

# CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

3<sup>rd</sup> Semester of B. Pharm. Examination

University Theory Examination November/December 2015

PH217 Pharmaceutical Chemistry-III

Date: 07.12.15, Monday

Time: 10:00 a.m. to 01:00 p.m.

Maximum Marks: 80

## Instructions:

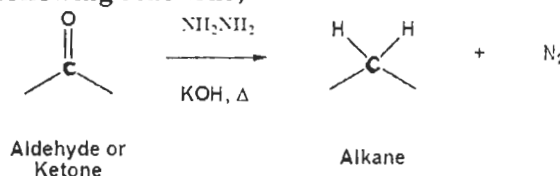
1. There are three sections in this question paper.
2. SECTION – I comprises of Question 1. Total marks for Section I are 20. There are 20 sub-questions (MCQ type). Answers to SECTION – I are to be given in Answer Sheet for MCQ type questions provided to you. Maximum time allotted for SECTION – I is 30 minutes. Answers to SECTION – I must be written during the first 30 minutes of the examination.
3. Answers to SECTION – II and SECTION – III are to be provided in separate Main Answer Books provided to you.
4. Figures to right indicate marks.
5. Draw neat sketches wherever necessary.

## Section - I

Q 1 Attempt all questions. Each question is of one mark.

20

1. Identify the following reactions;



- [A] Wolff kishner Reduction  
[B] Aldol Condensation  
[C] Reimer Tiemann Reaction  
[D] Clemmensen Reduction
2. Cope rearrangement is an example of \_\_\_\_\_ type of reaction.
- [A] [3,3'] Sigmatropic Rearrangement  
[B] [1,3] Sigmatropic Rearrangement  
[C] [1,5] Sigmatropic Rearrangement  
[D] [5,5'] Sigmatropic Rearrangement
3. With Odd no of  $\pi$  Bond, The Cycloaddition Reaction under Photochemical Condition in \_\_\_\_\_ fashion.
- [A] Conrotatory  
[B] Disrotatory  
[C] Antarafacial  
[D] Suprafacial

4. In sigmatropic reaction \_\_\_\_\_ type of rearrangement is mostly possible

- [A] Nucleophilic
- [B] Electrophilic
- [C] Free Radical
- [D] All of Above

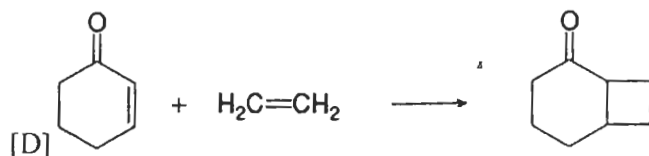
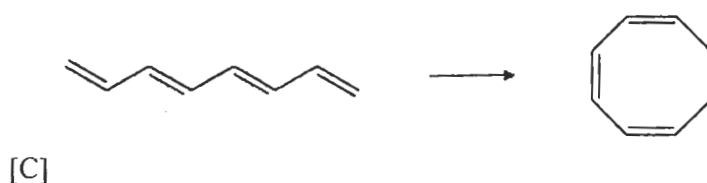
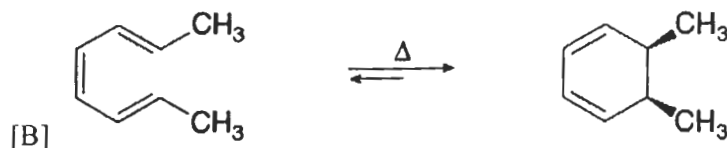
5. Nucleophilic addition reaction is fast with \_\_\_\_\_

- [A] Ester
- [B] Ether
- [C] Amine
- [D] Alkane

6. Which of the following is the correct statement?

- [A] Aldehyde and Ketone gives substitution type of reaction
- [B] Nucleophilic substitution reaction is more faster at acyl carbon than saturated carbon
- [C] Ether is more reactive towards nucleophilic attack than ester
- [D] Amines is more reactive towards nucleophilic attack than amide

7. Following is the example of electrocyclic reaction, Except One;



8. D and L shows \_\_\_\_\_ type of Configuration.

- [A] Relative
- [B] Absolute
- [C] Optical Isomer
- [D] Geometrical

D and L shows \_\_\_\_\_

[A] Relative

[B] Absolute

[C] Optical Isomer

[D] Geometrical

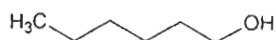
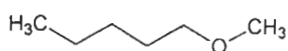
9. Mark the incorrect option about the benzene.

- [A] It is flat molecule
- [B] All atoms lie in same plane
- [C] Obey the Huckel's rule
- [D] All carbons in SP hybridization

10. Electrophilic aromatic substitution reaction in Anthracene most probably occurs at \_\_\_\_\_ position.

- [A] C-1
- [B] C-3
- [C] C-9
- [D] C-2

11. Structure A and B is a class of \_\_\_\_\_ isomer.

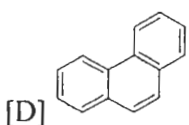
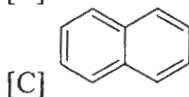
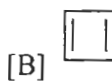
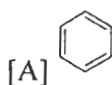


A

B

- [A] Functional
- [B] Chain
- [C] Positional
- [D] Metamerism

12. Which of the following structure has Antiaromatic characteristic?



13. Mark the incorrect pair.

- [A] Nitration of Benzene- Nitronium ion as an electrophile
- [B] Friedel Craft Alkylation – Acylium ion as an electrophile
- [C] Bromination – Bromonium ion as an electrophile
- [D] Sulphonation – Sulphonium ion as an electrophile

13. Mark the incorrect pair.

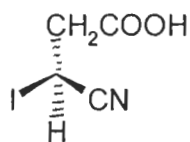
- [A] Nitration of Benzene- Nitronium ion
- [B] Friedel Craft Alkylation – Acylium ion

14. Which form is more stable in conformation of n-Butane?

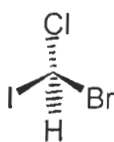
- [A] Skew Staggered
- [B] Skew Eclipsed
- [C] Totally Staggered (Anti)
- [D] Fully Eclipsed

15. Find out the Absolute configuration of following structure.

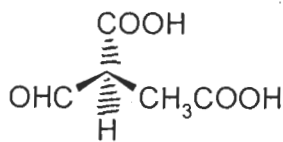
1.



2.



3.



- [A] 1-S,2-R,3-S
- [B] 1-S,2-R,3-S
- [C] 1-R,2-R,3-S
- [D] 1-S,2-S,3-S

16. The term Atropiisomerism is used for.....

- [A] That can be interconverted by rotation about single bonds
- [B] That are geometrical isomer
- [C] That are optical isomer
- [D] That are enantiomer

17. A meso compound is.....

- [A] It is an Achiral molecule that contains chirality centre
- [B] Contains plane of symmetry
- [C] Is optically inactive
- [D] Is characterized by all of these

18. Anchimeric assistance is associated with.....

- [A] Neighbouring group mechanism
- [B] S<sub>N</sub>2 mechanism
- [C] S<sub>N</sub>1 mechanism
- [D] Elimination mechanism

19. \_\_\_\_\_ is an example of Homogenous catalyst.

- [A] Nickel
- [B] Platinum
- [C] Palladium
- [D] Wilkinson's

20. Benzene gives \_\_\_\_\_ types of reaction.
- [A] Addition
  - [B] Substitution
  - [C] Elimination
  - [D] All of above

### SECTION – II

- Q 2** Attempt any **FOUR** of the following:
- A** Explain Malonic ester synthesis and Williamson's Synthesis with suitable reaction and mechanism. **05**
  - B** Explain any three preparations and reactions of Phenol. **05**
  - C** Explain Wittig reaction and Wolff Kishner Synthesis with suitable reaction and mechanism. **05**
  - D** Write any three reactions of Amide and Ester. **05**
  - E** Write any three preparations of Aldehyde and Ketone. **05**
  - F** Write any three preparations and Reactions of Aldehyde and Ketone. **05**

### SECTION – III

- Q 3** Attempt any **FOUR** of the following:
- A** What is Huckel rule? Explain criterias for aromaticity. **05**
  - B** Give the mechanism of Sulphonation and Nitration of benzene. **05**
  - C** Explain electrophilic substitution in Napthalene and Anthracene. **05**
  - D** Explain the following terms with examples: (*Any Five*) **05**
    - a. Enantiomer
    - b. Racemic mixture
    - c. Chirality
    - d. Meso compounds
    - e. Metamerism
    - f. Positional Isomers
    - g. Optical Isomers
  - E** Explain Sequence rules for assigning absolute configuration. **05**
  - F** Explain stereochemistry in Biphenyl system. **05**

Q 4 Attempt any **FOUR** of the following;

A What is Conformation? Explain conformation in n-Butane with energy diagramme.

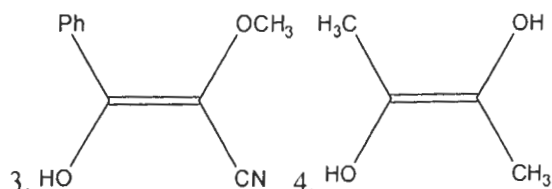
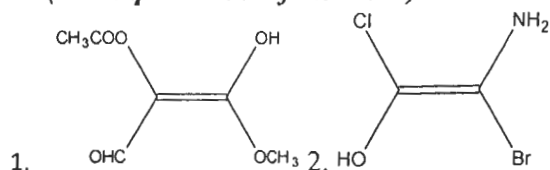
Q 4 Attempt any **FOUR** of the following;

A What is Conformation? Explain conformation

B I. Assign E/Z Configuration to the following structures;

02

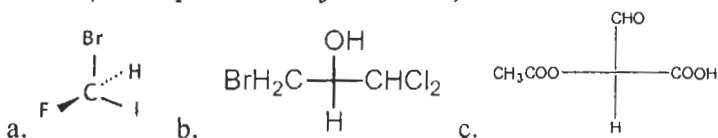
(Each question is of 0.5 mark)



II. Assign R/S Configuration of following structure

03

(Each question is of one mark)



C Explain various methods for resolution of racemic mixtures.

05

D Short note on Neighbouring group effect.

05

E Short note on Electrocyclic reaction .

05

F Short note on Sigmatropic reaction.

05