JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BUSINESS & ECONOMICS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

3RD YEAR 1ST SEMESTER 2016/2017 ACADEMIC YEAR

KISUMU CAMPUS

COURSE CODE: BLM 3311

COURSE TITLE: BUSINESS   STATISTICS II

EXAM VENUE: **STREAM: (BLSM)**

DATE: **EXAM SESSION:**

TIME: 2   HOURS

Instructions:

1. Answer Question ONE (COMPULSORY) and ANY other 2 questions

2. Candidates are advised not to write on the question paper.

3. Candidates must hand in their answer booklets to the invigilator while in the examination room.

QUESTION ONE.

a) A random sample of 400 rail passengers is taken and 55% are in favour of proposed new timetable with 95% confidence what proportion of all rail passenger are in favour of the timetable?.   (5 marks)

b) A sample of 80 is drawn at random from a population of 800.The sample standard deviation was found to be 6 grams.

i) What is the finite population correction factor?   (3 marks)

ii) What is the approximation of the correction factor?   (3 marks)

iii) What is the standard error of the mean   (2 marks?)

c) Calculate the three monthly moving averages of the following data   (4 marks)

	Sales
January	1200
February	1280
March	1310
April	1270
May	1190
June	1290
July	1410
August	1360
September	1430
October	1280
November	1410

ii) Using the January sales as the old forecast and a smoothing constant of 0.3 (α value) calculate the   forecast for February onwards using exponential smoothing   (4 marks)

d) State any four variables which are positively and negatively correlated (two positive and two negative)   (4 marks)

e) Surveys were conducted in Birmingham and London to ascertain viewer's habits regarding channel 4 television. In Birmingham 1,000 people were interviewed and 680 said they viewed channel 4. In London 600 people were interviewed and 444 said they viewed channel 4

Is there a significant difference between the viewing habits in Birmingham and London at the 5% level? at the1% level?.   (5 marks).

QUESTION TWO

a) The following data relate to a given stock item

Normal wage	1300 per day
Minimum wage	900 per day
Maximum wage	2000 per day
Lead time	15-20 days
E.O.Q	30,000

Calculate:

I) Re-order level   (2 marks)

ii) Minimum level   (2 marks)

iii) Maximum level   (2 marks)

b) Prices of shares of a company on different days in a month were found to be 66, 65,69,70,69,71,70,63, 64 and68

Discuss whether the mean price of the shares in the month is 65 (14 marks)

QUESTION   THREE

a) An examination of eight applicants for a   clerical   post   was taken by a firm   from the marks   attained   by the   applicants in the   accountancy   and   statistic paper. Compute rank coefficient of correlation. (10 marks).

Applicant	A	B	C	D	E	F	G	H
Marks in accountancy	15	20	28	12	40	60	20	80
Marks in statistics	40	30	50	30	20	10	30	60

b) Before an increase in excise duty on tea 400 people out of a sample   of 500 were found to be tea drinkers .After   an increase in   duty 400 people were tea drinkers in a sample of 600 people. Using   standard   error of population ,state whether   there is a signification decrease in the consumption of tea. (5 marks)

c) A problem in business statistics   is given to the students A , B,C , D and E .Their chance of solving it are 1/2 ,1/3 , 1/4 , 1/5 ,and 1/6

What is the probability   that   the problem will be solved?. (5 marks)

QUESTION FOUR

A company has a flick of vehicles and is trying to predict the annual maintenance cost per vehicle. The following data have been supplied for a sample of vehicles.

Vehicle Number	Age in years (X)	Maintenance cost per annum (Y) £× 10
1	2	60
2	8	132
3	6	100
4	8	120
5	10	150
6	4	84
7	4	90
8	2	68
9	6	104
10	10	140

Required:

a) Using the least squares techniques, calculate the values of **a** and **b** in the equation y= a+ bx to allow managers to predict the likelly maintenance cost, knowing the age of the vehicle.   (10 marks)

b) Prepare a table of maintenance cost covering vehicles from 1 to 10 years of age, based on your calculation in (a)   (5 marks)

c) Estimate the maintenance cost of a 12 – year old vehicle and comment on the validity of making such an estimate .   (5 marks)

QUESTION FIVE

a) The number of parts for a particular spare part in a factors was found to vary from day to day. In a sample study the following information was obtained

Days	Mon	Tue	Wed	Thur	Frid	Sat	Total
No. of parts demanded	1124	1125	1110	1120	1126	1115	6720

Test the hypothesis that the number of parts demanded does , not depend on the day of the week (the table value of χ^2) for 5 d.f at 5% level of significance . (10marks).

b) A machine is set to deliver particles of a given weight , 10 sample of the size 5 each were recorded. Below are given relevant data:

Sample no.	1	2	3	4	5	6	7	8	9	10
Mean (x)	15	17	15	18	17	14	18	15	17	16
Range (R)	7	7	4	9	8	7	12	4	11	5

Calculate the values for the central line and the control limits for mean chart and then comment on the state of control.

(Conversion factors for n =5 are $A_2 = 0.58$

$D_3 = 0$, $D_4 = 2.11$ (10 marks)