Catholic University Institute of Buea (CUIB)

2019/2020 ACADEMIC YEAR

Second Semester Examinations 2020

EoC

School	Agriculture and Natural Resources (SANR)				
Course Code	AFC 102	Course Title	Agricultural Mechanics and Electricity		
Status	C	Credit Value	6	Time	8:00-10:00
Date	23/07/2020	Venue	LH 1/LH 2	Duration	2 hours
Course Master(s)		TCHOUMI IGNACE			

INSTRUCTIONS: ANSWER ALL QUESTIONS

1. (a) Define the pressure of an object and state it's S.I. Unit. **(2marks)**

   (b) (i) What is dynamics? **(1mark)**

   (ii) State the name of the force which is responsible for the attraction of all objects to the Surface of the earth. **(1mark)**

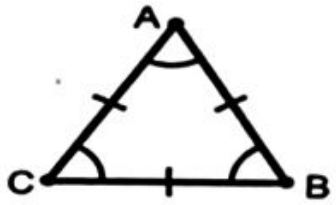
   (c) State Newton's laws of motion. **(3marks)**

2. The height of a tree increases by 10 cm each month

   (a) Calculate the speed of growth of that tree in cm/day **(3marks)**

   (b) Calculate the number of days necessary for an a growth of 1m **(3marks)**

3. Three charges of $10^{-6}C$ are placed at the ends of a triangle of side 2m (figure bellow) $K=9\times10^{9}$ USI



Represent and calculate the resultant electric field acting on the point at A **(6marks)**

4. (a) Name the four layers of the atmosphere. **(2marks)**

Let us consider the following equality **PV=nRT**

(b) What is the name of that equality? **(1mark)**

(C) Give the names and the and units of each physical quantity involve in this formula **(2marks)**

(d) Convert **300°k** in to **°F (3marks)**

5. (a) What is heat energy? (2marks)

(b) State and explain briefly two (2) mechanisms of heat transfer. (4marks)

(c) What form of energy is utilized by plants in the process of photosynthesis? (1mark)

(d) What form of energy is stored in plants after the process of photosynthesis? (1mark)

6. (a) (i) What is Soil Physics? (1mark)

(ii) Give the importance of Soil Physics in Agriculture. (2mark)

(b) (i) What is soil moisture content (w)? (1mark)

(ii) Define dry density of soil (ρ_d) and show mathematically that it can be expressed in terms of the soil moisture content (w). (4marks)

(d) (i) What is soil water potential? (1mark)

(ii) Name the three components of soil water potential and state the origin of each component.

89+++*(4marks)

(iii) Name four devices used to measure soil water potential. (2marks)