[100] SEAT No._____ No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY

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

Wednesday, 20th March 2019

Natural products: PS04CORC02

Time: 02:00 p.m. to 05:00 p.m. **Marks: [70]**

Note: Right hand figures indicate marks

Q-1 Select the correct answer from the option given below. **[08]**

1. Deficiency of Vitamin B_6 causes _____.
   (a) beriberi (b) dermatitis (c) xerophthalmia (d) night blindness
2. No of double bond equivalence for Vitamin A_1 is _____.
   (a) 4 (b) 2 (c) 3 (d) 6
3. Morphine is a _____ group alkaloid.
   (a) carbazole (b) phenyl ethyl amine (c) phenanthrene (d) quinoline
4. Morphine when heated with concentrated hydrochloric acid gives _____.
   (a) methyl morphol (b) apomorphine (c) morphol (d) morphothebaine
5. The nature of side chain is confirmed by _____ in Cholesterol.
   (a) Barbier-Wieland degradation (b) Zeisel's method
   (c) Herzig-Mayer method (d) Von Braun method
6. The reaction of cholestanone with _____ gives cholestane as a product.
   (a) CrO_3 (b) Ni/H_2 (c) Zn-Hg/HCl (d) HNO_3
7. Which of the following statement is incorrect for β- Eudesmol?
   (a) It has one tertiary hydroxyl group (b) It is a bicyclic compound
   (c) It has one angular methyl group
   (d) It gives tetrahydro β- Eudesmol upon catalytic reduction
8. α-Cadinene is a _____.
   (a) monoterpenoid (b) triterpenoid (c) diterpenoid (d) sesquiterpenoid

Q-2 Answer the following (Any Seven). **[14]**

1. Give the synthesis of Vitamin A_1.
2. Discuss the colour test of Cholesterol.
3. Explain Emde modification with suitable example
4. Discuss the functionality of oxygen in Morphine.
5. Write the classification of terpenoids on the basis of no. of carbon atoms.
6. Write a note on Bile acid.
7. Give the synthesis of Vitamin C.
8. Give the synthesis of α-Cadinene dihydrochloride.
9. Explain the stereochemistry in β-Eudesmol.

Q-3 [A] Give the synthesis of following. **[06]**

1. Biotin 2. Pyridoxine

[06]

[B] Discuss the structure of Vitamin H.

OR

[B] The sodium sulphite cleavage of Vitamin B_1 results in to compound C_6H_9NOS having basic property and compound $C_6H_9N_3O_3S$ with acidic property. Discuss the structure of compound with acidic property along with its synthesis. [06]

Q-4 [A] Answer the following. [06]

1. Give the spectral evidences for structure determination of Sceletium alkaloid A_4.
2. Explain Hofmann exhaustive methylation with suitable example and also discuss its limitations.

[B] Give evidences to show that there is a cyclic 3°-nitrogen in Morphine and it has an attachment of methyl group. [06]

OR

[B] Write the synthesis of following. [06]

1. Tylophorine
2. Mahanimbine

Q-5 [A] β-Eudesmol upon sulphur dehydrogenation gives eudalene as a product. Discuss the structure of eudalene along with its synthesis. [06]

[B] How will you confirm the symmetrical structure of β-Carotene? Write its synthesis. [06]

OR

[B] Answer the following. [06]

1. Discuss the biogenesis of monoterpenoids using mevalonic acid pathway.
2. Give the synthesis of Caryophyllene.

Q-6 [A] Answer the following. [06]

1. Discuss the position of double bond in Cholesterol.
2. Give the synthesis of Oestrogen.

[B] Answer the following. [06]

1. Discuss the position of hydroxyl group in Cholesterol.
2. Give the synthesis of Testosterone.

OR

[B] Answer the following. [06]

1. Discuss the position of side chain in Cholesterol.
2. Give the synthesis of Cortisone.

X