



**CRAWFORD UNIVERSITY**  
**COLLEGE OF NATURAL AND APPLIED SCIENCES**  
**DEPARTMENT OF INDUSTRIAL CHEMISTRY**  
**RAIN SEMESTER EXAMINATION 2020/2021**

**COURSE CODE: ICH 428**

**COURSE TITLE: DETERGENT AND COSMETICS CHEMISTRY**

**UNITS: 2**

**TIME ALLOWED: 2Hrs**

**DATE: JUNE, 2021**

**INSTRUCTIONS: Answer any FOUR (4) Questions**

1. Write short notes on the following with examples:

- a. Anionic surfactants. (3 marks)
- b. Cationic surfactants (3 marks)
- c. Non-ionic surfactants (3 marks)
- d. Amphoteric surfactants (3 marks)
- e. Basic surfactants. (3 marks)

2. a. Briefly state the reasons why basic surfactants are not suitable for skin and hair care products. (3 marks)

b. Give a chemical formulation for

i. Detergent powders (4 marks)

ii. Shampoo (4 marks)

iii. Hand wash (4 marks)

3a. Explain how cationic surfactants function to detangle human hair. (8 marks)

b. Give two examples of each of the following:

i) Oil-in-water emulsifiers ii) Water-in-oil emulsifiers iii) Humectants iv) Stabilizers v) Fatty alcohols vi) Cream bases vii) Emollients. (7 marks)

4a: Highlight the major difference between the following:

i) Lip gloss and Lip balm ii) Leave-in-conditioner and deep conditioner iii) Drying oils and non-drying oils iv) Heavy oils and light oils v) Essential oils and stable oils vi) Cosmetics and therapeutics. (12 marks)

b. Give three examples of thickeners that can be used for shower gels or shampoo. (3 marks)

5a. Sodium Lauryl Sulphate is commonly combined with cocamidopropyl betaine in the production of shower gels. Explain the reason for this. (2 marks)

b. List four alpha hydroxyl acids that are commonly used to exfoliate the skin. (4 marks)

c. For mechanical exfoliation of the skin, give two products that can be used. (2 marks)

d. Explain the role of pearlescent agents in shampoos and shower gels. (3 marks)

e. List two natural oils that are ideally suited for (i) Hair products (ii) Lip products (4 marks)

6 Give a simple chemical formulation for each of the following products:

a) Lip stick b) Lip balm c) Body cream d) Hair detangling solution e) Hand sanitizer

(15 marks)