) Outline **four** advantages of using *structured narrative* as a system design tool. (4 marks)
- (b) Describe each of the following types of systems:
- (i) open;
- (ii) probabilistic;
- (iii) adaptive. (6 marks)
- (c) Explain a circumstance under which each of the following *system change-over* techniques would be appropriate:
- (i) parallel;
- (ii) direct. (4 marks)
- (d) A system designer used *functional decomposition* in a system. Explain **three** advantages of this tool. (6 marks)
6. (a) (i) State **two** objects of a *data dictionary*. (2 marks)
- (ii) Paul used a data dictionary in analysing a system. Outline **two** benefits he realised from using this. (2 marks)
- (b) James, a system analyst, carried out a feasibility study for a system. Explain **three** areas of such studies. (6 marks)
- (c) Differentiate between *structured* and *menu driven* system analysis approaches. (4 marks)
- (d) Liztech, an ICT Company, uses project management software in a project. Explain **three** uses of such software. (6 marks)

7. (a) (i) Outline **three** advantages of using a flowchart as a system analysis tool. (3 marks)
- (ii) Elimubora Technical intends to develop a system using a new trend of system development. Outline **three** such trends. (3 marks)
- (b) Distinguish between a *system designer* and a *system developer*. (4 marks)
- (c) Explain **two** reasons why employees should be trained to use a new system. (4 marks)
- (d) With the aid of a diagram, describe the stages in the spiral system development life cycle. (6 marks)
8. (a) Outline **four** disadvantages of a structured chart design tool. (4 marks)
- (b) Explain **three** components of system design. (6 marks)
- (c) A student intends to use interview technique to collect data for a project. Explain **two** disadvantages of this technique. (4 marks)
- (d) Paul developed a system using *Structural Systems Analysis and Design Methodology* (SSADM). Describe **three** models of this methodology that he could have used. (6 marks)

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