MACHAKOS UNIVERSITY

University Examinations 2019/2020

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF BUSINESS ADMINISTRATION

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN HUMAN RESOURCE MANAGEMENT (TVET)

INFORMATION COMMUNICATION TECHNOLOGY

QUANTITATIVE METHODS

DATE: 6/11/2020   **TIME: 8:30 – 11:30**

INSTRUCTIONS: Answer Question One and Any Other Two Questions

QUESTION ONE

a)   Define the following   (4 marks)

    i.   Probability experiment

    ii.   Sample space

    iii.   Outcome

    iv.   Event

b)   Discuss four characteristics of arithmetic mean   (8 marks)

c)   given the set of data 2,3,4,5,8,10. Calculate   (8 marks)

    i.   Mean

    ii.   Harmonic mean

    iii.   Geometric mean

    iv.   Standard deviation

d)   Highlight five characteristics of linear programming   (5 marks)

e)   Slips numbered 1 to 9 are packed in a box. If 2 slips are drawn without replacement, using combinations, what is the probability that   (5 marks)

    i.   both are odd

    ii.   both are even

QUESTION TWO

a) from the following bi-variate distribution , find the regression equation of Y(price) on X(demand) (10 marks)

Demand (X)	10	8	5	4	2	1
Price (Y)	4	6	5	7	8	9

b) explain advantages of linear programming (10 marks)

QUESTION THREE

a) Today Philip intend to go walking. The probability of good weather (G) is ¾. If the weather is good, the probability he will go walking (W) is $^{17}/_{20}$. If the weather forecast is not good (NG) the probability he will go walking is $^{1}/_{5}$.

Complete the probability tree diagram to illustrate the information. What is the probability that Philip will go walking (6 marks)
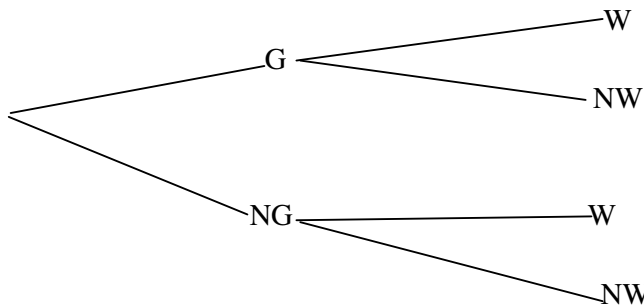
b) A box contains 10 coloured light bulbs, 5 green, 3 red and 2 yellow. One light bulb is selected random and put in to light fitting room A.

i What is the probability that the light bulb selected is

    I. Green (2 marks)

    II. Not green (2 marks)

ii A second light bulb is selected at random and put the light fitting room B. What is the probability that:-

    I. The second light bulb is green given that the first bulb was green(2 marks)

    II. Both light bulbs were not green (2 marks)

    III. One room had a green bulb and the other room does not have a green light bulb (3 marks)

iii   A third bulb is selected at random and put it in the light fitting room C. What is the probability that

        I.   All the three rooms have green light bulbs

        II.   Only one room has a green light bulb.

QUESTION FOUR

The heights of 200 students were recorded in the table below:

Height in (h) cm	Frequency
140-150	2
150-160	28
160-170	63
170-180	74
180-190	20
190-200	11
200-210	2

a)   Write down the model group   (1 mark)

b)   write down the modal group

c)   Calculate mean   (4 marks)

d)   Standard deviation   (4 marks)

e)   Plot a cumulative frequency curve for this data   (7 marks)