

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2015/2016**

**SCH 2438: COSMETICS AND TOILETRIES**

**DATE:DECEMBER 2015 TIME: 2 HOURS**

**INSRUCTIONS:** Answer question one(compulsory) and any other two questions.

QUESTION ONE

Distinguish the following terms

i. Mineral and essential oils. (4.5 marks)

ii. Hard and soft soaps. (3.5 marks)

iii. Anionic and Cationic detergent (4 marks)

iv. Fats and waxes. (3.5 marks)

b. Study the data given below and then answer the questions that follow:

|  |  |  |  |
| --- | --- | --- | --- |
| Fat/oil | Saponification | Iodine | Reichert |
|  | Value | Value | Meissl value |
| A | 246-250 | 8-10 | 6.6-7.5 |
| B | 196-201 | 48-58 | 4-7 |
| C | 216-235 | 26-45 | 20-30 |
| D | 191-196 | 108-115 | 0.95 |

i. Define the terms saponification value, iodine value and meissl value. (6 marks)

ii. What information about oils and fats do you deduce from the parameters given above.

(6 marks)

iii. What do you deduce about A, B, C and D in relation to the data on each parameter given above? (2.5 marks)

QUESTION TWO

a.

i. What is the purpose of using urea, EDTA formaldehyde, lanolin, lemon juice and egg albumin as ingredient in shampoos formulation?

b. Use the formulation of a shampoo given below and answer questions that follow?

|  |  |
| --- | --- |
| Ingredient | Amount |
| Centrimide B.P | 175 |
| Alcohol | 100 |
| Diethylphalate | 20 |
| Water | 705 |
| total | 1000 |

i. Suggest one important ingredient that is lacking in the formulation. (1 mark)

ii. Suggest one anomaly of one of the gradient in the formulation above. (1.5 marks)

iii. How could you use this formulation to prepare a herbal shampoo? (3 marks)

c.

i. What is a standard of a product present in the market for consumption? (3 marks)

ii. What is a standardization mark on a product? (2 marks)

iii. “Packaging is an important aspect after completion of manufacturing process.” Explain.

(3 marks)

QUESTION THREE

a. Show how the following compounds may be converted into the stated detergents.

i. C9H19 OH to non ionic detergent. (2 marks)

ii. RNH2 to cationic. (1 mark)

iii. RSH to non ionic (2 marks)

b. What is the purpose of the following additives in the manufacture of detergents?

i. Sodium triphosphate, Na5P3O10 (3 marks)

ii. Sodium silicate. (2 marks)

iii. Lauryl alcohol. (1 mark)

c. Some raw materials for preparing a formulation of a good soap are suggested. These are coconut 25%, palm kernel oil 20%, castor oil 5% and others.

i. What is the purpose of castor oil? (1 mark)

ii. Suggest other admixtures for the preparation of soap. (2.5 marks)

iii. Outline how sulphur soaps may be prepared. (3 marks)

iv. Zinc stearate is a soap that is used as an ointment. Give a chemical equation showing its preparation. (1.5 marks)

QUESTION FOUR

a.

i. Define the term soaps. (2 marks)

ii. State the saponification reaction for the preparation of soaps. (2.5 marks)

iii. Give brief outline of the manufacture of soap. (3 marks)

b.

i. What is the purpose of adding sodium chloride rosin and fillers in the manufacture of soap? (2.5 marks)

ii. Describe the coloring matter used in soap manufacture. (4.0 marks)

c.

i. Soap may be manufactured through enzymatic processes. Describe the enzymatic hydrolysis of fats and oils. (2 marks)

ii. What factors would you consider when selecting the right enzyme for this process?

(1.5 marks)

iii. What are the advantages of using enzymes in the manufacture of soap?(2.5 marks)