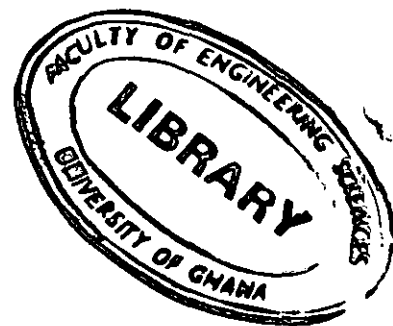




UNIVERSITY OF GHANA
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BSC. ENGINEERING SECOND SEMESTER EXAMINATIONS: 2015/2016

SCHOOOL OF ENGINEERING SCIENCES

FPEN 204: PHYSICAL AND CHEMICAL PROPERTIES OF FOODS (3 Credits)

INSTRUCTIONS: ANSWER ANY FIVE (5) QUESTIONS

TIME ALLOWED: THREE (3) HOURS

1.
 - a. Mayonnaise is an example of a dispersed food system and can be basically produced using only three ingredients. Describe how the properties of these essential ingredients allows for the production of mayonnaise.
 - b. What are the possible options for adding essential nutrients to foods during processing?

2.
 - a. Describe the characteristics of the different zones of a solubility curve and use it to explain the phenomenon of crystallisation in foods.
 - b. Explain how the gelling properties of pectins are employed in the preparation of regular and diabetic jams.

3.
 - a. The development of brown colour during toasting of bread or exposure of a cut fruit to air occurs through different mechanisms. Identify the respective mechanisms and differentiate between them.
 - b. Briefly describe how you would determine the protein content of a sample of cowpeas.

4.

- a. The structural conformation of proteins plays an important role in the proper functioning of proteins. Discuss the different levels of protein structures.
- b. Explain briefly the importance of moisture content of a food ingredient in food processing.

5.

- a. Draw a typical moisture sorption isotherm and discuss the characteristics of its key zones.
- b. In general terms, a food additive is any substance added to food. Outline the conditions under which the use of food additives is acceptable.

6.

- a. What are functional properties of foods?
- b. Describe three functional properties **each** of carbohydrates and lipids.