

**PARUL UNIVERSITY**  
**PARUL INSTITUTE OF APPLIED SCIENCES**  
**MID SEMESTER INTERNAL EXAMINATION, MARCH 2020**  
**B. Sc. Chemistry Semester IV**

**Paper Name: Chemistry IV**

**Date: 01/03/2020**

**Paper Code: 11100251**

**Time: 1hr 30min**

**Max. Marks: 40**

**Instructions:**

1. All questions are compulsory and options are given in first and second question only.
  2. Numbers to the right of question indicate the marks of respective question.
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**Q. 1 Attempt any one question of the following. (08)**

- (i) What is Wittig reaction? Explain with mechanism?
- (ii) Explain the comparative acidic strength of alcohol and phenol.

**Q. 2 Attempt any three questions of the following. (12)**

- (i) Write the mechanism of benzoin condensation.
- (ii) Explain the effect of substituent on acidic strength of carboxylic acid.
- (iii) What is Fries rearrangement explain with mechanism.
- (iv) Explain the resonance stabilization of phenoxide ion
- (v) Explain the synthesis of aldehyde and ketone from 1,3-dithianes.

**Q. 3 Do as directed. Attempt all five questions. (05)**

- (i) Reimer-Tiemann reaction.
- (ii) Pinacol rearrangement.
- (iii) Clemmensen Reduction.
- (iv) Wolf-Kishner Reduction.
- (v) Perkin reaction.

**Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. (15)**

MCQ 1 The high boiling points of alcohol, as compared to corresponding alkenes, are due to?

- |                      |                       |
|----------------------|-----------------------|
| (A) Hydrogen bonding | (B) Heavy oxygen atom |
| (C) Water solubility | (D) None              |

MCQ 2 Through which of the following reactions number of carbon atoms can be increased in the chain?

- |                        |                           |
|------------------------|---------------------------|
| (A) Grignard reaction  | (B) Cannizzaro's reaction |
| (C) Aldol condensation | (D) HVZ reaction          |

MCQ 3 Lucas reagent is

- |                           |  |
|---------------------------|--|
| (A) HCl/NaNO <sub>3</sub> | (B) H <sub>2</sub> /Pd                   |
| (C) HCl/ZnCl <sub>2</sub> | (D) H <sub>2</sub> /Pd/BaSO <sub>4</sub> |

MCQ 4 Catalytic dehydrogenation of a primary alcohol gives a

- |              |                       |
|--------------|-----------------------|
| (A) Ketone   | (B) secondary alcohol |
| (C) Aldehyde | (D) Ester             |

MCQ 5 Reduction of aldehydes and ketones into hydrocarbons using zinc amalgam and conc. HCl is called:

- |                             |                          |
|-----------------------------|--------------------------|
| (A) Cope reduction          | (B) Dow reduction        |
| (C) Wolff Kishner reduction | (D) Clemmensen reduction |

- MCQ 6 When alcohol react with concentrated  $\text{H}_2\text{SO}_4$ , intermediate compound formed is  
 (A) Carbonium ion (B) Alkoxy ion  
 (C) Alkyl hydrogen sulfate (D) None
- MCQ 7  $\text{CH}_3\text{CHO}$  and  $\text{C}_6\text{H}_5\text{CH}_2\text{CHO}$  can be distinguished chemically by  
 (A) Iodoform test (B) Benedict's test  
 (C) Tollen's reagent test (D) Fehling's solution test
- MCQ 8 Dehydration of alcohol is an example of  
 (A) Redox reaction (B) Elimination reaction  
 (C) Substitution reaction (D) Addition reaction
- MCQ 9 Acetaldehyde on treatment with Fehling's solution gives a precipitate of  
 (A) Cu (B) CuO  
 (C)  $\text{Cu}_2\text{O}$  (D) None
- MCQ 10 Which of the following is most acidic  
 (A)  $\text{CH}_3\text{COOH}$  (B)  $\text{ClCH}_2\text{COOH}$   
 (C)  $\text{ClCH}_2\text{COOH}$  (D)  $\text{Cl}_3\text{CCOOH}$
- MCQ 11 Which of the following has maximum viscosity  
 (A) Glycol (B) Ethanol  
 (C) Water (D) Acetone
- MCQ 12 Hunsdieker reaction is used for the preparation of  
 (A) Alkyl chloride and bromides (B) Alkyl nitrites and nitrates  
 (C) Alcohol (D) Aldehyde
- MCQ 13 Which of the following used as an antifreeze?  
 (A) Ethylene glycol (B) Glycerol  
 (C) Diethyl ether (D) Picric acid
- MCQ 14 Phenol is more readily soluble in  
 (A) NaOH (B)  $\text{NaHCO}_3$   
 (C) Dil HCl (D) All
- MCQ 15 Glucose + Tollens reagent  
 (A) Presence of  $-\text{COOH}$  group (B) Presence of  $-\text{CHO}$  group  
 (C) Presence of keto group (D) Presence of  $-\text{CONH}_2$  group

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