MURANG'A UNIVERSITY COLLEGE

A constituent college of Jomo Kenyatta University of Agriculture and Technology

University Examination 2015/2016

END OF SEMESTER SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF BACHELOR IN HUMAN RESOURSE MANAGEMENT -YEAR 2 SEMESTER 2

HEH 2206: STATISTICS IN HUMAN RESOURSE MANAGEMENT

DATE: 29TH JUNE,APRIL 2016 **TIME: 2 HOURS**

Instructions: Attempt question **One** and **Two** other questions

1(Compulsory)(30marks)

a) (i) Differentiate between Descriptive and Inferential statistics? [2marks]

(ii) State and briefly explain two methods in which data is collected[2marks]

b) The grouped frequency below shows the results of an IQ test performed on a group of 50 students.

IQ test marks	90-94	95-99	100-104	105-109	110-114	115-119	120-124	125-129
Frequency	2	7	9	14	9	4	3	2

By calculation estimate

(i) the mode and [4marks]

(ii) the semi-interquartile range [6marks]

c) A, B, C are three identical boxes. A has 8 gold and 2 silver rings, B has 4 gold and 2 silver rings, and C has 1 gold and 3 silver rings. A box is chosen at random and then a ring is taken from the box and found to be a gold ring. What is the probability that A was the box chosen? [4marks]

d) The table below shows the distribution of height of 40 students

Height (cm)	145-149	150-154	155-159	160-164	165-169	170-174	175-179
frequency	2	5	16	9	5	2	1

Calculate the median height [4marks]

(e) Differentiate the following terms as used in test of hypothesis

(i) Type I and Type II errors [2marks]

(ii) Simple and composite hypothesis [2marks]

(f) The mean lifetime of a sample of 400 light tubes produced by a company is found to be 2,570 hours with a standard deviation of 80 hours. Test the hypothesis that the mean life time of the tubes produced by the company is 2,600 hours at 95% level of confidence. [4marks]

Question 2 (20 marks)

a) State and explain any two objectives of time series analysis [4marks]

b) State and explain the three components of a time series [3marks]

c) The table below shows the figures of production (in thousand kg) of a sugar factory.

Year	1989	1990	1991	1992	1993	1994	1995
Production (in '000'kg)	80	90	92	83	94	99	92

(i) Fit a straight line trend to these figures [6marks]
(ii) Plot these figures on a graph and show the trend line [4marks]
(iii) Estimate the likely sales of the company during 1996. [3marks]

Question 3 (20 marks)

The table below shows recorded data of test scores made by salesmen on an intelligence test and their weekly sales

Salesman	1	2	3	4	5	6	7	8	9	10
Test score(X)	40	70	50	60	80	50	90	40	60	60
Sales ('000sh.)(Y)	2.5	6.0	4.0	5.0	4.0	2.5	5.5	3.0	4.5	3.0

a) Draw a scatter diagram for the above data [3marks]
b) Calculate the Karl Pearson Correlation for the above data and interpret its value [9marks]
c) Find the least square regression equations of Sales (Y) on Test score(X) and estimate the probable weekly sales volume if a salesman makes a score of 100. [8marks]

Question 4 (20 marks)

(a) Define the following terms
(i) Lasperyres index numbers [2marks]
(ii) Paasche index numbers [2marks]

(b) The table below shows the quantities and prices of commodities sold in supermarket.

	2013		2014	
Items	Price	Quantity	Price	quantity
1. Tea leaves	270	440	410	490
2. White flour	400	530	580	710
3. Bread	340	510	880	1180
4. Sorghum	260	290	1780	2380
5. Milk	300	390	1280	1580

Taking 2013 as the base year, work out the Laspeyre's and Paasche's price index numbers and interpret their results. [8marks]

(c) Past records suggest that the height of graduates of a certain college at the time of graduation fit a normal distribution with mean 165 cm and standard deviation 6cm. using this information determine
(i) The percentage of graduates whose height is less than 170 cm [3marks]
(ii) The percentage of graduates whose height is between 170 cm and 175 cm [3marks]
(iii) The percentage of graduates whose height is between 155cm and 170cm. [3marks]

Question 5 (20 marks)

The masses of 100 patients in a hospital were distributed as shown in the table below

Mass (kg)	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
frequency	3	7	8	9	X	18	25	10	6	2

(i) Find the value of X. [2 marks]

(ii) Using 54.5 as the assumed mean, calculate the mean mass [5marks]

(iii) Calculate the quartile deviation for the above data [5marks]

(iv) Using 54.5 as the assumed mean, calculate the variance and the standard deviation [8marks]