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.

Turn over

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 used *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)

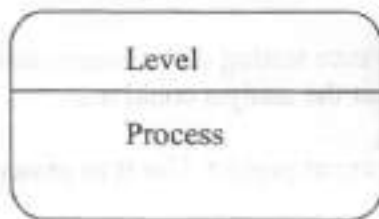(d)   Figure 1 shows a dataflow symbol. Use it to anwer the question that follows.

```
 _____
|     Level      |
|_____|
|    Process     |
|_____|
```

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)

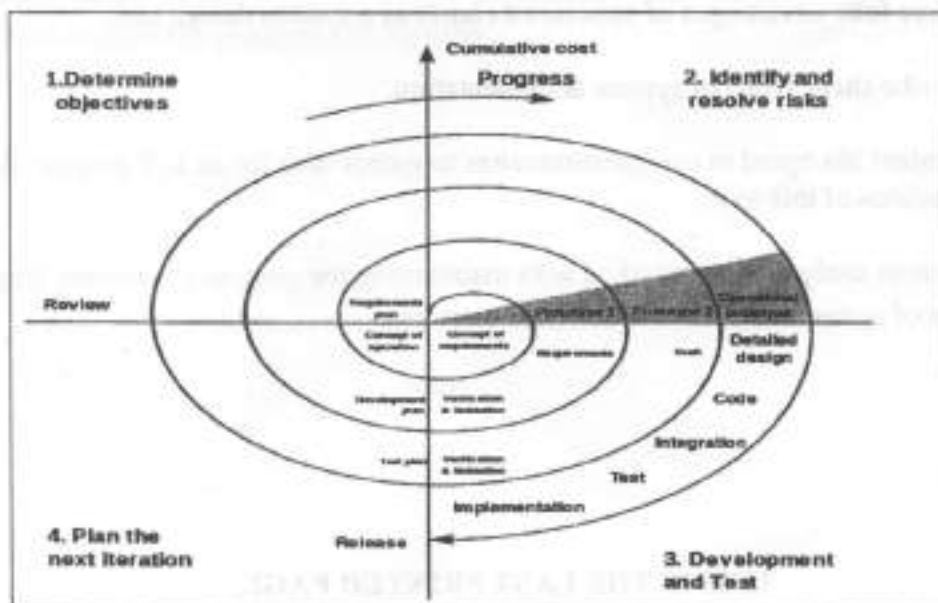   (d)   Figure 2 shows an approach to system development. Use it to answer the questions that follow:

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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