

SET-D1

Paper - Chem EC-2
org. chem spb.

Answer Five questions in which Q. No. 1 is compulsory
E.M. 40

Q1) Select the correct answer of the following - 1x10

(a) The fundamental unit in Terpenoid is

- (i). 1,3-Butadiene (ii) 1,2-Butadiene
(iii) 2 methyl- 1,3 Butadiene
(iv). Allene.

(b) Which one of the following is a bicyclic Monoterpene.

- (i). α -Pinene (ii) Zingiberene
(iii). Menthol (iv). Limonene

(c) Which of the following on oxidation gives β -ionone.

- (i). α -Terpineol (ii) α -Pinene
(iii). β -Carotene (iv). Bornanol

(d) Which one of the following is not an Alkaloid.

- (i) Nicotine (ii) Ephedrine
(iii) Adrenaline (iv). Quinine.

(e) On hydrolysis Atropine gives

- (i) Atropic Acid (ii) Tropic acid + Tropine
(iii) phenyl acetic acid (iv). None of these.

(f) Natural rubber is a polymer of

- (i) Cis Isoprene (ii) Trans Isoprene
(iii) 1,3-Butadiene (iv) both cis & trans Isoprene

g) Which of the following is associated with coronary arterial disease.

- (i) Epinephrine (ii) cholesterol
(iii) Cholic acid (iv) Progesterone

(h) HDL is called

- (i) good cholesterol (ii) Bad cholesterol
(iii) None of these

(i) Which one of the following is steroid hormone

- (i) Adrenaline (ii) Thyroxine
(iii) Cortisone (iv) Riboflavin

(j) The entropy of a system in a irreversible process is

- (i) increased (ii) decreased
(iii) remains constant (iv) none of these

Q2) What are Terpenes? How are they extracted from plants? How would you determine the structure of Citral by degradation and synthetic evidence.

142/12

Q3) How was the structure of Morphine worked out suggest a possible mode of action for morphine as an analgesic drug.

15

84) In cholesterol establish

5 x 3

- (a) ~~the~~ structure of nucleus
- (b) Position of hydroxyl group and double bond
- (c) Nature of side chain.

85) Discuss quantitatively Hückel ~~m~~ molecular orbital theory with reference to allyl system as an example.

15

86(a) Write down the mechanistic significance of entropy and enthalpy

8+7

- (b) Write a short note on Reactivity and Selectivity Principles.

87) Mention Reaction-Solvent relationship and discuss the role of solvation in S_N1 and S_N2 reaction.

15

88) Write short notes on

3 x 5

- (a) Isoprene Rule & special Isoprene rule
- (b) Bell-Evans-Polanyi Principle
- (c) Hammett Equation

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M.Sc. IIIrd SEM (session-2018-2020)

Paper - Chem-EC-2

org-chem sp6 70

SET-02

Answer Five questions in which Q No. 1.
is compulsory

Q1) Select the correct answer of the following 3x10

(a) Which one of the following is Sesquiterpene

- | | |
|-------------------|---------------|
| (i) Limonene | (ii) Rubber |
| (iii) Zingiberene | (iv) squalene |

(b) Which of the following method used for isolation of Terpenoids.

- | | |
|--------------------------|-------------------------|
| (i) Steam distillation | (ii) Solvent extraction |
| (iii) Enfleurage Process | (iv) All these |

(c) Which one is a Tropane Alkaloid

- | | |
|----------------|---------------|
| (i) Pterine | (ii) Nicotine |
| (iii) Atropine | (iv) Guanine |

(d) Which one is used as a local anesthetic

- | | |
|----------------|----------------|
| (i) Guanine | (ii) Cocaine |
| (iii) Morphine | (iv) Reserpine |

(e) Atropine is the racemic form of

- | | |
|--------------|------------------|
| (i) Cocaine | (ii) Piperine |
| (iii) Conine | (iv) Hyoscyamine |

(1) Which one of the following is not an Alkaloid

- (i) Nicotine (ii) Narcotine
(iii) Atropine (iv) Estrone

(2) The entropy of a system in a irreversible process is

- (i) increased (ii) decrease
(iii) remains constant (iv) none of these

(3) ΔH for a reaction is independent of

- (i) T (ii) Path followed
(iii) ΔV (iv) The initial & final state

(4) Which one is the male hormone

- (i) Testosterone (ii) Oestrogen
(iii) Progesterone (iv) Cholesterone

(5) When concⁿ H_2SO_4 is added to chloroform solution of cholesterol a red colour produced. This test is known as.

- (i) Salkowski Reaction (ii) Lieberman Burchardky
(iii) Moliken Rxs (iv) None of these.

22) Describe the analytical and synthetical method that led to the establishment of the structure of Atropine

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How would you establish the structure of α -Pinene.

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- 85) What are steroids. Describe how will you establish & confirm the structure of Estrone. 15
- 86) Draw MO diagram of 1,3 Butadiene and calculate the energy level of MOs. 15
Mention the symmetry of the MO w.r.t C_2 axis of symmetry
- 87) Write Notes on 7½ x 2
(a) Arrhenius Equation and its applications
(b) Uses of activation Parameters.
- 87) Discuss. 7½ x 2
(i) Various empirical indexes of solvation based on physical properties
(ii) Use of solvation scale in mechanistic studies
- 88) Write short notes on 5 x 3
(i) Reactivity and selectivity Principle.
(ii) Substituent effect
(iii) Dred's Hydrocarbon.

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M.Sc. - IIIrd SEM

Paper - Chem. EC-2.

(Org Chem spt)

SET-03

Answer Five questions in which Q No 1
is compulsory

EST. 70

Q1) Answer the following questions/Fill in the blanks . 1x10

- (i) Fundamental unit of Terpenoid is
- (ii) β carotene on oxidation gives
- (iii) Terpene used in paints & varnish
- (iv) Entropy of a system is increased in
..... process
- (v) Str of Diel's hydrocarbon is
- (vi) Atropine on hydrolysis gives
+
- (vii) The ΔH for a reaction is independent
of
- (viii) Write the name & structure of one Ayclic
Monoterpene
- ix Name one Tropane Alkaloid.
- (x) Name one male and one Female Hormone.

Q2) Discuss the degradative and synthetic evidence
leading to the str of Narcoine.

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- Q3) Discuss the following
- (i) Isoprene Rule and special Isoprene rule
 - (ii) Structural difference between geraniol and Nerol
 - (iii) Citral has an α, β unsaturated aldehyde

3x5

- Q4) (a). Establish the str of Nucleus in cholesterol
(b). Write down one synthesis of Estrone

2x7½

- Q5) Write notes on
- i) Hammond's postulate
 - ii) Bell-Evans-Polanyi Principle
 - c) Marcus theory of electron transfer

3x5

- Q6) Discuss quantitatively Hückel molecular orbital theory with reference to allyl and butadiene

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- Q7) Discuss the effect of solvent on the
- (i) Nucleophilicity of nucleophile
 - (ii) S_N1 reaction and S_N2 reaction

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- Q8) Write short notes on any three
- (i) Uses of activation Parameters
 - (ii) Interpretation of σ values and its application in the interpretation of organic rxn mechanism
 - iii) Hofmann exhaustive methylation
 - iv, solvent-solute effects on reactivity

3x5

-x-

Answer sheet of Question No-1

Answer of Set-1

(a) - ii

(b) - i

(c) - iii

(d) - iii

(e) - ii

(f) - iv

(g) - ii

(h) - i

(i) - iii

(j) - i

Answer of Set-2

(a) - iii

(b) - iv

(c) - iii

(d) - ii

(e) - iv

(f) - iv

(g) - i

(h) - ii

(i) - i

(j) - i

Answer of Set-3

(i) - 2-methyl-13 Butadiene

(ii) - β -ionone

(iii) - α -Pinenone

(iv) - Irreversible process

(v) -



(vi) - Tropic acid and. Tropine

(vii) - Path followed.

(viii) - Citral

(ix) - Atropine

(x) - Male Hormone - estrogen

Female Hormone - Testosterone

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