

Seat No.: _____

[46/A-14]

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SARDAR PATEL UNIVERSITY

M.Sc. Semester - IV (Organic Chemistry) Examination

Tuesday, 25th October 2016

PS04C ORC02 - Natural Products

Time: 02:00 pm - 05:00 pm

Maximum Marks - 70

Q.1 Select the correct answer from the following:

[08]

- (1) Hofmann exhaustive methylation of diamino biotin gives _____.
- (a) γ -(2-thienyl)valeric acid (b) δ -(3-thienyl)valeric acid
(c) γ -(3-thienyl)valeric acid (d) δ -(2-thienyl)valeric acid
- (2) Which of the following compounds obtained upon distillation of Mahanimbine in presence of Zn-dust?
- (a) 1-formyl-2-hydroxy-3-methyl carbazole (b) 3-methyl carbazole
(c) dihydrocarbazole (d) tetrahydrocarbazole
- (3) _____ is not a sesquiterpenoids?
- (a) caryophyllene (b) β -carotene
(c) α -cadinene (d) β -eudesmol
- (4) Cholesterol upon selenium dehydrogenation gives _____.
- (a) Diel's hydrocarbon and chrysene (b) Diel's hydrocarbon and cholanic acid
(c) Diel's hydrocarbon and deoxycholic acid (d) Diel's hydrocarbon and cholestane triol
- (5) Which of the following is the correct chemical evidence for the presence of five double bonds in Vitamin A₁?
- (a) Ozonolysis of Vitamin A₁
(b) Reaction of vitamin A₁ with p-nitrobenzoic acid
(c) Catalytic reduction of Vitamin A₁
(d) Oxidation of Vitamin A₁
- (6) Methoxyl group in alkaloids is determined by _____.
- (a) Zeisel's method (b) Von braun method
(c) Herzinger mayer method (d) Hofmann exhaustive methylation
- (7) Which of the following is correct for α -Cadinene?
- (a) It is a mono terpenoid.
(b) It has a two double bond and both are present in a same ring.
(c) It gives dihydro cadinene upon catalytic reduction.
(d) It does not shows strong absorption in UV- region.
- (8) Oestrone is a _____.
- (a) Bile acid (b) Female sex hormone
(c) Enzyme (d) Male sex hormone

- Q.2** Answer ANY SEVEN of the following [14]
- Give the evidences for the symmetrical structure of β -carotene.
 - Write structure, sources and deficiency diseases of Vitamin A₁.
 - Give the spectral evidences for the skeleton alkaloids A₄.
 - Write a short note on bile acid.
 - Shows how D-Glucose can be converted into Ascorbic acid.
 - Give the synthesis of Oestrone.
 - Explain Hofmann exhaustive methylation method with suitable example.
 - Discuss the stereochemistry of β -eudesmol.
 - Give the evidences for the presence of n-Valeric acid as side chain in Biotin.
- Q.3** A. Sodium sulphite cleavage of Aneurine results a compound with molecular formula C₆H₉N₃O₃S with acidic properties and C₆H₉NOS with basic properties. Discuss the structure of compound with acidic properties. [06]
- B. Give the synthesis of Vitamin H and Vitamin A₁. [06]
- OR**
- B. Discuss the structure of Pyridoxine and give its synthesis. [06]
- Q.4** A. Answer the followings: [06]
- Give the spectral and chemical evidences for the presence of angular fusion of pyran ring with carbazole nucleus in Mahanimbine.
 - Discuss the position of cyclic ether linkage present in Morphine.
- B. Give the synthesis of Tylophorine and Mahanimbine. [06]
- OR**
- B. Give the synthesis of Reserpine. [06]
- Q.5** A. Discuss the position of double bond in α -Cadinene. [06]
- B. Give the synthesis of β -carotene and β -eudesmol. [06]
- OR**
- B. (i) Give the synthesis of Caryophyllene. [03]
- (ii) Give the mechanism for transformation of longifolene to isolongifolene under acidic Condition. [03]
- Q.6** A. (i) Discuss the chemical evidences for the presence of angular methyl group in Cholesterol. [03]
- (ii) Give the synthesis of Testosterone starting from cholesterol. [03]
- B. Discuss the nature and position of side chain in Cholesterol. [06]
- OR**
- B. What are primary and secondary metabolites? Discuss the biogenesis of mono and sesquiterpenoids using mevalonic acid pathway. [06]

