



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND TERM EXAMINATION FOR

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

SYSTEMS ANALYSIS AND DESIGN

DATE: 3/6/2021

TIME: 8.30-11.30 AM

INSTRUCTIONS

Answer any five questions

QUESTION ONE

- a) Outline six key stages of the systems development life cycle. (8 marks)
- b) Describe four fact finding techniques that can be used by a systems analyst during systems investigation. (8 marks)
- c) A vital decision to be taken with regard to the implementation of a new information system is the method of changeover from a manual to a computerized one.
Explain the circumstances under which direct changeover would be more appropriate. (4 marks)

QUESTION TWO

- a) Describe four roles of system analyst in the development of computerized information systems. (8 marks)
- b) Explain the following categories of systems in connection with management decision making, clearly distinguishing between the categories.
 - i. Transaction Processing Systems (3 marks)
 - ii. Management Information Systems (3 marks)
 - iii. Decision Support Systems (3 marks)
 - iv. Executive Support Systems (3 marks)

QUESTION THREE

- a) Define the following terms;
 - i. Information system (2 marks)
 - ii. network diagram (2 marks)
- b) Explain three basic components of an open system. (6 marks)
- c) Explain four characteristics of a well-designed information system. (8 marks)
- d) Identify two challenges faced in systems maintenance. (2 marks)

QUESTION FOUR

- a) Define the following terms as used in information systems development.
 - i. file design (2 marks)
 - ii. decision table (2 marks)
 - iii. prototyping (2 marks)
 - iv. functional decomposition (2 marks)
 - v. integration testing (2 marks)
- b) Describe two types of open systems. (4 marks)
- c) Explain three reasons that may prompt introduction of a new information system in an organization. (6 marks)

QUESTION FIVE

- a) Describe two types of information system maintenance. (2 marks)
- b) Explain why an adaptive system is sometimes referred to as a self-organizing system. (2 marks)
- c) Differentiate between the following pairs of terms.
 - i. Closed system and open system (4 marks)
 - ii. Deterministic and Probabilistic (4 marks)
 - iii. Logical system design and physical system design (4 marks)
 - iv. User program and application package (4 marks)

QUESTION SIX

- a) State four objectives of output design in systems development. (4 marks)
- b)
 - i Explain the term, post-implementation audit. (2 marks)
 - ii Explain the purpose of such an audit, identifying the aspects of systems operation on which it will focus. (8 marks)
- c) State four components of a decision support system. (4 marks)
- d) Explain the meaning an expert system. (2 marks)

QUESTION SEVEN

- a) Define the term “feasibility study”. (2 marks)
- b) Identify two objectives of a feasibility study. (2 marks)
- c) Explain the meaning of the following terms;
 - i. Technical feasibility study (3 marks)
 - ii. Operational feasibility study (3 marks)
 - iii. Economic feasibility study (3 marks)
 - iv. Data Flow Diagram (3 marks)
- d) Why is it desirable to encourage end-users to participate in the systems development process?
Suggest two ways of encouraging and ensuring such participation by end-users. (4 marks)