MURANG'A UNIVERSITY COLLEGE

A constituent college of Jomo Kenyatta University of Agriculture and Technology

University Examination 2014/2015

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: APRIL 2015 **TIME: 2 HOURS**

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

Question 1(30 marks)

a) Describe two types of errors associated with hypothesis testing [4marks]

b) The data below shows the production of a certain commodity in a given factory

Output in tones	25-30	30-35	35-40	40-45	45-50	50-55
Number of days	6	5	10	20	10	5

Calculate the mode and the median [6marks]

c) From past records a firm has noted that the average time its secretaries take for tea break is 15 minutes, with a standard 2 minutes. A new secretary joins the firm and over 50 tea breaks she has been observed to take an average time of 17 minutes. Should the manager caution her about taking too long a time over her tea breaks at 5% significant level? [4marks]

d) In a class of girls the probability that a girl plays netball is $\frac{1}{2}$. The probability that she swims is $\frac{1}{3}$. Given that a girl is a swimmer the probability that she plays netball is $\frac{5}{12}$. A girl is picked at random from the class. Determine the probability that she is a swimmer as well as a netball player [4marks]

e) The data below shows the marks of two test given to candidates for a clerical job.

Preliminary test (X)	92	89	87	86	83	77	71	63	53	50
Final Test (Y)	86	83	91	77	68	85	52	82	37	57

Calculate the rank correlation coefficient [4marks]

f) State and describe any two components of time series [4marks]

g) Calculate the geometric mean of the following set of data

Size	125	133	141	173	182
Frequency	7	5	4	1	3

[4marks]

Question 2 (20 marks)

The following data represents the reported weights (Kg) for 40 students in a class.

47	50	79	45	46	80	82	72
75	74	57	69	65	52	55	60
64	73	61	60	71	70	68	68
65	55	59	61	60	66	54	70
62	53	65	56	52	72	67	58

a) Using class intervals of size five and starting with 45-49,...prepare a frequency distribution table for the given data [3marks]

b) Using 62 as the assumed mean calculate the

(i) Mean [3marks]

(ii) Standard deviation [7marks]

(iii) Coefficient of variation [3marks]

c) Draw a histogram and frequency polygon for the above given data [4marks]

Question 3 (20 marks)

XYZ Company wishes to make deliveries using a lorry to 12 of it warehouses situated at different parts of the city. The delivery time in minutes and the distance in kilometers was recorded as follows

Distance (KM)	20	23	17	18	25	27	16	18	19	10	22	21
Time (Min)	4.5	5.0	2.9	3.5	5.2	6.0	3.2	4.1	4.4	2.6	4.9	5.1

a) Plot a scatter diagram for the data [3marks]

b) Calculate the Karl Pearson correlation coefficient [7marks]

c) Using the least square method, determine the regression line of time on distance [8marks]

d) Estimate the time when a warehouse is 26km [2marks]

Question 4 (20 marks)

a) Distinguish Laspeyre's and Paasche's index numbers [4marks]

b) State two uses of index numbers [2marks]

c) The data below shows fruits prices and the quantities consumed by the average household in 1999 and 2002.

	Prices		Quantities	
Fruits	1999	2002	1999	2002
Bananas (kg)	60	70	100	100
Grapes fruit (each)	40	35	50	70
Apples (kg)	70	72	110	120
Strawberries (busket)	95	105	10	11

Using year 1999 as the base year calculate

(i) Laspeyre's price index number [6marks]

(ii) Pasche' price index number [6marks]

(iii) Fisher's price index number [2marks]

Question 5 (20 marks)

a) Two fair six-faced dice are tossed (thrown). The scores on the top most face from each throw are recorded. What is the probability that

(i) The scores form a double [2marks]

(ii) The sum of the two scores is ten [2marks]

(iii) The score gives a double and also a sum of scores equal to 10 [3marks]

(iv) The sum of scores is not more than ten [2marks]

(v) The sum of the scores is either 9 or 10 [2marks]

(vi) The score gives a double or a sum of scores equal to 10 [2marks]

b) The family size in Kenya has continued to reduce because of the economic hardships. According to the Kenya Bureau of statistics, the mean family size was 3.17 in 2000. A

researcher wants to check whether the current mean size is less than 3.17. He decides to use 900 different families which produced a mean family size of 3.13 with a standard deviation of 0.7. Using 5% level of significance determine whether the family size has reduced since 2000. [7marks]

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