ST. XAVIER'S SENIOR SECONDARY SCHOOL, DELHI – 110054

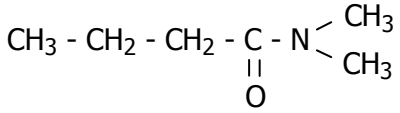
Class 12 Time : 1½ hrs.

15-12-2017 Pre-Annual Test in CHEMISTRY M. Marks : 35

1. Arrange the following in the decreasing order of pK_b values:
   $C_2H_5NH_2$, $C_6H_5NHCH_3$, $(C_2H_5)_2NH$, $C_6H_5NH_2$ (1)

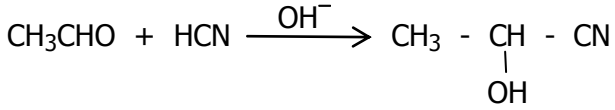
2. What are the different types of RNA found in the cell? (1)

3. Give the IUPAC name of the following compound (1)



4. Write chemical equations to illustrate the following reactions:
   i) Cannizzaro reaction ii) Hoffmann bromamide reaction (2)

5. Propose the mechanism for the following reaction: (2)

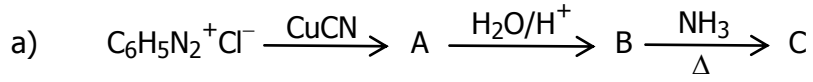


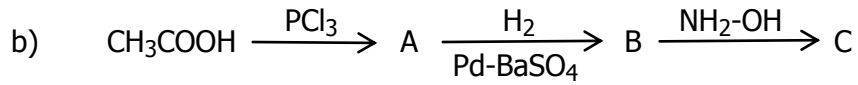
6. Give chemical tests to distinguish between the following pairs of compounds:
   i) Phenol and benzoic acid
   ii) Ehtanal and propanal (2)

7. a) Explain why vitamin C cannot be stored in the body.
   b) What are the hydrolysis products of lactose? (2)

8. a) What is Tollen's reagent? Write one usefulness of this reagent.
   b) Out of SN^1 and SN^2, which reaction occurs with
      i) inversion of configuration ii) recemisation (2)

9. Give the structures of A, B and C in the following reactions:





(3)

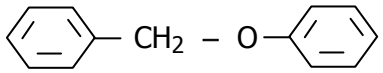
10. a) What is the structural feature characterising reducing sugars?
    b) What is meant by a peptide linkage?
    c) Differentiate between globular and fibrous proteins. (3)

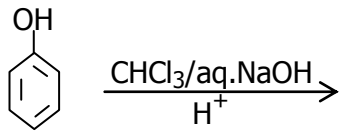
11. How will you bring about the following conversions?
    a) Ethanol to 3-hydroxy butanal.
    b) Toluene to benzaldehyde.
    c) Methyl magnesium bromide to 2-methylpropan-2-ol. (3)

12. Name the reagents used in the following reactions:
    a) Oxidation of a primary alcohol to a carboxylic acid.
    b) Butan-2-one to butan-2-ol.
    c) Bromination of phenol to 2, 4, 6-tribromophenol. (3)

13. Account for the following:
    a) Aldehydes are less reactive than ketones towards nucleophilic addition reaction.
    b) Aniline does not undergo Friedel-Crafts reactions.
    c) Ortho-nitrophenol is more acidic than ortho-methoxyphnol.
    d) Phenols do not undergo substitution of the –OH group like alcohols.
    e) There are two $-NH_2$ groups in semicarbazide,only one is involved in the formation of semicarbazone. (5)

14. a) Complete the following reactions:

    i)  $+ HI \rightarrow$

    ii) 

    b) $(CH_3)_3C$ - CHO does not undergo aldol condensation. Why?
    c) What is meant by carbylamine reaction? Give chemical equation.
    d) An organic compound "X" having molecular formula C_4H_8O gives orange-red precipitate with 2,4-DNP reagent. It does not reduce Tollens reagent but gives yellow precipitate of iodoform on heating with NaOI. Compound X on reduction with $LiAlH_4$ gives compound Y which undergoes dehydration on heating with conc. H_2SO_4 to form but-2-ene. Identify compounds X and Y. (5)

-x-x-x-x-x-x-x-