



***“Investing in Africa’s future”***

**COLLEGE OF HEALTH, AGRICULTURE & NATURAL  
SCIENCES**

**NAAS 301: RUMINANT ANIMAL PRODUCTION**

**END OF SECOND SEMESTER FINAL EXAMINATIONS**

**APRIL 2023**

**LECTURER: DR. S. CHAKEREDZA**

**DURATION: 3 HOURS**

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**INSTRUCTION**

Answer All Questions from Section A

And Answer Three Questions from Section B

### **Section A (answer all, possible marks 40)**

1. Give the components of the proximate analysis. [5]
2. Differentiate ruminants from non-ruminants particularly as regards to suitability of utilizing low quality forages. [5]
3. Show diagrammatically energy partitioning in an animal indicating clearly where and how energy losses occur from gross energy intake up to net energy. [10]
4. Describe with the aid of a diagram the value chain of raw milk. [10]
5. What are the legal components of milk quality in Zimbabwe? [10]

### **Section B (Choose and Answer any 3, maximum possible marks 60)**

6. In formulating concentrates to feed to animals normally the Pearson Square is used. Formulate a concentrate fraction to achieve 16 % crude protein (CP) using soybean meal (45 % CP) and maize meal (9.6 % CP). Show your working and at the end show how the percentage inclusion is arrived at. [20]
7. Using the Pearson Square formulate a concentrate to have 14 % CP portion using three ingredients: soyabean meal 45 % CP, Maize meal 8.9 % CP and wheat meal 10 % CP. Clearly show your working. [20]
8. What are the factors affecting sheep and goat production system? [20]
9. Give an overview of cattle management calendar paying particular emphasis to management requirements. [20]
10. Identify and explain critical management targets of ewes/does. [20]
11. Discuss pen finishing of lambs and kids. [20]

**END OF EXAMINATION PAPER**