MURANG'A UNIVERSITY COLLEGE

A constituent college of Jomo Kenyatta University of Agriculture and Technology

University Examination 2015/2016

SPECIAL EXAMINATION FOR THE DEGREE OF BACHELOR IN HUMAN

RESOURSE MANAGEMENT -YEAR 2 SEMESTER 2

HEH 2206: STATISTICS IN HUMAN RESOURSE MANAGEMENT

DATE: 29TH OCTOBER 2015   **TIME: 2 HOURS**

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

Question 1 (20 marks)

a) State and explain two methods used for collecting primary data   [4marks]

b) When 200 marks were recorded the mean was 60 and the standard deviation 15. Later it was discovered that a mark originally recorded as 73 should have been recorded as 63. Find the correct mean.   [4marks]

c) The heights of two hundred students were measured. It was found that the mean height was 69.1 inches, the median height 69.5 inches and the standard deviation 2.9 inches. For this distribution calculate the first Pearson measure of skewness.   [3marks]

d) The data below shows the distribution of ages of volunteers in a self-help project.

Age (years))	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Volunteers	7	21	18	5	6	2	1

Calculate the mode and median of the data   [6marks]

e) An experiment into the correlation between the two variables x and y produced the following data:

X	13.0	16.0	19.0	22.0	28.0	25.0
Y	37.5	36.8	40.2	41.7	39.3	43.0

Calculate the spearman's coefficient of rank correlation coefficient between x and y   [4marks]

f) Mr Hassan has two gardeners Obote and Kamuri. Obote comes on a $\frac{1}{3}$ of the occasions and Kamuri $\frac{2}{3}$ of the occasions. There is a probability of $\frac{1}{10}$ that Obote will forget to water the flowers and probability of $\frac{1}{2}$ that Kamuri will forget to water the flowers. One day Mr Hassan has to leave the house before the gardener arrives. On his return he finds that the gardener has come and gone, and also that the flowers are not watered. What is the probability that Kamuri came that day?.   [5marks]

g) The mean life of a sample of 400 vehicle spare parts produced by a company is found to be 1580 days with a standard deviation of 80 days. Test the hypothesis that the mean life time of the spare parts is 1500 days at 5% level of significance   [4marks]

Question 2 (20 marks)

(a) Given the data below

Marks	20-29	30-39	40-49	50-59	60-69	70-79
Number of students	5	20	12	10	8	5

Compute
(i) the mean using assumed mean method (Take A = 44.5)   [4 marks]
(ii) the standard deviation using assumed mean method using A of part (i).
                    [6 marks]

(iii) the median   [3 marks]
(iv) the first and third quartiles and hence find the quartile deviation   [5 marks]
(v) the quartile coefficient of skewness   [2 marks]

Question 3 (20 marks)

Ten students sat for two physics tests, one practical and the other theoretical. Their marks out of 10 are recorded in the table below

Practical Test(X)	8	6	10	5	6	8	10	7	7	8
Theoretical Test (Y)	6	7	8	7	4	9	10	5	8	6

(a)   Draw a scatter plot of the pair of marks and state the relationship suggested by the plot   [4 marks]
(b)   Calculate the Pearson's product moment correlation coefficient and comment on your result   [7 marks]
(c)   A student was absent from the theoretical test but obtained a mark of 6 in practical test. Use appropriate regression line to estimate her mark in the theoretical test.   [7 marks]
(d)   A student missed a practical test but obtained a mark of 3 in the theoretical test. Estimate his mark in the practical test.   [2 marks]

Question 4(20 marks)

(a) The table below shows the quantities and prices of commodities sold by a trader in a given town

	1995		2000	
Commodities	Price	Quantity	Price	quantity
A	250	750	400	1600
B	300	1200	500	1500
C	100	800	250	1000
D	200	1200	150	1200

Required

Calculate the Laspeyre's and Paasche's price index numbers for year 2000 using year 1995 as the base year and interpret the results obtained. [14marks]
b) A large store sends out accounts to 80 customers. The table below gives the distribution of the number of days taken to settle the accounts.

Number of days		Number of accounts settle
Exceeding	Not exceeding	
4	8	4
8	12	13
12	16	15
16	20	18
20	24	14
24	28	10
28	32	6

    (i) Draw a cumulative frequency curve for the data.   [4marks]
    (ii) Use your graph to estimate the semi-interquartile range of the distribution and   [2marks]

Question 5 (20 marks)

a) A and B are two identical boxes. Box A contains 1 diamond ring and 3 gold rings. Box B contains 3 diamond rings and 3 gold rings. A box is chosen from random, and from it a ring is drawn at random and then put into the other box. A ring is then drawn from this latter box.

Required.

Illustrate the information given in a probability tree diagram. Hence determine
    [6marks]
    (i) The probability that both rings drawn are diamond rings,   [3marks]
    (ii) The probability that the first ring drawn is a gold ring,   [2marks]
    (iii)The probability that the first ring drawn is a diamond ring, given that the second ring drawn is gold ring.   [4marks]

b) Tuskys supermarket receives bulk orders of packets of chickens wings of nominal mass 500g from Bidii Butcheries. From past experience the masses of the packets have a distribution which is normal with standard deviation 15 grams. One day a sample of 16 packets is taken from the batch and found to have a mean mass of 495 grams. Are there grounds for the management at Tuskys to complain that the packets are below the claimed mass of 500 grams at 5% significance level.
    [5marks]