



MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

BACHELOR SCIENCE (MATHEMATICS)

SMA 490: SYSTEM ANALYSIS AND DESIGN

DATE: 20/12/2022

TIME: 11:00 – 1:00P.M

Instructions

This paper consists of FIVE questions

*Answer **question one** and other **two** questions in this paper*

QUESTION ONE (30 MARKS)

- a) State TWO skills expected of a system analyst (2 marks)
- b) For an organization to develop a system, the idea has to be initiated from different sources, discuss THREE areas where information systems projects originate from. (6 marks)
- c) Testing is a system development stage, identify and explain in the correct sequence the THREE levels of involved. (6 marks)
- d) Describe the THREE techniques in which Structured system analysis and design revolves around. (6 marks)
- e) Documentation is a key component during system development life cycle, explain why it is an important section in system analysis and design. (2 marks)
- f) Distinguish between system implementation and system maintenance. (2 marks)

- g) An information system is integrated and co-ordinate network of components, which combine together to convert data into information. Explain THREE elements of the information system structure. (6 marks)

QUESTION TWO (20 MARKS)

- a) Explain when in the system development life cycle a feasibility study document would be produced, and describe the contents of terms of reference (TOR) document. (7 marks)
- b) Discuss FOUR types of feasibility study (8 marks)
- c) Which approach would you recommend for developing a system for medical appointments? Justify your recommendation. (3 marks)
- d) Highlight TWO signs of system Obsolesce: (2 marks)

QUESTION THREE (20 MARKS)

- a) System design is the phase that bridges the gap between problem domain and the existing system in a manageable way. Discuss FOUR inputs and outputs of the system design (8 marks)
- b) Using appropriate diagrams, illustrate the THREE types of entity relationships used in system analysis and design. (6 marks)
- c) Explain THREE key responsibilities of the project committee in information system development project. (6 marks)

QUESTION FOUR (20 MARKS)

- a) Outline FOUR advantages of using questionnaires as a fact-finding method . (4 marks)
- b) A system analyst prepared the terms of reference of a system. Discuss FOUR items that would be included on the Terms of Reference document. (8 marks)
- c) During feasibility study stage of system development life cycle, it is important to conduct FOUR types of studies, briefly explain each (8 marks)

QUESTION FIVE (20 MARKS)

- a) Explain the term DFD and with the aid of a diagram, explain the four DFD symbols. (5 marks)
- b) A developer intends to use object-oriented methodology for a proposed information system in his company. Explain THREE viewpoints used in object modelling techniques that he could realize while using this methodology. (6 marks)

- c) John was required to carry out training of new users for a new information system in an organization
- i. State the most appropriate category of users that should be the last to be trained as per organizational structure (3 marks)
 - ii. Explain THREE challenges that are likely to be experienced during the training. (6 marks)