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B.M.S. COLLEGE FOR WOMEN, AUTONOMOUS
BENGALURU-560004
SEMESTER END EXAMINATION-SEPT/OCT-2023

M.Sc. in Chemistry-4th Semester
CHEMISTRY OF NATURAL PRODUCTS

Course code: MCH402T **QP Code: 14012**
Duration: 3 Hours **Max.Marks:70**

Instruction: Answer Question No. 1 and any FIVE of the remaining.

1. Answer any *TEN* questions **(2X10 =20)**

a) What is special isoprene rule? Write the structure of limonene and mark the isoprene units.

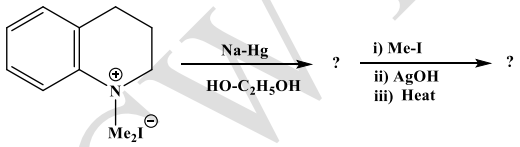
b) Give the mechanism of Wagner-Meerwein rearrangement of camphene.

c) Formulate the synthesis of α-terpineol

d) Mention the use of Zeisel's method in the structure elucidation of papaverine with an equation.

e) Draw all optical isomers of ephedrine

f) Predict the product(s) and name the degradation for the following



g) What is phase set reaction? How is it useful in chlorophyll synthesis?

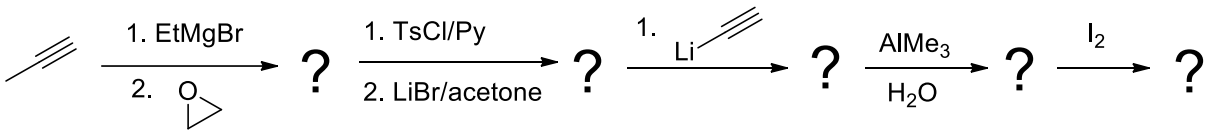
h) Write the products obtained on acid hydrolysis of Vitamin B12 under mild and vigorous conditions. How do they help in structure elucidation?

i) Name the protecting groups used in solid phase and solution phase synthesis of oligonucleotide.

j) What are prostaglandins? In prostaglandin PGE and PGF, what does E and F refer to?

k) Outline the synthesis of Thromboxane A_2

l) Identify the products:



2. a) Describe the conversion of santonin into desmotroposantonin and santonic acid

b) Illustrate the structural elucidation of β-carotene. **(5+5=10)**

3. a) Mention the steps involved in the synthesis of reserpine

b) Elucidate the structure of lysergic acid **(5+5=10)**

4. a) Write the structural elucidation and outline the synthesis of a purine nucleoside.

b) Discuss degradation of haemin by HI/AcOH, Sn/HCl and H_2CrO_4 **(6+4=10)**

5. a) Sketch the synthesis of PGE_3 by Upjohn's approach.

b) Construct the stereoselective synthesis of grandisol. **(5+5=10)**

6. a) Outline the synthesis of fenchone

b) Formulate the steps involved in the biosynthesis of squalene

c) Suggest the biosynthesis of hygrine **(4+3+3=10)**

7. a) Describe photo chemical synthesis of coradyline

b) Write a note on formation of internucleotide bond by phosphite triester and phosphoramidite methods.

c) Show the steps involved in the synthesis of vitamin B12 from cobyric acid. **(4+3+3=10)**

8. a) Discuss the stereoselective synthesis of bombykol.

b) Classify pheromones based on circumstances, their role in the pest control and advantages and disadvantages of pheromones as pesticides.

c) Write briefly on the correlation of configuration of terepenoids. **(4+3+3=10)**