Total No. of printed pages = 4

BP 401 T

Roll No. of candidate | | | | | | | | | | |

2020

B.Pharm. 4th Semester End-Term Examination

PHARMACEUTICAL ORGANIC CHEMISTRY – III

(New Regulation)

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : $(20 \times 1 = 20)$

(i) What is the possible number of optical isomer for a compound containing '*n*' dissimilar asymmetric carbon atom?

(a) n^2 (b) 2^n

(c) $n + 1$ (d) $n + 2$

(ii) According to CIP rule which of the following has highest priority?

(a) OH (b) H

(c) COOH (d) CH_3

(iii) When two diastereomers differ in stereochemistry at only one stereocenter, then they are called

(a) diastereomers

(b) epimers

(c) anomers

(d) enantiomers

(iv) Which of the following represents a racemic mixture?

(a) 75% (R)-2-butanol, 25 % (S)-2-butanol

(b) 25% (R)-2-butanol, 75 % (S)-2-butanol

(c) 50% (R)-2-butanol, 50 % (S)-2-butanol

(d) 50% (R)-2-butanol, 50 % (R)-2-butanol

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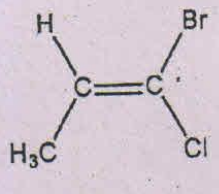
(v) Assign E and Z configuration to the following



(a) E (b) Z

(c) R (d) S

(vi) Which of the following conformation has highest stability?

(a) Gauche (b) Fully eclipsed

(c) Staggered (d) Partially eclipsed

(vii) Cis-trans isomerism is a part of

(a) Tautomerism (b) Metamerism

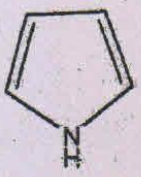
(c) Geometrical isomerism (d) None of this

(viii) Nitration of pyrrole at 278 K gives

(a) 3-nitropyrrole (b) 2-nitropyrrole

(c) 4-nitropyrrole (d) 2,4-dinitropyrrole

(ix) The structure given below is regarded as



(a) Non-aromatic heterocyclic compound

(b) Non-aromatic carbocyclic compound

(c) Aromatic heterocyclic compound

(d) Aromatic carbocyclic compound

(x) When a mixture of Furan and ammonia is passed over heated alumina at 753K?

(a) Pyrrole is obtained (b) Furfural is obtained

(c) Thiophene is obtained (d) Pyrazole is obtained

(xi) Thiophene shows electrophillic substitution reactions mainly at

(a) α -position (b) β -position

(c) γ -position (d) None of the above

(xii) In Indole which of the heterocyclic ring is fused with benzene ring

(a) Pyrazole (b) Imidazole

(c) Isoxazole (d) Pyrrole

(xiii) Electrophillic substitution reaction occurs in Quinoline at

(a) Position 2 and 4 (b) Position 3 and 5

(c) Position 5 and 8 (d) Position 4 and 6

(xiv) Which of the ring in isoquinoline gets easily reduced?

(a) Benzene ring

(b) Nitrogen containing ring

(c) Both rings

(d) None of above

(xv) In Quinoline which of the ring is more electron rich?

(a) Nitrogen containing ring (b) Carboxylic ring

(c) Both (d) None of the above

(xvi) Beckmanns rearrangement is useful for the synthesis of

(a) Alcohol (b) Amide

(c) Phenols (d) Oxime

(xvii) Which of the following is strong hydride donor?

(a) $NaBH_4$ (b) $LiAlH_4$

(c) B_2H_2 (d) None of the above

(xviii) Dakin reaction is useful for the synthesis of-

(a) Alcohols (b) Aldehydes

(c) Phenols (d) Carboxylic acid

(xix) Which of the following product is obtained in Birch reduction?

(a) Conjugated cyclohexadienes

(b) Unconjugated cyclohexadienes

(c) Conjugated cyclopentadienes

(d) None of the above

(xx) Oppenaur oxidation is the reverse process of

(a) Wolf-kishner reduction

(b) Clemmension reduction

(c) Meerwein-Pondorf-verly reduction

(d) Rosemund's reduction

2. Answer the following questions (Any *seven*): $(7 \times 5 = 35)$

(a) Define Racemization. Explain resolution of racemic mixture. (1+4=5)

(b) Draw and explain the conformations of n-butane. (5)

(c) What are heterocyclic compounds. Classify them with suitable examples. (1+4=5)

(d) Why pyridine is basic in nature. Write three chemical reactions of pyridine. (2+3=5)

(e) Write a short note on Sodium borohydride and Lithium aluminium hydride. (2.5+2.5=5)

(f) Explain the R and S system of nomenclature of optical isomers with the help of sequence rule. (5)

(g) Discuss the stereoisomerism in biphenyl compounds. (5)

(h) Write synthesis, chemical reactions and uses of Furan. (2+2+1=5)

(i) Write the mechanism and importance of Beckmanns rearrangement. (5)

3. Answer the following questions (Any *two*): $(2 \times 10 = 20)$

(a) What is isomerism. Classify them with suitable examples. (10)

(b) (i) Explain the elements of symmetry. Write about reactions of chiral molecule. (2.5+2.5)

(ii) Write about stereospecific and stereoselective reactions. (3)

(iii) Write any two synthesis of Indole. (2)

(c) Write a detailed note on

(i) Clemmensen reduction. (5)

(ii) Claisen-Schmidt condensation. (5)