



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATIONS FOR

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SIT 408/SCO 421 – DECISION SUPPORT SYSTEMS

DATE: 6/12/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

- a) Describe two applications of semantic web. (6 marks)
- b) Discuss the following as used in DSS giving examples: (6 marks)
 - i. Optimization
 - ii. Sensitive Analysis
- c) Give FIVE advantages using decision support systems. (5 marks)
- d) Distinguish between a Model-driven and data driven DSS. Give an example in each case. (6 marks)
- e) Describe the design phase of decision making process. (5 marks)
- f) Explain data marts as used in DSS (2 marks)

QUESTION TWO (20 MARKS)

- a) With a schematic view of DSS. Explain the various components of DSS. (10 marks)
- b) Describe three common tools for knowledge harvesting used in DSS (6 marks)
- c) Distinguish between
 - i. Analytical and Heuristics decision making techniques. (2 marks)
 - ii. What-If Analysis and Sensitivity Analysis. (2 marks)

QUESTION THREE (20 MARKS)

- a) Describe how GDSS works to enhance groups' decision making. (6 marks)
- b) Outline four factors involved in the successful outcome of any group meeting. (4 marks)
- c) You an ICT officer for Machakos University. You are suppose to make a decision whether to develop a new system or to upgrade the existing system. Use a decision tree to make the decision. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Suppose a Company can manufacture four different alloys numbered 1 through4, by combining differing amounts of two constituent components. In particular, suppose we are given the following information.

Proportion of Metal in Alloy					
Metal	1	2	3	4	Availability per day
1	0.5	0.6	0.3	0.1	25 tons
2	0.5	0.4	0.7	0.9	40 tons
Alloy price (&/ton)	750	800	1200	1400	

- Identify all the decision variables, the objective function and the constraints functions necessary to optimize the product mix problem (do not solve the equation). (8 marks)
- b) “Knowledge management is not a technology, but a strategic solution that applies information technology”
 - i. Explain the term knowledge management. (2 marks)
 - ii. Distinguish between facit and explicit knowledge. (4 marks)
 - iii. .Explain three benefits of knowledge management. (6 marks)