13/1/24

Seat Number | | | | | | |

DAGDU-01

BP-401T

Pharmaceutical Organic Chemistry–III

(724401)

Total Pages : 6]

Time : 3 Hours **Max. Marks : 75**

Note : (1) Do not write anything on question paper except Seat No.

(2) Graph or diagram should be drawn with black ink pen being used for writing paper or black HB pencil.

(3) Students should note, no supplement will be provided.

(4) *All* questions are compulsory.

1. *All* questions are compulsory : 20

(*i*) Which of the following confirmation has the highest stability ?

(*a*) Gauche

(*b*) Fully eclipsed

(*c*) Staggered

(*d*) Partially eclipsed

(*ii*) If a molecule has no element of symmetry, it is said to be :

(*a*) Asymmetric

(*b*) Symmetric

(*c*) Meso compound

(*d*) None of the above

P.T.O.

(iii) Cis–trans isomers are :

(a) Diastereomers

(b) Enantiomers

(c) Stereoisomers

(d) All of the above

(iv) Nitration of pyrrole is best carried out using :

(a) Ammonium nitrate

(b) Conc.HNO_3 and H_2SO_4

(c) Acetyl nitrate

(d) Nitric acid

(v) In acridine which of the following catalyst causes reduction of benzene ring ?

(a) Pt/HCl

(b) Zn/HCl

(c) $LiAlH_4$

(d) All of the above

(vi) The molecular formula of Imidazole is :

(a) C_3H_5N

(b) $C_3H_3H_2N$

(c) $C_3H_3HN_2$

(d) $C_3N_2H_4$

(vii) A molecule is achiral if :

(a) It has plane of symmetry

(b) Centre of symmetry

(c) Axis of symmetry

(d) All of the above

(viii) Which conformer of ethane has maximum energy ?

(a) Skew

(b) Eclipsed

(c) Staggered

(d) All have equal energy

(ix) N-butane and isobutene exhibits :

(a) Positional isomerism

(b) Functional isomerism

(c) Metamerism

(d) Chain isomerism

(x) N-substituted amides are formed in which of the following reaction ?

(a) Clemmensen reduction

(b) Birch reduction

(c) Beckmann reduction

(d) Oppenauer oxidation

(xi) Ketones are prepared by which of the following name reaction ?

(a) Clemmensen's reduction

(b) Cannizzaro reaction

(c) Rosenmund's reduction

(d) Oppenauer's oxidation

(xii) Which of the following reaction is reverse of Meerwein-Pondrof-Verley reduction ?

(a) Oppenauer oxidation

(b) Beckmann rearrangement

(c) Claisen-Schmidt condensation

(d) Wolff-Kishner reaction

(xiii) Reduction of aromatic rings by alkali metals sodium is done by :

(a) Birch reduction

(b) Clemmensen reduction

(c) Reduction by $LiAlH_4$

(d) Reduction by $NaBH_4$

(xiv) In Birch reduction stereospecifically alkynes are reduced to :

(a) Trans alkanes

(b) Trans alkenes

(c) Cis alkenes

(d) Cis alkanes

(xv) Azide reacts with a carbonyl group to give an amine or amide is .....

(a) Dakin reaction

(b) Schmidt reaction

(c) Wolff-Kishner reaction

(d) Beckmann reaction

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

(a) Pyrrozole

(b) Imidazole

(c) Isoxazole

(d) Pyrrole

(*xvii*) In Indole electrophilic attack occurs at :

(*a*) 1-position

(*b*) 2-position

(*c*) 3-position

(*d*) 4-position

(*xviii*) Which of the following is selective reducing agent and reduces aldehyde and ketones to alcohols ?

(*a*) $LiAlH_4$

(*b*) Birch reduction

(*c*) $NaBH_4$

(*d*) $NaBH_4CN$

(*xix*) Cyclohexanone + HN_3 $\xrightarrow{H_2SO_4}$?

(*a*) Benzylamine

(*b*) Phenylacetic acid

(*c*) P-Toluidine

(*d*) Caprolactum

(*xx*) Specific rotation is denoted by :

(*a*) R

(*b*) S

(*c*) D

(*d*) [α]

2. Solve any *two* out of the following : 20

(*i*) Explain synthesis, reaction and medicinal uses of : 10

(*i*) Imidazole

(*ii*) Oxazole.

(ii) Explain racemic mixture and resolution methods of racemic mixture. 10

(iii) Write reaction, mechanism and application of Beckmann's rearrangement and Schmidt rearrangement. 10

3. Solve any *seven* of the following : 35

(i) Explain synthesis and reaction of Thiophene. 5

(ii) What is chiral compound ? 5

(iii) Write synthesis and reaction of Isoquinoline. 5

(iv) Write a short note on Geometrical isomerism. 5

(v) Elaborate stereospecific and stereoselective reaction. 5

(vi) Draw aromaticity and reactivity of Pyrrole. 5

(vii) Explain synthesis and medicinal uses of Pyrimidine. 5

(viii) Elaborate Wolff-Kishner reduction. 5

(ix) Write basicity of Pyridine. 5