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**SB-1153**  
**Second Year B. Pharm. Examination**  
**March / April - 2011**  
**PH-203 : Pharmaceutical Chemistry - II**  
**(Organic)**

Time : 3 Hours]

[Total Marks : 70

**Instructions :**

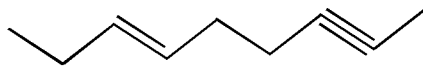
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<p>नीचे दृशावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : S. Y. B. PHARM.</p> <p>Name of the Subject : PH-203 : PHARMACEUTICAL CHEMISTRY - 2</p> <p>Subject Code No. : 1 1 5 3 Section No. (1, 2,.....) : 1&amp;2</p>	<p>Seat No. : <table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"><tr><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table></p> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 100%; text-align: center; margin-top: 10px;">Student's Signature</div>						

**SECTION - I**

- 1 Attempt any ELEVEN of the following : 11
- (a) Write electronic configuration for chlorine (atomic number 17) and bromine (atomic number 35)
  - (b) Which of the following has
    - (i) The most polar bond
    - (ii) The least polar bondNaI, LiBr, KCl, Cl<sub>2</sub>
  - (c) Which is strong acid - acetic acid or fluoroacetic acid ? Why ?
  - (d) Why NH<sub>3</sub> has 1.46D dipole moment but NF<sub>3</sub> has 0.26 D ?
  - (e) Why o-nitro phenol have much lower boiling point and much lower water solubility than their meta and para isomer ?
  - (f) Why aromatic amines are weaker base than aliphatic amines ?

- (g) What is the hybridization state of each of the carbon atoms in following compound ?



- (h) Show the orbital geometry in  $sp$ ,  $sp^2$  and  $sp^3$  hybridization with example.
- (i) Explain why phenol is more acedic than alcohol.
- (j) Draw the conjugate acid of each of the following :
- (i)  $NH_3$                       (ii)  $Cl^-$   
(iii)  $OH^-$                       (iv)  $H_2O$
- (k) Draw a compound that contain only carbon and hydrogen atoms and that has 4  $sp^3$  hybridized carbon.
- (l)  $HCl$  is weaker acid than  $HBr$ . Why does  $ClCH_2COOH$  a stronger acid than  $BrCH_2COOH$  ? - Explain.
- (m) Draw three constitutional isomers with molecular formula  $C_3H_8O$ .
- (n) Enlist the conditions necessary for resonance.

**2** Attempt any four : **12**

- (a) Write down the preparation and reaction of Ether.
- (b) Explain  $E1$  and  $E2$  mechanism with suitable example.
- (c) Explain Fries rearrangement and Kolbe reaction with mechanism.
- (d) Discuss Hydroboration-Oxidation reaction in detail.
- (e) Write down the preparation and reaction of Alkane.
- (f) Why electron releasing group on benzene ring are ortho/para directors in electrophilic aromatic substitution ?

**3** Attempt any three : **12**

- (a) Explain cycloaddition reaction.
- (b) Write a note on Hybridization.
- (c) Explain with example aldol condensation reaction.
- (d) Discuss with mechanism Reformatsky reaction to synthesize  $\alpha, \beta$  unsaturated carbonyl compounds.
- (e) Explain the cumene process for industrial phenol production.

## SECTION - II

- 4 Attempt any five of the following : 10
- (a) Draw perspective formulas for the following :  
(R)-2-butanol II) (2s, 3R)-3-Chloro-2-pentanol
  - (b) Explain the following terms with suitable example :
    - (i) Enantiotopic hydrogen
    - (ii) Homotopic hydrogen.
  - (c) Draw all possible stereoisomer's for 3-chloro-2-butanol.
  - (d) Define and classify stereoisomerism.
  - (e) Which of the following isomers differ in constitution and which in configuration ?
    - (i) (-)-lactic acid and (+)-lactic acid.
    - (ii) 1-chloropropene and 2-chloropropene
  - (f) List the substituents in each of the following set in order of priority from highest to the lowest :
    - (i) -Cl, -SH, -OH, -H
    - (ii) -F, -S-CH<sub>3</sub>, -HC=O, -CH<sub>3</sub>
- 5 Attempt any four : 10
- (a) Give two methods for synthesis of imidazoles.
  - (b) Classify terpenoids on the basis of number of carbons and explain isoprene rule with example.
  - (c) Give chemical properties of amino acids.
  - (d) Give two methods for synthesis of pyrroles.
  - (e) Give two methods for synthesis of furans.
  - (f) Write classification of lipids.
- 6 Attempt any five : 15
- (a) Define glycosides and give the classification.
  - (b) Give brief account of chemistry and medicinal uses of taxol derivatives.
  - (c) Write short note on sigmatropic reaction.
  - (d) Write methods of preparation of alkyl halides.
  - (e) Write reactions of phenols.
  - (f) Explain in detail molecular orbital theory.
  - (g) Write short note on carbocation and carbanions.