

CHUKA



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**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF WILDLIFE AND ENTERPRISE MANAGEMENT**

WIEM 347: WILDLIFE STATISTICS**STREAMS: BSC (WIEM) Y3S2****TIME: 2 HOURS****DAY/DATE: FRIDAY 12/4/2024****11.30 A.M. – 1.30 P.M.****INSTRUCTIONS:**

- Answer ALL questions in Section A and ANY TWO from Section B
- Do not write anything on the question paper

SECTION A (30 MARKS)

1. The revenue generated at the gate in a park and the number of tourists received in different days is given below:

No of tourists	20	15	10	25	30	45	18	22
Revenue ('000')	35	25	30	40	45	42	28	38

- a. Using Pearson's chi square determine the correlation coefficient 'r' (6 marks)
 - b. Explain the meaning of the correlation coefficient calculated. (3 marks)
2. The average age of all tourists who visited Lake Nakuru National Park in 2023 was 35 years and a standard deviation of 2. A researcher took a sample of 150 and found that its mean age is 30 years. Using a z-test, determine if the sample mean was different from the population mean. (6 marks)
 3. Differentiate between systematic sampling and sequential sampling. (6 marks)
 4. Explain any three non-probability sampling designs. (6 marks)
 5. List any three scales of measurement. (3 marks)

SECTION B (40 marks)

6. The number of small mammals counts in three clusters taken weekly is as follows:

Cluster One	2	4	6	5	4	1
Cluster two	5	8	9	4	3	7
Cluster three	6	9	10	8	12	10

- a. Using Analysis of Variance, test the null hypothesis. (12 marks)
 - b. Using Fisher’s LSD identify the pairs with significant differences. (8 marks)
7. Hell’s Gate National Park has been trying to increase community participation in the management of the park. Two approaches are used separately on two villages while nothing is done for a third village. Later a survey is carried out to determine the level of support in the villages with the following results.

Village A (scholarships)	15	18	14	16	16	18	20
Village B(Sponsoring park visits)	10	12	14	17	18	16	
Village C (none)	10	8	12	18	13	10	12

- a. Using the Analysis of Variance, determine whether there are significant differences between the level of support for the three approaches. (12 marks)
 - b. Taking village C as the control, determine whether each of the two approaches are significantly different from the control by use of Dunnett’s Test (8 marks)
 - c. (8 marks)
8. The income (‘000’) generated at three gates in a national park in one week is given below

Gate 1	50	48	42	52	45	48
Gate 2	30	38	32	30	42	40
Gate 3	28	22	25	30	18	15

- a. Using Kruskal Wallis test to determine whether there were significant differences between the groups. (10 marks)
- b. Using a Nemenyi’s test determine the comparisons that had significant differences. (10 marks)

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 Attached statistical tables: χ^2 ; t; Anova