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   **TIME: 0830 – 1030 HRS**

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)**

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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