

**FOURTH SEMESTER EXAMINATION 2021-22****M.Sc. Chemistry****Paper - IV****CHEMISTRY OF NATURAL PRODUCT**

Time : 3.00 Hrs.

Max. Marks : 80

Total No. of Printed Page : 03

Mini. Marks : 29

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**Note:** Question paper is divided into three sections. Attempt question of all three section as per direction. Distribution of Marks is given in each section.

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**Section - 'A'****Very short type question (In few words)**Q.1 Attempt any six question from the following questions : 6x2 = 12

- (i) Define Terpenoids. Give one example with structure from each class of the following :-
- (a) Acyclic                      (b) Mono Cyclic
- (ii) How will you prove the presence of hydroxyl groups in Alkaloids.
- (iii) Explain dehydrogenation of Terpenes ?
- (iv) Write one possible step for conversion of  $C_6H_5CHO$  into ephedrine ?
- (v) Discuss the linkage between quinine acid and meroguinine in quinine ?
- (vi) Discuss the position of hydroxyl groups in cholesterol ?
- (vii) Give the classification of flavonoid compounds ?
- (viii) What products are obtained when cyanidin is fused with KOH ?
- (ix) Explain the colour changes of anthocyanins at various pH ?

(2)

- (x) What products are obtained when Haemin is treated with HI/ACOH ? Give names only.

### Section - 'B'

#### Short answer question (In 200 words)

Q.2 Attempt any four question from the following questions : 5x4=20

- (i) What are carotenes ? Starting from  $\beta$  ionone how is  $\beta$ -carotene synthesized ?
- (ii) Explain Hofmann exhaustive methylation ?
- (iii) How would you proceed to predict ISO-propylidene grouping in an unknown terpenoid ?
- (iv) Prove that morphine has a structure containing an ether linkage in position 4, 5 of the phenanthrene nucleus ?
- (v) State the synthesis of Quercetin by chalcone method ?
- (vi) How will you convert cholesterol into Testosterone ?
- (vii) Give the synthesis of chlorophyll-a ?

### Section - 'C'

#### Long answer/Essay type question.

Q.2 Attempt any four question from the following questions : 12x4=48

- (i) Discuss the degradative evidences leading to the structure of Tropine ?

(3)

- (ii) Explain isoprene rule with suitable examples. How can you prove the p-methane skeleton in menthol ?
- (iii) Discuss the structure of coniine?
- (iv) How are steroids related to Diel's hydrocarbon ? Give a method for the synthesis of Diel's hydrocarbon ?
- (v) Give synthesis of the following compounds :-
  - (a) Bile acid
  - b) Progesterone
- (vi) Discuss the structure of cyanine by degradation and synthetic method ?
- (vii) Explain in brief the relationship between Haemoglobin and chlorophyll ?

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