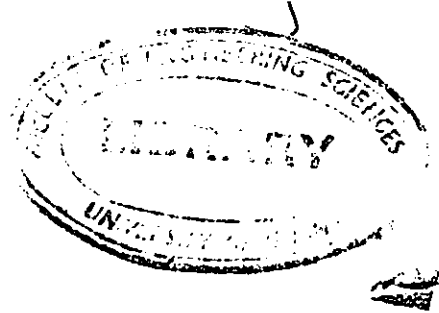




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**FACULTY OF ENGINEERING SCIENCES**

**FDEN 402. ENGINEERING AND DESIGN OF FOOD PROCESSES IV. ANIMAL PRODUCTS (3 CREDITS)**

**SECOND SEMESTER EXAMINATIONS 2012-2013**

**TOTAL TIME THREE HOURS**

**ANSWER FIVE QUESTIONS**

1. Artisanal fish processing is important in the delivery of food to the Ghanaian consumer. Describe these processes, delineating the associated challenges and what you will do as a Food Process Engineer to improve the processes.
2. You have been assigned to design a general-purpose facility to slaughter cattle, sheep and goats for the market. What will you consider as general requirements for such an animal processing plant. Positioned in a typical Ghanaian environment what will be the critical issues of concern in the setting –up and running such a facility?
3.
  - a. The preservation of animal products through canning is widely known. Discuss the general steps in aseptic canning and how they are applied to fish.
  - b. Using the equations below comment on canning process evaluation
    - i.  $\log t - \log F = m(121 - T) = \log t/F$
    - ii.  $t = F \times 10^{(121-T)/z}$
    - iii.  $\int 10^{-(121-T)/z} dt = F$
4.
  - a. You have opportunity to lead in the preparation of a typical plant layout for small-scale meat processing facility (post slaughter). Discuss your proposed layout for this facility.
  - b. If the above plant is expected to receive carcass meat (bone-in) of 568 kg/day, flank diverted to salting operation of 208 kg/day. Calculate the carcass meat for storage and the cold store area requirement, assuming average weight per forequarter (FQ) is 45 kg, the area per FQ is estimated at 0.57 m<sup>2</sup> with a movement factor of 1.4

5.
  - a. Sausage casings are important in the meat processing industry. Discuss the various sausage casing types and applications available for meat processing.
  - b. Sketch a beef carcass and label to show primal cuts using the Pistola procedure.
6. Poultry processing is a growing enterprise. Discuss a modern poultry processing plant and show the critical needs and steps in the preparation of birds for the market. What are the lessons for Ghana?

