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**NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF AGRICULTURAL SCIENCES
DEPARTMENT OF ANIMAL SCIENCE AND FISHERIES**

COURSE CODE: ANP 508

COURSE TITLE: FEED FORMULATION

CREDIT UNIT: 2

TOTAL SCORE: 70 MARKS

TIME ALLOWED: 2 Hours

INSTRUCTIONS: ANSWER QUESTION 1 (25 MARKS) AND ANY OTHER THREE (15 MARKS EACH)

- Q1 a What are Concentrates
b Differentiate between energy and protein concentrates.
i Define feed additives.
ii List the types of feed additives you know.
c Enumerate the general recommendations for animal feed storage guidelines. **25 marks**
- Q2 a Discuss the following as factors affecting insects infestation of feedstuffs.
i Temperature
ii Relative humidity
iii Feeding habit of insects
iv Weight loss
b How do these factors become advantages of compounded feed. **15 marks**
- Q3 a State the classification of raw materials needed for industrial use.
b Give the limitations and constraints of local equipment. **15 marks**
- Q4 Describe the following types of milling machines
I Column
Ii Turret
Iii C-frame
iv Horizontal
v Bed type
vi Planer-style
vii Tracer controlled **15 marks**
- Q5 a Diagrammatically, explain the feed manufacturing process.
b Give the coverage of legislation on labelling and composition. **15 marks**
- Q6 State 5 checklists each for the following:
i Sources of high or low analytical values.
ii Overall system efficiency.
iii Performance evaluation. **15 marks**