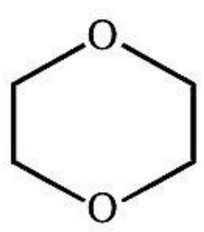
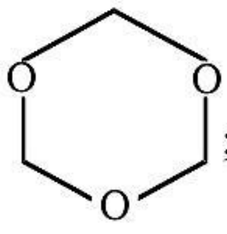
13

PRACTICAL ORGANIC CHEMISTRY

Level - 1

1.  and  ; Compounds (*X*) and (*Y*) can be differentiated by :

(*X*) (*Y*)

(a) $H_3O^{\oplus}$, NaOI

(b) $H_3O^{\oplus}$, then Fehling test

(c) $H_3O^{\oplus}$, then Na

(d) Both (b) and (c)

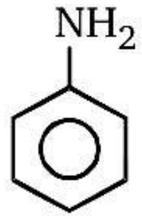
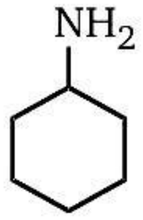
2. Compound $CH_3 - CH(OEt)(OEt)$ **(*P*) (Acetal)** and $CH_3 - CH_2 - O - CH_2 - CH_3$ **(*Q*)** can be differentiated by :

(a) $H_3O^{\oplus}$, Na

(b) $H_3O^{\oplus}$, Tollens' test

(c) $H_3O^{\oplus}$, Fehling test

(d) All of these

3.  and  can be differentiated by :

(aniline) (cyclohexyl amine)

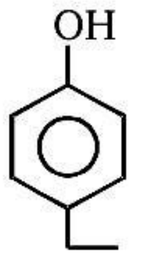
(a) Hinsberg test

(b) Iso-cyanide test

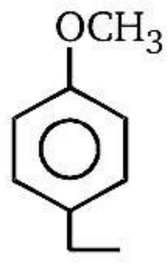
(c) $NaNO_2$, HCl, then β-Naphthol

(d) NaOH

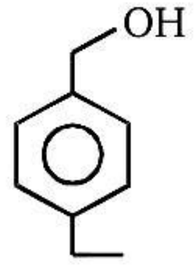
4.



(*p*-ethyl phenol)



(*p*-methyl anisole)



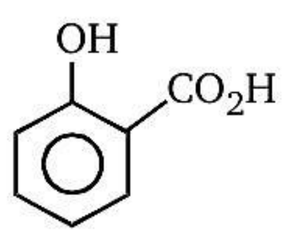
(*p*-ethyl benzyl alcohol)

Above compounds can be differentiated by using the reagent:

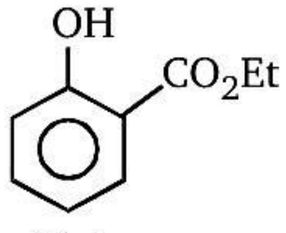
(a) NaOH, Tollen's reagent, $FeCl_3$ (b) CrO_3, Tollen's reagent, $FeCl_3$

(c) Tollen's reagent, CrO_3, $FeCl_3$ (d) Na, Tollen's reagent, $FeCl_3$

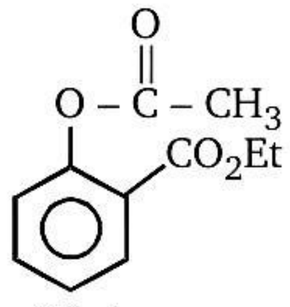
5.



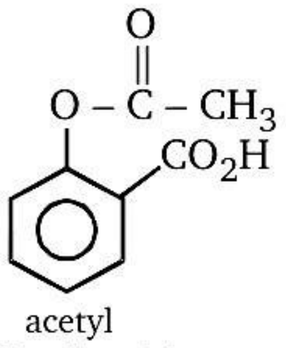
Salicyclic acid



Ethyl salicylate



Ethyl acetyl



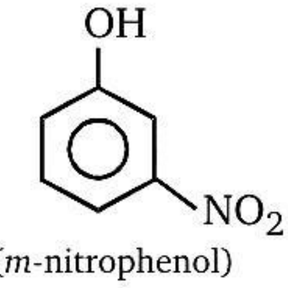
acetyl salicyclic acid

Above compounds can be differentiated by the salicylate. Which of the following chemical test? (used in decreasing order)

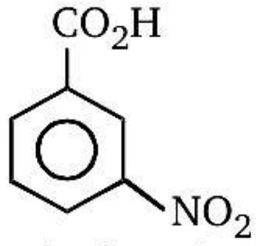
(a) NaOH, $FeCl_3$, $NaHCO_3$ (b) aq. $NaHCO_3$, $FeCl_3$, NaOH

(c) NaOI, NaOH, $NaHCO_3$ (d) NaOH, Na, $NaHCO_3$

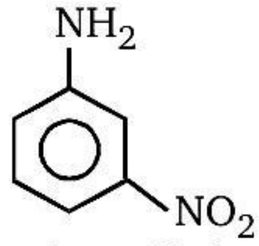
6.



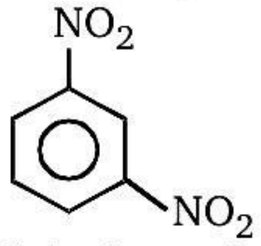
(*m*-nitrophenol)



(*m*-nitro benzoic acid)



(*m*-nitro aniline)



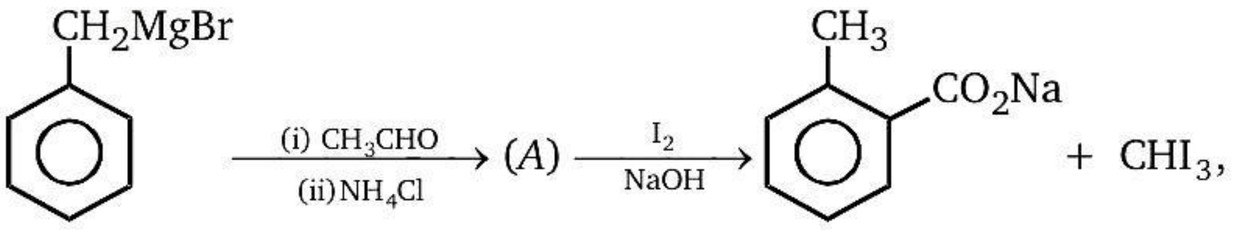
(*m*-dinitro benzene)

Above compounds can be differentiated by which of the following chemical test ? (used in decreasing order)

(a) NaOH, $NaHCO_3$, HCl (b) HCl, NaOH, $NaHCO_3$

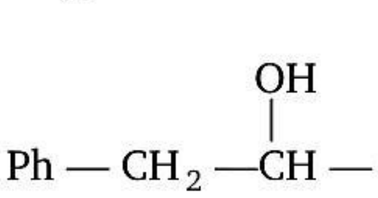
(c) $NaHCO_3$, NaOH, HCl (d) NaOH, HCl, $NaHCO_3$

7.

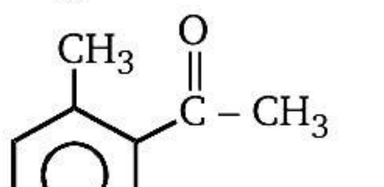


Product (*A*) in the above reaction is :

(a)

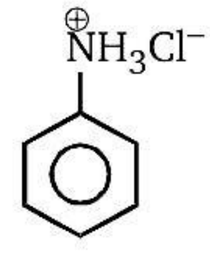
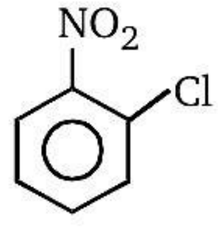


(b)



(c) $Ph-CH_2-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_3$

(d)

8.  and 

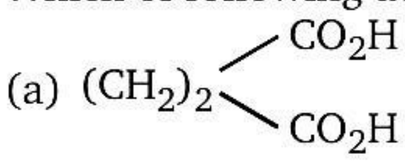
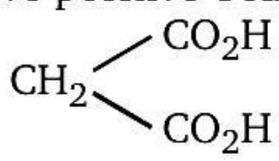
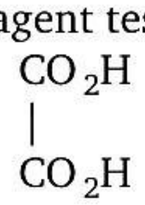
(*P*) (*Q*)

Above compounds (*P*) & (*Q*) can be differentiated by :

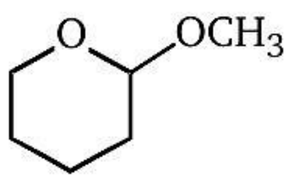
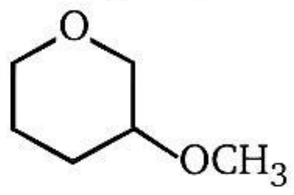
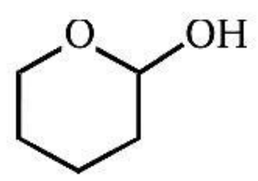
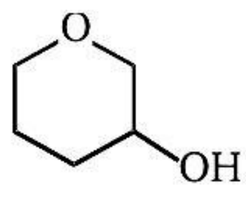
(a) amm. $AgNO_3$ (b) NaOH

(c) $FeCl_3$ (d) Both (a) & (b)

9. Which of following acid give positive Tollen's reagent test.

(a)  (b)  (c)  (d) HCO_2H

10. Which of following compounds give positive Tollen's test?

(a)  (b)  (c)  (d) 

11. Give a simple test to differentiate cyclohexane and cyclohexene

(a) Br_2/H_2O (b) Bayer's reagent

(c) Tollen's reagent (d) Both (a) and (b)

12. Give test to differentiate (Bromobenzene) Ph – Br and benzyl bromide ($PhCH_2Br$).

(a) (i) aq. KOH (ii) Na (b) $AgNO_3$

(c) $KMnO_4$ (d) All these

13. Give test to differetiate 1,1-dichloroethane and 1, 2-dichloroethane :

(a) 2,4 -DNP then aq. KOH (b) aq. KOH then 2, 4-DNP

(c) $NaHSO_3$ (d) Lucas reagent

14. Test to differentiate between $\underset{\text{(methanol)}}{CH_3OH}$ and $\underset{\text{(Phenol)}}{Ph - OH}$ is/are :

(a) Litmus test (b) $FeCl_3$

(c) Br_2/H_2O (d) All of these

15. Acetaldehyde and benzaldehyde can be differentiated by :

(a) Fehling test (b) Iodoform test

(c) Tollen's reagent (d) both (a) and (b)

16. Ethylamine and diethylamine cannot be differentiated by :

(a) Hinsberg test (b) carbylamine test

(c) Iodoform test (d) both (a) and (b)

17. Lassaigne's test for the detection of nitrogen will fail in the case of :

(a) NH_2CONH_2 (b) $NH_2CONHNH_2.HCl$

(c) $NH_2NH_2.HCl$ (d) $C_6H_5NHNH_2.\ 2HCl$

18. Sodium nitroprusside when added to an alkaline solution of sulphide ions produces a colouration which is :

(a) red (b) blue (c) brown (d) purple

19. In Kjeldahl's method, nitrogen present is estimated as :

(a) N_2 (b) NH_3 (c) NO_2 (d) none of these

20. In Kjeldahl's method of estimation of nitrogen, K_2SO_4 acts as :

(a) an oxidising agent (b) catalytic agent
(c) hydrolysing agent (d) boiling point elevator

21. The prussian blue colour obtained during the test of nitrogen by Lassaigne's test is due to the formation of :

(a) $Fe[Fe(CN)_6]_3$ (b) $Na_3[Fe(CN)_6]$
(c) $Fe(CN)_3$ (d) $Na_4[Fe(CN)_5NOS]$

22. A compound which does not give a positive test in Lassaigne's test for nitrogen is:

(a) urea (b) hydrazine (c) azobenzene (d) phenyl hydrazine

23. *p*-nitrophenol and *o*-nitrophenol are separated by :

(a) distillation (b) steam distillation
(c) crystallization (d) fractional crystallization

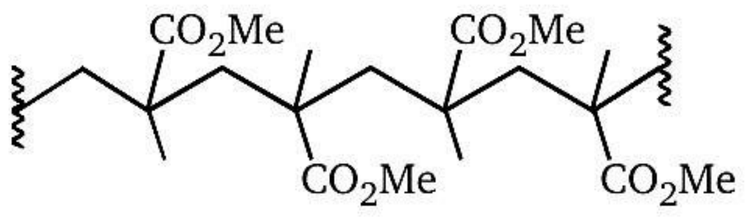
24. Which of the following reagent is used for the separation of acetaldehyde from acetophenone ?

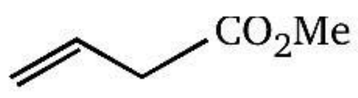
(a) NH_2OH (b) NaOI (c) Tollen's reagent (d) $C_6H_5NHNH_2$

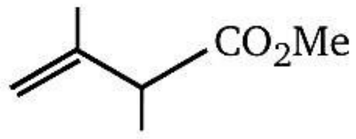
25. The formula of gas is $[CO]_x$. If its vapour density is 70, the value of x will be :

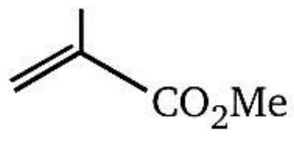
(a) 2.5 (b) 3.0 (c) 5.0 (d) 6.0

26. The structure of the monomer that would give the following polymer by an addition mechanism is :



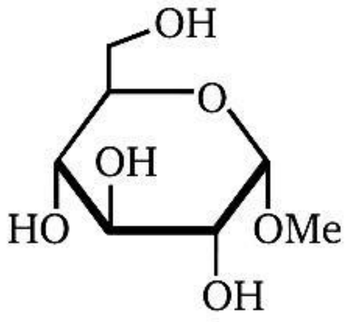
(a) 

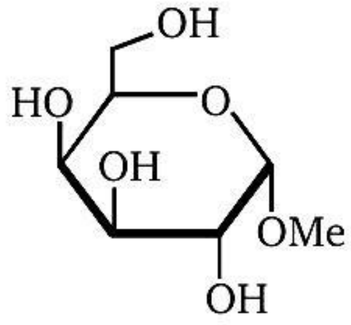
(b) 

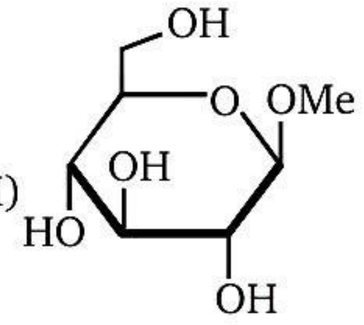
(c) 

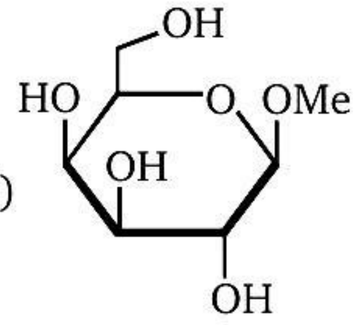
(d)

27. Identify the correct set of stereochemical relationships amongst the following monosaccharides I – IV

(I) 

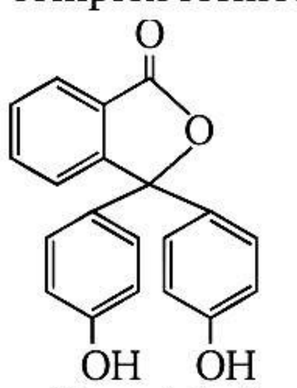
(II) 

(III) 

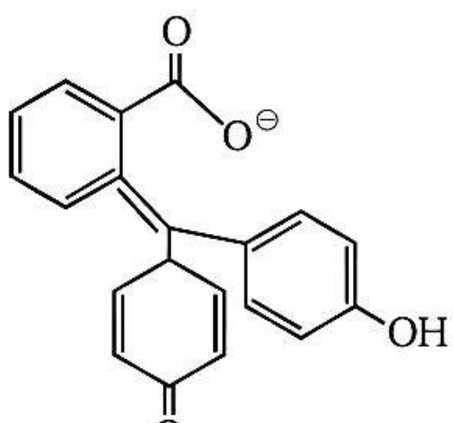
(IV) 

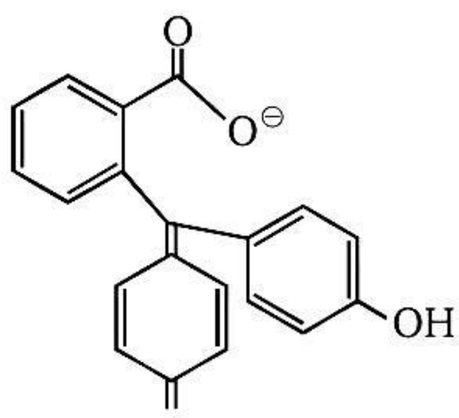
(a) I and II are anomers ; III and IV are epimers
(b) I and II are epimers ; III and IV are anomers
(c) I and III are anomers ; I and II are epimers
(d) I and III are epimers ; II and IV are anomers

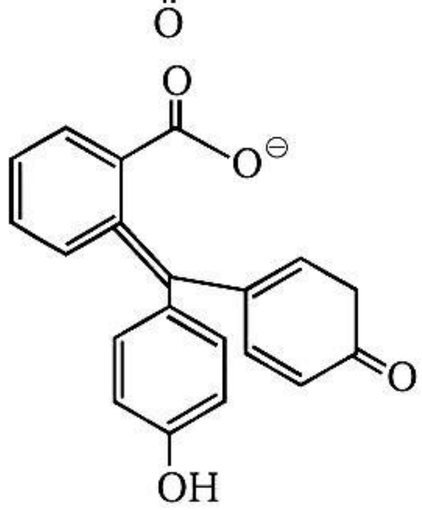
28. A dye, phenolphtnalein is prepared by reacting phenol with phthalic anhydride in acidic medium. It give pink colour in alkaline medium due to extended conjugation in a new complex formed (phthalein - dye test) identify the complex *A* :


Phenophthaline

$\xrightarrow{\ominus OH}$ (*A*) Product ; The structure of (*A*) is:

(a) 

(b) 

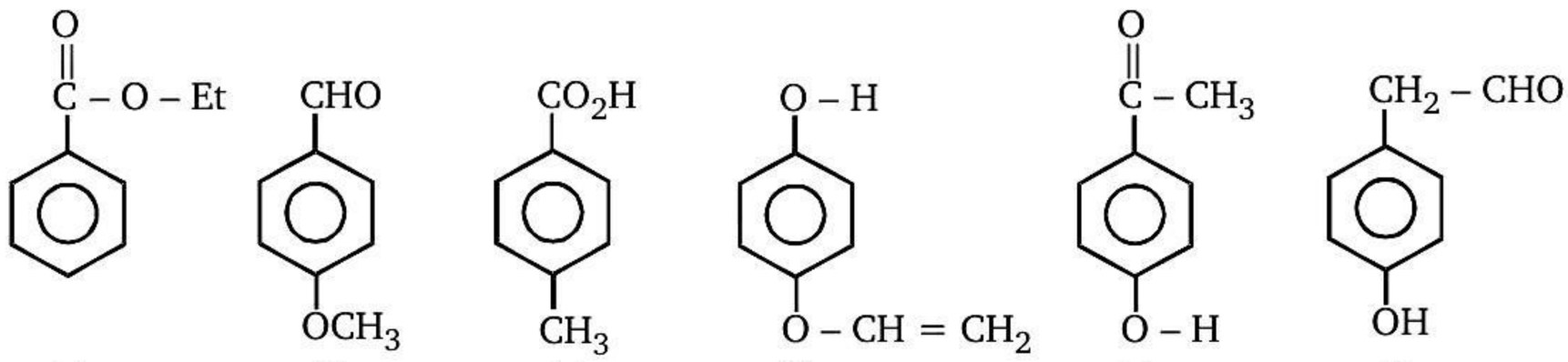
(c) 

(d) None

ANSWERS — LEVEL 1															
1.	(d)	**2.**	(d)	**3.**	(c)	**4.**	(b)	**5.**	(b)	**6.**	(c)	**7.**	(a)	**8.**	(d)
9.	(d)	**10.**	(c)	**11.**	(d)	**12.**	(d)	**13.**	(b)	**14.**	(d)	**15.**	(d)	**16.**	(c)
17.	(c)	**18.**	(b)	**19.**	(b)	**20.**	(d)	**21.**	(d)	**22.**	(b)	**23.**	(a)	**24.**	(c)
25.	(c)	**26.**	(c)	**27.**	(c)	**28.**	(b)								

Level - 2

1. Comprehension



(a) (b) (c) (d) (e) (f)

A. Which isomer gives positive iodoform test ?

(a) a (b) b
(c) d (d) e

B. Which isomer gives +ive Tollen's test, also reacts with $FeCl_3$?

(a) b (b) f
(c) c (d) d

C. Which isomer reacts with $NaHCO_3$?

(a) c (b) d
(c) e (d) f

D. Which isomer on hydrolysis gives 1, 4-di hydroxybenzene ?

(a) a (b) d
(c) e (d) f

2. $Ph-\overset{\overset{O}{\|}}{C}-OH \xrightarrow{NaHCO_3} (A)\,gas\ ;\ Ph-OH \xrightarrow{Na} (B)\,gas$

Sum of molecular mass of gas $(A+B=?)$

ANSWERS — LEVEL 2

1. A – d; B – b; C – a; D – b

2. 48