Chemistry

Straight Objective Type

This section contains 30 multiple choice questions numbered 1 to 30. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

1. What is the correct decreasing order of enol content of the following compounds

(A) $C_6H_5-\overset{\overset{O}{\|}}{C}-CH_2-\overset{\overset{O}{\|}}{C}-C_6H_5 > CH_3-\overset{\overset{O}{\|}}{C}-CH_2-\overset{\overset{O}{\|}}{C}-H > CH_3-\overset{\overset{O}{\|}}{C}-CH_2-\overset{\overset{O}{\|}}{C}-OEt >$ CH_3CHO

(B) $CH_3CHO > CH_3COCH_2CO_2Et > CH_3COCH_2CHO > PhCOCH_2COPh$

(C) $CH_3CHO > CH_3COCH_2CHO > PhCOCH_2COPh > CH_3COCH_2CO_2Et$

(D) None

2. What is the correct increasing order of acidicity of the following compounds?

(A) $CH_3NH_2 > C_5H_5N > CH_3CN$ (B) $CH_3NH_2 < C_5H_5N < CH_3CN$

(C) $CH_3NH_2 < CH_3CN < C_5H_5N$ (D) $CH_3CN < CH_3NH_2 < C_5H_5N$

3. Allyl isocyanide has

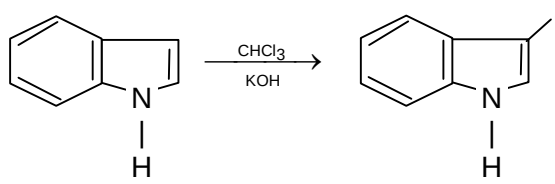
(A) 9 σ bonds and 4 π bonds

(B) 9 σ bonds, 3 π bonds and 2 non bonded electrons

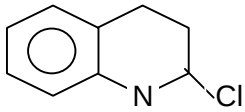
(C) 8 σ bonds and 5 π bonds

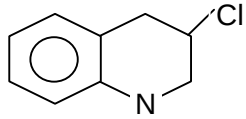
(D) 8 σ bonds, 3 π bonds and 4 non bonded electrons.

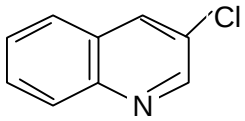
Rough Work

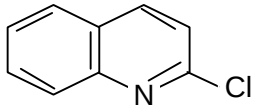
4. 

(A) + 6 membered ring (B) . B is

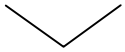
(A) 

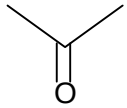
(B) 

(C) 

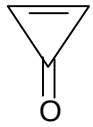
(D) 

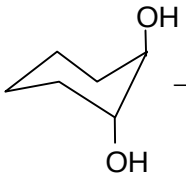
5. Which of the following molecule having maximum dipole moment?

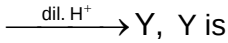
(A) 

(B) 

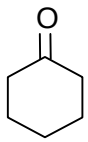
(C) 

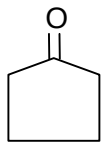
(D) 

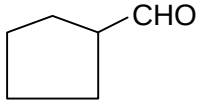
6. 

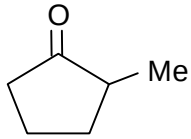


Y, Y is a cyclic product. So Y is

(A) 

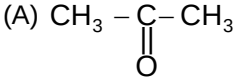
(B) 

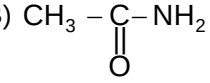
(C) 

(D) 

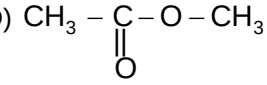
Rough Work

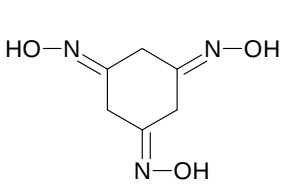
7. Which of the following will undergo haloform reaction?

(A) 

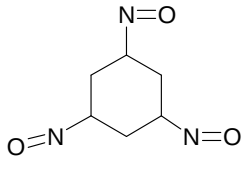
(B) 

(C) $(CH_3)_3C—OH$

(D) 

8. 

(I)



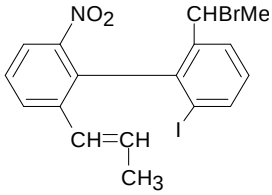
(II)

The correct statement about the compound(s) (I) and (II) are:

(1) I shows geometrical isomerism
(2) II shows geometrical isomerism
(3) I and II are functional isomers
(4) I can show tautomerism

(A) 1 and 2
(B) 1, 2 and 3
(C) 2 and 4
(D) 1, 2, 3 and 4

9. How many stereoisomers are possible for the given compound



(A) 2
(B) 4
(C) 6
(D) 8

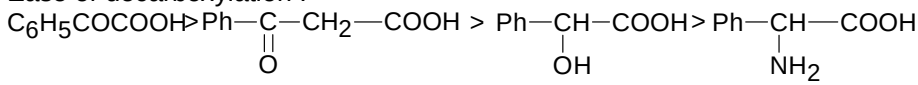
10. Which of the following order are correct?

I. Acidity order : o-nitrobenzoic acid > p-nitrobenzoic acid > m-nitrobenzoic acid

II. Basicity order : $NH_2^- > EtO^- > OH^- > RCOO^- > Cl^-$

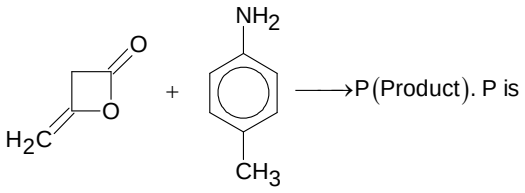
III. Heat of hydrogenation : cis-2-butene > trans-2-butene

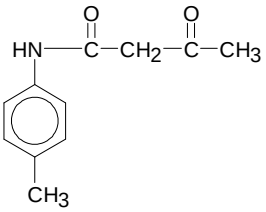
IV. Ease of decarboxylation :

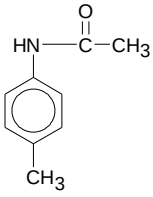


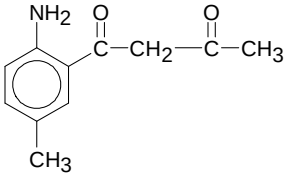
(A) I and II
(B) I and III
(C) I and IV
(D) I, II and III

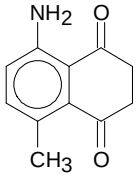
Rough Work

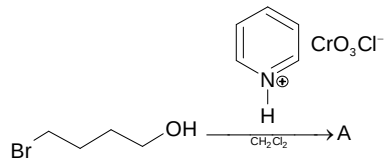
11. 

(A) 

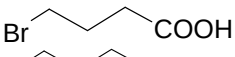
(B) 

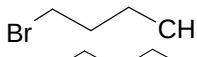
(C) 

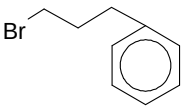
(D) 

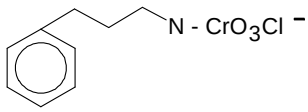
12. 

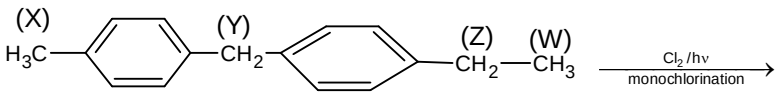
A is:

(A) 

(B) 

(C) 

(D) 

13. 

Which of the following set of statements is correct?

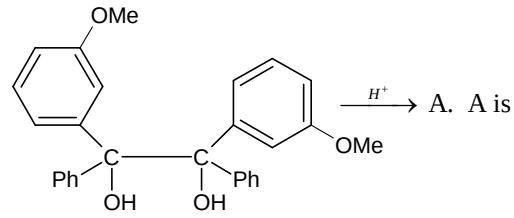
(i) The reactivity order of C – H bond is Y > Z > X > W

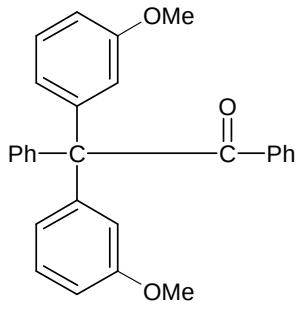
(ii) The max. no. of monochloro isomers possible is 4

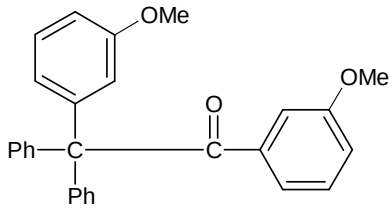
(iii) Monochloro isomers on fractional distillation will separate in 4 coloums

(A) Only (ii) correct
(B) (i) and (ii) correct
(C) (i) and (iii) correct
(D) All are correct

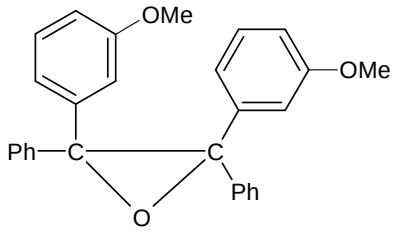
Rough Work

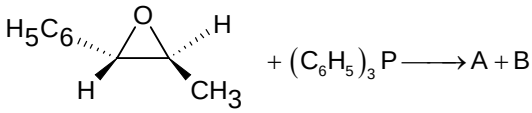
14. 

(A) 

(B) 

(C) (A) is major and (B) is minor

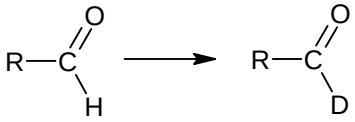
(D) 

15. 

Which of the following set is correct for the above reaction
(I) the above reaction will yield the alkene as one of the product
(II) the above reaction will give both *cis* and *trans* isomers
(III) the above reaction will give *cis* isomer only
(IV) the above reaction will give *trans* isomer only
(A) (I), (II) (B) (I), (III)
(C) (I), (IV) (D) Only (II)

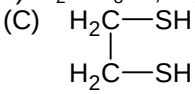
Rough Work

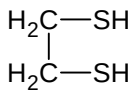
16. Which of the following sequence of reagents can be best utilized for the given transformation



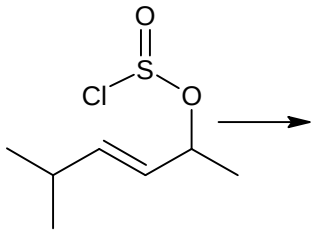
(A) Cl_2, AcOH; D_2O; $LiAlH_4/H_2O$

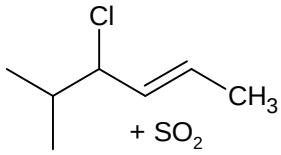
(B) D_2O/D_3O^+, Cl_2, ACOH; $NaBH_4/H_2O$

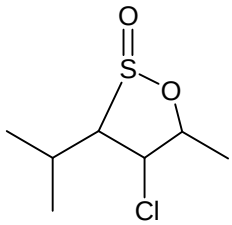
(C)  , base; D_2O and then $HgCl_2$ /$CdCO_3$ - H_2O

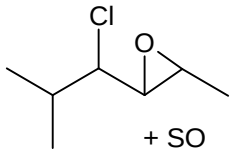
(D) Base;  $HgCl_2/CdCO_3$ - H_2O and then D_2O

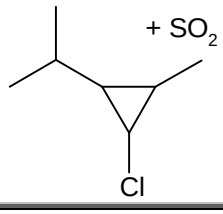
17. Which of the following is the most likely product from the reaction illustrated by the curved arrows in the formula?



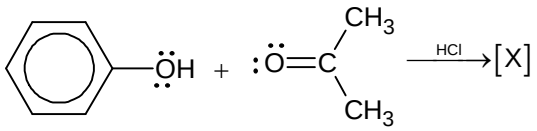
(A) 

(B) 

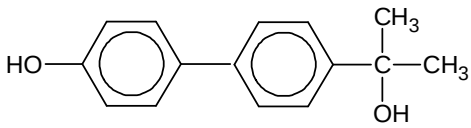
(C) 

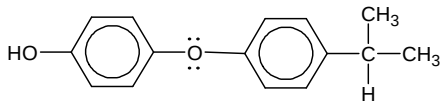
(D) 

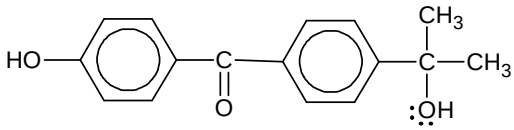
Rough Work

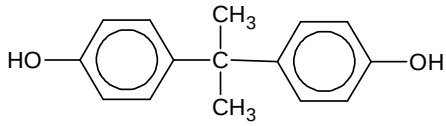
18. 

[X] is:

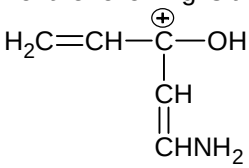
(A) 

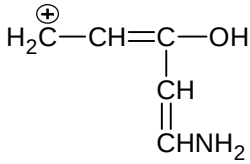
(B) 

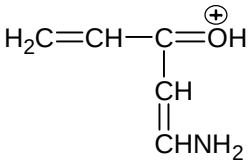
(C) 

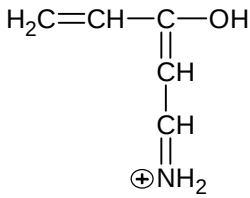
(D) 

19. Which of the following is the most stable resonance structure?

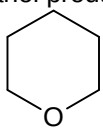
(A) 

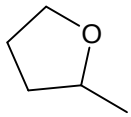
(B) 

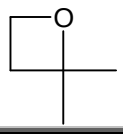
(C) 

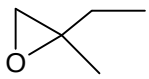
(D) 

20. A chiral $C_5H_{10}O$ ether reacts with hot HI to give a $C_5H_{10}I_2$ product. Treatment of this with hot KOH in ethanol produces 1,3-pentadiene. What is the structure of the original ether?

(A) 

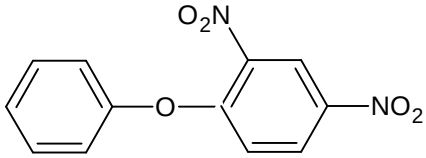
(B) 

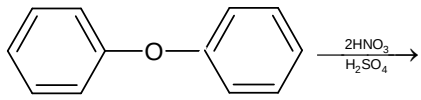
(C) 

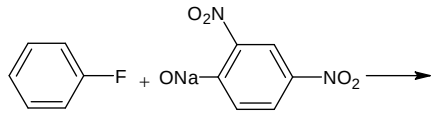
(D) 

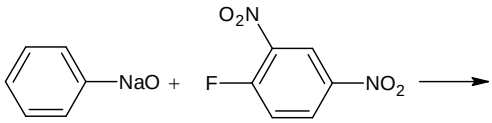
Rough Work

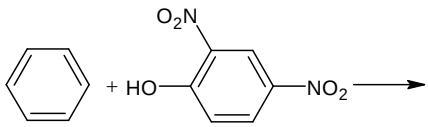
21. Which of the following would work best for the synthesis of the ether shown below?



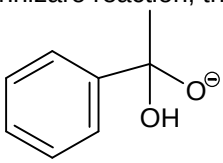
(A) 

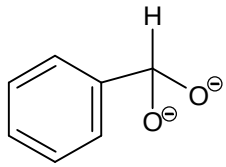
(B) 

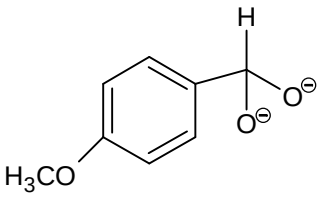
(C) 

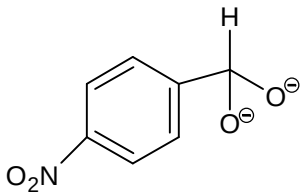
(D) 

22. In a Cannizaro reaction, the intermediate that will be the best hydride donor is:

(A) 

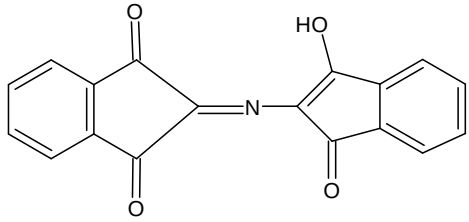
(B) 

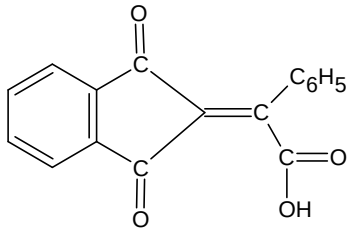
(C) 

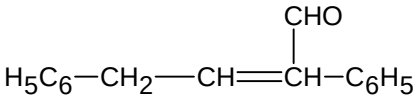
(D) 

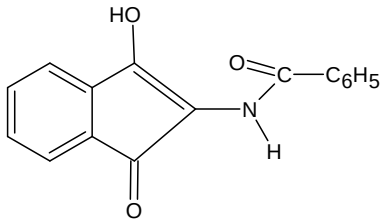
Rough Work

23. Ninhydrin reagent reacts with α-amino acids to give purple colour. In the reaction of ninhydrin with phenylalanine, which of the following is responsible for this colour?

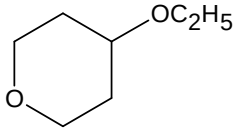
(A) 

(B) 

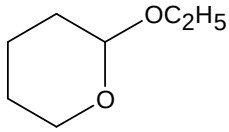
(C) 

(D) 

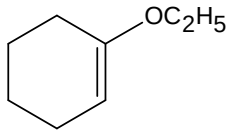
24. Formulas for four ethyl ethers are drawn below. Two are cleared by aqueous acid much more easily than the other two. Which ethers are more easily hydrolysed?



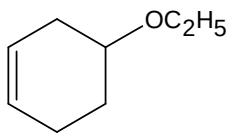
(I)



(II)

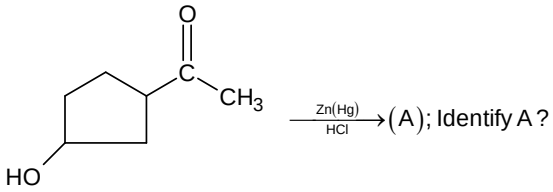


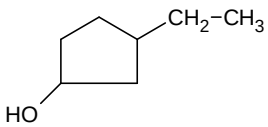
(III)

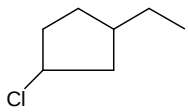


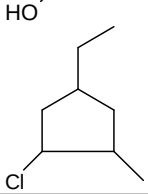
(IV)

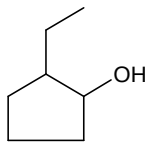
(A) I and II
(B) II and III
(C) III and IV
(D) I and IV

25. 

(A) 

(B) 

(C) 

(D) 

Rough Work

26. Glycerol on oxidation with Fenton's reagent ($H_2O + FeSO_4$) gives:
(A) Glyceraldehyde (B) Dihydroxy acetone
(C) Tartaric acid (D) Glyceraldehyde and dihydroxy acetone

27. Aniline when treated with $NaNO_2$ and HCl at 0^oC gives
(A) phenol (B) nitrobenzene
(C) benzene diazonium chloride (D) benzyl alcohol

28. An ether (A) $C_6H_{14}O$ when heated with excess of hot conc. HI produced two alkyl halides which on hydrolysis form compounds (B) and (C). Oxidation of (B) gave on acid (D) where as oxidation of (C) gave a ketone (E). What are structural formula of (A), (B) and (C) respectively?

(A) $H_5C_2-O-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_3$, CH_3CH_2OH $H_3C-\underset{\displaystyle OH}{\underset{|}{CH}}-C_2H_5$

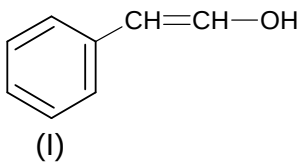
(B) $C_2H_5OCH_2C_3H_7$, C_2H_5OH, $OHC-CH_2CH_2CH_3$

(C) $H_3C-CH_2-CH_2-O-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_3$, $HO-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_3$, $CH_3CH_2CH_2OH$

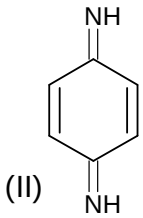
(D) $H_3C-\underset{\displaystyle CH_3}{\underset{|}{CH}}-O-CH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_3$, $H_3C-\underset{\displaystyle CH_3}{\underset{|}{CH}}-OH$, $CH_3CH_2CH_2OH$

Rough Work

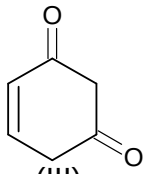
29. Tautomerism is exhibited by



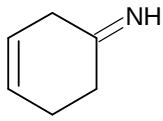
(I)



(II)



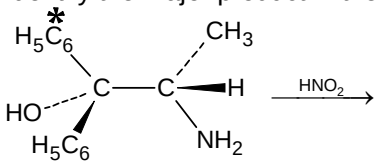
(III)

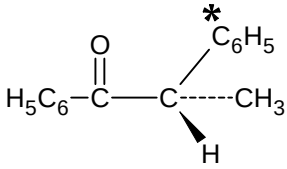


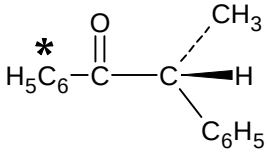
(IV)

(A) (I) and (III)
(B) (I), (II) and (IV)
(C) (I), (III) and (IV)
(D) (IV) only

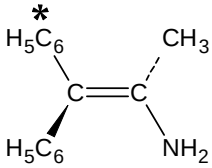
30. Identify the major product in the following reaction



(A)


(B)


(C) A and B in equal concentrations

(D)


Rough Work