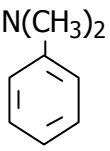
ST. XAVIER'S SENIOR SECONDARY SCHOOL, DELHI – 110 054

Std. 12 Time : 1½hr.

2-12-2014 Second Unit Test in CHEMISTRY M. Marks: 35

1. Name the following compounds according to IUPAC System. (1)

a) $CH_3CH = C(Cl)\ CH_2\ CH\ (CH_3)_2$. b) 

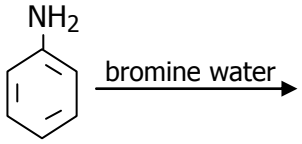
2. What are copolymers? Give an example. (1)

3. While separating a mixture of ortho and para nitro phenols by steam distillation, name the isomer which is steam volatile. Give reason. (1)

4. Write the structure of major organic product. (2)

a) $CH_3\ CH\ (Br)\ CH_2\ CH_3 \xrightarrow{\text{aq. NaOH}}$

b) $CH_3\ CH_2\ CH_2\ OH \xrightarrow{SOCl_2}$

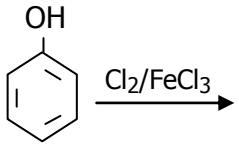
c) 

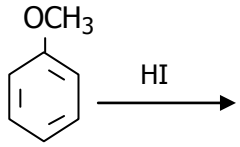
d) $(CH3)_3\ ONa + CH_3\ CH_2\ Br \longrightarrow$

5. Account for the following :- (2)

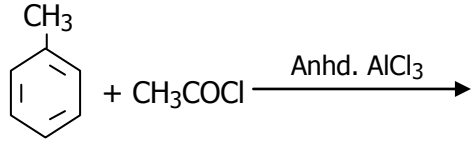
a) Aniline does not undergo friedel crafts reaction.
b) Phenol is more acidic than ethanol.
c) Aldehydes are more reactive than ketones towards nucleophilic addition reaction.
d) Aryl halides have less tendency to undergo nucleophilic substitution than alkyl halides.

6. Complete the following reactions :- (2)

a) 

b) 

c) $CH_3\ CH_2\ OH \xrightarrow{Cu/537k}$

d) 

7. Arrange the following compounds in the decreasing order of the property as indicated. (2)

a) $C_2H_5NH_2$, $C_6H_5NHCH_3$, $(C_2H_5)_2\ NH$, $C_6H_5NH_2$ (PK_b Values)
b) Benzoic acid, 4-nitro benzoic acid, 3, 4-dinitrobenzoic acid, 4-methoxy benzoic acid (Acid strength).

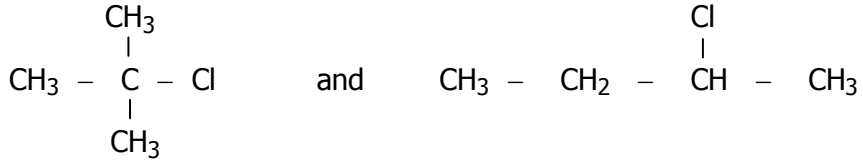
8. a) Mention one important use of each of the following :-
   i) Bakelite ii) Nylon – 6
   b) Draw the structure of the monomer of :-
   i) PVC ii) Teflon (2)

9. Differentiable between the following :- (2)
   a) Addition polymers and condensation polymers.
   b) Elastomers and fibres.

10. Give chemical equations only to explain the following reaction. (3)
   a) Cannizzaro reaction. b) Wurtz reaction.
   c) Reimer – Teiman reaction.

11. Suggest simple chemical tests to distinguish between :- (3)
   a) Ethanal and propanal b) Aniline and N-methyl aniline
   c) Phenol and benzoic acid.

12. a) What is a zwitter ion? Give an example.
   b) What is a recemic mixture?
   c) In the following pair of halogen compounds which compound undergoes SN' reaction faster? (3)



13. How can the following conversions be carried out? (3)
   a) 1-bromopropane to 2-bromopropane.
   b) Aniline to iodobenzene.
   c) Benzoic acid to aniline.

14. An alkene, A, with molecular formula C_5H_{10} on ozonolysis gives a mixture of two compounds, B and C. Compound B gives positive Fehling's test and also gives iodoform test. Compound C does not give Fehling's test but forms iodoform. Identify A, B and C. Write reaction for ozonolysis and formation of iodoform from B and C. (3)

15. a) Explain the following:
      i) Peptide linkage. ii) Primary structure of proteins.
      iii) Denaturation.
   b) Differentiate between DNA and RNA (two points) :
   c) What happens when D-glucose is treated with the following :-
      i) HI ii) Bromine water. (5)

(OR)

Answer the following questions :
   a) What are amino acids?
   b) Name the enzyme present in the saliva of human beings.
   c) What is the base sequence of the complementary strand of a strand of DNA molecule having the base sequence CCATGCATG?
   d) Give an example of denatured protein.
   e) Name a disease caused due to deficiency of
      i) vitamin A ii) vitamin D.

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