



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
*University Village, Nnamdi Azikiwe Expressway, Plot 91, Cadastral Zone, Jabi, Abuja*  
*Faculty Agricultural Sciences*  
*First Semester POP Exam Question April 2019*

**Course Title: Introduction to Animal Products Processing and Preservation**

**Course Code: ANP303**

**Credit Unit: 2**

**Total Score: 70 Marks**

**Time Allowed: 2 Hours**

**INSTRUCTION:**

**Answer Compulsory question 1 ( 25 marks) and any 3 questions (15 marks each)**

**Question one**

- a) With the aid of a well labelled diagram show the structure of an egg 5 marks
- b) Enumerate two (2) different methods for freezing meat and meat products, 1 mark
- c) Outline three (3) ways of thawing frozen meat products 3 marks
- d) Mention five (5) uses of animal by-products of internal origin 5marks
- e) Highlight three (3) uses of animal by-products of external origin 3marks
- f) Highlight two (2) types of muscle found in livestock 4 marks
- g) Mention two (2) diseases that can be contacted by Consumption of raw milk 1 mark
- h) Explain the following terms
  - i. Ovulation 1mark
  - ii. Moulting 1 mark
  - iii. Oviposition 1 mark

**Question two**

- a) Outline two (2) basic reasons for evaluating body composition 2marks
- b) State concisely two (2) methods employed for live animal measures. 4marks
- c) Briefly outline the carcass measures of evaluating body composition 4 marks
- d) Briefly state why modern meat products are processed 3marks
- e) Give the meaning of the term curing and list two curing methods 2marks

**Question three**

- a) Briefly explain three (3) principal cooking methods for meat 6marks
- b) List two (2) basic smoking techniques 1mark
- c) State the organization of the meat industry in Nigeria 8 marks

**Question four**

- a) Briefly state the basic functions of packaging material 2marks
- b) List six (6) types of packaging materials for meat 3marks
- c) Write short note on egg production in chicken 5 marks
- d) state three (3) characteristics of egg that make industrial processing possible and list four (4) industrial egg products 5marks

**Question five**

- a) Give the meaning of the following terms
  - i. Accretion
  - ii. Growth
  - iii. Prenatal Growth
  - iv. lag phase 4 marks
- b) Give the formula of Growth rate 1 mark
- c) State concisely five factors affecting the postnatal growth period 5 marks
- d) Outline five (5) characteristics of prenatal growth 5marks

**Question six**

- a) Write briefly on heat treatment or Pasteurization, homogenization and separation in milk processing 12marks
- b) Give the meaning of Mastitis 3 marks