

Vithalbhai Patel & Rajratna P. T. Patel Science College
Vallabh Vidyanagar

B. Sc. (Fifth Semester) (CHEMISTRY)

Subject : ORGANIC CHEMISTRY (US05CCHE02)

Date : 01-10-2018

Internal Examination - 2018

Marks : 50

Day : Monday

Time : 10.00 to 12.00 noon

Note: (i) All questions are to be attempted. (ii) Figures to the right indicate marks.

Q.1 Choose the correct option for the following : **[8]**

- (i) The intermediate of sommelet rearrangement is known as
(a) ylide (b) cation (c) radical (d) betaine
- (ii) α -chloroketone is converted into acid by action of
(a) NaOR (b) NaNH₂ (c) ROR (d) NaOH
- (iii) is CNS depressant as well as producing sleep.
(a) anticonvulsant (b) sedative (c) hypnotics (d) none of these.
- (iv) is used to decrease blood pressure by dilating the capillaries and increasing the heart rate.
(a) histamine (b) antihistamine (c) hematological agents (d) sedative.
- (v) General molecular formula of the terpenoid is
(a) -C₅H₈- (b) -(C₅H₈)_n- (c) C₅H₈ (d) -(C₅H₁₀)_n-
- (vi) *tert.* -OH group is present in
(a) α -terpineol (b) nerol (c) geraniol (d) none of this.
- (vii) hormones may cause Jaundice.
(a) testosterone (b) Oestrone (c) Cortisol (d) adrenaline.
- (viii) The production of Corticoids has been controlled by
(a) DNA (b) GH (c) ACTH (d) RNA.

Q.2 Answer the following (Attempt any five) : **[10]**

- (i) Explain : Birch reduction of toluene gives 2,5-dihydrotoluene.
- (ii) Why Hoffmann-Loeffler reaction fails to proceed in the dark ?
- (iii) Write the structure and uses for : (a) aspirin and (b) methylene blue.
- (iv) What are the requirement of an ideal drugs ?
- (v) Give oxidation product of : (a) camphor and (b) α -pinene.
- (vi) Define isoprene rule. How it was deduced and confirmed ?
- (vii) Differentiate between hormones and vitamins.
- (viii) What are the physiological actions of testosterone ?



Q.3 **[08]**

[A] Predict the product, suggest name and appropriate reaction mechanism :



[B] Write reaction mechanism for the conversion of ketoxime into *N*-substituted amide.

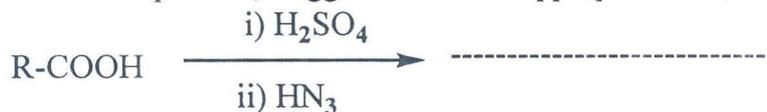
OR

P.T.O.

Q.3

[08]

[A] Predict the product, suggest name and appropriate reaction mechanism :



[B] Write reaction mechanism for the preparation of Mannich base from amine, formaldehyde and ketone.

Q.4

[08]

[A] What are sulpha drugs ? Discuss the mechanism of action of Sulpha Drugs.

[B] Write synthesis for the following :

- (i) Drug used for the treatment of cholera.
- (ii) Drug used as antihistamine.

OR

Q.4

[08]

[A] Classify drugs on the bases of their therapeutic actions.

[B] Write synthesis for the following :

- (i) Drug known as German penicillin.
- (ii) Drug used as dusting powder for wounds and ulcers.



Q.5

[08]

[A] Prove that Nerol and Geraniol are geometrical isomers of each other.

[B] Write Arens-Van Dorp's synthesis for Citral.

OR

Q.5

[08]

[A] List the methods used for the isolation and separation of terpenoids from plant materials and discuss any one method for the isolation of terpenoids.

[B] Discuss Wallach's oxidative degradation of α -terpineol.

Q.6

[08]

[A] Differentiate between electrophilic addition and nucleophilic addition reaction on α , β -unsaturated carbonyl compounds.

[B] Write synthesis of Oestrone using Johnson et al.

OR

Q.6

[08]

[A] How will you determine the presence of phenolic -OH group, steroid nucleus and keto group in the structure of oestrone ?

[B] Write synthesis of testosterone from cholesterol using Ruzicka and Butenandt reaction.