PAPER CODE:6011

M.Sc. SEM – 3 ORGANIC CHEMISTRY (NEW COURSE)

JULY-SEP-2021

CHNN 604 (O)SELECTED TOPICS IN ORGANIC CHEMISTRY

કુલ સમય :– ૬૦ મીનીટ કુલ પ્રશ્નો : ૫૦ વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫

નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

1. Which of the following is not true about the five membered rings?

a) Five membered rings are more stable than 4 membered rings

b) Five membered rings are more stable than 6 membered rings

c) Five membered rings are more stable than 7 membered rings

d) Five membered rings are more stable than 8 membered rings

2. Which of the following is a not a five membered ring?

a) Pyridine b) Pyrrole c) Furan d) Thiophene

3. Which of the following five membered rings is most resonance stabilized?

a) Furan b) Thiophene c) Pyrrole d) Pyridine

4. Five membered rings come under which category of heterocycle classification on the basis of chemical behavior?

a) -excessive heterocycle b) -deficient heterocycle

c) -equivalent heterocycle d) Can't say about the five membered rings

5. What is the reactivity order in the following five membered heterocyclic compounds?

a) Pyrrole b) Furan c) Thiophene d) Pyridine

6. What is the product when thiophene reacts with Br2 in benzene?

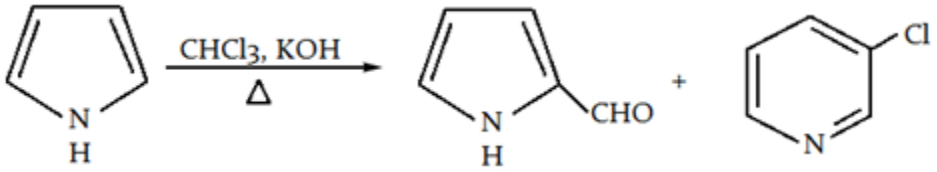
a) 2-bromothiophene b) 3-bromothiophene c) 2,5-dibromothiophene d) 3,4-dibromothiophene

7. What is the product when pyrrole reacts with Br2 in ethanol?

a) 2,3-dibromopyrrole b) 2,3,4,5-tetrabromopyrrole

c) 2,5-dibromopyrrole d) 3,4-dibromopyrrole

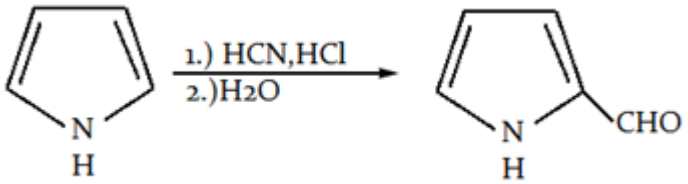
8. What is the name of the following reaction?



a) Gattermann reaction b) Riemer tiemann reaction

c) Friedal craft reaction d) Blanc's chloromethylation

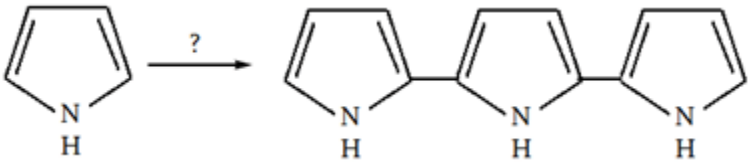
9. What is the name of the following reaction?



a) Gattermann reaction b) Riemer tiemann reaction

c) Friedal craft reaction d) Blanc's chloromethylation

10. What will be the reagent used for the completion of the following reaction?



a) Concentrated acid b) Dilute acid c) Concentrated base d) Dilute base

11. Pyridine is a which type of heterocyclic compound from the following options?

a) Six membered heterocyclic compound b) Seven membered heterocyclic compound

c) Four membered heterocyclic compound d) Five membered heterocyclic compound

12. Which element is present as hetero atom in pyridine?

a) Sulphur b) Nitrogen c) Oxygen d) Sulphur and nitrogen

13. The electron of Nitrogen participating in the resonance in pyridine is present in which orbital?

a) p-orbital b) sp2-orbital c) sp3-orbital d) sp -orbital

14. 4. Pyridine is a not a planner compound?

a) True b) False

15. 5. How many number of resonating structure stabilises a pyridine molecule?

a) 4 b) 5 c) 6 d) 7

16. Pyridine come under which category of heterocycle classification on the basis of chemical behavior?

a) -excessive heterocycle b) -deficient heterocycle

c) -equivalent heterocycle d) can't say about the five membered rings

17. What is the smallest angle in pyridine ring?

a) 116.7° b) 115.0° c) 124.0° d) 118.1°

18. What is the dipole moment of the pyridine?

a) Zero b) 2.2 Dc) 1.17 D d) 4.3 D

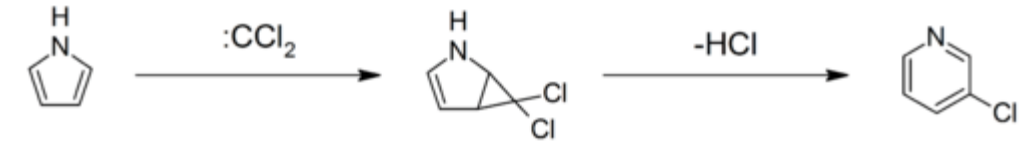
19. Which of the following is the correct range for the bond length in the pyridine molecule?

a) 1.34 – 1.40 A° b) 1.24 – 1.32 A° c) 2.4 – 2.49 A° d) 1.02 – 1.17 A°

20. What is the greatest angle in pyridine ring?

a) 116° b) 140° c) 124° d) 118°

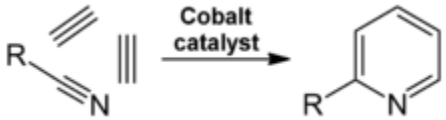
21. What is the name reaction of the following reaction?



a) Chichibabin synthesis b) Ciamician–Dennstedt rearrangement

c) Kröhnke pyridine synthesis d) Bönnemann cyclization

22. What is the name reaction of the following reaction?



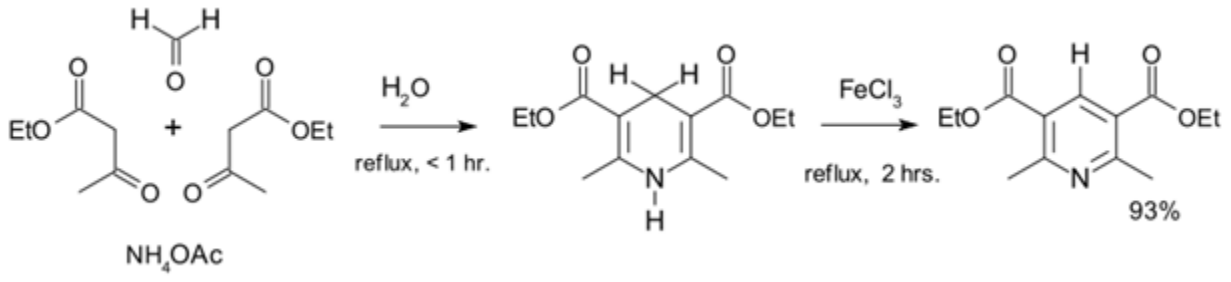
a) Chichibabin synthesis b) Dealkylation of alkylpyridines

c) Hantzsch pyridine synthesis d) Bönnemann cyclization

23. Which of the following catalyst can be used in the synthesis of pyridine by Bönnemann cyclization?

a) Vanadium oxide b) Nickel based catalyst c) Silver or platinum-based catalyst d) Cobalt catalyst

24. What is the name reaction of the following reaction?



a) Chichibabin synthesis b) Dealkylation of alkylpyridines

c) Hantzsch pyridine synthesis d) Bönnemann cyclization

25. Which of the following reagent can't be used as the reagent in the dealkylation of alkylpyridines in the pyridine synthesis?

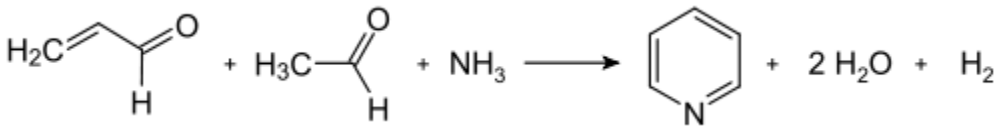
a) Vanadium oxide b) Nickel based catalyst c) Silver or platinum-based catalyst d) Copper catalyst

26. In the synthesis of pyridine by Chichibabin synthesis, synthesis of acroloien is done which method?

a) Knoevenagel Condensation b) Aldol condensation

c) Dieckmann condensation d) Claisen condensation

27. What is the name of the reaction given below when condensation of acrolein and acetaldehyde take place?



a) Chichibabin synthesis b) Dealkylation of alkylpyridine c) Hantzsch pyridine synthesis

d) Bonnemann cyclisation

28. Mycobacterium tuberculosis and Escherichia coli produce nicotinic acid by condensation of which of the following compounds?

a) Glyceraldehyde 3-phosphate b) Kynurenine c) Pyrrole d) Tryptophan

29. Which of the following derivative of pyridine is mostly found in mammals?

a) Nicotinamide b) Vitamin B6 c) Nicotinic acid d) Strychnine

30. Mycobacterium tuberculosis and Escherichia coli produce nicotinic acid by condensation of which of the following compounds?

a) Glyceraldehyde 3-phosphate b) Amino acid c) Pyrrole d) acetylene

31. Electrophilic substitution reaction of pyridine is most effective in which of the conditions?

a) In slightly acidic conditions b) In slightly basic conditions

c) In neutral medium d) In vigorous conditions

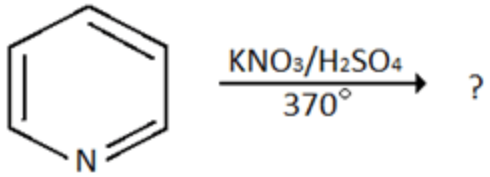
32. Which of the following electrophilic substitution reaction is not possible in pyridine?

a) Nitration b) Sulphonation c) Bromination d) Friedel craft reaction

33. At which position of pyridine electrophilic substitution reaction is most preferred?

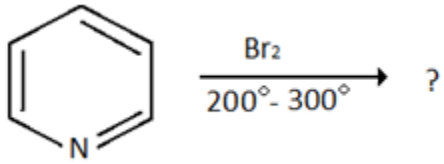
a) First b) Second c) Third d) Forth

34. Which of the following is the product for the below reaction?



a) 3- Nitropyridine b) 2- Nitropyridine c) 4- Nitropyridine d) 2,4- dinitropyridine

35. Which of the following is the product for the below reaction?



a) 3- bromopyridine b) 2- bromopyridine

c) 2- bromopyridine and 3- bromopyridine d) 3- bromopyridine and 3,5- dibromo pyridine

36. The oxidation of toluene to benzaldehyde by chromyl chloride is called as which of the following?

a) Cannizzaro reaction b) Wurtz reaction c) Etard reaction d) Reimer-Tiemann reaction

37. Benzaldehyde can be prepared by oxidation of toluene by which of the following reagent?

a) Acidic $KMnO_4$ b) $K_2Cr_2O_7$ c) CrO_2Cl_2 d) basic $KMnO_4$

38. The oxidation of benzyl chloride with lead nitrate gives which of the following compound?

a) Benzaldehyde b) Benzyl alcohol c) Benzoic acid d) p-chlorobenzaldehyde

39. What will be the product of the given reaction?



a) Propanone b) Acetophenone c) Diphenylmethanone d) Aliphatic and aromatic

40. Which of the following cannot be used as reactant in preparation of aromatic ketones from diazonium salt?

a) formaldoxime b) Acetaldoxime c) propionaldoxime d) Terpernes

41. Permanganate is a mild oxidizing agent.

a) True b) False

42. Permanganate can be used as an oxidizing agent for which compound?

a) Alkaline b) Neutral c) Acid solutions d) All of the mentioned

43. Which salt is used as an oxidation of complex for proteins?

a) Sodium salts b) Calcium salts c) Both of these d) None of the mentioned

44. When potassium permanganate is used in aqueous solution, the solution becomes what?

a) Alkaline b) Acidic c) Neutral d) None of the mentioned

45. In neutral solution, what is the need of CO2 in the oxidation?

a) Acidify b) Basicity c) Neutralise d) None of the mentioned

46. What is the use of addition of acetic or sulfuric acid to KMnO4 solutions?

a) Neutralise b) Alkaline c) Oxidise d) Acidity

47. Which of the following is an oxidizing agent?

a) NaOH b) CrO_3 c) Cl_2 d) H_2O

48. Chromic acid and the dichromate's have numerous applications in the organic chemical industry.

a) True b) False

49. What is the $NaClO_3$ called?

a) Sodium chlorine b) Sodium oxidechloro

c) Sodium chlorite d) All of the mentioned

50. Chlorinated solutions of which hydroxides are active oxidizing agents?

a) Sodium b) Aluminium c) Copper d) All of the mentioned