COSC 103

CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATIONS FOR THE AWARD OF DEGREE OF BACHELOR OF EDUCATION ARTS AND BACHELOR OF EDUCATION SCIENCE

COSC 103: INTRODUCTION TO COMPUTER APPLICATIONS

STREAMS: BED (ARTS & SCI)   **TIME: 2 HOURS**

DAY/DATE: THURSDAY 01/04/2021   **2.30 P.M. – 4.30 P.M.**

INSTRUCTIONS: Answer Question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

(a) Explain the following terms: (4 marks)

    (i) Bit
    (ii) Computer network topology
    (iii) Computer network
    (iv) The Internet

(b) Differentiate between the following;   (4 marks)

    (i) Computer software and computer hardware
    (ii) Systems software and application software

(c) Discuss the differences in functionalities between RAM and Hard Disk of a computer system.   (4 marks)

(d) Identify three reasons why operating system software is very important in a computer.
                                                                 (3 marks)

(e) Given data in excel sheet: C1, C2, C3, C4, and C5. Write a formula calculating the average and a function for calculating the sum.   (3 marks)

(f) Perform the following operations (show your working)

    (i)   Convert 349_{10} to binary   (3 marks)
    (ii)   Convert 10110.011_2 to Decimal   (3 marks)

(g) Explain the role of passwords in computing. Suggest two measures of keeping a password secure.   (3 marks)

(h) Identify three security measures to take in online communications.   (3 marks)

QUESTION TWO (20 MARKS)

(a) Identify three types of wired communication media.   (3 marks)

(b) With the aid of a diagram, explain the following network topologies.   (4 marks)

      i)   Bus topology

      ii) Star topology

(c) Discuss three types of computer networks.   (6 marks)

(d) With the aid of a well labeled diagram, explain the basic functional components of a computer system.   (7 marks)

QUESTION THREE (20 MARKS)

(a) Fred is the head of a local Network consulting company. His company has won a contract to design and develop a network for a middle level college in Chuka. Explain four benefits the college will gain by implementing the network.   (8 marks)

(b) Discuss four applications of computers in education.   (8 marks)

(c) What is a search engine? Explain the importance of this facility in conducting research. Give relevant examples.   (4 marks)

QUESTION FOUR (20 MARKS)

(a) Use the MS Excel sheet shown below to answer the questions that follow:

I18			fx			
	A	**B**	**C**	**D**	**E**	**F**	**G**

	A	B	C	D	E	F	G
1	student Name	Courses			Total Score	Average Score	Average Grade
2		COMP 101	COMP 102	COMP 103			
3	Gladys	65	45	48	158	#DIV/0!	
4	Kimaita	67	69	64		66.66666667	#NAME?
5	Chepkorol	45	70	55		56.66666667	
6	Kionyo	68	35	46		49.66666667	
7	Bob	90	56	89		78.33333333	
8	Gilbert	78	53	43		58	
9	Subject Average Score	69	55	#NAME?	#REF?		
10							
11		Grading System					
12		70 - 100	A				
13		60 - 69	B				
14		50 - 59	C				
15		40 - 49	D				
16		<40	F				

(i)   Explain the possible causes of errors in the cells G4, E9, and F3.   (6 marks)

(ii)   Write a function to round the average score in cell F4 to 2 digits.   (2 marks)

(iii)   Using the grading system provided above, explain whether to get the average grade of student you will use a simple IF function or an embedded IF functions.   (2 marks)

(iv)   Write a formula to calculate the total score of Bob.   (2 marks)

(b) Using relevant illustrations, explain any four (4) functions of the operating system software in a computer system.   (8 marks)

QUESTION FIVE (20 MARKS)

(a) Computers can be classified into various types based on the classification used. State any FOUR types of computers based on size and speed of operation.   (4 marks)

(b) Explain **five** symptoms of a computer infected by virus.   (5 marks)

(c) State and explain four factors that you would consider when acquiring business application software.   (4 marks)

(d) Perform the following number conversions.
    (i). $AB0.8_{16}$ to decimal equivalent   (3 marks)
    (ii). 533.845_{10} to its binary equivalent   (4 marks)