

Rajarshi Chhatrapati Shahu College,  
Kolhapur. Pre-Semester Examination B.Sc. II  
Chemistry Paper VIII(Organic Chemistry)

Date: 01/08/2021

1. All questions are compulsory.
2. Each question carries TWO marks

\*Required

1. Name of the student (Start with surname) \*

\_\_\_\_\_

2. PRN Number \*

\_\_\_\_\_

3. Mobile number \*

\_\_\_\_\_

4. Email Id \*

\_\_\_\_\_

5. Date \*

Example: 7 January 2019, 11.03 a.m.

6. 1) Treatment of benzene diazonium chloride with sodium sulphite forms \* 2 points

*Mark only one oval.*

- aniline  
 phenol  
 phenyl hydrazine  
 benzene

7. 2) Ammonolysis of alkyl halides is..... \* 2 points

*Mark only one oval.*

- unselective  
 inefficient  
 aryl amines can not be prepared  
 all of these

8. 3) Citric acid on dehydration gives----- \* 2 points

*Mark only one oval.*

- aconitic acid  
 acrylic acid  
 cinnamic acid  
 benzoic acid

9. 4) Reformatsky reaction is carried out in presence of..... \* 2 points

*Mark only one oval.*

- weak base  
 metallic zinc  
 Na salt of acid  
 pyridine

10. 5) Most stable conformation in n-butane is..... \* 2 points

Mark only one oval.

- synperiplanar  
 anticlinical  
 gauche  
 antiperiplanar

11. 6) Which of the following is not the hydroxy acid? \* 2 points

Mark only one oval.

- cinnamic acid  
 glycollic acid  
 lactic  
 malic

12. 7) Which of the following is not a dicarboxylic acid? \* 2 points

Mark only one oval.

- oxalic acid  
 malonic acid  
 succinic acid  
 crotonic acid

13. 8) According to Baeyer distortion in tetrahedral geometry introduces .....strain in molecule \* 2 points

Mark only one oval.

- torsional  
 van der Waals  
 angle  
 dipole-dipole

14. 9) Chloroacetic acid on reaction with KCN forms----- \*

2 points

Mark only one oval.

- malonic acid  
 malenonitrile  
 acetic acid  
 cyano acetic acid

15. 10) Aldol condensation will not occur between formaldehyde and ..... \*

2 points

Mark only one oval.

- benzaldehyde  
 acetaldehyde  
 acetone  
 propionaldehyde

16. 11) In primary amines number of hydrogen atoms directly attached to nitrogen is..... \* 2 points

Mark only one oval.

- 1  
 2  
 3  
 4

17. 12) HVZ reaction is useful to prepare----- \*

2 points

Mark only one oval.

- hydroxy acids  
 halo acids  
 nitro acids  
 cyano acids

18. 13) Acetyl chloride on reaction with ethanol yields----- \*

2 points

*Mark only one oval.*

- acetic anhydride  
 acetamide  
 ethyl acetate  
 phthalic anhydride

19. 14) Benzene is formed by heating sodamide with----- \*

2 points

*Mark only one oval.*

- succinic acid  
 phthalic acid  
 acrylic acid  
 crotonic acid

20. 15) Which of the following amine cannot be prepared by Gabriel synthesis \*

2 points

*Mark only one oval.*

- methanamine  
 aniline  
 ethanamine  
 propanamine

21. 16) Bromination of aniline gives..... \*

2 points

*Mark only one oval.*

- 2-Bromoaniline  
 3-Bromoaniline  
 4-Bromoaniline  
 2,4,6-Tribromoaniline

22. 17) Phenyl isonitrile is obtained by the reaction..... \* 2 points

Mark only one oval.

- Carbylamine reaction  
 Schotten-Boumann reaction  
 Sandmeyer reaction  
 Hoffman reaction

23. 18) The valence angle in cyclobutane is.....degrees \* 2 points

Mark only one oval.

- 60  
 90  
 108  
 120

24. 19) Acetaldehyde reacts with propionaldehyde in presense of dilute base gives..... \* 2 points

Mark only one oval.

- only one product  
 two products  
 three products  
 four products

25. 20) The potential energy of cyclohexane is minimum in ..... \* 2 points

Mark only one oval.

- boat  
 twist boat  
 chair  
 half chair

26. 21) Methyl orange is synthesised using sulphanilic acid and..... \*

2 points

Mark only one oval.

- alpha naphthol
- N,N-Dimethyl aniline
- alpha amino naphthalene
- sulphonic acid

27. 22) Strainless rings are ..... \*

2 points

Mark only one oval.

- Planar
- coplanar
- linear
- puckered

28. 23) Which of the following compounds does not react in Cannizzaro's reaction? \* 2 points

Mark only one oval.

- acetaldehyde
- benzaldehyde
- formaldehyde
- furfuraldehyde

29. 24) The reaction by which benzene diazonium salt is prepared, is called.....

\* 2 points

Mark only one oval.

- Sandmeyer reaction
- Gatterman reaction
- Diazotization reaction
- none of these

30. 25) Benzaldehyde condenses with diethyl malonate to form..... \*

2 points

Mark only one oval.

- benzoic acid
- benzyl alcohol
- salicylic acid
- cinnamic acid

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Rajarshi Chhatrapati Shahu College, Kolhapur  
Department of Chemistry

Question bank-B.Sc-II, sem-III, paper-v(2021-22)

Sub-organic chemistry

Date & Time : 17/1/2022

Mark-20

Instruction:-

1. All question compulsory
2. Figures to the right hand side indicate full marks.

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Q1 Multiple Choice Questions.

1. The wavelength range 400-750 nm is called as.....

Light

Infrared rays

Gamma rays

Radio waves

2. The radiation having longest wavelength are....

Gamma rays

Infrared rays

Radio waves

Light rays

3. The energy of photon is independent of ....

Frequency

Wavelength

Intensity

wave number

4. The energy carried by electromagnetic radiation directly varies with its.....

Intensity

Frequency

Wavenumber

Wavelength

5. The electromagnetic spectrum is divided into types.....

Three

Five

Seven

Nine

6. The advantages of spectroscopic analysis includes.....

Non destructive

small sample requirement

Rapid

All of the above

7.....based on splitting electronic energy fields in a magnetic field

Atomic absorption spectroscopy

Electron paramagnetic spectroscopy

Gamma rays spectroscopy

Raman spectroscopy

8.....are used the molecules undergoes rotational excitations

Gamma rays

Microwaves

IR Rays

Radiowaves

9. The maximum displacement of wave from X-axis is called as.....

Wavelength

Amplitude

Wavenumber

Frequency

10. In NMR spectroscopy .....radiations are used

Gamma rays

Microwaves

IR Rays

Radiowaves

11. An Example of Auxochrome is .....

Alkene

Carbonyl

-NH<sub>2</sub>

All of these

12. The UV Visible radiation ranges between .....

200-800 Å<sup>0</sup>

200-800 nm

200-800 mm

200-800 cm

13. The typical example of Chromophore is.....

Carbonyl

-NH<sub>2</sub>

-OH

-Cl

14. Ultraviolet light obtained by..... covers the 200-330 nm

Deuterium lamp

Tungsten filament lamp

Both a and B

None of the above

15. Visible range Radiations obtained by ..... covers 330-700 nm

Deuterium lamp

Tungsten filament lamp

Both a and B

None of the above

16. The shift of absorption band to longer wavelength is called as.....

Bathochromic shift

Hypsochromic shift

Hyperchromic effect

Hypochromic effect

17. The shift of absorption band to Shorter wavelength is called as.....

Bathochromic shift

Hypsochromic shift

Hyperchromic effect

Hypochromic effect

18. Increase in the intensity of absorption maximum is known as .....

Bathochromic shift

Hypsochromic shift

Hyperchromic effect

Hypochromic effect

19. Decrease in the intensity of absorption maximum is known as .....

Bathochromic shift

Hypsochromic shift

Hyperchromic effect

Hypochromic effect

20. The highest energy electronic transition is.....

$\Pi$  to  $\Pi^*$

$\sigma$  to  $\sigma^*$

n to  $\Pi^*$

n to  $\sigma^*$

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Unit test-B.Sc-II, sem-III, paper-v (2021-22)

Sub-organic chemistry

Mark-20

Date & Time : 2/1/2022

1. The number of fundamental modes of vibrations for a non linear molecule is given by formula.....

$3N$

$3N-5$

$3N-6$

All of the above

2. The IR-absorption peak due to -OH stretch in alcohol are .....

Sharp

Intense

Broad

Very weak

3. The frequency characteristic to terminal alkyne is.....

$3080 \text{ Cm}^{-1}$

$1700 \text{ Cm}^{-1}$

$3300 \text{ Cm}^{-1}$

$2700 \text{ Cm}^{-1}$

4. IR band at  $1700 \text{ Cm}^{-1}$  hints the diatomic group.....

Amino

Carboxylic

Amide

Carbonyl

5. Fingerprint region of IR spectrum is in the ranges of.....

$4000 - 650 \text{ Cm}^{-1}$

$4000 - 1350 \text{ Cm}^{-1}$

$400 - 750 \text{ Cm}^{-1}$

$1350 - 650 \text{ Cm}^{-1}$

6. IR-absorption causes transition between the energy levels namely.....

Electronic

Vibrational

Nuclear spin

All of the above

7. As per Hook's law vibrational frequency is proportional to.....

Square root of force constant

Under root of ratio of force constant and reduced mass

root of reduced mass

Both a and c

8. The vibration frequency of amide band-I signifies.....

C=O

N-H str.

N-H def.

C-N str.

9. C=O frequency in acetone is less than acetaldehyde due to.....

+I effect

Resonance effect

Both a and b

H-bonding

10. The H-bonding causes the IR Bands to be.....

Broader

Sharper

Weaker

None of the above

11. Radio frequencies in NMR spectrometer are generated by.....

Transmitter

Receiver coil

Electromagnet

None of these

12. The Energy of proton aligned parallel to the applied field is.....

Zero

Less than Zero

More than Zero

Any of these

13. In NMR the Notation 'I' is used to indicate.....

Resultant spin of Nucleons

Spin of proton

Spin of neutron

Spin of electron

14. NMR phenomenon is not shown by the nuclei.....

${}^1\text{H}^1$

${}^3\text{B}^{10}$

${}^6\text{C}^{12}$

${}^7\text{N}^{15}$

15. The  $\delta$  value assigned to TMS proton is.....

0

10

10-20

100

16. The most de-shielded protons of  $\text{CH}_3\text{-CH}_2\text{COOH}$  are.....

$-\text{CH}_3$

$-\text{CH}_2$

$-\text{COOH}$

All of the above

17. Smaller  $\delta$  values implies.....

Resonance

Up field

Down field

Flipping

18. The ratio which signifies a quartet is .....

1:1:1:1

2:1:2:1

2:1:1:2

1:3:3:1

19. The highest  $\delta$  value methyl protons are in.....

$\text{CH}_3\text{Cl}$

$\text{CH}_3\text{R}$

$\text{CH}_3\text{Br}$

$\text{CH}_3\text{F}$

20. The Distance between the centres of two adjacent or successive peaks in multiplet is.....

Coupling constant

Shielding

Deshielding

None of the above

All of the above

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Department of Chemistry  
B.Sc.II Question Bank (2017-18)

Organic Chemistry

Q.1 MULTIPLE CHOICE QUESTIONS

1. Hvz reaction is useful to prepare.....

- a.halo acids                      b.aromatic acids  
c.acid unhydrides                d.none of these

2. Hydriodic acid.....malic acid and heating.

- a.hydrolysis                      b.oxidises  
c.reduces                         d.dehydrates

3. Methyl orange is synthesized using sulphanilic and.....

- a.alpha naphthol                b.N,N-dimethyl aniline  
c.alpha amino naphthalene    d.sulphonic acid

4. Hoffman degradation method of amine synthesis forms..... amines.

- a.alkyl                            b.alkenyl  
c.aryl                             d.any of these

5. The nitrogen function in amines is .....

- a.-NH<sub>2</sub>                            b.>NH  
c.-N<                             d.any of these

6. A reducing sugar gives red precipitate with reagent.....

- a.Benedict's                      b.Fehling's  
c.Tollens                         d.both a&b

7. The carbohydrates which cannot be hydrolysed to simpler sugars are called.....

- a.polysaccharides                b.monosaccharides  
c.both a&b                        d.ketones

8. The carbonyl carbon of aldehydes and ketones is ..... hybridized.

- a.Sp<sup>3</sup>                            b.Sp                            c.Sp<sup>2</sup>                            d.sp<sup>3</sup>

9..... of the following undergoes cannizzaro reaction.

- a.CH<sub>3</sub>.CHO                        B.C<sub>6</sub>H<sub>5</sub>.CH<sub>2</sub>.CHO  
C.HCHO                            D.CH<sub>3</sub>.CO.CH<sub>3</sub>

10. Aldehyde is one of the reactant used in ..... reaction.

- a.Aldol condensation            b.perkins  
c.cannizzaro                      d.all of these

11. Reformatsky reaction is carried out in presence of .....

- a.weak base                      b.metallic zinc  
c.Na salt of acid                 d.pyridine

12. Cinnamic acid is formed from benzaldehyde in presence of acetic anhydride and sodium acetate.

This reaction is named by.....

- a. cannizzaro                      b. perkins  
c. reformatasky                  d.mannich

13. strainless rings are.....

- a. planer                            b. coplanar  
c. linear                            d. puckered



14. The valence angle in cyclobutane is.....

- a.  $60^\circ$
- b.  $90^\circ$
- c.  $108^\circ$
- d.  $120^\circ$

15. The potential energy of cyclohexane is maximum in .....

- a. boat
- b. twist boat
- c. chair
- d. half chair

**Q. 2 WRITE SHORT NOTE ON**

1. List the uses of malic acid/ citric acid.
2. What are hydroxyl acids? Give two examples.
3. Give any four synthetic applications of benzene diazonium chloride.
4. Explain the classification of the amines.
5. Explain the structure of nitrogen function in amines.
6. Explain reducing and non reducing sugars.
7. Describe the structure of carbonyl group.
8. why is alpha hydrogen in aldehyde and ketone is acidic in nature?
9. Give an account of cannizzoro reactions.
10. Explain 1:3 diaxial interaction with suitable examples.
11. How will you prove bulky substituent avoid axial position.

**Q.3 WRITE LONG NOTE ON**

1. Write the methods of preparation of succinic acid.
2. Explain the methods of preparation of cinnamic acid.
3. What are carboxylic acids ? Explain their classification.
4. Define & explain the term disaccharide .Give the structure of lactose, maltose and sucrose.
5. Establish open chain structure of d+ glucose fructose.
6. What are polysaccharides? How they are classified. Explain the structure and uses of starch.
7. Briefly explain perkins reaction.
8. What is the need for the theory of strainless rings? Explain.

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Department of Chemistry  
B.Sc.II Question Bank (2018-19)

Organic Chemistry

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Department of Chemistry  
B.Sc.II Question Bank (2018-19)

Organic Chemistry

1. Aldehyde is one of the reactant used in ..... reaction.  
a. Aldol condensation      b. perkins  
c. cannizzaros              d. all of these
2. Reformatsky reaction is carried out in presence of .....  
a. weak base                b. metallic zinc  
c. Na salt of acid          d. pyridine
3. Cinnamic acid is formed from benzaldehyde in presence of acetic anhydride and sodium acetate. This reaction is named by.....  
a. cannizzaros              b. perkins  
c. reformatasky             d. mannich
4. strainless rings are.....  
a. planer                      b. coplanar  
c. linear                      d. puckered
5. The valance angle in cyclobutane is.....  
a.  $60^\circ$                         b.  $90^\circ$   
c.  $108^\circ$                       d.  $120^\circ$
6. The potential energy of cyclohexane is maximum in .....  
a. boat                        b. twist boat  
c. chair                        d. half chair
  
7. Hvz reaction is useful to prepare.....  
a. halo acids                b. aromatic acids  
c. acid unhydrides        d. none of these
8. Hydriodic acid.....malic acid and heating.  
a. hydrolysis                b. oxidises  
c. reduces                    d. dehydrates
9. Methyl orange is synthesized using sulphanic and.....  
a. alpha naphthol          b. N,N-dimethyl aniline  
c. alpha amino naphthalene    d. sulphonic acid
10. Hoffman degradation method of amine synthesis forms..... amines.  
a. alkyl                        b. alkenyl  
c. aryl                         d. any of these
11. The nitrogen function in amines is .....  
a.  $-NH_2$                       b.  $>NH$   
c.  $-N<$                         d. any of these
12. A reducing sugar gives red precipitate with reagent.....  
a. Benedits                  b. Fehlings  
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13. The carbohydrates which cannot be hydrolysed to simpler sugars are called.....  
a. polysaccharides        b. monosaccharides  
c. both a&b                  d. ketones

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**Department of Chemistry**  
**B.Sc.II Question Bank (2019-20)**

**Organic Chemistry**

**Q.1 Answer the following question**

1. Write the methods of preparation of succinic acid.
2. Explain the methods of preparation of cinnamic acid.
3. What are carboxylic acids? Explain their classification.
4. Define & explain the term disaccharide. Give the structure of lactose, maltose and sucrose.
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**Q. 2 Answer the following question**

1. List the uses of malic acid/ citric acid.
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4. Explain the classification of the amines.
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