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Seat No : _____

No. of Printed Pages : 02

Sardar Patel University

B. Sc. (Semester – III) Examination

Date: 28/11/2019, Thursday

Time: 02:00 to 05:00 PM

Industrial Chemistry Vocational

COURSE NO: US03CICV22 (FUNDAMENTALS OF ORGANIC CHEMISTRY)

Notes: Figures to the right indicate full marks. Total marks: 70

Q.1 Answer the following Multiple Choice Questions. (All are compulsory) (10)

- Acid is a substance that gives up _____
 A. Electron
 B. Neutron
 C. Proton
 D. All of these
- Homolytic cleavage occurs between atoms of _____
 A. Same electronegativity
 B. Different electronegativity
 C. Electro negativity is not concern
 D. None of them
- Alkyl radical has _____ type structure.
 A. Square planner
 B. Planner
 C. Linear
 D. Octahedral
- The compound most capable of hydrogen bonding is
 A. $\text{CH}_3\text{OCH}_2\text{CH}_3$
 B. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
 C. Phenol
 D. $\text{CH}_2\text{CH}_3\text{-S-S-CH}_2\text{CH}_3$
- Rank the following molecules in decreasing order of boiling points
 (1) Phenol (2) o-catechol (3) Resorcinol
 A. (3)>(2)>(1)
 B. (2)>(3)>(1)
 C. (3)>(1)>(2)
 D. (2)>(1)>(3)
- Rank the following compounds in order of increasing boiling point.
 (1) Phenol (2) Anisole (3) toluene
 A. (1)<(2)<(3)
 B. (3)<(2)<(1)
 C. (1)<(3)<(2)
 D. (3)<(1)<(2)
- Which of the following will have the highest boiling point?
 A. Methanal
 B. Ethanal
 C. Propanal
 D. Butanal
- The melting points aldehydes and ketones tend to;
 A. Decrease with increase molecular weight
 B. Increase with increasing molecular weight
 C. Remain unchanged w--ith increasing molecular weight
 D. Be unpredictable due to rasonance
- Major product for $\dots\text{CH}_3\text{CH}_2\text{Cl}+(\text{CH}_3)_2\text{NH} \longrightarrow$
 A. Primary amine
 B. Secondary amine
 C. Tertiary Amine
 D. Amide
- Aliphatic primary amines react with cold nitrous acids to form _____
 A. Alcohols
 B. Diazonium salts
 C. Nitriles
 D. Nitro-alkanes

Q.2 Answer the following short questions, ANY TEN

(20)

1. Why, 2-chlorobutanoic acid is a stronger acid than butanoic acid?
2. *p*-nitro phenol has higher melting point than *o*-nitro phenol, explain.
3. Why, Triphenyl methyl cation is more stable than benzyl cation.
4. Giving example, write the formation of halo-compound from alcohol.
5. Why Phenols are considered to be weak acids?
6. Why aldehyde are easily oxidized to carboxylic acids while ketones are not?
7. Carboxylic acids are more acidic than Alcohols, explain.
8. Write a reaction for "Acidity of α - hydrogen of aldehydes and ketones".
9. Aldehyde and ketones have lower boiling points than comparable alcohols, explain.
10. Give an example of Hoffman Degradation reaction.
11. Give synthesis of chlorobenzene from aniline.
12. Write a definition of Gattermann reaction.

Q.3 Giving suitable examples, write a critical note on factors affecting the strength of organic acids.

(10)

OR

Q.3 Write notes on "Inductive effect", "Electromeric effect and its applications" and "Resonance effect".

(10)

Q.4 Write notes on the "Addition of Grignard reagent in carbonyl compound for preparation of alcohol" and "Oxymercuration-demercuration".

(10)

OR

Q.4 Write notes on "Acid catalyzed cleavage of Epoxide" and "Ring substitution in phenol".

(10)

Q.5 Write notes on "Cannizaro and cross-cannizaro reaction" and "Aldol and cross-aldol condensation".

(10)

OR

Q.5 Write notes on "Transesterification" and "Malonic ester synthesis of carboxylic acid".

(10)

Q.6 Write notes on "Ammonolysis reaction", "Hofmann degradation of amides" and "Effect of substituent on basicity of aromatic amines".

(10)

OR

Q.6 Discuss the "Reactions of amine with nitrous acid" and "Hinsberg Test".

(10)

—X—
(2)