



G-143001

Seat No. _____

M. Sc. (Sem. III) Examination

April / May - 2019

**MSCOC301 : Organic Chemistry
(Natural Products & Biomolecules)**

Time : 3 Hours]

[Total Marks : 70

1 Answer the following :

- (a) (1) Discuss general chemical properties of flavones. Prove the presence and position of glucose units present in Anthocyanin. 4
- (2) Give properties of flavones. What happens when flavone is fused with KOH and boiled with KOH. 3

OR

- (1) Discuss oxidation and reduction reaction of Bilirubin and derive conclusion. 4
- (2) Give synthesis of Quercetin. 3
- (b) (1) Discuss geometry and aromatic character of porphyrin. Give one synthesis of dipyrromethane. 4
- (2) Discuss acidic and basic hydrolysis of chlorophyll. 3

OR

- (1) Discuss the reductive degradation of Haemin with tin (Sn) and HCl. 4
- (2) Give classification of Natural Pigments Based on structural unit. 3

2 Answer the following :

- (a) (1) Give evidence for the presence of sulphur atom in five member ring of Biotin. 4
- (2) Discuss the nature of hydroxyl group in Morphine. Convert Morphine to Morphenal and derive conclusion. 3

OR

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| (1) | Discuss nature of nucleous and position of methoxy and carboxyl group in Reserpine acid. | 4 |
| (2) | Sodium sulphite cleavage of Vitamin - B ₁ gives an acid [A] and base [B]. Discuss the structure of any one of them. | 3 |
| (b) (1) | Discuss the structure of Reserpine acid. | 4 |
| (2) | Give synthesis of α -Tocopherol. | 3 |

OR

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| (1) | Give oxidation reaction of quinine. Prove the structure of meroquinine. | 4 |
| (2) | Give synthesis of Vitamin-C. | 3 |

3 Answer the following :

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| (a) (1) | Give evidence for the nature and position of double bond in Ergosterol. | 4 |
| (2) | Discuss the position of angular methyl group in cholesterol. | 3 |

OR

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| (1) | What is Blum's Rule ? How it is useful to establish the ring system in cholesterol ? | 4 |
| (2) | Give synthesis of 7-methoxy 3-3' dimethyl 1, 2 cyclopentano phenanthrene and show what light it throws in determining the structure of oestrone. | 3 |
| (b) (1) | Classify sex hormones giving one example of each. | 4 |
| (2) | Give synthesis of progesterone. | 3 |

OR

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| (1) | Write a short note on chemistry of Bile acids. | 4 |
| (2) | Give synthesis of oestrone. | 3 |

4 Answer the following :

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| (a) (1) | Give degradation product of Gibberic acid and derive conclusion. | 4 |
| (2) | Give synthesis of Squalene. | 3 |

OR

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| (1) | Give evidence for the position of double bond in Abeitic acid. | 4 |
| (2) | Give synthesis of Farnesol. | 3 |
| (b) (1) | Discuss the ozonolysis and nature of double bond in Zingeberin. | 4 |
| (2) | Discuss oxidation of Retene and derive conclusion. | 3 |

OR

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| (1) | Discuss the structure of Farnesol. | 4 |
| (2) | Prove the structure of Allogeberic acid analytically. | 3 |

5 Answer the following : **14**

- (1) Define Haem and Haemin.
- (2) What is meant by Soret band in porphyrin ?
- (3) Give two examples of sap pigments.
- (4) Give structure of any two corticoids.
- (5) What is Weerman test ?
- (6) Define : Isoprene Rule.
- (7) The Haemoglobin consists which of two parts ? Mention their names.
- (8) What is Blank's Rule ?
- (9) Give name and structure of any two Flavones.
- (10) Giving reason show colchicine is an alkaloid.
- (11) What is Barbier - Wielund degradation ?
- (12) Write structure of product when steroids are dehydrogenated with selenium at 360°C and 420°C.
- (13) Give structure of Chrysene and Picone.
- (14) Give classification of vitamins according to their solubility.
