

6. (a) Comment on the misconception that the odor of (R)-(+)-Limonene is associated with oranges and (S)-(-)-Limonene with lemons.
- (b) Establish the flavour formation in fruits by taking an example of biogenesis of aroma compounds. (5,10)
7. (a) Describe the recovery of different flavoring substances using adsorption technique.
- (b) Write short notes on the following extraction techniques (any two):
- (i) Maceration
 - (ii) Steam Distillation
 - (iii) Liquid-Liquid Extraction (5,10)
8. (a) How flavouring substances can be classified according to International Organization of the Flavour Industry (IOFI)?
- (b) Discuss the legal situations in EU and USA for the production of natural flavourings.
- (c) Write down the Strecker degradation reaction involved in thermal processing of food. (5,5,5)

(1000)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6059

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Unique Paper Code : 2174001212

Name of the Paper : GE: Chemistry of Fragrances and Flavors: An Industry's Perspective

Name of the Course : B.Sc. (Hons)/B.Sc. (Prog.)

Semester : II

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any six questions.
3. All parts of a question should be attempted together.
4. Each question carries 15 marks.

1. (a) What can be done to make perfumes last longer? Describe in terms of fragrance pyramid.

(b) Write short notes on the following (any two):

- (i) Current Trends in Fragrances

P.T.O.

(ii) Molecules with Sensory Power

(iii) Fragrance Wheel

- (c) How are the 12 principles of green chemistry are distributed among the 4 main targets: (i) Energy (ii) Safety (iii) Waste (iv) Resources? What is their impact on perfume industry? (5,5,5)
2. (a) Classify odours giving examples of each of the odour classes.
- (b) Fragrance & Flavour Development Centre, which is a Govt, of India Autonomous Body Ministry of Micro, Small & Medium Enterprises has been doing remarkable work in the area of fragrances and flavours. Explain.
- (c) Supercritical CO₂ has acquired great prominence as a greener solvent. Give the phase diagram of CO₂ and explain its applicability as green solvent for extraction of essential oils. (5,5,5)
3. (a) Explain the statement "Catalytic reagents are superior to stoichiometric reagents" with relevant-examples.
- (b) What is the relationship between risk and hazard? Explain. What are the ways in which you can minimize hazard?

(c) What do you understand by Sustainability Charter? Highlight the charter commitments of fragrance industries to sustainability. (5,5,5)

4. (a) The fragrance industry has a strong commitment to biodiversity. Justify.
- (b) Aroma compounds can naturally be found in various foods, such as fruits and their peels, wine, spices, floral scent, perfumes, fragrance oils, and essential oils. Complete the following missing information in the table provided.

Type of Compound	Fragrance	Natural Occurrence	Chemical Structure
Ester			
Terpene			
Aromatic compound			
Alcohol			

- (c) Give any two key reactions used for conversion of raw materials to fragrances. (5,5,5)
5. (a) What do you mean by the term Flavour Enhancers?
- (b) What are the five basic taste elements that build our overall perception of flavour? Describe the functions of Orthonasal and Retronasal Olfaction in human. (5,10)