1. (a) (i) State **two** types of system controls as used in information systems. (1 mark)

(ii) Outline **two** roles of information in organizations. (2 marks)

(b) Differentiate between *direct* and *pilot* changeover strategies. (4 marks)

(c) Wasch, a rural self help Sacco intends to implement an add-ons module to an existing system.

(i) State the most appropriate method of training the Sacco could use justifying your answer. (2 marks)

(ii) Explain **two** challenges with the method in (i). (4 marks)

(d) Table 1 shows details of project A and project B.
Given that initial costs for the projects was Kshs.50,000 and Kshs.150,000 respectively determine the:

(i) most worthwhile project using the *return on investment* technique; (4 marks)

(ii) *payback* period for each project. (3 marks)

Table 1

Year	Project A	Project B
	Net profit value (Ksh `000)	Net profit value (Ksh `000)
1	10	20
2	20	30
3	10	80
4	10	50
5	30	30

2. (a) (i) State **four** usability considerations when designing a new system. (2 marks)

(ii) State **four** physical threats that can affect an information system. (2 marks)

(b) Differentiate between *indexed-sequential* and *sequential* file organization methods. (4 marks)

(c) Jane, a systems analyst with a certain company carried out a *static testing* on a proposed system. After implementation the system users realized that the system was generating incorrect output.

(i) Outline **two** scope of the testing strategy used. (4 marks)

(ii) Identify **two** limitations of the adopted testing strategic. (2 marks)

(d) A customer with a certain bank is issued an ATM card after opening an account with a bank. At the ATM machine, he/she is supposed to enter correct ATM pin number and then select appropriate transaction. The ATM verifies the status of the customer's account and if information is satisfactory, the transaction is executed, the ATM card issued back and receipt is generated. Otherwise ATM card is rejected. The customer's account file is then updated appropriately. The transaction may include balance inquiry and withdraw.
Draw a *state transition diagram* to represent this information. (6 marks)

3. (a) Explain each of the following terms in relation to system documentation:

(i) accuracy;

(ii) exhaustive.

(4 marks)

(b) Differentiate between *investigation* and *fact recording* as used in feasibility studies. (4 marks)

(c) Dominic, a business man who owns a big carpentry industry decided to consult a systems analyst about development of a system that would maximize efficiency of his carpentry industry.

(i) Identify **two** appropriate system thinking methods the consultant could use. (4 marks)

(ii) Outline **two** advantages of using appropriate system thinking.

(2 marks)

(d) Read the following narrative and answer the question that follows.

A 15-aside rugby male team is to be constituted in a mixed technical training Institute. A team member should be more than 5ft tall and not less than 50kgs.

Construct a *limited entry decision table* to represent the information.

(6 marks)

4. (a) State **four** possible causes of *corrective maintenance*. (2 marks)

(b) (i) Figure 1 shows a design tool.

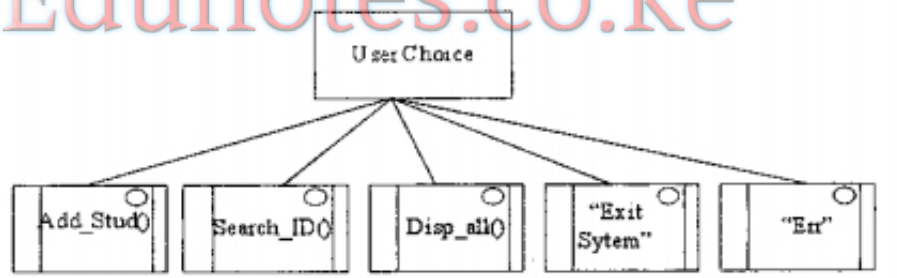

Fig. 1

(I) Identify the design tool justifying your answer. (2 marks)

(II) Explain **two** advantages of the design tool identified in (I).

(4 marks)

(ii) Explain **two** limitations of using *structured charts* in systems analysis. (4 marks)

(c) Philip, a systems analyst with a new company has a task of reviewing the information system.

(i) Identify the most appropriate type of documentation that he would require to efficiently carry out the task justifying your answer.

(2 marks)

(ii) Outline **six** possible *contents* of the type of documentation identified in (i). (6 marks)

5. (a) (i) Explain **two** rules used in construction of *data flow diagram*. (4 marks)

(ii) Differentiate between *entity relation* diagrams and *entity life history* diagrams. (4 marks)

(iii) Assuming that you are a systems analyst at Exsys Company Ltd., and that the company intends to develop an information system for its human resource operations. Outline **four** specific objectives for the proposed system. (4 marks)

(b) Explain **two** factors that would necessitate the use of prototyping during system development. (4 marks)

(c) Agnes intends to gather data for her trade project. Outline **four** data gathering methods she could use clearly stating their possible use. (4 marks)

6. (a) (i) Explain the term *ergonomic* as used in systems design. (2 marks)

(ii) Explain **two** significances of system development life cycle. (4 marks)

(iii) Describe the following terms as used in systems analysis:

(I) workflow;

(II) conceptual data model. (4 marks)

(b) Outline **two** objectives of good system design. (2 marks)

(c) A module II student in a certain college was given an assignment to design two modules in system that would:

(i) calculate determine and display the difference of two numbers if the first number is greater than the second one, else calculate the sum of the two numbers;

(ii) determine and display the largest number in a set of three numbers.

Draw a system flowchart to represent each of the module. (8 marks)

7. (a) Outline **two** types of data input methods that can be used in information systems. (2 marks)

(b) Figure 2 shows an organization chart for a particular company.
State **two** characteristics for the information system used at each management level. (6 marks)

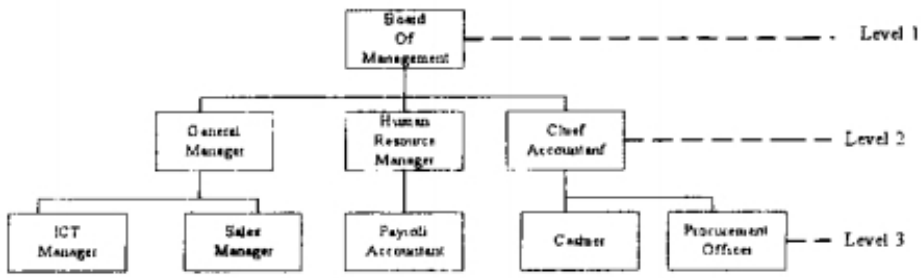

Fig. 2

(c) RST Company Ltd., intends to recruit a systems analyst. Explain **two** technical skills that the company would expect the system analyst to posses. (4 marks)

(d) The following are characteristics of different systems:

(i) Does not interact with the system environment;

(ii) Its behavior is dictated by the changes in the environment;

(iii). The output can be predicted based on the input;

(iv). The system does not have a definite boundary.

Identify each of the system. (8 marks)

8. (a) Outline **four** factors that would affect system maintenance. (4 marks)

(b) Differentiate between *hard* and *soft* systems. (4 marks)

(c) (i) Ann, a system analyst with a certain company is required to develop a *term of reference* document which is to be used for a proposed system. Outline **four** roles of this document. (4 marks)

(ii) A module II student would like to carry out a feasibility study for a term project. Outline **four** aspects that the study should address. (4 marks)

(d) Tom, a systems analyst with a software development company was required to design a database management system.

(i) Outline **two** types of *data files* that he would use in the proposed system. (2 marks)

(ii) Outline **two** *principle requirements* he would consider when selecting the storage media for the proposed database system. (2 marks)