Rayat Shikshan Sanstha

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemistry

Preliminary Examination –B.Sc-I (2021-22)

Sub-organic chemistry (sem-I,Paper-II)

Std : BSc.I
Date :15-2-2022

Marks – 50
Time – 60 Min.

Select the most correct alternative and write the correct answer in box.
All questions are compulsory, each question carry two marks.

1. Fish hook Arrow or half headed Arrow is used to show.....
A) chemical reaction B) homolytic fission C) resonance D) heterolytic fission

2. Homolytic Bond fission is favoured by....

A) UV light B) heat C) polar solvent D) both a or b

3. The nucleophile amongst the following species is.....

A) H+ B) H3O C) Zncl2 D) R-NH2

4. Electrophile term implies.....species

A) electron loving B) nucleus hating C) nucleus loving D) single electron

5. Protonation of.....forms carbocation

A) C=C B) C=O C) R-OH D) any of these

6. Carbanions are electron.....

A) poor B) rich C) neutral D) electrophile

7. Electromeric effect is.....effect.

A) permanent B) temporary C) time variable D) both a and c

8. An optically activemolecule lacks.....of symmetry.

A) Centre B) plane C) alternating Axes D) all of these

9. The compound CH3CH(Cl)COOH shows.....isomerism

A) Geomatrical B) conformational C) optical D) Cis-trans

10. The compound having optical activity amongst the following is. .....

A) 1-chlorobutane B) 2- chloropropane C) 2- chlorobutane D)1- chloropentane

11. Which of the following is not chiral. .....

A) 2- chlorobutane B) lactic acid C)3-chloropentane D)2- amino propionic acid

12. Non superimposable stereoisomers related as object and Mirror image are called. .....

A) diastereomers B) Enantiomers C) conformers D) Geometrical isomers.

13. 2-butene exhibit. .....isomerism

A) optical B) geometric C) conformational D) none of these

14. Syn and anti prefixes used to describe the geometrical isomers of aldoximes indicate the relationship between OH group with.....

A) H atom B) alkyl group C) N atom D) C atom

15. ..... is a non benzenoid compounds

A) Naphthalene B) benzene C) pyridine D) phenol.

16. Correct structure of benzene was proposed by.....

A) Deewar B) Faraday C) Kekule D) Claus

17. All aromatic compounds are.....

A) planner B) cyclic, conjugated C) having (4 n + 2) Pi electrons D) all of these

18. The C-C-C bond angle in Benzene is.....

A) 120 degree B) 180 degree C) 90 degree D) 270 degree.

19. Pick up the false statement about benzene

A) carries aromatic sextet B) C-C-C bond angle is 109 28 C) all carbon carbon Bond are equivalent D) a typical example of aromatic compounds

20. In Benzene .....type of overlapping is not observed.

A) SP^2- SP^2 B) P- P C) SP^2-S D) SP- SP

21. The Sigma Complex formed in substitution reaction of benzene is. .....

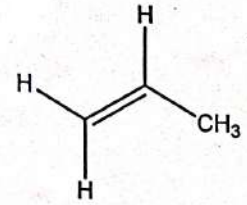
A) negatively charged Ion B) positively charged cation C) a free radical species

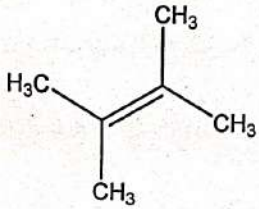
D) final product formed

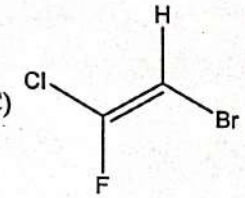
22. The movement of electrons in heterolytic bond fission is shown by.....

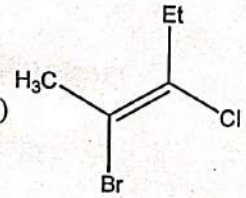
A) B) C) D) 

23. Which of the following has Z-configuration

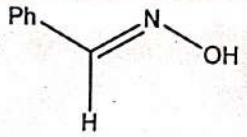
A) 

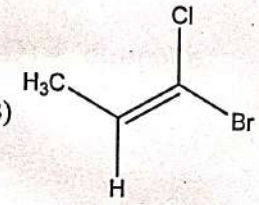
B) 

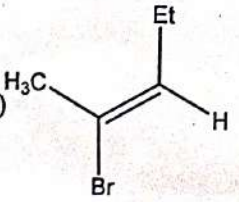
C) 

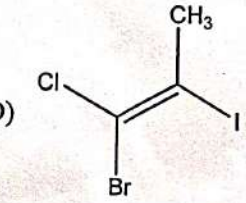
D) 

24. Which of the following does not have E-configuration

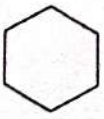
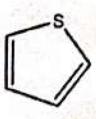
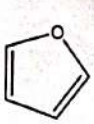
A) 

B) 

C) 

D) 

25. Which of the following is not aromatic in character?

A)  B)  C)  D) 

Rayat Shikshan Sanstha

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemisry

Question bank –B.Sc-I (2021-22)

Sub-organic chemistry (sem-I,Paper-II)

Std : BSc.I **Marks – 30**
Date :12-12-2022 **Time – 60 Min.**
Attempt All Question Compulsary

1. Protonation of.....forms carbocation

A) C=C B) C=O C) R-OH D) any of these

2. Carbanions are electron.....

A) poor B) rich C) neutral D) electrophile

3. Electromeric effect is.....effect.

A) permanent B) temporary C) time variable D) both a and c

4. An optically activemolecule lacks.....of symmetry.

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5. The compound CH3CH(Cl)COOH shows.....isomerism

A) Geomatrical B) conformational C) optical D) Cis-trans

6. The compound having optical activity amongst the following is. .....

A) 1-chlorobutane B) 2- chloropropane C) 2- chlorobutane D)1- chloropentane

7. Which of the following is not chiral. .....

A) 2- chlorobutane B) lactic acid C)3-chloropentane D)2- amino propionic acid

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A) diastereomers B) Enantiomers C) conformers D) Geometrical isomers.

9. 2-butene exhibit. .....isomerism

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10. Syn and anti prefixes used to describe the geometrical isomers of aldoximes indicate the relationship between OH group with.....

A) H atom B) alkyl group C) N atom D) C atom

11. ..... is a non benzenoid compounds

A) Naphthalene B) benzene C) pyridine D) phenol.

12. Correct structure of benzene was proposed by.....

A) Deewar B) Faraday C) Kekule D) Claus

13. All aromatic compounds are.....

A) planner B) cyclic, conjugated C) having (4 n + 2) Pi electrons D) all of these

14. The C-C-C bond angle in Benzene is.....

A) 120 degree B) 180 degree C) 90 degree D) 270 degree.

15. Pick up the false statement about benzene

A) carries aromatic sextet B) C-C-C bond angle is 109 28 C) all carbon carbon Bond

Rayat Shikshan Sanstha's

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemistry

B.Sc.I Question Bank

Organic Chemistry

Que.1 Answer the following:

1) Define Enantiomers and Diastereomers?

2) Define free radical intermediate with suitable example?

3) Explain in brief Markonikoff addition rule?

4) Define benzyne intermediate? Draw the structure of benzyne intermediate?

5) Define plane of symmetry with suitable example?

6) Explain Diels Alder reaction for formation of alkene?

7) Define alternating axis of symmetry with suitable example?

8) Define carbene with suitable example?

9) Explain reactions of cycloalkane?

10) Discuss any two applications of free radical reaction?

11) Explain Saytzeff Rule?

12) Define the terms i) chiral carbon
ii) racemic mixture

13) Discuss any two methods of preparation of alkene?

14) Define the term geometrical isomerism with suitable example

15) Define homolytic and heterolytic bond fission with suitable example?

16) Define the terms i) external compensation ii) Internal compensation?

17) Define Nitrene intermediate with suitable example?

18) Discuss any two factors affecting on stability of carbocation?

19) Discuss any two factors affecting on stability of carbanion?

20) Explain any two methods of preparation of alkyne?

21) Discuss any two factors affecting on stability of free radical?

22) Discuss any two methods of preparation of carbocation?

23) Discuss any two methods of preparation of carbanion?

24) Discuss any two reactions of nitrene?

25) Discuss any two reactions of free radical

Rayat Shikshan Sanstha's

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemistry

B.Sc.I Question Bank

Organic Chemistry

Que1. Attempt the following

1. Explain formation and reactions of nitrene and carbene intermediate?
2. Explain configuration of aldoximes and ketoximes?
3. Explain formation, reaction and applications of free radical?
4. Explain optical isomerism in 2, 3 dihydroxy butanioic acid?
5. Define carbanion? How they are formed? Give structure , stability andreactions of carbanion ?
6. Define free radical? How they are formed? Give structure , stability andreactions of free radical ?
7. What are carbocation? How they are formed? Give structure, stability andreactions of carbocation?
8. Explain optical isomerism in tartaric acid?
9. Discuss the mechanism of Electrophilic substitution reactions of Benzene?

Que 2. Attempt the following

1.Explain the terms with suitable example i) enantiomers ii) mesotartaric acid iii) cis isomerism iv) trans isomerism v) racemic mixture

2.Give methods of synthesis of nitrene and benzyne intermediate?

3.Explain in brief configuration of ketoxime?

4.What is R and S nomenclature give priority of groups ?

1) What are cycloalkanes? How they named? Explain the preparation methods
2) Explain cis and trans isomerism with suitable example?
3) Discuss various types of organic reactions?
4) State with reasons whether the following compounds show geometricalisomerism or not i) (CH3)2C=CHOH ii) CH3-CH=CH-CH3
   iii) CH3-CH=CH2 iv) Cl2-C=CH-CH3
5) Draw the possible stereoisomers of the following and assign configurationof each of them
   i) CH3-CH-OH-CH3 ii) C6H5-CH-NOH
   ii) CH3-CH-C-Cl-C2H5 iv) CH3-CH2-CH-Cl_CH3
   v) Ch3-CH-NOH

6) Explain elements of symmetry with suitable examples?
7) Explain molecular orbital structure of benzene
8)Explain insertion and addition reactions of carbene?
9)Explain why Benzene undergoes electrophilic substitution reaction?
10)Discuss the resonance structure of benzene?
11) Define aromatic ant aromatic , nonaromatic Pseudo-aromatic compoundswith suitable example?

?

12) Discuss the reactive intermediate benzyne with respect to its structure,generation methods, stability and chemical reactions Discuss general methods of formation of alkanes?

13) Explain mechanism of free radical reactions?

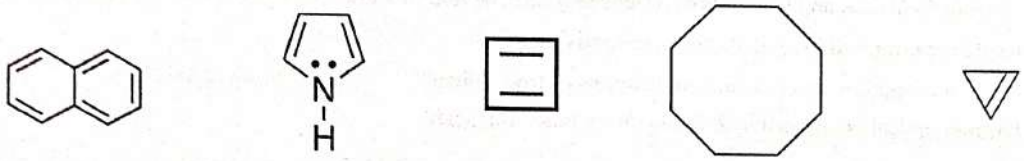
14) Discuss effect of activating and deactivating groups in aromatic substitution?

15) Explain aromaticity of benzene anthracene and phenanthrene by applyingHukel's rule?

16) Explain ortho para and meta orientation of substituted benzene with suitableexample?

17) Explain Beckmann transformation (B.T.)?

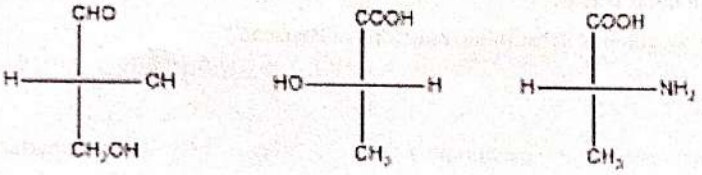
18) Discuss general methods of formation of alkenes? iii) On the basis of Huckel'srule classify the following species as aromatic, nonaromatic and ant aromatic with reason?

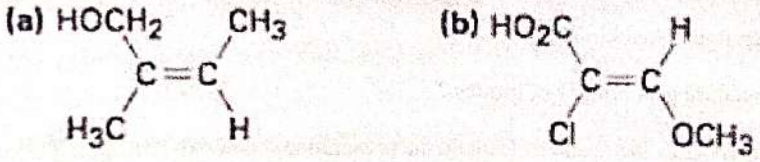


22) Explain applications of free radical reactions?

23) Discuss structure stability and formation of carbanion?

24) Assign R or S and E or Z configuration to the following compounds?





Rayat Shikshan Sanstha's

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemistry B.Sc.I

Organic Chemistry

Question Bank

Que.1 Answer the following:

1) Explain Saytzeff Rule?

2) Discuss any two methods of preparation of alkene?

3) Define the terms i) chiral carbon ii) racemic mixture

4) Define the term geometrical isomerism with suitable example

5) Define homolytic and heterolytic bond fission with suitable example?

6) Define the terms i) external compensation ii) Internal compensation?

7) Define Nitrene intermediate with suitable example?

8) Discuss any two factors affecting on stability of carbocation?

9) Discuss any two factors affecting on stability of carbanion?

10)Explain any two methods of preparation of alkyne?

11) Discuss any two factors affecting on stability of free radical?

12)Discuss any two methods of preparation of carbocation?

13)Discuss any two methods of preparation of carbanion?

14)Discuss any two reactions of nitrene?

15)Discuss any two reactions of free radical.

16) Define Enantiomers and Diastereomers?

17)Define free radical intermediate with suitable example?

18)Explain in brief Markonikoff addition rule?

19)Define benzyne intermediate? Draw the structure of benzyne intermediate?

20)Define plane of symmetry with suitable example?

21)Explain Diels Alder reaction for formation of alkene?

22)Define alternating axis of symmetry with suitable example?

23)Define carbene with suitable example?

24)Explain reactions of cycloalkane?

25)Explain Saytzeff Rule?

Que2. Attempt the following

1. What are carbocation? How they are formed? Give structure, stability and reactions of carbocation?
2. Explain optical isomerism in tartaric acid?
3. Discuss the mechanism of Electrophilic substitution reactions of Benzene? Explain various electrophilic reactions of benzene?
4. Explain optical isomerism in 2, 3 dihydroxy butanioic acid?
5. Define carbanion? How they are formed? Give structure , stability and reactions of carbanion ?
6. Define free radical? How they are formed? Give structure , stability and reactions of free radical ?

Rayat Shikshan Sanstha's

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemistry

B.Sc.I Question Bank (2017-18)

Organic Chemistry

Que.1 Answer the following:

1) Explain any two methods of preparation of alkyne?
2) Discuss any two factors affecting on stability of free radical?
3) Discuss any two methods of preparation of carbocation?
4) Discuss any two methods of preparation of carbanion?
5) Discuss any two reactions of nitrene?
6) Discuss any two reactions of free radical
7) Discuss any two applications of free radical reaction?
8) Explain Saytzeff Rule?
9) Discuss any two methods of preparation of alkene?
10) Define the term geometrical isomerism with suitable example
11) Define homolytic and heterolytic bond fission with suitable example?
12) Define the terms i) external compensation ii) Internal compensation?
13) Define Nitrene intermediate with suitable example?
14) Discuss any two factors affecting on stability of carbocation?
15) Define Enantiomers and Diastereomers?
16) Define free radical intermediate with suitable example?
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18) Define benzyne intermediate? Draw the structure of benzyne intermediate?

19) Define plane of symmetry with suitable example?

20) Explain Diels Alder reaction for formation of alkene?

21) Define alternating axis of symmetry with suitable example?

22) Define carbene with suitable example?

23) Explain reactions of cycloalkane?

Rayat Shikshan Sanstha's

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemistry

B.Sc.I Question Bank (2018-19)

Organic Chemistry

Que1. Attempt the following

1. Explain optical isomerism in 2, 3 dihydroxy butanioic acid?
2. Define carbanion? How they are formed? Give structure , stability andreactions of carbanion ?
3. Define free radical? How they are formed? Give structure , stability andreactions of free radical ?
4. Explain optical isomerism in 2, 3 dihydroxy butanioic acid?
5. Define carbanion? How they are formed? Give structure , stability andreactions of carbanion ?
6. Define free radical? How they are formed? Give structure , stability andreactions of free radical ?

Que 2. Attempt the following

1) Discuss general methods of formation of alkanes?
2) Explain mechanism of free radical reactions?
3) Discuss effect of activating and deactivating groups in aromatic substitution?
4) Explain aromaticity of benzene anthracene and phenanthrene by applying Hukel's rule?
5) Explain ortho para and meta orientation of substituted benzene with suitableexample?
6) Explain elements of symmetry with suitable examples?
7) Explain molecular orbital structure of benzene?
8) Explain insertion and addition reactions of carbene?
9) Explain why Benzene undergoes electrophilic substitution reaction?
10) Discuss the resonance structure of benzene?
11) Define aromatic ant aromatic , nonaromatic Pseudo-aromatic compoundswith suitable example?
12) Explain various methods of preparation of cyclo alkanes?
13) Explain various methods of preparation of cyclo alkenes?
14) Explain various methods of preparation of alkynes?
15) Explain in brief geometrical isomerism?

16) Discuss the reactive intermediate benzyne with respect to its structure,generation methods, stability and chemical reactions.

17) What are cycloalkanes? How they named? Explain the preparation methods

18) Explain cis and trans isomerism with suitable example?

19) Discuss various types of organic reactions?

20) State with reasons whether the following compounds show geometricalisomerism or not

i) (CH3)2C=CHOH ii) CH3-CH=CH-CH3

iii) CH3-CH=CH2 iv) Cl2-C=CH-CH3

21) Draw the possible stereoisomers of the following and assign configurationof each of them

i) CH3-CH-OH-CH3 ii) C6H5-CH-NOH

ii) CH3-CH-C-Cl-C2H5 iv) CH3-CH2-CH-Cl_CH3

v) Ch3-CH-NOH

Rayat Shikshan Sanstha's

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Chemistry

B.Sc.I Question Bank (2017-18)

Organic Chemistry

Que.1 Answer the following:

1) Define Enantiomers and Diastereomers?

2) Define free radical intermediate with suitable example?

3) Explain in brief Markonikoff addition rule?

4) Define benzyne intermediate? Draw the structure of benzyne intermediate?

5) Define plane of symmetry with suitable example?

6) Explain Diels Alder reaction for formation of alkene?

7) Define alternating axis of symmetry with suitable example?

8) Define carbene with suitable example?

9) Explain reactions of cycloalkane?

10) Discuss any two methods of preparation of carbocation?

11) Define benzyne intermediate? Draw the structure of benzyne intermediate?

12) Define plane of symmetry with suitable example?

13) Explain Diels Alder reaction for formation of alkene?

14) Define alternating axis of symmetry with suitable example?

15) Define carbene with suitable example?

16) Explain reactions of cycloalkane?

Que2. Attempt the following

1. Define free radical? How they are formed? Give structure , stability and

reactions of free radical ?

Explain various electrophilic reactions of benzene?

2. Explain optical isomerism in 2, 3 dihydroxy butanioic acid?

3. Define carbanion? How they are formed? Give structure , stability and reactions of carbanion ?

4. Define free radical? How they are formed? Give structure , stability and reactions of free radical ?

5. Explain optical isomerism in 2, 3 dihydroxy butanioic acid?

6. Define carbanion? How they are formed? Give structure , stability and reactions of carbanion ?

Que 3. Attempt the following

1) Explain applications of free radical reactions?

2) Discuss structure stability and formation of carbanion?
3) Explain molecular orbital structure of benzene?
4) Explain insertion and addition reactions of carbene?
5) Explain why Benzene undergoes electrophilic substitution reaction?
6) Discuss the resonance structure of benzene?
7) Define aromatic anti aromatic , nonaromatic Pseudo-aromatic compounds with suitable example?
8) Explain various methods of preparation of cyclo alkanes?
9) Explain various methods of preparation of cyclo alkenes?
10) Explain various methods of preparation of alkynes?
11) Explain in brief geometrical isomerism?
12) Discuss the reactive intermediate benzyne with respect to its structure, generation methods, stability and chemical reactions.
13) What are cycloalkanes? How they named? Explain the preparation methods
14) Explain cis and trans isomerism with suitable example?
15) Discuss various types of organic reactions?
16) Give methods of synthesis of nitrene and benzyne intermediate?
17) Explain in brief configuration of ketoxime?