



“Cultivating excellence in every student”

RAKESH KUMAR
M.Sc. (Chemistry) B.Ed.
CTET, PSTET, HPTET qualified



+917973739678
+919814516618



thakurkumar82@gmail.com



<http://chemistryexpert.in/>

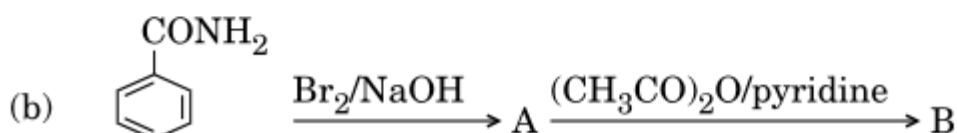
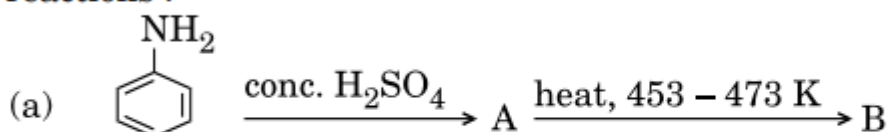
Class:-XII (Sci.)

Name of Student.....

Subject:- Chemistry

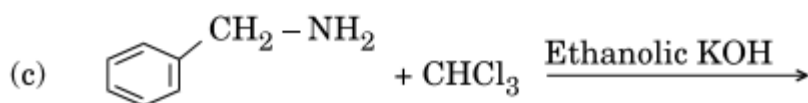
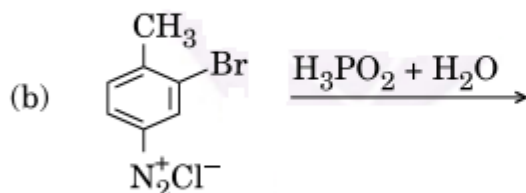
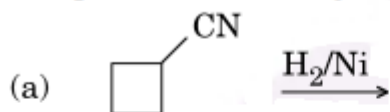
10 YEAR QUESTIONS
Chapter-13 (Amines)

- Account for the following, supporting your answer with diagrams or equations wherever possible: (a) Diazonium salts of aromatic amines are more stable than those of aliphatic amines. (b) Methylamine in water reacts with ferric chloride to precipitate hydrated ferric oxide.
- Arrange the following in decreasing order of pK_b giving reason:
(a) Aniline, p-nitro aniline and p-toluidine (b) $C_2H_5NH_2$, $(C_2H_5)_2NH$, $(C_2H_5)_3N$ in gaseous state.
- Write the reaction involved in the Hoffmann bromamide degradation reaction.
- Propanamine and N, N-dimethylmethanamine contains the same number of carbon atoms, even though Propanamine has higher boiling point than N, N-dimethylmethanamine. Why?
- (a) Give one chemical test to distinguish between the compounds of the following pairs :
(i) CH_3NH_2 and $(CH_3)_2NH$ (ii) Aniline and Ethanamine (b) Why aniline does not undergo Friedel-Crafts reaction ?
- (a) Gabriel phthalimide synthesis is not preferred for preparing aromatic primary amines.
(b) On reaction with benzene sulphonyl chloride, primary amine yields product soluble in alkali whereas secondary amine yields product insoluble in alkali.
- Write structures of compounds A and B in each of the following reactions :**



8. How do you convert the following: (a) N-phenylethanamide to p-bromoaniline?
 (b) Benzene diazonium chloride to nitrobenzene (c) Benzoic acid to aniline

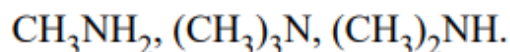
9. Complete the following reactions :



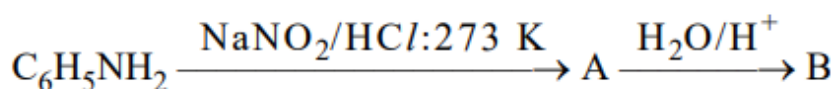
10. An aromatic compound 'A' on heating with Br_2 and KOH forms a compound 'B' of molecular formula $\text{C}_6\text{H}_7\text{N}$ which on reacting with CHCl_3 and alcoholic KOH produces a foul smelling compound 'C'. Write the structures and IUPAC names of compounds A, B and C.

11. Do as directed :

- (i) Arrange the following compounds in the increasing order of their basic strength in aqueous solution :



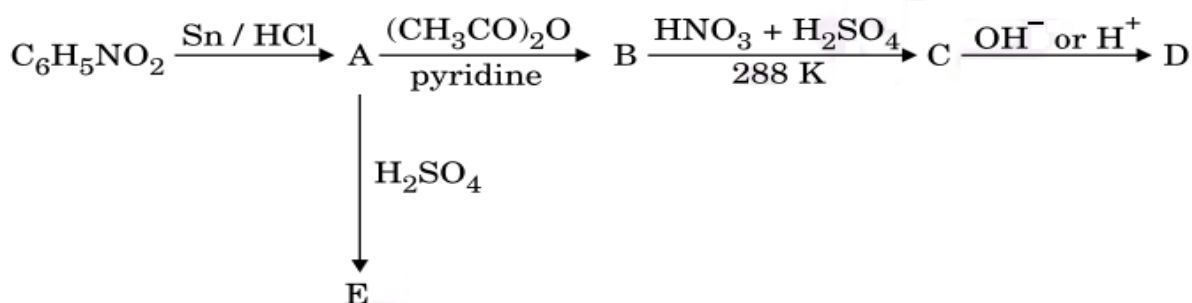
- (ii) Identify 'A' and 'B' :



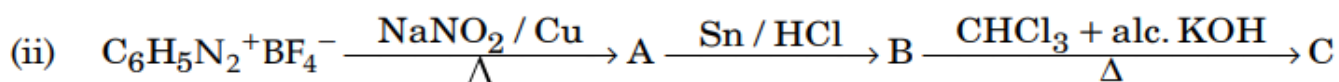
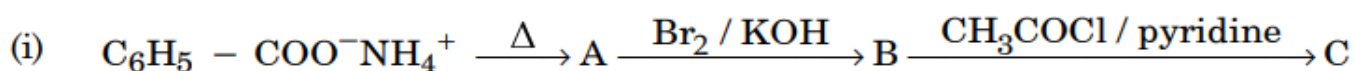
- (iii) Write equation of carbylamine reaction.

12. (a) Write the structures of the main products when benzene diazonium chloride reacts with the following reagents : (i) CuCN (ii) $\text{CH}_3\text{CH}_2\text{OH}$ (iii) Cu / HCl (b) Arrange the following in the increasing order of their basic strength : CH_3NH_2 , $(\text{CH}_3)_2\text{NH}$, $\text{C}_6\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{CH}_2\text{NH}_2$ (c) Write one chemical test to distinguish between Aniline and Ethyl amine.

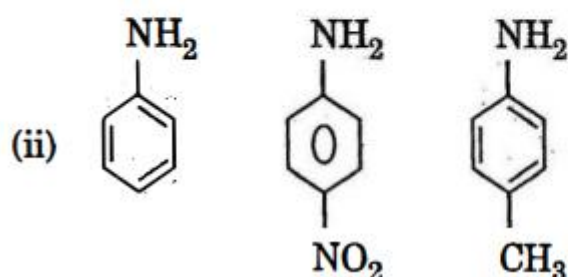
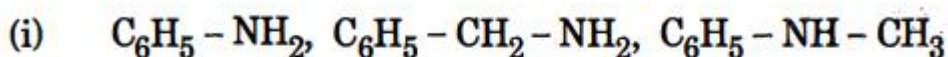
13. Write the structures of A, B, C, D and E in the following reactions :



14. Complete the following reactions :



15. Arrange the following in increasing order of their basic strength :



16. How do you convert the following : (i) $\text{C}_6\text{H}_5\text{CONH}_2$ to $\text{C}_6\text{H}_5\text{NH}_2$. (ii) Aniline to phenol
(iii) Ethanenitrile to ethanamine .

17. Write the chemical equations involved when aniline is treated with the following reagents. (i) Br_2 water (ii) $\text{CHCl}_3 + \text{KOH}$ (iii) HCl

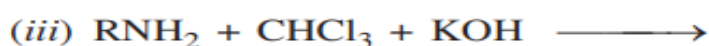
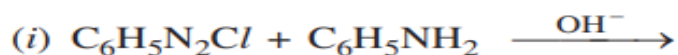
18. giving an example for each, describe the following reactions: (i) Hofmann's bromamide reaction (ii) Gatterman reaction (iii) A coupling reaction.

19. How are the following conversions carried out: (i) Aniline to nitrobenzene (ii) Ethanamine to N-ethylethanamide (iii) Chloroethane to propan-1-amine?

20. Give one chemical test each to distinguish between the compounds in the following pairs: (i) Methylamine and dimethylamine (ii) Aniline and benzylamine (iii) Ethylamine and aniline.

21. In the following cases rearrange the compounds as directed: (i) In an increasing order of basic strength: $\text{C}_6\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$ and CH_3NH_2 (ii) In a decreasing order of basic strength: Aniline, p-nitro aniline and p-toluidine (iii) In an increasing order of pK_b values: $\text{C}_2\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{NHCH}_3$, $(\text{C}_2\text{H}_5)_2\text{NH}$ and $\text{C}_6\text{H}_5\text{NH}_2$.

22. Complete the following chemical equations:



23. Give the chemical tests to distinguish between the following pairs of compounds: (i) Methylamine and Dimethylamine (ii) Aniline and N-methylaniline.
24. (a) Explain why an alkylamine is more basic than ammonia. (b) How would you convert (i) Aniline to nitrobenzene (ii) Aniline to iodobenzene?
25. State reasons for the following: (i) pK_b value for aniline is more than that for methylamine. (ii) Ethylamine is soluble in water whereas aniline is not soluble in water. (iii) Primary amines have higher boiling points than tertiary amines.
26. Write chemical equations for the following conversions: (i) Nitrobenzene to benzoic acid (ii) Benzyl chloride to 2-phenylethanamine (iii) Aniline to benzyl alcohol.
27. (a) Give a possible explanation for each one of the following: (i) There are two $-\text{NH}_2$ groups in semicarbazide. However, only one such group is involved in the formation of semicarbazones. (ii) Cyclohexanone forms cyanohydrin in good yield but 2, 4, 6-trimethylcyclohexanone does not. (b) An organic compound with molecular formula $\text{C}_9\text{H}_{10}\text{O}$ forms 2, 4-DNP derivative, reduces Tollen's reagent and undergoes Cannizzaro's reaction. On vigorous oxidation it gives 1,2-benzene-di-carboxylic acid. Identify the compound.
28. An organic compound A has molecular formula $\text{C}_2\text{H}_3\text{N}$. It undergoes reduction to produce compound B which when warmed with chloroform and alcoholic potassium hydroxide produces a foul smell. To compound B nitrous acid is added it gets converted to another organic compound C which undergoes esterification with acetic acid forming an ester D. Identify compounds A, B, C and D.

.....

Chemistry

Expert