

Seat No. : _____

N12-123

November-2014

M.Sc., Sem.-III

**CHE (O) 501 : Organic Chemistry
(Natural Products and Biomolecules)**

Time : 3 Hours]

[Max. Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) Figures to the right side indicate full marks.

1. (A) Answer the following :

- (1) What are natural pigments ? Give classification of natural pigments based on structural unit. **4**
- (2) Discuss acidic and basic hydrolysis of chlorophyll. **3**

OR

Answer the following :

- (1) Discuss alkali fusion reaction of Flavone and Quercetin. Give general method for the synthesis of anthocyanidin or flavone. **4**
- (2) Discuss spectral properties of porphyrins. **3**

(B) Answer the following :

- (1) Give synthesis of **4**
- (a) W, 4-Diacetoxyacetophenone from anisole.
- (b) Dipyrrylmethenes from cryptopyrrole.
- (2) Discuss catalytic reduction reaction of bilirubin and derive conclusion. **3**

OR

Answer the following :

- (1) Discuss the reductive degradation of Haemin with **4**
- (i) HI and acetic acid
- (ii) Sn (tin) and Hydrochloric acid
- (2) Prove the presence and position of glucose unit in anthocyanin. **3**

2. (A) Answer the following :
- (1) How will you obtain morphol and methyl morphenol from morphine ? **4**
 - (2) Give evidence for the nature and position of side chain in α -Tocopherol. **3**

OR

Answer the following :

- (1) Give evidences for the size of ring B in colchicine. How will you show the presence of acetamido group in colchicine. **4**
- (2) Prove the presence of Lactone cycle in Vitamin C. **3**

(B) Answer the following :

- (1) Discuss the structure of Reserpic acid. **4**
- (2) Sodium sulphite cleavage of Vitamin-B₁ gives an acid [A] and base [B]. Discuss the structure of any one of them. **3**

OR

Answer the following :

- (1) Give evidences for the oxidation reaction of Quinine. Prove the structure of meroquinine. **4**
- (2) Give evidence for nature, nucleus and side chain in biotin. **3**

3. (A) Answer the following :

- (1) What is Blanc's rule ? How it is useful to establish the ring system in cholesterol ? **4**
- (2) What is Barbier-Wieland degradation ? How it is important to establish the structure of side chain in cholesterol ? **3**

OR

Answer the following :

- (1) Give evidence for the nature and position of double bond in ergosterol. **4**
- (2) Explain the pathway by which squalene is converted to cholesterol. **3**

(B) Answer the following :

- (1) Write a short note on chemistry of Bile acid. 4
- (2) What are sex hormones ? Classify them giving one example of each. Give synthesis to Testosterone. 3

OR

Answer the following :

- (1) What are adrenocortical hormones ? Give partial synthesis of cortisone. 4
- (2) Give synthesis of Oesterone. 3

4. (A) Answer the following :

- (1) Prove the structure of allogibberic acid analytically. 4
- (2) Give synthesis of Farnesol. 3

OR

Answer the following :

- (1) Give degradation product of gibberic acid and derive conclusion. 4
- (2) Discuss the Ozonolysis of squalene. 3

(B) Answer the following :

- (1) How will you prove the position of double bonds in abietic acid ? 4
- (2) Give synthesis of Zingeberine. 3

OR

Answer the following :

- (1) Discuss the oxidation of retene and derive conclusion. 4
- (2) Give conversion of Farnesol to Farnesenic acid. 3

5. (A) Answer the following : 14

- (1) Give name and structure of product when cyanidin chloride is fused with KOH.
- (2) What is meant by Soret band and Porphyrin ?
- (3) Define Haem and Haemin.

- (4) Giving necessary reaction discuss Weerman test.
 - (5) Give classification of vitamins according to their solubility.
 - (6) Giving reaction show colchicine is an alkaloid.
 - (7) Discuss relationship between morphine codeine and thebaine.
 - (8) Give structural formula of any two corticoids.
 - (9) Write the structure of the product when steroids are dehydrogenated with selenium at 360 °C and 420 °C.
 - (10) Give the structure of Oestradiol and Oestrone.
 - (11) Write the molecular formula of sesterterpenoids and sesquiterpenoids.
 - (12) Write isoprene rule and special isoprene rule.
 - (13) How will you detect Isopropenyl and methyl ketone group in terpenoid.
 - (14) Name the products obtained on Ozonolysis of Zingiberene.
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