



MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)**

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO 421/SIT 408: DECISION SUPPORT SYSTEMS

DATE:

TIME:

INSTRUCTIONS: Answer Question ONE and Any Other TWO Questions.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Define the following terms: (2 marks)
 - i) Decision support system
 - ii) Decision
- b) A DSS is typically built to support the solution of a certain problem or to evaluate an opportunity. Describe THREE key characteristics and capabilities of DSS. (6 marks)
- c) Describe FIVE characteristics of group decision support systems that make them different from a normal decision support system. (5 marks)
- d) Discuss FIVE benefits an organization enjoys from an improved decision making process through the adoption of a decision support system. (5 marks)
- e) Using an illustration, discuss the extended decision support framework. (6 marks)
- f) Describe TWO business benefits to an organization for each of the following information systems:
 - i) Material Requirements Planning (2 marks)
 - ii) Management Support Systems. (2 marks)
 - iii) Enterprise Resource Planning (2 marks)

QUESTION TWO (20 MARKS)

- a) Differentiate between a data warehouse and a data mart. (2 marks)
- b) Decision making process is always a crucial process in a business that may determine the success or failure of the business. An appropriate procedure has to be followed for the success of a particular decision. Discuss the FOUR major steps that have to be followed in decision making process. (8 marks)
- c) Using an example, discuss the THREE major types of decisions distinguishable in a decision support system. (6 marks)
- d) Decision support experts generally agree that the interface represents the single most important component in the system. Justify why the user interface is such an important component in a DSS. (4 marks)

QUESTION THREE (20 MARKS)

The admissions office at Machakos University needs a decision support system for evaluating applications. They need to build a database for the DSS.

- a) Specify FOUR data sources and data that could be found for the admissions office to use. (4 marks)
- b) Discuss FOUR issues that have to be addressed when building such a DSS by the institution. (8 marks)
- c) Explain THREE major problems or difficulties anticipated with the implementation and use of the decision support solution at the institution. (6 marks)
- d) Describe TWO OLAP operations that can be performed on the system when the institution forms a warehouse. (2 marks)

QUESTION FOUR (20 MARKS)

- a) Describe FIVE technological developments that have contributed to facilitating growth of decision support and analytics in businesses today (5 marks)
- b) Feasibility study allows testing the decisional, economic and technological feasibility of a proposed decision support system and succeeds the diagnostic study of a decision making process. Highlight SIX aims of this study in decision support development. (6 marks)
- c) Highlight three differences between the following information systems:
 - i) Decision Support System and Transaction Processing Systems (3 marks)
 - ii) Decision Support System and Expert systems (3 marks)
 - iii) Business Intelligence and Decision Support systems (3 marks)

QUESTION FIVE (20 MARKS)

- a) Give THREE reasons why the web is considered so important for decision support systems. (3 marks)
- b) Provide a brief description of the FOUR components of a DSS application. (8 marks)
- c) Describe FIVE group decision support system software tools specifying the role of each tool. (5 marks)
- d) Discuss TWO OLAP business application areas in decision support systems. (4 marks)