CHUKA **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN

ANPT 454: EGG SCIENCE TECHNOLOGY

STREAMS: **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 18/12/2024 **8.30 A.M – 10.30 A.M**

INSTRUCTIONS:

- This paper has two sections A and B
- Answer all questions in section A
- Answer any two questions in section B
- **Do not write on the question paper**

SECTION A – ANSWER ALL QUESTIONS – 30 MARKS

1. a). Discuss the nutritional benefits of eggs to the global population. **(5 Marks)**
   b). Explain the following terms as used in egg biosynthesis and name where they occur
   i. Oogenesis **(2 marks)**
   ii. Calcification **(2 Marks)**
   iii. Ovisposition **(2 Marks)**

2. a). Explain the technological properties of eggs that make it suitable for use in different food product processes. **(6 Marks)**
   b). In the production of dry eggs, it is advisable to remove sugars before drying. What is the main reason for this step? **(2 Marks)**
   c). Explain any three methods that could be applied in the step described above. **(3 marks)**

3. a). During egg pasteurization, different parts of the egg coagulate at different temperatures. Recommend a suitable pasteurization temperature for the whole egg giving reasons for that choice of temperature and time**.** **(4 Marks)**
   b). Thawed egg yolk is likely to undergo gel formation limiting its application in food processing. Explain how this disadvantage can be eliminated in frozen egg production. **(4 Marks)**

SECTION B- ANSWER ANY TWO QUESTIONS (40 Marks)

4. a). Describe different methods that can be applied in egg quality assessment **(10 Marks)**
   b). Describe the key control measures in a hatchery and the significance of these controls. **(10 Marks)**

5. a). Explain sustainability issues considered in egg production and processing **(10 Marks)**
   b). Draw a schematic diagram of egg powder production and explain the main steps **(10 Marks)**

6. a). The egg White has different proteins, state and explain these proteins**(10 Marks)**
   b). Explain any strategies which can be implemented in reducing the carbon foot print in egg production and processing **(10 Marks)**
