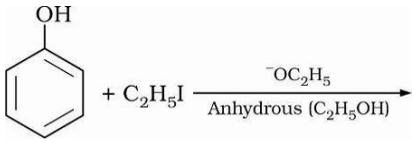
Date Planned : __ / __ / __	Daily Tutorial Sheet-3	Expected Duration : 60 Min
Actual Date of Attempt : __ / __ / __	JEE Advanced (Archive)	Exact Duration :_____

51. **Statement I :** Phenol is more reactive than benzene towards electrophilic substitution reaction. **(2000)**
Statement II : In the case of phenol, the intermediate arenium ion is more resonance stabilised.
(A) Statement-I is correct, Statement-II is correct, Statement-II is the correct explanation of Statement-I
(B) Statement-I is correct, Statement-II is correct, Statement-II is not the correct explanation of Statement-I
(C) Statement-I is correct, Statement-II is incorrect
(D) Statement-I is incorrect, Statement-II is correct

52. How would you synthesis 4-methoxyphenol from bromobenzene in not than five steps? State clearly the reagents used in each step and show the structure of the intermediate compounds in your synthetic scheme. **(2001)**

53. Cyclobutyl bromide on treatment with magnesium in dry ether forms an organometallic compound (A). The organometallic compound reacts with ethanal to give an alcohol (B) after mild acidification. Prolonged treatment of alcohol (B) with an equivalent amount of HBr give 1-bromo-1-methylcyclopentane (C). Write the structures of (A), (B) and explain how (C) is obtained from (B). **(2001)**

54. Carry out the following conversion. **(2003)**
(i) Phenol to aspirin
(ii) Benzoic acid to meta-fluorobenzoic acid in not more than four steps.

55. 

(2003)

(A) $C_6H_5OC_2H_5$ **(B)** $C_2H_5OC_2H_5$ **(C)** $C_6H_5OC_6H_5$ **(D)** C_6H_5I

56. An organic compound P having the molecular formula $C_5H_{10}O$ when treated with dil H_2SO_4 gives two compounds, Q and R both gives positive iodoform test. The reaction of $C_5H_{10}O$ with dil, H_2SO_4 gives reaction 10^{15} times faster than ethylene. Identify organic compound Q and R. Give the reason for the extra stability of P. **(2004)**

57. The best method to prepare cyclohexene from cyclohexanol is by using : **(2005)**
(A) conc. $HCl + ZnCl_2$ **(B)** conc. H_3PO_4
(C) HBr **(D)** conc. HCl

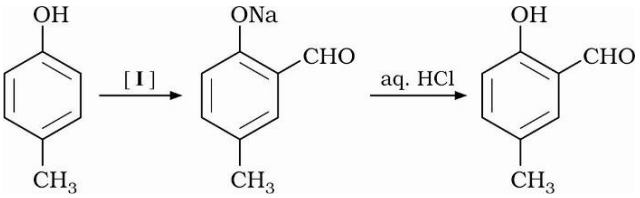
58. When phenyl magnesium bromide reacts with tert butanol, which of the following is formed ? **(2005)**
(A) *Tert* butyl methyl ether **(B)** Benzene
(C) *Tert* butyl benzene **(D)** Phenol

59. **(I)** 1, 2-dihydroxy benzene **(II)** 1, 3-dihydroxy benzene
(III) 1, 4-dihydroxy benzene **(IV)** Hydroxy benzene

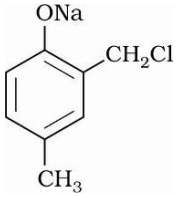
The increasing order of boiling points of above mentioned alcohols is : **(2006)**
(A) I < II < III < IV **(B)** I < II < IV < III
(C) IV < I < II < III **(D)** IV < II < III

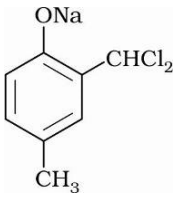
PARAGRAPH FOR QUESTIONS 60 - 62

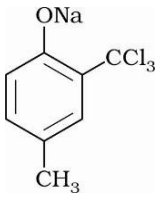
Reimer-Tiemann reaction introduces an aldehyde group, on to the aromatic ring of phenol, ortho to the hydroxyl group. This reaction involves electrophilic aromatic substitution. This is a general method for the synthesis of substituted salicylaldehydes as depicted below.

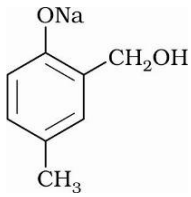


60. The structure of the intermediate I is : **(2007)**

(A) 

(B) 

(C) 

(D) 

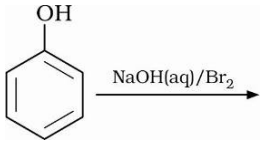
61. The electrophile in this reaction is : **(2007)**

(A) $:CHCl$ **(B)** $^{+}CHCl$ **(C)** $:CCl_2$ **(D)** $^{\bullet}CCl_3$

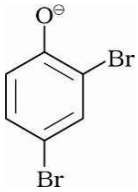
62. Which of the following reagents is used in the above reaction? **(2007)**

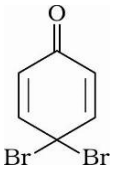
(A) aq. $NaOH + CH_3Cl$ **(B)** aq. $NaOH + CH_2Cl_2$

(C) aq. $NaOH + CHCl_3$ **(D)** aq. $NaOH + CCl_4$

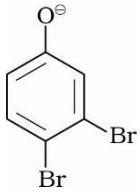
***63.** In the reaction, 

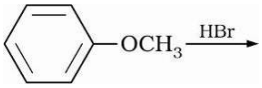
The intermediate(s) is(are) : **(2010)**

(A) 

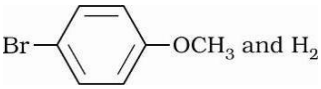
(B) 

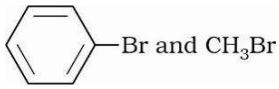
(C) 

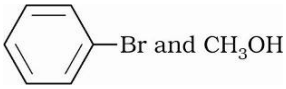
(D) 

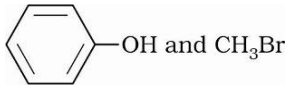
64. In the reaction 

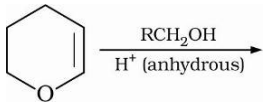
the products are : **(2010)**

(A) 

(B) 

(C) 

(D) 

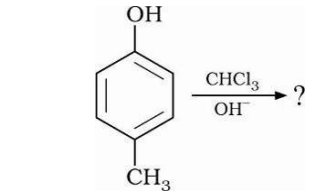
65. The major product of the following reaction is : 

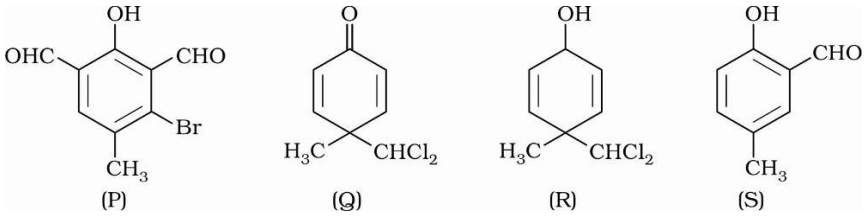
(2011)

(A) an ether **(B)** an acetal

(C) an acid **(D)** a carbonyl compound

***66.** In the following reaction, the product(s) formed is(are) : **(2013)**





(P) (Q) (R) (S)

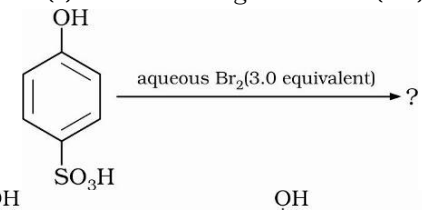
(A) P (major) **(B)** Q (minor) **(C)** R (minor) **(D)** S (major)

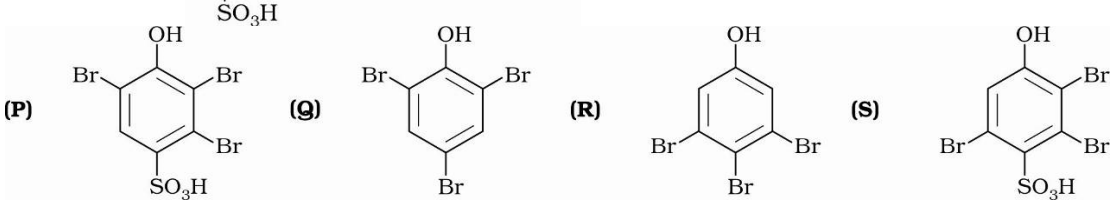
67. The compound that does not liberate CO_2, on treatment with aqueous sodium bicarbonate solution is : **(2013)**

(A) benzoic acid **(B)** benzensulphonic acid

(C) salicylic acid **(D)** carbolic acid (phenol)

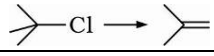
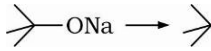
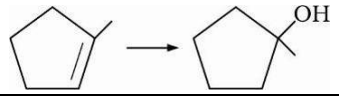
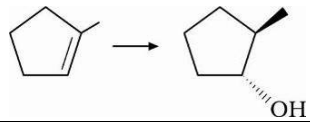
68. The major product(s) of the following reaction is (are) : **(2013)**





(A) P **(B)** Q **(C)** R **(D)** S

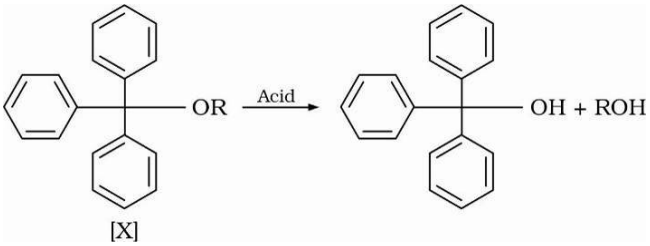
69. Match the chemical conversions in List-I with the appropriate reagents in List-II and select the correct answer using the code given below the lists : **(2013)**

List-I		List-II	
(P)		**1.**	(i) $Hg(OAc)_2$; (ii) $NaBH_4$
(Q)		**2.**	NaOEt
(R)		**3.**	Et - Br
(S)		**4.**	(i) BH_3/THF (ii) H_2O_2 / NaOH

Codes :

	P	Q	R	S		P	Q	R	S
(A)	2	3	1	4	**(B)**	3	2	1	4
(C)	2	3	4	1	**(D)**	3	2	4	1

70. The acidic hydrolysis of ether (X) shown below is fastest when : **(2014)**



[X]

(A) One phenyl group is replaced by a methyl group

(B) One phenyl group is replaced by a *para*-methoxyphenyl group

(C) Two phenyl groups are replaced by two para-methoxyphenyl groups

(D) No structural change is made to X

71. For the identification of β-naphthol using dye test, it is necessary to use : **(2014)**

(A) dichloromethane solution of β-naphthol **(B)** acidic solution of β-naphthol

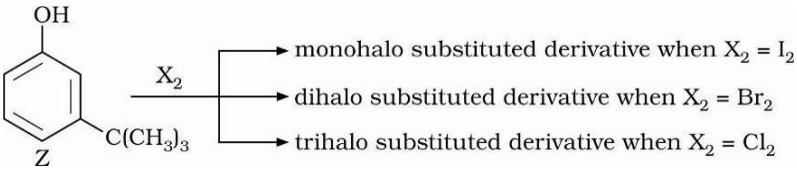
(C) neutral solution of β-naphthol **(D)** alkaline solution of β-naphthol

72. The correct combination of names for isomeric alcohols with molecular formula $C_4H_{10}O$ is/are : **(2014)**

(A) tert-butanol and 2-methylpropan-2-ol **(B)** tert-butanol and 1, 1-dimethylethane-1-ol

(C) n-butanol and butan-1-ol **(D)** iso-butyl alcohol and 2-methylpropan-1-ol

73. The reactivity of compound Z with different halogens under appropriate conditions is given below :



Z

The observed pattern of electrophilic substitution can be explained by : **(2014)**

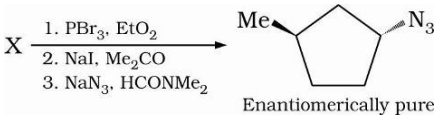
(A) the steric effect of the halogen

(B) the steric effect of the tert-butyl group

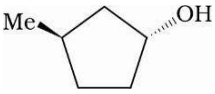
(C) the electronic effect of the phenolic group

(D) the electronic effect of the tert-butyl group

74. In the following reaction sequence, the correct structure(s) of X is (are) : **(2018)**



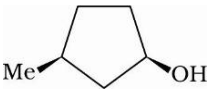
Enantiomerically pure



(A)

(B)

(C)



(D)