



# **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: 15<sup>TH</sup> APRIL 2019  
0830 - 1030 HRS**

**TIME:**

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## **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)**

**//END**