



EBB-143001

Seat No. _____

M. Sc. (Sem.-III) Examination

November / December - 2021

MSC0C301 : Natural Products & Biomolecules

Time : 3 Hours]

[Total Marks : 70

- 1 (A) (1) What are natural pigments ? Give classification of natural pigments based on structural unit.
- (2) Discuss spectral properties of porphyrin. Give one synthesis of dipyrromethane.

OR

- 1 (A) (1) Discuss general chemical properties of flavones. Prove the presence and position of glucose units present in anthocyanin.
- (2) Discuss acidic and basic hydrolysis of chlorophyll.
- (B) (1) Give synthesis of
- (a) 2-hydroxy 4, 6-dimethoxy benzaldehyde from phloroglucinaldehyde.
- (b) ω , 3, 4, - Trimethoxy Acetophenone from veratric acid.
- (2) Differentiate haem and haemin. Discuss the degradation product of haemin under difference condition.

OR

- (1) Discuss reduction reaction of bilirubin and derive conclusion.
- (2) Give synthesis of quercetin.
- 2 (A) (1) How will you obtain morphol and methyl morphenol from morphin ?
- (2) Sodium sulphite cleavage of vitamin-B1 gives an acid [A] and base [B]. Discuss the structure of any one of them.

OR

- (1) Give evidence for the presence of acetamido group and nature of ring C in colchicines.
- (2) Give evidence for the presence of sulfur atom in five member ring and side chain n-valeric acid in biotin.
- (B) (1) Discuss the structure of reserpine acid.
- (2) Give synthesis of α -tocopherol.

OR

- (1) Give oxidation reaction of quinine. Prove the structure of meroquinine.
- (2) Give synthesis of Vitamin-C.

- 3 (A) (1) What is Blanc's rule ? How it is useful to establish the ring system in Cholesterol ?
- (2) Give evidence for the nature and position and double bond in ergosterol.

OR

- (A) (1) What is Barbier-Wieland degradation ? How it is important to establish the structure of side chain in cholesterol ?
- (2) What are sex hormones ? Classify them giving one example of each. Give synthesis of progesterone.
- (B) (1) Prove that bile acids are hydroxyl derivatives of 5- β -cholanic acid or 5- α -cholanic acid. Explain biological importance of bile acid.
- (2) What are corticoids ? Give partial synthesis of cortisone.

OR

- (B) (1) Explain the chemical relationship and their interconversion among oestrone, oestradiol and oestriol.
- (2) Give synthesis of Testosterone.
- 4 (A) (1) Give degradation product of gibberic acid and derive conclusion.
- (2) Give synthesis of farnesol.

OR

- (A) (1) Discuss the reaction of transformation of farnesol to farnescenic and and show what light they throw in determining the structure of farnesol.
- (2) Give synthesis of squalene.
- (B) (1) Discuss the oxidation of retene and derive conclusion.
- (2) Give synthesis of homoretene.

OR

- (B) (1) Discuss the ozonolysis and nature of double bond in zingiberene.
- (2) Discuss the ozonolysis of squalene.

5 Answer the following :

- (1) Give name and structure of product when cyaniding chloride is fused with KOH.
- (2) Define Haem and Haemin.
- (3) Giving necessary reaction discuss Weerman test.
- (4) Give classification of vitamins according to their solubility.
- (5) Give name and structure of any two flavones.
- (6) Giving reason show colchicines is an alkaloid.
- (7) Discuss relationship between morphine codeine and thebaine.
- (8) Give structural formula of any two corticoids.
- (9) Give the structure of Oestradiol and Oestrone.
- (10) Write isoprene rule and special isoprene rule.
- (11) Write the molecular formula of sesterterpenoids and sesquiterpenoids.
- (12) How will you detect isopropenyl and methyl ketone group in terpenoid ?
- (13) Name the products obtained on Ozonolysis of Zingiberene.
- (14) Show how L-ascorbic acid is converted to dehydro L-ascorbic acid.