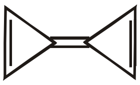
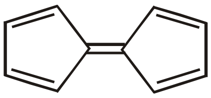
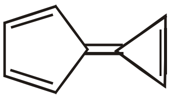
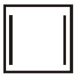
Self Practice Paper (SPP)

1. Which one of following compounds is aromatic in nature ?

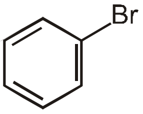
(1) 

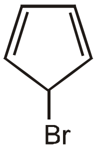
(2) 

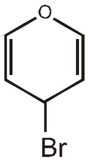
(3) 

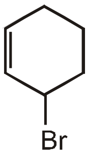
(4) 

2. Ease of ionization to produce carbocation & bromide ion under the treatment of Ag^+ will be maximum in ?

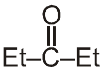
(1) 

(2) 

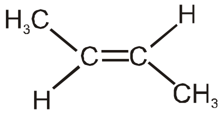
(3) 

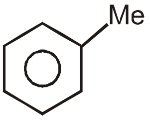
(4) 

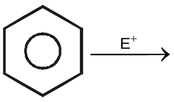
3. Which one of following compounds can give electrophilic substitution reaction ?

(1) 
$Et-\overset{\overset{O}{\|}}{C}-Et$

(2) Me–C≡C–Me

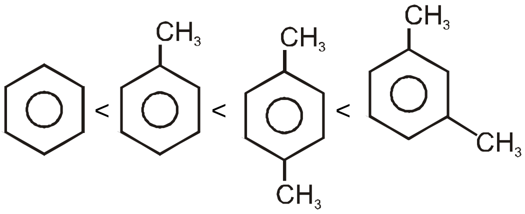
(3) 

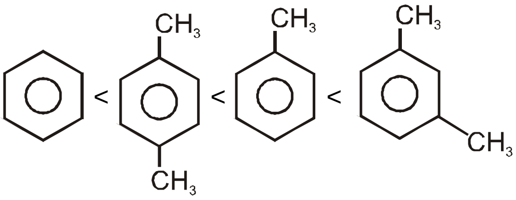
(4) 

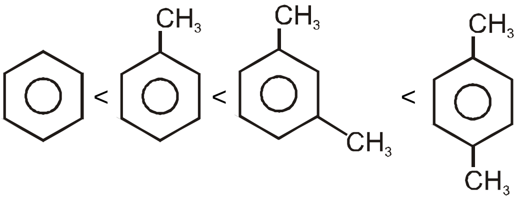
4.  Name of intermediate produced during given reaction will be

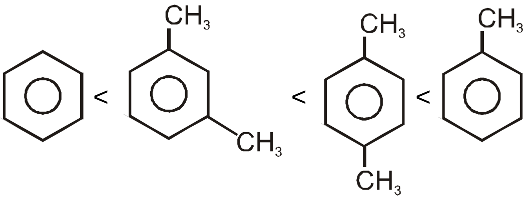
(1) Arenium ion
(2) σ complex/wheland intermediate
(3) Non aromatic cyclohexa-dienyl carbocation
(4) All of these

5. Which of following is correct order of reactivity towards the ArS_E2 ?

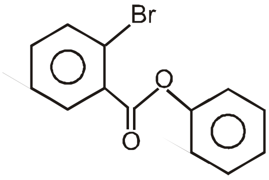
(1) 

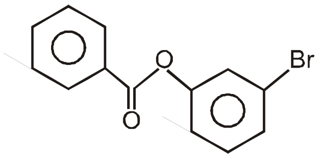
(2) 

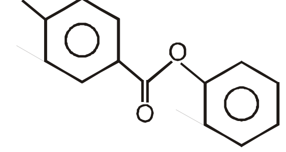
(3) 

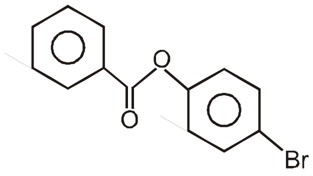
(4) 

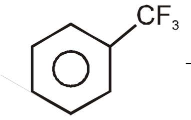
6. The major product formed on monobromination of phenylbenzoate is :

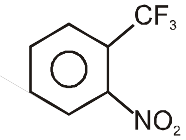
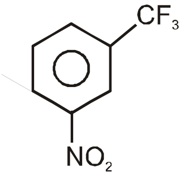
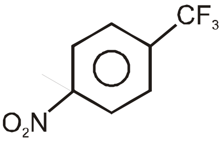
(1) 

(2) 

(3) 

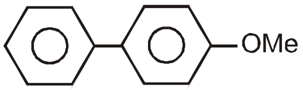
(4) 

7.  $\xrightarrow[\text{Conc. } H_2SO_4]{\text{Conc. } HNO_3}$ Major product

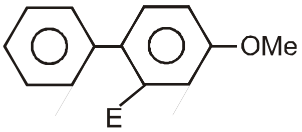
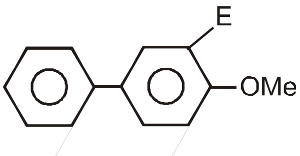
(1)  (2)  (3)  (4) 1 & 3 both

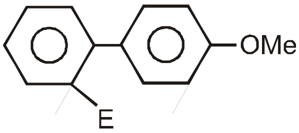
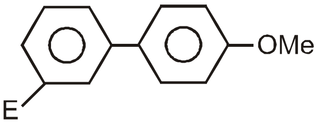
8. In the sulphonation of benzene the active electrophilic species is

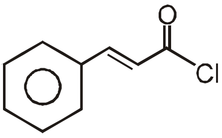
(1) SO_2 (2) SO_3 (3) SO_4^{2-} (4) HSO_4^-

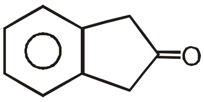
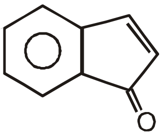
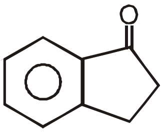
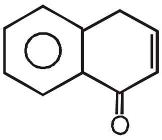
9.  + E^+ $\longrightarrow$ Major product

Major product ?

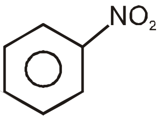
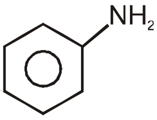
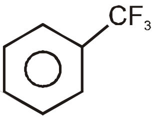
(1)  (2) 

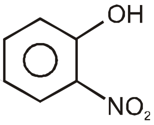
(3)  (4) 

10.  $\xrightarrow{\text{Anhydrous } AlCl_3}$ Product.

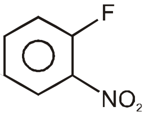
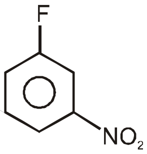
(1)  (2)  (3)  (4) 

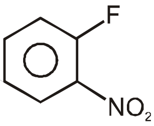
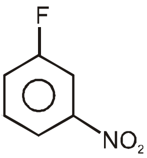
11. Which of following compounds give poor yield in Friedal Craft reaction.

(1)  (2)  (3)  (4) All of these

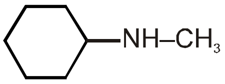
12. A $\xrightarrow[\Delta]{KOH}$ 

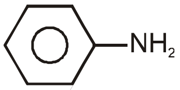
Reactant (1) & intermediate is

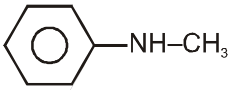
(1)  Carbocation (2)  Carbocation

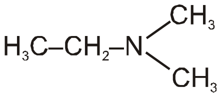
(3)  Carbanion (4)  Carbanion

13. Which of following compound gives carbyl amine reaction

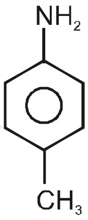
(1) 

(2) 

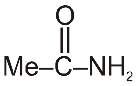
(3) 

(4) 
$H_3C{-}CH_2{-}N(CH_3)_2$

14. The compound which does not give foul smell when heated with $CHCl_3$ & KOH is

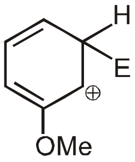
(1) 

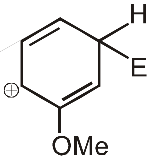
(2) $CH_3{-}NH_2$

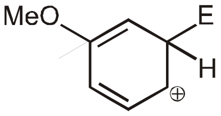
(3) 
$Me{-}\overset{O}{\overset{\|}{C}}{-}NH_2$

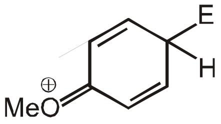
(4) $NH_2{-}CH_2{-}CH_2{-}OH$

15. Which one of following species is the most stable arenium ion ?

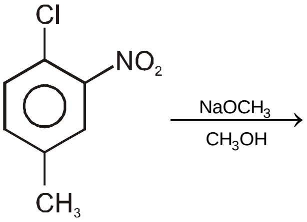
(1) 

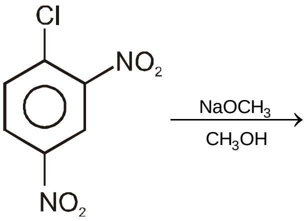
(2) 

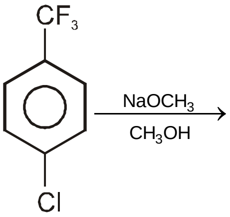
(3) 

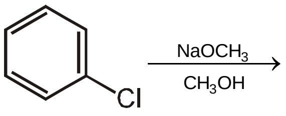
(4) 

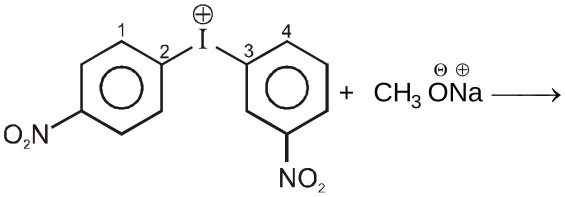
16. Which of the following gives faster rate of nucleophilic substitution reaction ?

(1) 

(2) 

(3) 

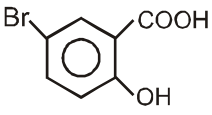
(4) 

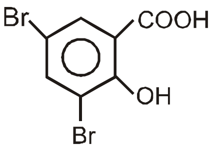
17. 

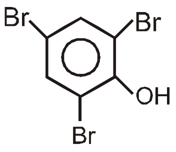
Reagent attack at___site.

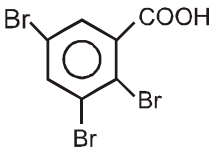
(1) 1 (2) 2 (3) 3 (4) 4

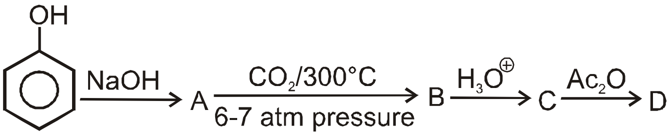
18. The action of bromine water (excess) on salicylic acid results in the formation of :

(1) 

(2) 

(3) 

(4) 

19. 

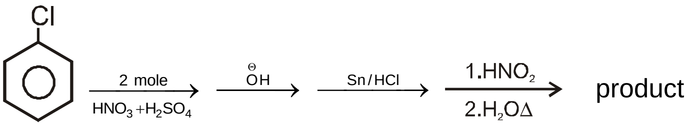
'D' is :

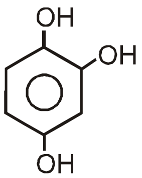
(1) Asprin (2) Valine (3) Cumene (4) Salicyclic acid

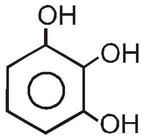
20. In the following reaction

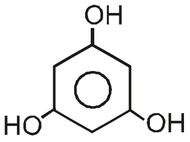
$X \xrightarrow{\text{Bromination}} Y \xrightarrow[\text{HCl}]{NaNO_2} Z \xrightarrow[C_2H_5OH]{\text{Boiling}}$ Tribromobenzene, X is

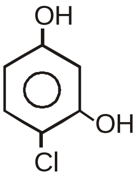
(1) benzoic acid (2) salicylic acid (3) phenol (4) aniline

21. 

(1) 

(2) 

(3) 

(4) 

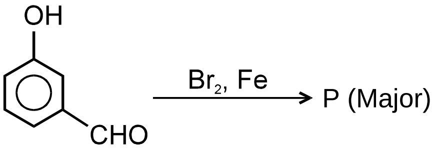
22. $C_6H_6 + (P) \xrightarrow{AlCl_3} C_6H_5CONH_2$

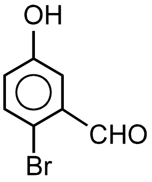
(P) in the above reaction is :

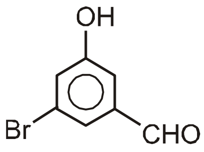
(1) NH_2CONH_2 (2) $ClCONH_2$ (3) CH_3CONH_2 (4) $CH_2(Cl)\,CONH_2$

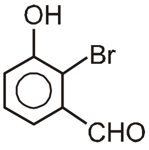
23. Nitrobenzene and CH_3Cl in presence of anhydrous $AlCl_3$ gives :

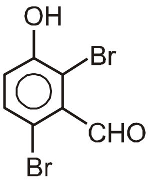
(1) o-nitrotoluene (2) p-nitrotoluene (3) m-nitrotoluene (4) Reaction will not occur

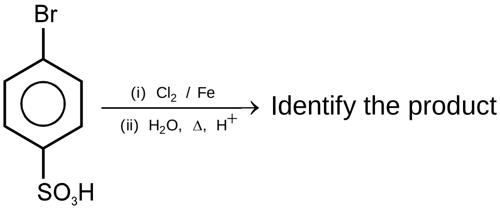
24. 

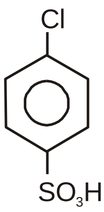
(1) 

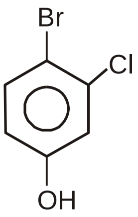
(2) 

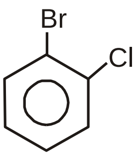
(3) 

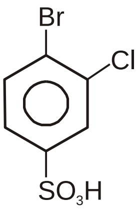
(4) 

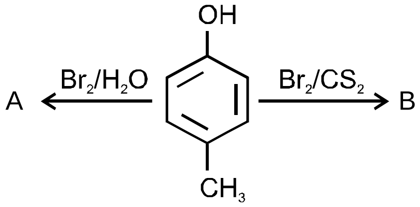
25. 

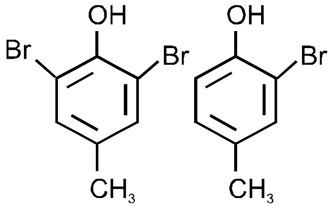
(1) 

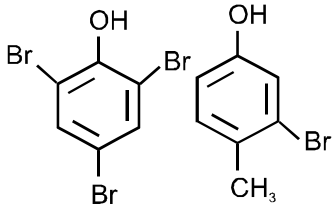
(2) 

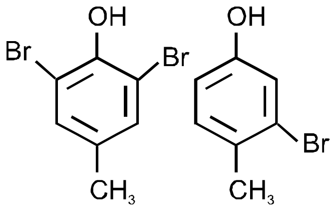
(3) 

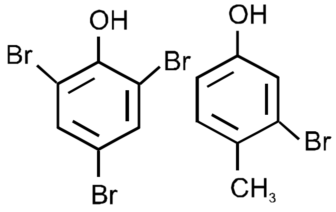
(4) 

26.  Predominant - A & B respectively -

(1) 

(2) 

(3) 

(4) 

27. An organic compound A on reduction gives compound B which on reaction with chloroform and potassium hydroxide forms C. The compound C on catalytic reduction gives N-methylaniline. The compound A is

(1) nitrobenzene (2) nitromethane (3) methylamine (4) aniline

28. Primary amine reacts with carbon disulphide and $HgCl_2$ to produce alkyl isothiocyanate. This reaction is

(1) Carbylamine reaction (2) Hofmann bromide reaction

(3) Perkin reaction (4) Hofmann mustard oil reaction

29. When aniline reacts with $HNO_2(NaNO_2 + HCl)$ diazonium chloride is formed which on reaction with H_3PO_2 gives :

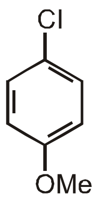
(1) C_6H_5OH (2) C_6H_6 (3) $Ph–CH_3$ (4) $CH_3–CH_3$

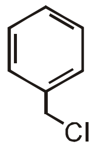
30. Aniline reacts with .... to yield .... as the final product

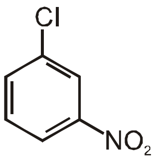
(1) Aqueous bromine, 2-bromoaniline (2) Aqueous bromine, 2, 4, 6-tribromoaniline

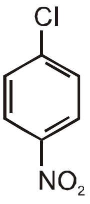
(3) chloroform/KOH, phenyl cyanide (4) acetyl chloride, benzanilide

31. Compound which undergoes nucleophilic substitution reactions most readily is

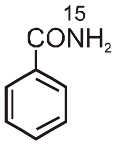
(1) 

(2) 

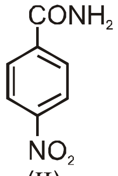
(3) 

(4) 

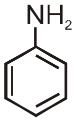
32. The products formed when a mixture of the following two amides (I and II) are treated with bromine and aqueous KOH are

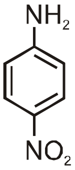


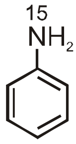
(I)

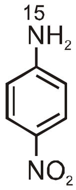


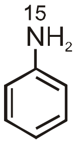
(II)

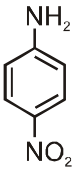
(1) 

and 

(2) 

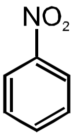
and 

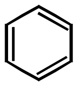
(3) 

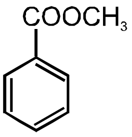
and 

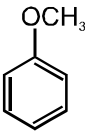
(4) a mixture of all of these

33. In the following set of aromatic compounds

(i) 

(ii) 

(iii) 

(iv) 

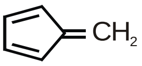
the correct order of reactivity toward friedel-crafts alkylations is

(1) i > ii > iv > iii (2) ii > iv > iii > i (3) iv > ii >iii > i (4) iii > i > iv > ii

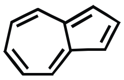
34. Azobenzene will be obtained as a major product when nitrobenzene is treated with:

(1) Sn and HCl (2) Raney Nickel/H_2 (3) Zn/NaOH (4) Pb-C/H_2

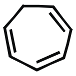
35. Among the following



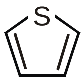
I



II



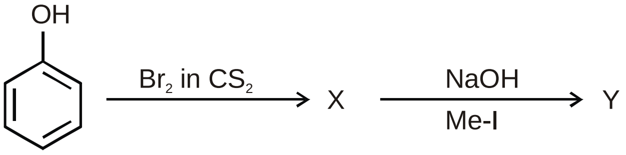
III



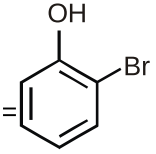
IV

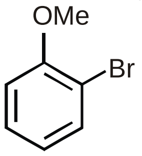
the aromatic compounds are

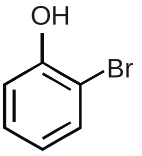
(1) I & II (2) I & III (3) II & III (4) II & IV

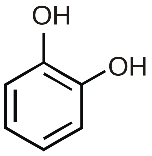
36. 

In the above sequence of reactions, the major products X and Y are

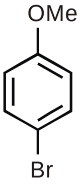
(1) X = 

Y = 

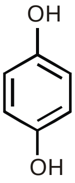
(2) X = 

Y = 

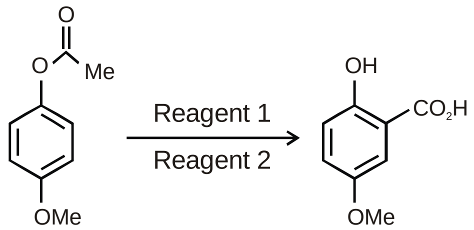
(3) X = 

Y = 

(4) X = 

Y = 

37. In the following transformation



reagents 1 and 2 are :

(1) H_2SO_4 ; alkaline $KMnO_4$

(2) $AlCl_3$; I_2 / NaOH

(3) H_3PO_4 ; $CHCl_3$/KOH

(4) KOH;$CHCl_3$ / KOH

38. Friedal–Crafts acylation is :

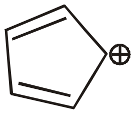
(1) α-acylation of a carbonyl compound

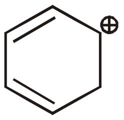
(2) acylation of phenols to generate esters

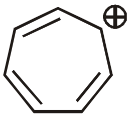
(3) acylation of aliphatic olefins

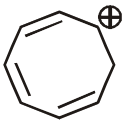
(4) acylation of aromatic nucleus

39. The aromatic carbocation among the following is :

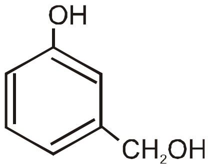
(1)


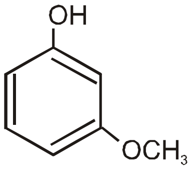
(2)


(3)


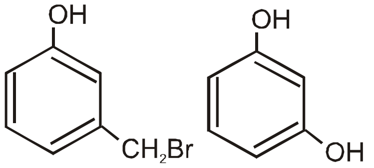
(4)


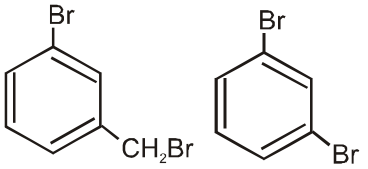
40. Two isomeric compounds I and II are heated with HBr.

(I)


(II)


The products obtained are

(1)


(2)


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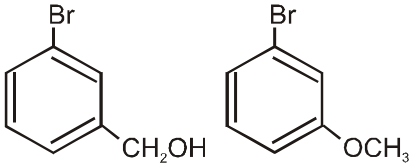
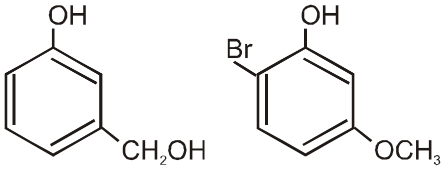
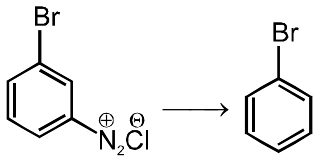


(4)


41. For the transformation



the reagent used is :

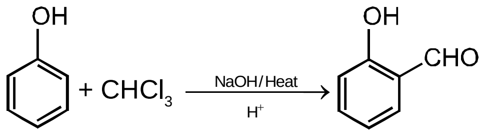
(1) $LiAlH_4$

(2) H_3PO_2

(3) H_3O^+

(4) H_2/Pt

42. The reaction



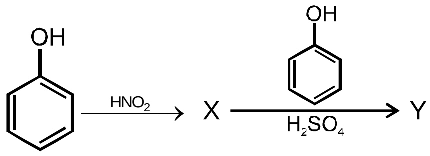
is known as :

(1) Perkin reaction

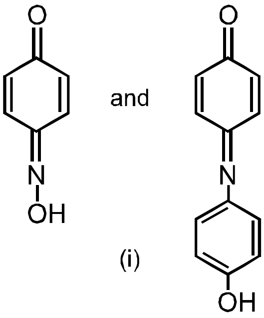
(2) Sandmeyer reaction

(3) Reimer-Tiemann reaction (4) Cannizzaro reaction

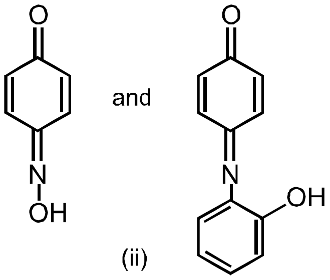
43. The reaction sequence,



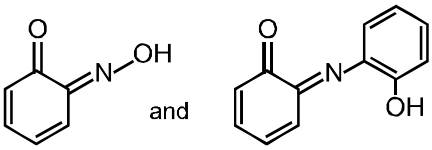
the major products X and Y, respectively, are :



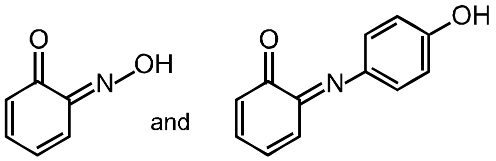
(i)



(ii)



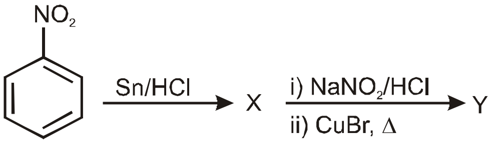
(iii)



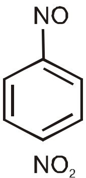
(iv)

(1) i (2) ii (3) iii (4) iv

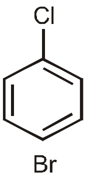
44. The products X and Y in the following reaction sequence are :



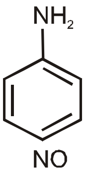
(1) X :



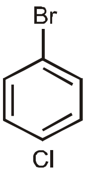
Y :



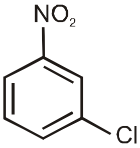
(2) X :



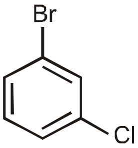
Y :



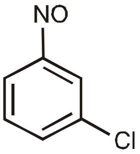
(3) X :



Y :



(4) X :



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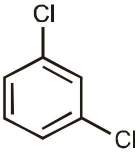
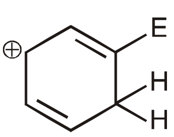
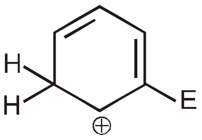


45. In the reaction of benzene with an electrophile E^+, the structure of the intermediate σ-complex can be represented as :

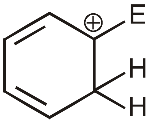
(1)



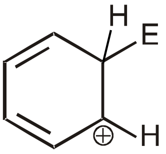
(2)



(3)



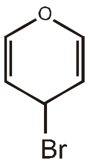
(4)

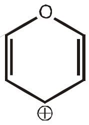


SPP Answers

1.	(3)	**2.**	(3)	**3.**	(4)	**4.**	(4)	**5.**	(1)	**6.**	(4)	**7.**	(2)
8.	(2)	**9.**	(2)	**10.**	(2)	**11.**	(4)	**12.**	(3)	**13.**	(2)	**14.**	(3)
15.	(4)	**16.**	(2)	**17.**	(2)	**18.**	(3)	**19.**	(1)	**20.**	(4)	**21.**	(1)
22.	(2)	**23.**	(4)	**24.**	(1)	**25.**	(3)	**26.**	(1)	**27.**	(1)	**28.**	(4)
29.	(2)	**30.**	(2)	**31.**	(2)	**32.**	(3)	**33.**	(3)	**34.**	(3)	**35.**	(4)
36.	(3)	**37.**	(2)	**38.**	(4)	**39.**	(3)	**40.**	(1)	**41.**	(2)	**42.**	(3)
43.	(1)	**44.**	(2)	**45.**	(4)								

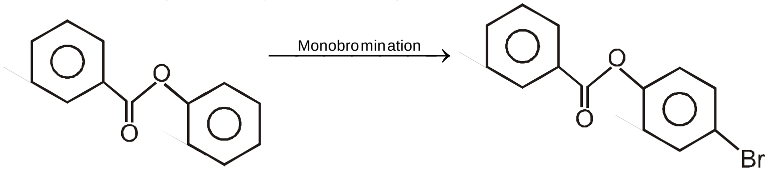
SPP Solutions

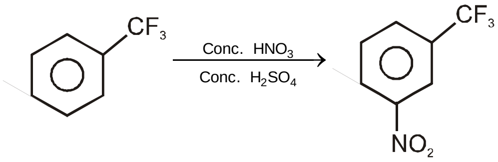
2. 

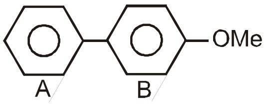
gives 

aromatic carbocation.

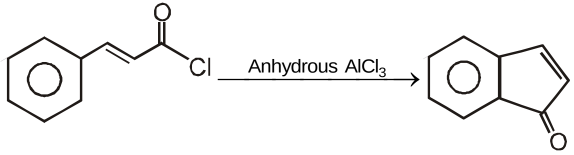
3. Aromatic compounds give electrophilic substitution reaction.

6. 

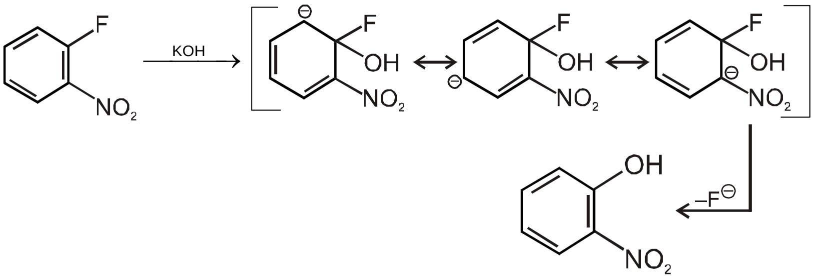
7. 

9. 

Ring B have higher electron density than ring A. So electrophile attack on ring B.

10. 

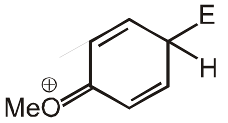
11. Highly deactivated ring gives poor yield in Friedal Craft reaction.

12. 

13. 1º amine gives carbyl amine test.

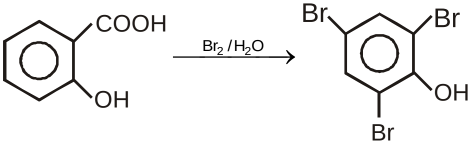
14. Only 1º amine give carbyl amine test. 1º Amide does not gives carbyl amine test.

15.

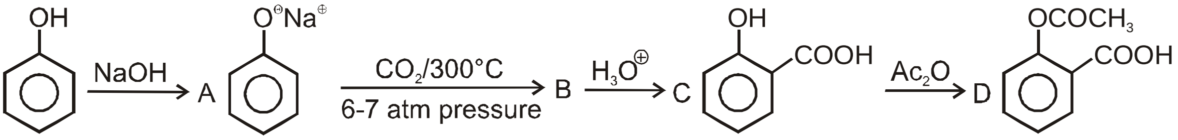


Structure have complete octate of each atom.

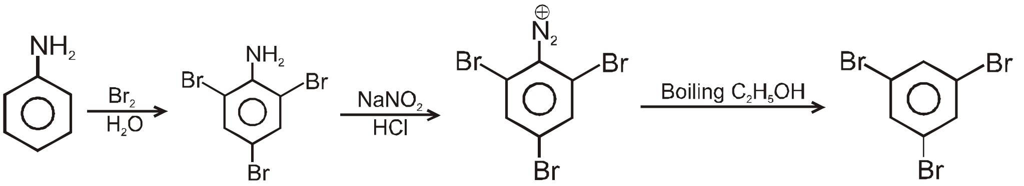
18.



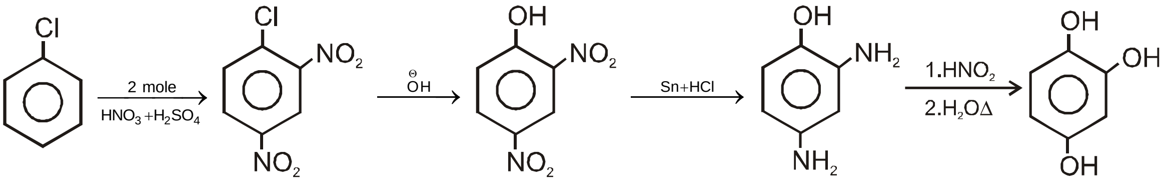
19.



20.



21.

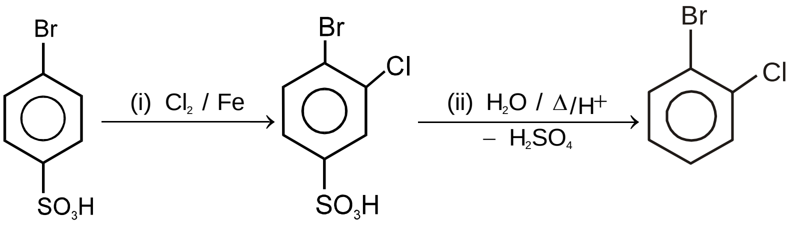


22. $C_6H_6 + ClCONH_2 \xrightarrow{AlCl_3} C_6H_5CONH_2 + HCl$

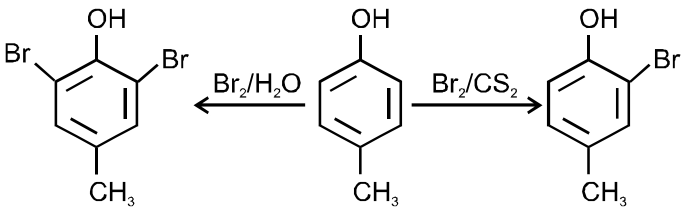
23. All –m group do not show friedel craft reaction.

24. Orientation decided by more activating –OH group [+ M effect].

25.



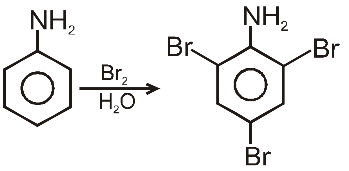
26.



27. $Ph\text{–}NH_2 + CHCl_3 + KOH \longrightarrow Ph\text{–}NC \xrightarrow{\text{Reduction}} Ph\text{–}NH\text{–}CH_3$

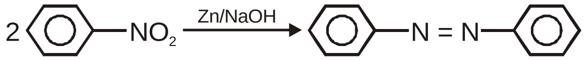
29. $PhN^{\oplus}_2Cl \xrightarrow{H_3PO_2,\Delta} C_6H_6$

30.



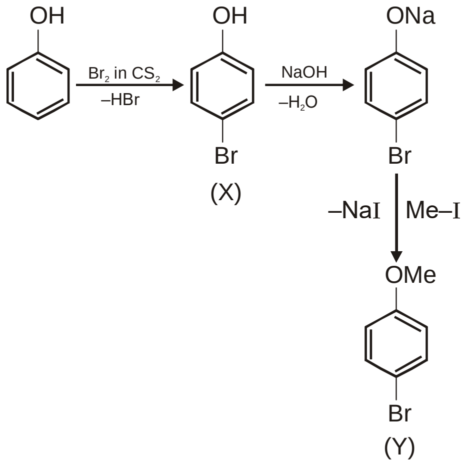
33. Reativity towards Friedel-Crafts alkylation is proportional to electron density in the benzene ring.

34. Zn/NaOH

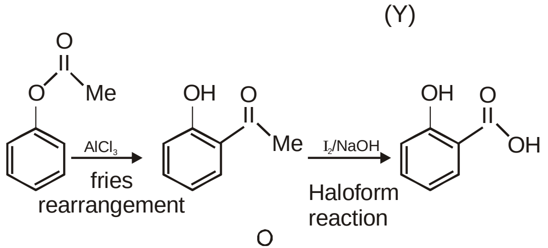


35. (II) & (IV) Because both have close system of conjugated double bond and follow Huckel's (4n+2) π e^- rule.

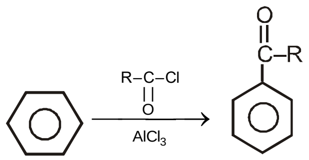
36.



37.

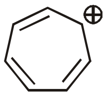


38.



Friedal craft acylation

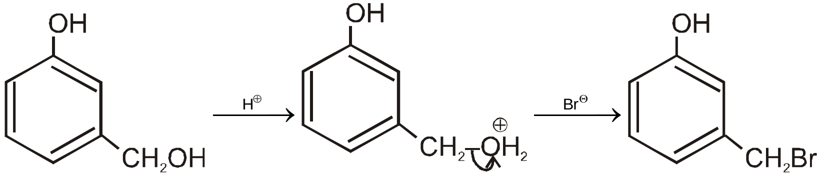
39.

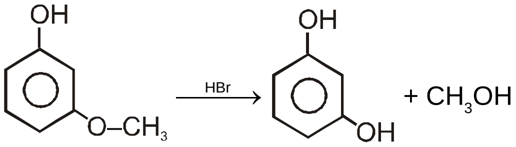


– Cyclic

– Planar
– Complete conjugation
– (4n + 2) πe^-
– Tropylium carbocation

40.

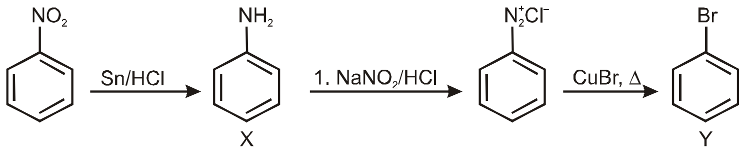




41. H_3PO_2 a mild reducing agent is used to remove the diazonium group with H.

43. Due to bulkyness reaction is favored at para position.

44.



45.