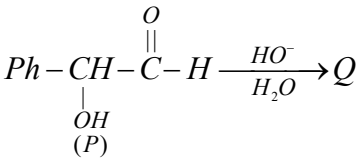
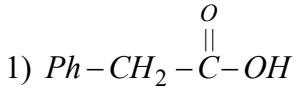
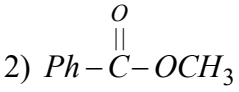
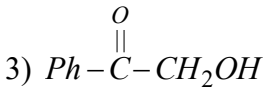
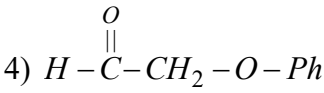
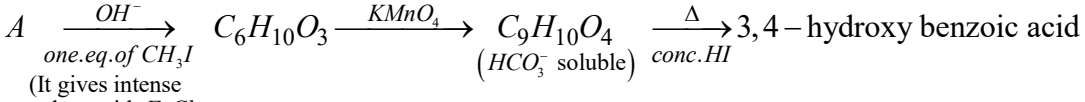
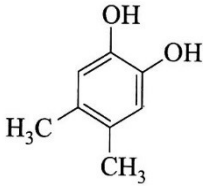
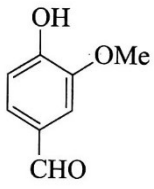
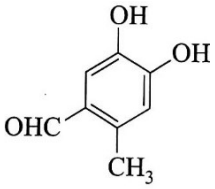
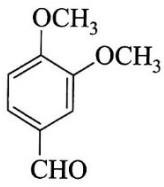
SR AZ – ASSIGNMENT CHEMISTRY ASSIGNMNET :: PHENOLS ::

1.  P and Q are isomers. Identify Q.

1) 
2) 
3) 
4) 

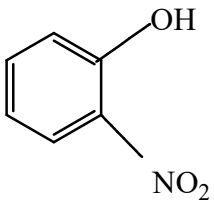
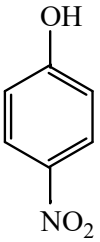
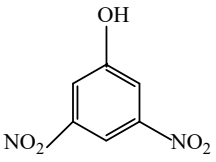
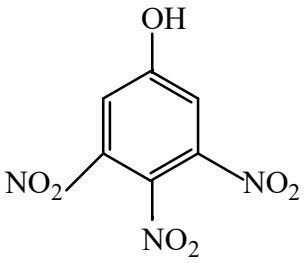
2. 
(It gives intense colour with $FeCl_3$ and positive Tollen's test)

Starting substrate ''A'' is

1) 
2) 
3) 
4) 

3. Which of the following reagents can be used to separate a mixture of phenol and carboxylic acid?
1) $NaOH$ 2) Na_2CO_3 3) Lime water 4) $NaHCO_3$

4. The compound with the lowest boiling point, i.e the most volatile compound is

1) 
2) 
3) 
4) 

5. Phenol can be distinguished from aliphatic alcohol with
1) Tollen's reagent 2) Schiff's base 3) $FeCl_3$ 4) HCl

6. Picric acid is
1) 2,4,6 - trinitrophenol
2) Trinitrotoluene
3) A volatile liquid
4) Trinitroaniline

7. Cresols are
1) Dihydric phenols 2) Hydroxy toluenes 3) Trihydric phenols 4) Trihydric alcohols

8. On heating aqueous solution of benzene diazonium chloride, which of the following is formed?
1) Benzene 2) phenol 3) Chlorobenzene 4) Aniline

9. Benzene diazonium chloride on boiling with dilute sulfuric acid gives
1) Phenol 2) Benzoic acid 3) Benzene 4) Toluene

10. Sodium benzene sulfonate reacts with $NaOH$ and, then, on acidic hydrolysis, it gives
1) Disodium benaldehyde
2) Benzoic acid
3) Benzene
4) Phenol

11. In the reaction $Ar-OH+Rx \xrightarrow{alkali} A, A$ is
1) An aldehyde 2) An ether 3) An aryl chloride 4) A ketone

12. Phenol is less acidic than
1) Ethanol 2) $o-$nitrophenol 3) Methanol 4) $p-$methylphenol

13. Sodium phenoxide reacts with Co_2 at $400\,K$ and 4 to 7 atm pressure to give
1) Benzoic acid 2) Salicylaldehyde 3) Catechol 4) Sodium salicylate

14. The increasing order of acidity among phenol, $p-methylphenol, m-nitrophenol,$ and $p-nitrophenol$ is
1) $m-nitrophenol, p-nitrophenol, phenol, p-methylphenol$
2) $p-methylphenol, m-nitrophenol, phenol, p-nitrophenol$
3) $phenol, p-methylphenol, p-nitrophenol, m-nitrophenol$
4) $p-methylphenol, phenol, m-nitrophenol, p-nitrophenol$

15. Phenol is treated with bromine water and shaken well. The white precipitate formed during the process is
1) $2,4,6-tribromophenol$ 2) $2,4-dibromophenol$
3) $m-bromophenol$ 4) A mixture of o- and p-$bromophenols$

16. A compound that easily undergoes bromination is
1) Benzoic acid 2) Toluene 3) Benzene 4) Phenol

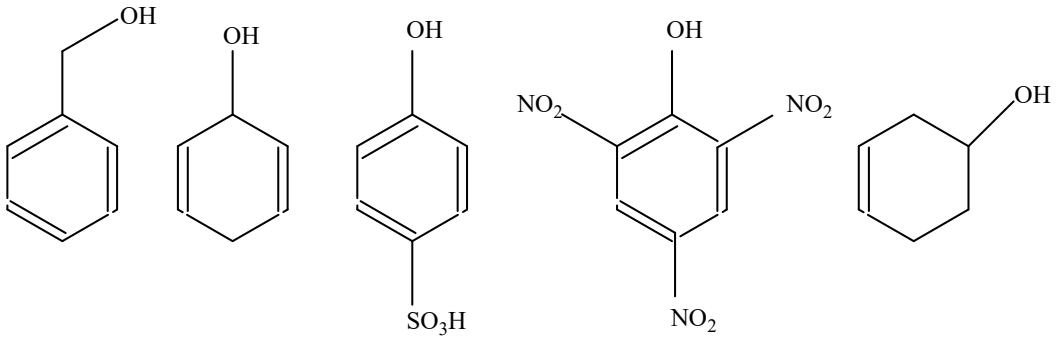
17. For phenol, which of the following statements is correct?
1) It has higher boiling point than toluene
2) It has lower melting point compared to aromatic hydrocarbons of comparable molecular weight
3) It is insoluble in water.
4) It does not show acidic property.

18. When heated with NH_3 under pressure alone or in presence of zinc chloride phenols are converted into
1) Aminophenols 2) phenyl hydroxylamine 3) Nitrobenzene 4) Aniline

19. The reaction of conc. HNO_3 and phenol forms.
1) Picric acid 2) Salicyclic acid 3) $o-and\ p-nitrophenol$ 4) Benzoic acid

20. Which compound has hydrogen bonding?
1) Toluene 2) Chlorobenzene 3) Phenol 4) Nitrobenzene.

21. How many compounds will decolouries Br_2 / H_2O



22. How many suitable reagent in reaction condition for preparation of methyl phenyl ether
$ph\overset{-}{o}\overset{+}{N}a$; $MeBr$; $MeOH$; $ph-Br$

23. One mole of phenol react with Bromine to form Tribromo phenol. How much moles of bromine it used ____ mol

24. In Dow process preparation , phenol from chlorobenzene. How many moles of $NaOH$ react

25. How many Nitro (No_2) groups are present in $2,4,6 trinitrophenol\,(picric\,acid)$

26. How many $-oH$ groups are in pyrogallol __

27. Phenol does not librate Co_2 with compounds are Na_2Co_3, $NaHCo_3$, Ca_2Co_3, $NaNO_3$

28. How many position elctron releasing groups present in phenol.

29. No.of OH groups present in the compounds are Reorcinol, Catechol,Quniol, are

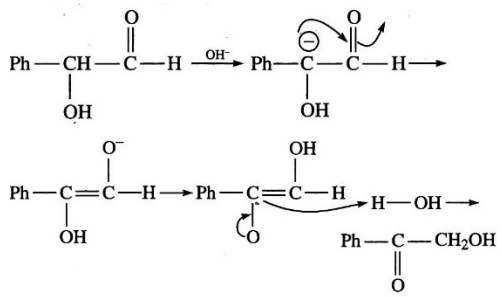
30. Glycerol (or) Glycenice contains no.of $2^o - ol$ group.

ANSWERS KEY

1 TO 10	3	2	4	1	3	1	2	2	1	4
11 TO 20	2	2	4	4	1	4	1	4	1	3
21 TO 30	4	2	3	2	3	3	2	2	2	1

ANSWERS KEY EXPLANATION

1.



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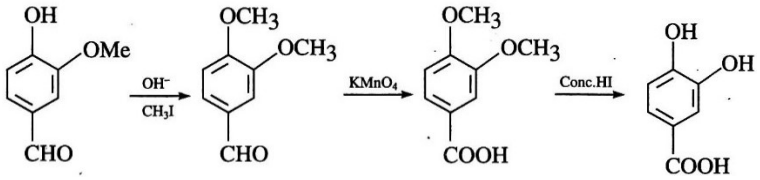
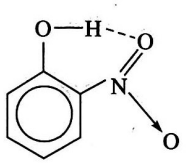


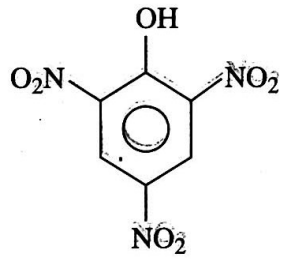
As A gives intense purple colour with $FeC1_3$ this means 'A' has phenolic group.

3. Phenol is less acidic than carbonic acid, whereas carboxylic acids are more acidic. Hence, phenols are insoluble in a solution of $HaHCO_3$' but carboxylic acids dissolve in $HahCO_3$ solution.

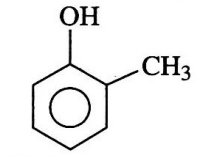
4. Phenols capable of forming intermolecular hydrogen bonding have a high boiling point, but (a) has intramolecular, rather than intermolecular, H-bonding and is the most volatile compound.



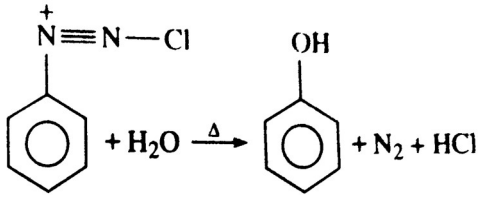
5. Phenol (all enols) can be oxidized by $FeCl_3$ to form colored complexes. Alcohols, however, cannot get oxidized by $FeCl_3$.

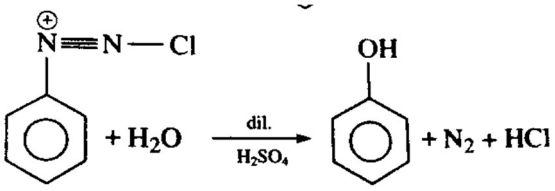
6. 

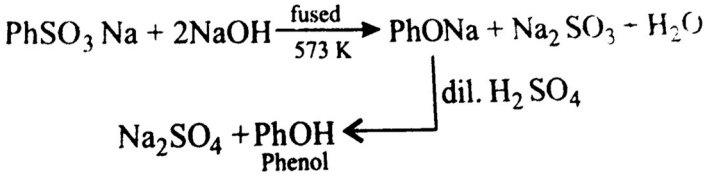
2, 4, 6–trinitrophenol or picric acid

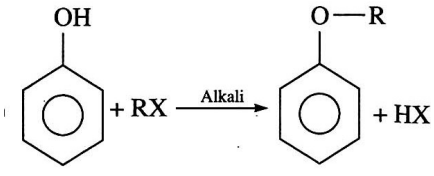
7. 

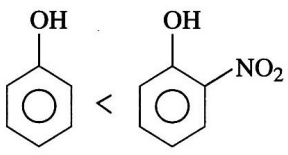
2-Hydroxy toluene

8. 

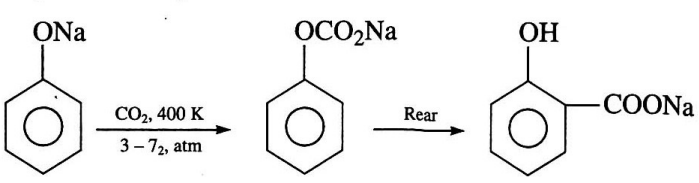
9. 

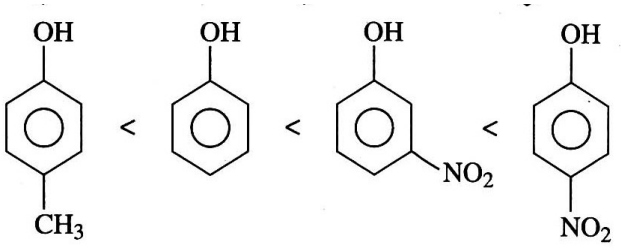
10. 

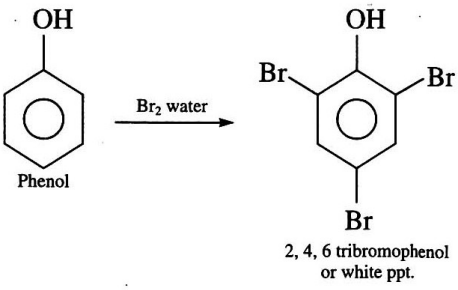
11. 

12. 

Nitro group is electron withdrawing. Hence, increases acidic nature.

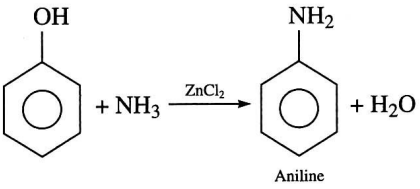
13. 

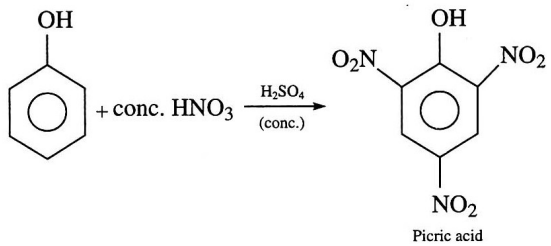
14. 

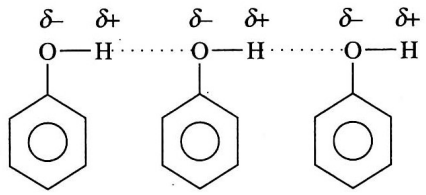
15. 

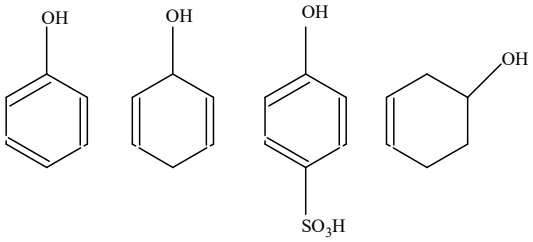
16. A compound that undergoes bromination easily is phenol. Because of the presence of –OH group, the ring becomes much more active in substitution reactions. The bromination occurs due to availability of electrons on o- and p- position.

17. Phenol has higher boiling point than toluene because of hydrogen bonding.

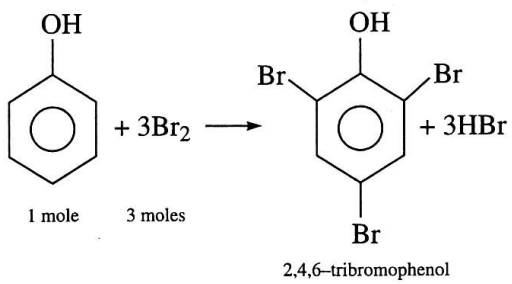
18. 

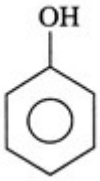
19. 

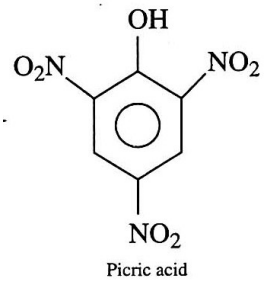
20. 

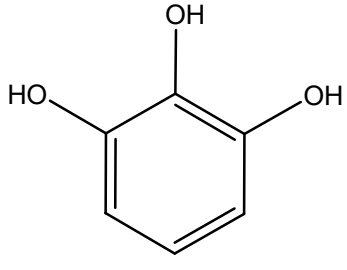
21. 

22. $ph\bar{o}nu^{+}$, Me Br

23. 

24. $C_6H_5Cl + 2NaoH \xrightarrow[high replace]{300^0 c} C_6H_5oNa + Nacl + H_2O \xrightarrow{DilHcl}$ 

25. 

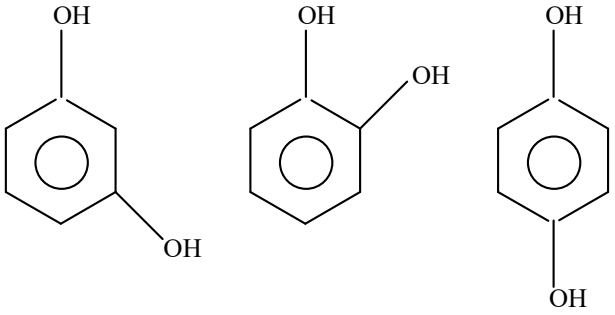
26. 

PYROGALLOL

27. $2C_6H_5OH + Na_2Co_3 \rightarrow 2C_6H_5ONa + H_2O + CO_2$

$C_6H_5OH + NaHCo_3 \rightarrow C_6H_5ONa + H_2O + CO_2$

28. Ortho, para positions



29. Resorcinol Catechol Quinol

30.
$$\begin{array}{l} CH_2OH \rightarrow 1^o \\ | \\ CHOH \rightarrow 2^o \\ | \\ CH_2OH \rightarrow 1^o \end{array}$$