

[56/A-21] Seat No : \_\_\_\_\_

No. of Printed Pages : 02

## Sardar Patel University

B. Sc. ( Semester – III ) Examination

Date: 27/11/2019, Wednesday

Time: 02:00 to 05:00pm

Industrial Chemistry

COURSE NO: US03CICH22 (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)

- Which of the following compound is Aspirin?  
A. Methyl salicylate  
B. Salicylic acid  
C. Phenyl salicylate  
D. Acetyl salicylic acid
- Acid catalyzed hydrolysis of ethylene oxide yields....  
A.  $\text{CH}_3\text{CH}_2\text{OH}$   
B.  $\text{HOCH}_2\text{CH}_2\text{OH}$   
C.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$   
D.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- The high boiling points of alcohols, as compared to corresponding alkanes are due to...  
A. Hydrogen bonding  
B. Heavy Oxygen atom  
C. Water solubility  
D. None of these
- In Succinic acid  $\text{HOOC}(\text{CH}_2)_n\text{COOH}$ , where  $n$  is equal to....  
A. 1  
B. 2  
C. 3  
D. 4
- The greater acidity of carboxylic acid compared to alcohols arises primarily from  
A. The electron-donating effect of the hydroxyl group  
B. The electron-withdrawing effect of the carbonyl oxygen  
C. The acidity of alpha-hydrogens of carboxylic acid  
D. The resonance stability associated with carboxylate ion
- Acetaldehyde on treatment with Tollen's reagent gives precipitate of....  
A. Ag  
B.  $\text{AgNO}_3$   
C.  $\text{Cu}_2\text{O}$   
D. None of these
- The 'N' atom in Pyrrole is...  
A.  $sp^3$  hybridised  
B.  $sp^2$  hybridised  
C.  $sp$  hybridized  
D. Cannot be predicted
- Pyrrole is less basic than pyridine because the lone-pair of electrons on N-atom in pyrrole.  
A. Is part of the delocalised IC molecular orbital.  
B. Is not part of the delocalised IC molecular orbital.  
C. Resides in  $sp^2$  hybrid orbital.  
D. Resides in  $sp$  hybrid orbital
- Naphthalene undergoes oxidation with  $\text{Na}_2\text{Cr}_2\text{O}_7/\text{H}^+$ ,  $\text{SO}_4$  to form  
A. Phthalic acid  
B. Benzoic acid  
C. Tetralin  
D. Phenylacetic acid
- Anthracene undergoes electrophilic substitution reactions mainly at  
A. C-1  
B. C-2  
C. C-9  
D. C-1, and C-2

(4)

(P.T.O.)

Q.2 Answer the following short questions, Any TEN

(20)

1. Write a reaction of Alcohols with hydrogen halides.
2. Write a structure & physical properties of ethers.
3. Between bromoacetic acid and chloro acetic acid, which is a stronger acid and why?
4. Give structure, classification and physical properties of Ketones.
5. Write a reaction for preparations of Aldehydes.
6. Write a reaction for "Grignard synthesis of a carboxylic acid".
7. Write a source of Pyrrole & Furan.
8. Define term "Heterocyclic compound" also give suitable examples.
9. Compare the basicity of Pyridine with that of Pyrrole.
10. Write the product when Anthracene is treated with Nitric acid and acetic acid.
11. What happens when Naphthalene is treated with conc. sulphuric acid at 165°C?
12. Give resonating structures of Anthracene.

Q.3 Write notes on "Oxymercuration-demercuration" and "Addition of Grignard reagent in carbonyl compound".

(10)

OR

Q.3 Discuss the "Reactions of amine with nitrous acid" and "Hinsberg Test".

(10)

Q.4 Write a notes on "Aldol and cross-aldol condensation" and "Transesterification".

(10)

OR

Q.4 Explain the following:

(10)

- A. Reimer-Tiemann reaction.
- B. Nucleophilic addition to aldehydes and ketones can be catalyzed by acid.
- C. Acidity of  $\alpha$ -hydrogen of aldehydes and ketones.

Q.5 Discuss structure of Pyridine and position of nucleophilic substitution in pyridine & justify attacking position on the basis of resonating structure.

(10)

OR

Q.5 Explain about the position of electrophilic attack in pyrrole and justify the attacking position on the basis of resonating structure. Also discuss the structure of Pyrrole.

(10)

Q.6 Discuss the structure of Naphthalene on the basis of its chemical reactions, also outline the electrophilic substitution reaction in Naphthalene.

(10)

OR

Q.6 Write down the synthesis of Naphthalene, Anthracene and Phenanthrene.

(10)

— X —  
(2)