



Machakos University College

# MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)  
University Examinations for 2014/2015 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING

**First Year Second Semester Examination for Bachelor of Science Information Technology**

**SIT 107**

**INTRODUCTION TO INFORMATION SYSTEMS**

**Date: April 2015**

**Time: 8:30 – 10:30 AM**

---

**Instructions: Answer question ONE and any other TWO questions.**

**Question One (30 Marks)**

- a) Define the following terms as used in Information Systems. (3 marks)
  - i) Information;
  - ii) Data;
  - iii) EEPROM.
- b) Organizational factors play a major role in dictating the kind of information that is produced and how it is communicated. Explain these factors. (5 marks)
- c) Explain the **three** pillars of quality information and their function in meeting the information needs of decision makers. (3 marks)
- d) Describe the **six** building blocks that make up an information system. (6 marks)
- e) Discuss and give an example of the use of magnetic ink character recognition as an efficient data input method. (2 marks)
- f) Distinguish between a statistical time division multiplexer a time division multiplexer. (2 marks)
- g) Explain the major steps in the information cycle. (6 marks)
- h) Discuss **three** key trade-offs associated with information systems. (3 marks)

### **Question Two (20 Marks)**

- a) James, a system analyst in a certain organization would like to develop a new system. List **three** steps he would require to develop a strategic information systems plan. (6 marks)
- b) i) Describe the **two** approaches to signal transmission. (4 marks)  
ii) For each of the approaches described in (i) list **three** advantages and disadvantages of each approach. (6 marks)
- c) Citing an example in each case, Explain each of the following terms as used in databases.
  - i) Logical properties;
  - ii) Physical properties. (4 marks)

### **Question Three (20 Marks)**

- a) Identify and explain the significance of the **six** systems requirements (10 marks)
- b) Discuss environmental and physical conditions that ergonomics addresses in trying to optimize the user/system interface (10 marks)

### **Question Four (20 marks)**

- a) i) Mary, a system analyst intends to design a new system. Describe **five** types of feasibility studies that she could carry out. (5 marks)  
  
ii) State how each of the feasibility study affects the design of the system. (5 marks)
- b) The master plan from which a proficient, operative information system evolves is called the information systems development methodology. Describe the **five** major phases of this methodology. (10 marks)

### **Question Five (20 marks)**

- a) Explain **three** design forces that can be applied to extend the life span of an information system. (6 marks)
- b) With the aid of diagrams, compare distributed and client server technologies. (4 marks)
- c) List **six** advantages of fiber optic cables in computer networks. (3 marks)
- d) i) Using a well labeled diagram describe each of the following LAN topologies
  - I. Bus
  - II. Ring (4 marks)ii) Describe the mechanism used to accept a message from a device for each of the topologies in (i) (3 marks)