

2920/201

SYSTEMS ANALYSIS AND DESIGN

July 2019

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

MODULE II

SYSTEMS ANALYSIS AND DESIGN

3 hours

INSTRUCTIONS TO CANDIDATES

*Answer any FIVE of the following EIGHT 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** guidelines followed when creating *flowcharts*. (4 marks)
- (b) Differentiate between *logical and physical* system design models. (4 marks)
- (c) Biltech, an ICT Company has been using *project management software* in its projects. Explain **three** benefits that the company would realise from this. (6 marks)
- (d) John developed a *terms of reference* document during systems problem definition stage. Explain **three** benefits of this document. (6 marks)
2. (a) Outline **four** advantages of using interview method as a data gathering tool. (4 marks)
- (b) Explain **two** advantages of managing an ICT project. (4 marks)
- (c) Daphne an ICT project manager has been mandated to ensure that all risks associated with software development projects are minimised. Explain **three** activities that she could perform in order to achieve her objective. (6 marks)
- (d) A Company is planning to train its users on a new system it has acquired. Describe **three** methods of user training it would apply. (6 marks)
3. (a) Outline **four** advantages of using *prototype* during system development. (4 marks)
- (b) Describe each of the following fact finding methods used in system development:
- (i) observation;
- (ii) research;
- (iii) document inspection. (6 marks)
- (c) State **two** differences between *system design* and *system coding* stages. (4 marks)
- (d) A student opted to use *bottom-up approach* during systems analysis. Explain **three** possible reasons for this. (6 marks)
4. (a) Explain **three** components of an Information System. (6 marks)
- (b) Explain a circumstance under which each of the following *system acquisition methods* would be most appropriate:
- (i) leasing;
- (ii) outsourcing. (4 marks)
- (c) Distinguish between *structured English* and *pseudo-code* system design tools. (4 marks)
- (d) Leo Company has been dealing with a failing ICT project. Describe **three** signs that such projects exhibit. (6 marks)
5. (a) (i) Outline **four** advantages of *decision tables* as a system design tool. (4 marks)
- (ii) Yamtech Company intends to design a new system. Explain **three** qualities that this design should have. (6 marks)

- (b) Distinguish between *deterministic* and *probabilistic* systems. (4 marks)
- (c) Explain **two** reasons that could make a company prefer *direct* change-over method during system implementation. (4 marks)
- (d) Figure 1 shows a dataflow symbol. Use it to answer the question that follows.

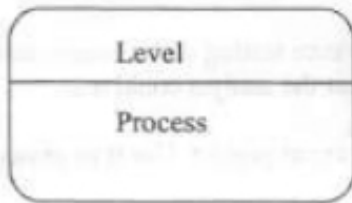


Figure 1

Identify the symbol and state its function. (2 marks)

6. (a) Describe *entity life history* (ELH) as a systems analysis tool. (2 marks)
- (b) Mambo Company intends to use *functional decomposition* method during system design. Explain **three** limitations of using this method. (6 marks)
- (c) Moto Company has introduced a *decision support system* to be used in the organisation. Explain **three** characteristics of this system. (6 marks)
- (d) Figure 2 shows an approach to system development. Use it to answer the questions that follow:

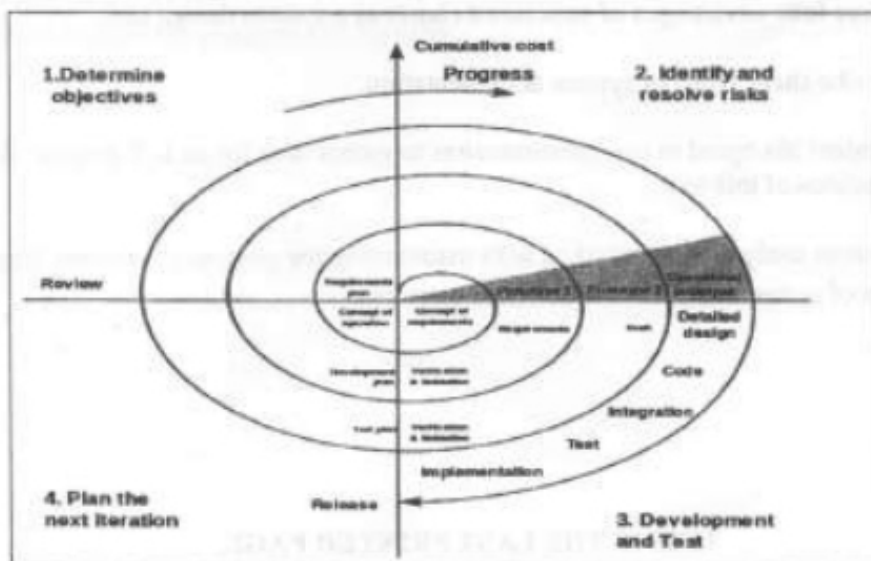


Figure 2

- (i) Identify the approach, justifying your answer. (2 marks)
- (ii) Outline **four** advantages of this approach. (4 marks)
7. (a) Outline **four** advantages of a *data dictionary* as a system analysis tool. (4 marks)
- (b) State **one** difference between *technical* and *operational* feasibility study. (4 marks)
- (c) A system analyst intends to carry out an acceptance testing on a system under development. Explain **three** testing methods that the analyst could use. (6 marks)
- (d) Table 1 shows the details of a software development project. Use it to answer the question that follows.

Activity	Duration (days)	Predecessor(s)
A	2	-
B	2	A
C	3	A
D	1	B
E	3	C,D
F	2	C,D
G	5	E
H	6	F,G

Table 1

- Draw a network diagram for the project. (6 marks)
8. (a) Outline **four** advantages of *structured charts* as a system design tool. (4 marks)
- (b) Describe **three** types of system documentation. (6 marks)
- (c) A student has opted to use questionnaires to gather data for an ICT project. Explain **two** limitations of this tool. (4 marks)
- (d) A system analyst as been tasked with maintaining the company's system. Explain **three** types of system maintenance he could carry out. (6 marks)

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