CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN ANIMAL SCIENCE

ANSC 372: DESIGN AND ANALYSIS OF ANIMAL EXPERIMENTS

STREAMS: BSC ANSC Y3S2   **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 08/04/2020   **8.30 A.M. – 10.30 A.M.**

INSTRUCTIONS:
- **This examination has two (2) sections i.e., A and B.**
- **Attempt ALL questions in Section A and any two (2) questions in section B.**
- **Show your working.**

SECTION A: ATTEMPT ALL QUESTIONS (30 MARKS)

1.   Lambs with a birth weight greater than 4.5 kg are known to cause dystocia. Use the parameters below to answer the questions that follow

    (a)   What is the probability of having dystocia in this population?   (6 marks)

    (b)   What is the probability that a lamb will be born with less than 2 kg? (4 marks)

2.   Construct a 95% confidence interval for using the parameters provided.

                                        (5 marks)

3.   Use the parameters below to test the hypotheses .

                                        (5 marks)

4.   A feeds company claims their new dairy meal ration will give better milk yields compared to other rations. John, anxious to increase yields in his farm switched to the new ration. Prior to the introduction of the new ration the average daily yield from John's 10 cows was 150 kg. The new average daily yield from John's cows after feeding the new ration for 30 days is 170 kg. At , can we conclude that the new ration significantly increased milk yields in John's farm? Show the procedure you use to draw   your conclusion.   (10 marks)

SECTION B. ATTEMPT TWO QUESTIONS ONLY (40 MARKS)

5.   A researcher claims to have bred a strain of Holstein Friesian cattle that can resist tick infestation. A farmer bought some 10 Holstein Friesian cows of this new strain and introduced them to his flock of 10 Zebu cows. A random check on all his cows on the number of ticks on each cow after 3 months yielded the data below:

Breed	Number of ticks									
Holstein Friesian	1	3	6	3	12	2	4	6	6	6
Zebu	3	6	7	0	6	10	0	6	3	6

The number of ticks on a cow was determined to follow a non-normal distribution. Determine whether the level of tick infestation is the same for the 2 breeds. (20 marks)

6.   A study was conducted to compare the growth performance of three chicken breeds (A, B and C) from hatching to 4 weeks of age. The data below presents body weights (in kg) for chicks taken on the last day of the study.

Breed	Body weight									
A	1.1	0.8	0.5	1.2	0.6	1.3	0.9	1.5	0.5	0.8
B	2.3	2.2	1.1	0.6	0.7	0.5	1.2	1.3	1.1	1.5
C	1.8	1.5	0.7	1.0	1.5	1.9	1.8	2.6	1.7	2.8

What conclusion can you draw from the data?   (20 marks)

7.   Concerned about the scarcity of roughness among smallholder dairy cattle farmers, a research conducted an experiment to compare the amount of harvest per area planted for maize, sorghum and napier grass. The researcher noticing differences in the levels of fertility in the piece of land, he divided it to plots with uniform fertility. He then randomly   assigned the three roughages to each plot. Below is the amount of roughages harvested (in   kg) from each plot 3 months after planting.

Roughage	Plot				Roughage mean
	1	2	3	4	
Maize	56	48	66	62	**58**
Sorghum	83	78	94	93	**87**
Napier	80	72	83	85	**80**
Plot mean	**73**	**66**	**81**	**80**	75

What conclusion would you draw from these data?   (20 marks)