



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY MAIN EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF**

**BACHELOR OF TECHNOLOGY IN COSMETOLOGY**

**COURSE CODE: TCO 121**

**COURSE TITLE: NATURAL HAIR CARE**

**DATE: 27<sup>th</sup> April, 2022**

**TIME: 3p.m-5 p.m**

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**INSTRUCTIONS TO CANDIDATES**

Total Marks: 70

Answer all the Questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

**QUESTION ONE [18 MARKS]**

- a. Describe the three types of human hair. [3 marks]
- b. How does aging affect hair growth? [3 marks]
- c. Describe the traditional hairstyling techniques for the Maasais. [2 marks]
- d. A mature strand of human hair is divided into two parts. Name the two parts. [2 marks]
- e. With the use of a diagram, describe the structure of the hair root. [8 marks]

**QUESTION TWO [18 MARKS]**

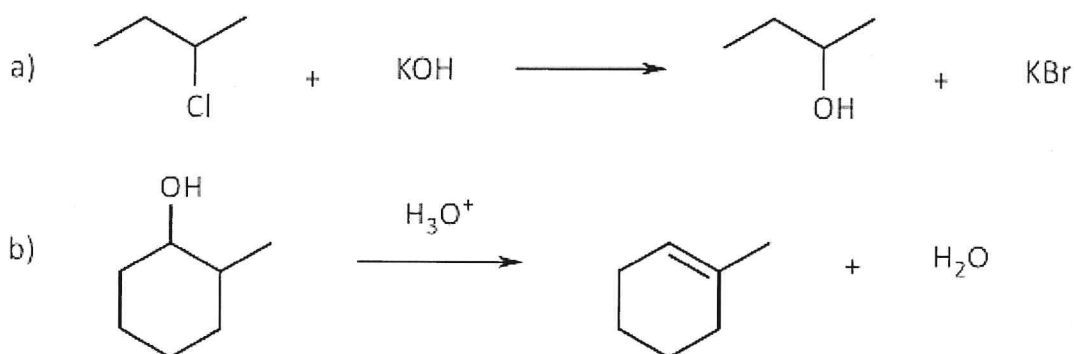
- a. Differentiate between androgenic alopecia and alopecia areata. [4 marks]
- b. What are the two main recommended hair loss treatments? [4 marks]
- c. What are canities? Which are the types of canities? [3 marks]
- d. There are two major types of fungal infections to the scalp: *Tinea capitis* and *Tinea favosa*. Show the difference between the two. As a cosmetologist, how do you handle? [7 marks]

**QUESTION THREE [17 MARKS]**

- a. How can you make sure the client is having a good shampoo experience? [7 marks]
- b. Briefly discuss how to prepare textured hair for braiding. [10 marks]

**QUESTION FOUR [17 MARKS]**

- a. Discuss four factors that are usually considered during hair analysis. [8 marks]
- b. Why do you need to understand pH levels when choosing shampoos? [1 marks]
- c. Discuss four basic methods of locking natural hair. [8 marks]

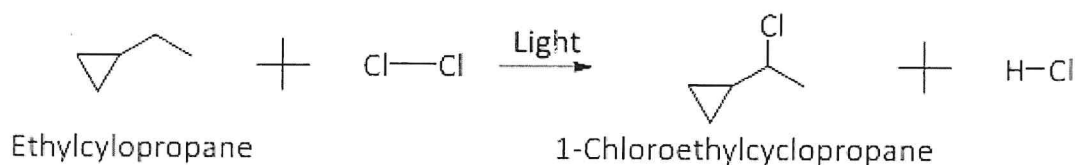


Q 4 Answer the following

I). Differentiate between homolytic and heterolytic processes providing alternative names for each

[4 Marks]

II). Write equations and mechanism for the initiation, propagation and termination reactions leading to the formation of 1-chloroethylcyclopropane from ethylcyclopropane and chlorine using appropriate curly arrows. [6Marks]

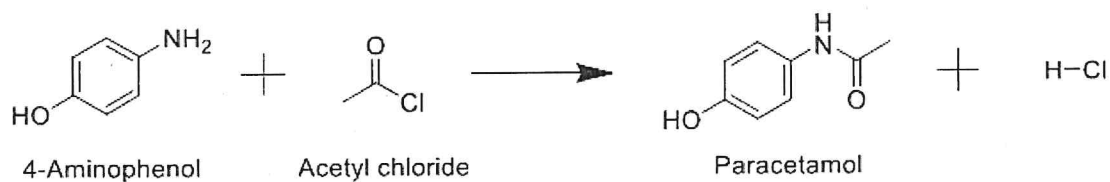


Q 5. [ I].define the following terms a) Nucleophile b Electrophile [2mks]

II. Which of the following species is likely to behave as a nucleophile and which as an electrophile? [4 Marks]

(a)  $\text{NO}_2^+$  (b)  $\text{CN}^-$  (c)  $\text{CH}_3\text{NH}_2$  (d)  $(\text{CH}_3)_3\text{S}^+$

III. Paracetamol can be prepared in the laboratory by the reaction of 4-aminophenol with acetyl chloride as shown in the reaction scheme below. Provide mechanism for reaction using electron-pushing arrows to indicate the flow of electrons in each step of the synthesis. [7Marks]



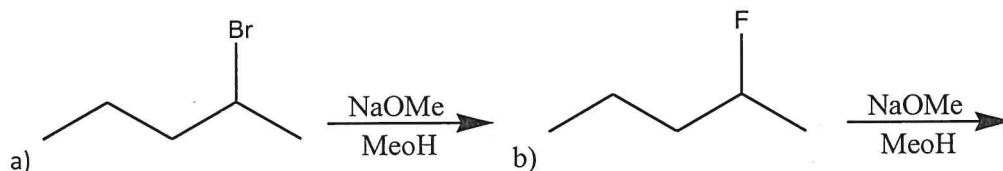
Q 6. I). What do the following initials stand for ( i) Sn1 (ii) E2 [2 marks]

II. Differentiate between Sn1 and Sn2 reaction mechanism [2mks]

Q 7. I). Define the following term, **zaitsev** as used in organic reactions [2mks]

II). Predict the major and minor E2 products with reasons showing movement using curly arrows. [4mks]

I).



III). In each case above cite the **Hoffman** and the **Zaitsevs** products [2mks]

IV). Using methoxide in methanol predict the major and minor products giving reasons for the differences in quantity for the molecule below. [3mks]

