Total No. of printed pages = 4

BP 202 T

23/08/22

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

2021

B.Pharm 2nd Semester (Repeater) Examination

Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY – I

(New Regulation)

Full Marks – 75 Time – Three hours

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

I. Multiple choice questions (MCQ) (Answer all questions) : (20 × 1 = 20)

1. (i) n-Pentane and 2-methyl butane are a pair of

(a) Enantiomers (b) Stereoisomers

(c) Diastereomers (d) Constitutional Isomers

(ii) IUPAC name of CH_3COCH_3 is

(a) Propanone (b) Acetone

(c) Butanone (d) None

(iii) Alkane molecules are not attacked by electrophiles or nucleophiles because they are

(a) Polar (b) Non-Polar

(c) Volatile (d) Unstable

(iv) Liquid hydrocarbons can be converted into gaseous hydrocarbons by

(a) Hydrolysis (b) Cracking

(c) Oxidation (d) Nitration

(v) Butene-1 may be converted into Butane by reduction with

(a) Pd/H_2 (b) Zn-HCl

(c) Sn-HCl (d) Zn-Hg/HCl

[Turn over

(vi) Diel's Alder reactions are

(a) Stereospecific

(b) Stereoselective

(c) Polymerisation reaction

(d) Both (a) and (b)

(vii) Reaction of halogen acid with conjugated diene is

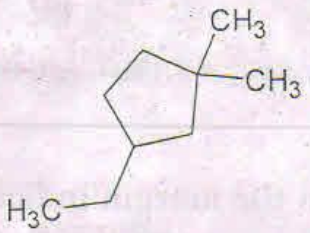
(a) Nucleophillic addition reaction

(b) Substitution reaction

(c) Electropillic addition reaction

(d) Halogenations reaction

(viii) What is the IUPAC name of the following



(a) 1-Ethyl-4,4-dimethylcyclopentane

(b) 1-Ethyl-3,3-dimethylcyclopentane

(c) 3-Ethyl-1,1-dimethylcyclopentane

(d) 4-Ethyl-1,1-dimethylcyclopentane

(ix) Secondary alcohol is obtained by the reduction of

(a) Aldehyde (b) Ketone

(c) Alkenes (d) Amines

(x) Aldol condensation does not occur between

(a) Two different ketone

(b) Two different aldehydes

(c) An aldehyde and a ketone

(d) An aldehyde and an ester

(xi) Which of the following statement is not true about C = O group

(a) The dipole moments of aldehydes and ketones lie in the range of 2.3-2.8 D

(b) The portion of the molecule immediately surrounding the carbonyl group is planar

(c) The C=O bond is longer than the C=C bond length

(d) The carbon atom of carbonyl group is sp^3 hybridized

(xii) Hell Volhard Zellinsky reaction is given by

(a) carboxylic acids having alpha hydrogen

(b) carboxylic acids not having alpha hydrogens

(c) aldehydes and ketones having alpha hydrogen

(d) aldehydes and ketones not having alpha hydrogen

(xiii) S_N2 reactions can be best carried out with

(a) Secondary alkyl halide (b) Primary alkyl halide

(c) Tertiary alkyl halide (d) All the above

(xiv) Aldehydes that donot have alpha hydrogen gives the following reaction

(a) Aldol condensation (b) Cannizaro Reaction

(c) Perkin Condensation (d) Wurtz Reaction

(xv) Ethanol (CH_3CH_2OH) and dimethyl ether (CH_3OCH_3) are best considered as

(a) Structural isomers (b) Stereoisomers

(c) Enantiomers (d) Diastereomers

(xvi) Fehlings test is given by

(a) Aldehydes (b) Ketones

(c) Alcohols (d) Amines

(xvii) SAYTZEFF rule is followed in

(a) Elimination reaction (b) Substitution reaction

(c) Addition reaction (d) None of the above

(xviii) Acetic acid undergoes reduction with $LiAlH_4$ to give

(a) ethane (b) ethene

(c) ethanol (d) ethyne

(xix) Gabriel pthalamide reaction is used for the synthesis of

(a) Tertiary amine

(b) Primary aromatic amine

(c) Secondary amine

(d) Primary aliphatic amine

(xx) Which of the following is more basic than aniline?

(a) p-nitroaniline (b) Triphenylamine

(c) Diphenylamine (d) Benzylamine

II. Short answers (Answer *seven*) : (7 × 5 = 35)

2. Why are alkanes known as paraffins? Give two methods of preparation of alkanes. How does increase and decrease in branching effects the boiling points of alkanes?

3. What is Hinsberg test used for? How will you differentiate between primary, secondary and tertiary amines?

4. Give two methods of preparation of alkyl halides. Give the mechanism of Hell VolHard Zellinsky Reaction.

5. Explain E1 and E2 Mechanism followed by alkenes with suitable example.

6. What does IUPAC stand for? Write the rules for nomenclature of organic compounds giving examples.

7. Explain the acidity of carboxylic acids. Give two methods of preparation of Carboxylic acids.

8. Describe briefly the structure of aromatic amines. Give the Hofmann's degradation reaction?

9. Explain why aliphatic amines are stronger bases than ammonia. Discuss the relative basicities of primary, secondary and tertiary aliphatic amines.

10. Give the structure and uses of:

    (a) Benzyl Alcohol (b) Chloroform

    (c) Lactic acid

11. What is Markovnikov rule and antimarkovnikov rule? Give the mechanism followed by the reaction involving antimarkovnikov rule.

12. Differentiate between E1 and E2 reactions followed by alkenes along with their mechanisms.

III. Long answers (Answer *any two*) (2 × 10 = 20)

13. What is Isomerism? Discuss the different types of isomers with suitable structural examples.

14. Give the structure of Carbonyl Group. Enumerate the important Physical and Chemical properties of aldehydes and Ketones. Write down some important uses of acetone.

15. Write short notes on:

    (a) Benzoin Condensation (b) Cannizaro Reaction

    (c) AldolCondensation (d) S_N1 reaction Mechanism.