



MAASAI MARA UNIVERSITY

UNIVERSITY EXAMINATIONS 2018/2019 (REGULAR)

SCHOOL OF SCIENCE AND INFORMATION SCIENCES

**UNIVERSITY EXAMINATIONS FOR THE DEGREE OF
BACHELOR OF SCIENCE (STATISTICS)**

FOURTH YEAR REGULAR EXAMINATION

COURSE CODE: COM 410

COURSE TITLE: DATA PROCESSING

**DATE: 15TH APRIL 2019
0830 - 1030 HRS**

TIME:

INSTRUCTIONS

1. Answer Question ONE and any other TWO Questions From Section II
2. Question 1 is compulsory.

3. Time 2HRS.

4. **Mobile phone are not allowed in exam room.**

Section I, Compulsory

(a) Describe the data processing cycle. You can use a diagram to illustrate your answer.

(5 marks)

(b) Is there any difference between data and information? Explain your answer.

(4 marks)

(c) The value of information can be assessed in a number of ways. Discuss any three.

(6 marks)

(d) Convert the following binary numbers to decimal. Show all your workings.

[6 marks]

a. $(110101)_2$

b. $(10001011)_2$

c. $(10011)_2$

(g) Discuss analogue computer versus digital computer in relation to how each of them processes data

[4 marks]

(h) Computer hardware manufacturers have developed standard binary codes to represent data in the computer. Identify and describe any two.

(4 marks)

(i) Explain how a computer represents a picture.

(1 mark)

(1 mark)

Section II, Answer any two Questions

Question 2

(a) From your study of the course, what, in your opinion would be the value of information to any organization you might find yourself working in after college?

(4 marks)

(b) Explain the main characteristics of information that makes it suitable to achieve the roles described in (a) above.

(16 marks)

Question 3

(a) Convert the following decimals to binary numbers.

(6 marks)

- i) 90
- ii) 100
- iii) 70

Convert the following from binary to hexadecimal

(6marks)

- i) 10111101
- ii) 100011110
- iii) 1010111

(b) Convert the following from hexadecimal to decimal. **(6 marks)**

- i) 9FA
- ii) E0AC

(c) Convert 789_{10} to binary. **(2 marks)**

Question 4(20 marks)

(a) Discuss data communication systems. Use examples to illustrate its key components

(3 marks)

- (b) Explain how each of the following interface devices work.
(3 marks)
- i) Acoustic couplers
 - ii) Multiplexers
 - iii) Modem (Modulator-Demodulator)
- (c) Discuss the *Open Systems Interconnect Reference Model* (OSI) architectural model as a common reference for discussing data communications.
(14 marks)

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