

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESITS/SPECIAL EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE COMPUTER SCIENCE

COSC 442: DECISION SUPPORT SYSTEMS

STREAMS: BSC (COMP.SCI)Y4S2

TIME: 2 HOURS

DAY/DATE: MONDAY 28/8/2023

8.30 A.M. – 10.30 A.M.

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Sketch maps and diagrams may be used whenever they help to illustrate your answer
- Do not write anything on the question paper
- This is a **closed book exam**, No reference materials are allowed in the examination room
- There will be **No** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely

QUESTION ONE COMPULSORY - (THIRTY MARKS)

- (a) Describe the three forces that affect a particular individual's decisions style. [3 marks]
- (b) List and briefly describe the three fundamental components of a problem structure. [3 marks]
- (c) Describe genes and chromosome as applied to genetic algorithms. [4 marks]
- (d) Cite the purposes for which decision support systems may exist. [4 marks]
- (e) "Prototyping is the desired method for development of DSS". Comment. [4 marks]
- (f) Describe Knowledge management and it is important in decision making. Give an example of how the two can be integrated. [6 marks]
- (g) Explain how neural networks relate to Decision Support Systems. [6 marks]

SECTION B (40 MARKS) CHOOSE TWO QUESTIONS

QUESTION TWO (20 MARKS)

- (a) What is data mining? [2 marks]
- (b) List and briefly describe the classes of decision makers. [3 marks]
- (c) Describe the three forces that affect a particular individual's decisions style. [3 marks]
- (d) Explain the relevance of data mining to Decision Support Systems. [6 marks]
- (e) List and briefly describe the basic components of a DSS with a diagram. [6 marks]

QUESTION THREE (20 MARKS)

- (a) Explain the goal of data warehouse and describe the architecture of the same with the functionality of each component. [6 marks]
- (b) What is a data warehouse? How is it better than traditional information-gathering techniques? [6 marks]
- (c) With the aid of one or more diagrams, describe the general structure of an artificial neural network AND explain how it "learns". [8 marks]

QUESTION FOUR (20 MARKS)

- (a) What are the three primary challenges to obtaining valid knowledge? [3 marks]
- (b) Explain the five dimensions of organizational decisions. [5 marks]
- (c) Compare the two common methods of modelling a problem structure: influence diagram and decision tree. What are the focuses of each? [6 marks]
- (d) Explain how the following key areas determine the relative difficulty in decision making: [6 marks]
 - (i) Uncertainty.
 - (ii) Structure.
 - (iii) Cognitive limitations.

QUESTION FIVE (20 MARKS)

- (a) List and briefly describe four basic types of communication networks in group interactions. [4 marks]
- (b) Explain any four dimensions of organizational decisions. [4 marks]
- (c) You are about to buy a car. Follow Simon's Four phase model and describe your activities in each step. [6 marks]
- (d) Describe the activity-based typology of decisions. Give an example of each class. [6 marks]

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