

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS  
RESIT/SPECIAL EXAMINATIONS**

**SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF  
COMMERCE**

**AGBM 241BCOM 262/271/BBAM 271: BUSINES STATISTICS**

**STREAMS:**

**TIME: 2 HOURS**

**DAY/DATE: THURSDAY 26/07/2018**

**11.30 A.M – 1.30 P..M**

**INSTRUCTION:**

- **Answer question one and two others**
- **Clearly show all your workings**
- **Do not write anything on the question paper**

1. (a) Explain three practical application of statistics in a firm. [3marks]
- (b) Explain four types of correlation. [8marks]
- (c) An office in certain firm contains 12 clerks . The long serving clerk feels that they should have a seniority increment based on length of service built into their salary structure. An assessment of their efficiency by their departmental manager and the human resource departments produces a ranking of efficiency . This is shown below together with a ranking of their length of services. Explain whether the data supports clerks claim for seniority increment? [4marks]

Ranking according to length of service	1	2	3	4	5	6	7	8	9	10	11	12
Ranking according to efficiency	2	3	5	1	9	10	11	12	8	7	6	4

(e) The following data give ages and blood pressure of 10 women in a certain hospital in Tharaka Nithi county.

Age (x)	56	42	36	47	49	42	60	72	63	53
Blood pressure (y)	147	125	118	128	145	140	165	160	149	150

- (i) Find the correlation coefficient between X and Y [10marks]
  - (ii) Determine the least square regression equation of X on Y [4marks]
  - (iii) Estimate the blood pressure of a woman whose age is 45 years. [2marks]
2. (a) Explain four uses of consumer price index in a business. [2marks]
- (b) The following data relates to the number of days it takes for an order to complete in a certain firm. 30,30,31,32,35,34.

**Required :**

- Prepare a stem leaf diagram to explain . [8marks]
- (c) Explain steps involved in business forecasting. [10marks]
3. (a) The ranks of the same students in two subjects A and B are as given below. The two numbers within two brackets denote the ranks of the same student in A and B respectively.
- (1,0) (2,7) (3,2) (4,6) (5,4) (6,8) (7,3) (8,1) (9,11) (10,15) (11,9) (11,5) (13,14) (14,12) (15,13).
- Use Spearman's formula to find the rank correlation coefficient. Interpret the results. [10marks]
- (b) Explain three importance of index numbers in business. [6marks]
- (c) Explain four assumptions of linear bivariate models. [4marks]

4. (a) You are given the following information about the prices of various commodities in Ndagani markets for the year 2016 and 2017.

Commodity	2016		2017	
	Price	quantity	Price	quantity
Eggs	2	8	4	6
Hotto	5	10	6	5
Onions	4	14	5	10
Tomatoes	2	19	2	13

Required : Construct index numbers of price applying:

- (i) Laspeyre’s method [3marks]
- (ii) Paasche’s method [3marks]
- (iii) Bowley’s method [3marks]
- (iv) Fishers method [3marks]

Also inteprete their meanings.

(b) The human resource management department of a certain institutia devise a manual test for job applicants to predict their production rating in one of the departments. A sample of 10 applicants is selected and given a test and later assigned a product ratings. Their results are as follows:

Worker	1	2	3	4	5	6	7	8	9	10
Test score	53	36	88	84	86	64	45	48	39	69
Production rating	45	43	89	79	84	66	49	48	43	76

**Required :**

Fit a linear least square regression equation of producing rating on test score. Interpret the results. [6marks]

- (c) Explain four properties of normal distribution. [2marks]