

**JEE MAIN : CHAPTER WISE TEST-9**

**SUBJECT :- CHEMISTRY**

**DATE.....**

**CLASS :- 12<sup>th</sup>**

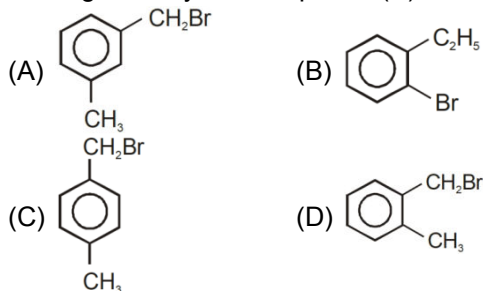
**NAME.....**

**CHAPTER :- ALDEHYDE, KETONES & CARBOXYLIC ACIDS**

**SECTION.....**

**(SECTION A)**

1. Compound (A),  $C_8H_9Br$ , gives a white precipitate when warmed with alcoholic  $AgNO_3$ . Oxidation of (A) gives an acid (B),  $C_8H_6O_4$ . (B) easily forms anhydride on heating. Identify the compound (A).



2. In the reaction sequence  $2CH_3CHO \xrightarrow{OH^-} A \xrightarrow{\Delta} B$ ; the product B is:
- (A)  $CH_3-CH_2-CH_2-CH_2-OH$   
 (B)  $CH_3-CH=CH-CHO$   
 (C)  $CH_3-CH_2-CH_2-CH_3$   
 (D)  $CH_3-C(=O)-CH_2$

3. In the following sequence of reactions,  $CH_3CH_2OH \xrightarrow{P+I_2} A \xrightarrow[Mg]{Ether} B \xrightarrow{HCHO} C \xrightarrow{H_2O} D$ . The compound 'D' is
- (A) n-propyl alcohol (B) propanal  
 (C) butanal (D) n-butyl alcohol

4. In Cannizzaro reaction given below  $2PhCHO \xrightarrow{OH^-} PhCH_2OH + PhCO_2^-$  the slowest step is :
- (A) The transfer of hydride to the carbonyl group  
 (B) The abstraction of proton from the carboxylic group  
 (C) The deprotonation of  $PhCH_2OH$   
 (D) The attack of  $:OH^-$  at the carboxyl group

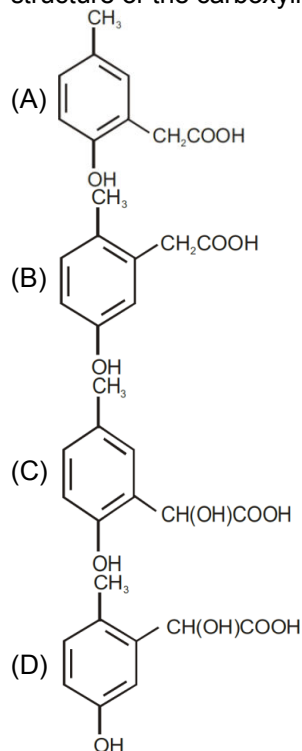
5. Which one of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid ?
- (A) Phenol (B) Benzoic acid  
 (C) Butanal (D) Benzaldehyde

6. The compound formed on heating chlorobenzene with chloral in the presence of concentrated sulphuric acid is
- (A) gammexene  
 (B) DDT  
 (C) freon  
 (D) hexachloroethane.

7. Ozonolysis of an organic compound 'A' produces acetone and propionaldehyde in equimolar mixture. Identify 'A' from the following compounds :
- (A) 1-Pentene  
 (B) 2-Pentene  
 (C) 2-Methyl-2-pentene  
 (D) 2-Methyl-1-pentene

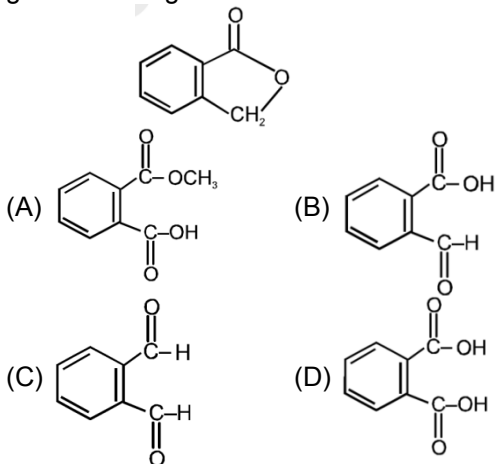
8. On vigorous oxidation by permanganate solution  $(CH_3)_2C=CHCH_2CHO$  gives
- (A)  $(CH_3)_2CO$  and  $OHCCH_2CHO$   
 (B)  $(CH_3)_2C(OH)CH_2CHO$   
 (C)  $(CH_3)_2CO$  and  $OHCCH_2COOH$   
 (D)  $(CH_3)_2CO$  and  $CH_2(COOH)_2$

9. p-cresol reacts with chloroform in alkaline medium to give the compound A which adds hydrogen cyanide to form, the compound B. The latter on acidic hydrolysis gives chiral carboxylic acid. The structure of the carboxylic acid is :

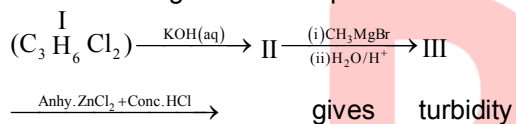


10. In conversion of 2-butanone to propanoic acid which reagent is used.  
 (A) NaOH, Na / H<sup>⊕</sup>  
 (B) Fehling solution  
 (C) NaOH, I<sub>2</sub> / H<sup>⊕</sup>  
 (D) Tollen's reagent

11. Which of the following reagent on reaction with conc. NaOH followed by acidification gives following lactone as the :

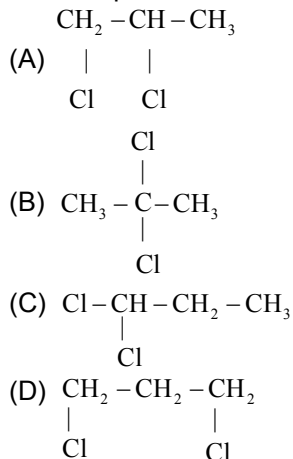


12. In the following reaction sequence :

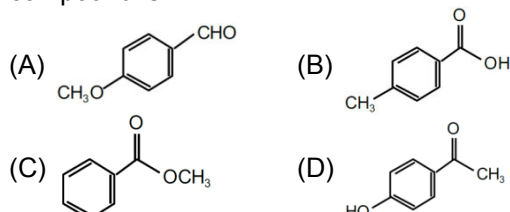


immediately

The compound I is :

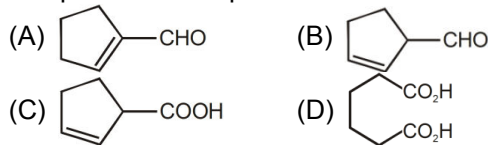


13. A compound of molecular formula C<sub>8</sub>H<sub>8</sub>O<sub>2</sub> reacts with acetophenone to form a single crossaldol product in the presence of base. The same compound on reaction with conc. NaOH forms benzyl alcohol as one of the products. The structure of the compound is :



14. Phthalic acid reacts with resorcinol in the presence of concentrated H<sub>2</sub>SO<sub>4</sub> to give :  
 (A) Phenolphthalein (B) Alizarin  
 (C) Coumarin (D) Fluorescein

15. Cyclohexene on ozonolysis followed by reaction with zinc dust and water gives compound E. Compound E on further treatment with aqueous KOH yields compound F. Compound F is :



16. Which one of the following reactions will not result in the formation of carbonation bond ?  
 (A) Reimer-Tiemann reaction  
 (B) Friedel Craft's acylation  
 (C) Wurtz reaction  
 (D) Cannizzaro reaction

17.  $PH - \overset{\overset{O}{||}}{C} - NH_2 \xrightarrow{POCl_3} \text{Product,}$



18. The carboxyl functional group (-COOH) is present in :  
 (A) picric acid  
 (B) barbituric acid  
 (C) ascorbic acid  
 (D) aspirin

19. Match each of the compounds given in Column I with the reaction(s), that they can undergo, given in column II.

	Column I	Column II
(A)		(p) Nucleophilic substitution
(B)		(q) Elimination
(C)		(r) Nucleophilic addition
(D)		(s) Esterification with acetic anhydride
		(t) Dehydrogenation

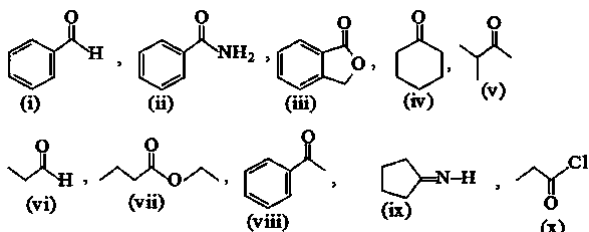
- (A) (A) - p, q, t ; (B) - p, s, t ; (C) - r, s ; (D) - p  
 (B) (A) - p, q, t ; (B) - p, q, r ; (C) - r, s ; (D) - p  
 (C) (A) - p, q, t ; (B) - q, s, t ; (C) - r, s ; (D) - q  
 (D) (A) - p, q, t ; (B) - p, s, t ; (C) - s, t ; (D) - p

20. The correct statement about the synthesis of erythritol ( $C(CH_2OH)_4$ ) used in the preparation of PETN is:  
 (A) The synthesis requires two aldol condensations and two Cannizzaro reactions.  
 (B) Alpha hydrogens of ethanol and methanol are involved in this reaction.

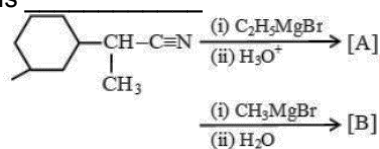
- (C) The synthesis requires four aldol condensations between methanol and ethanol.  
 (D) The synthesis requires three aldol condensations and one Cannizzaro reaction.

(SECTION B)

21. Examine the structural formulas given below and identify number of compounds which are reduce by  $NaBH_4$ .

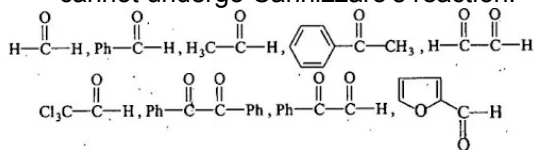


22. The number of chiral centers present in [B] is

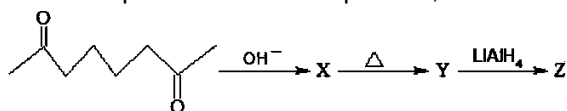


23. Number of reagents which converts  $CH_3 - CHO$  into carboxylic acid or its salt:  
 (A)  $Cu/573 K$  (B) Fehling's reagent  
 (C) Tollen's reagent (E)  $NaOH/I_2$   
 (F) Bayer's reagent (G)  $H^+/KMnO_4/D$   
 (H)  $H_2/Pd$  (I)  $H^+/K_2Cr_2O_7/\Delta$   
 (J)  $OH^-/\Delta$

24. Find out number of substrates those cannot undergo Cannizzaro's reaction.



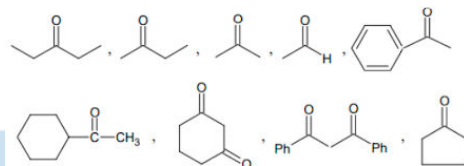
25. How many carbon-carbon double bonds are present in the end product, Z?



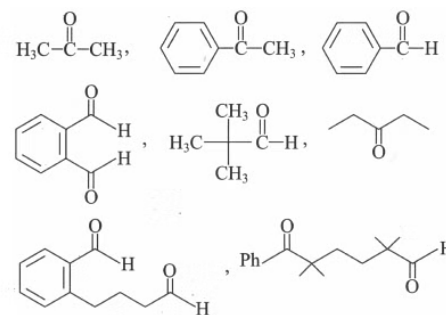
26. 10 moles of  $CH_3 - (CO) - CH_2 - (CO) - CH_3$  are treated with 8 moles of  $CH_3MgBr$  followed by hydrolysis. How many moles of diol will be obtained?

27. How many amide isomers exist for  $C_4H_9ON$  that do not form amine on treatment with  $Br_2-NaOH$ .

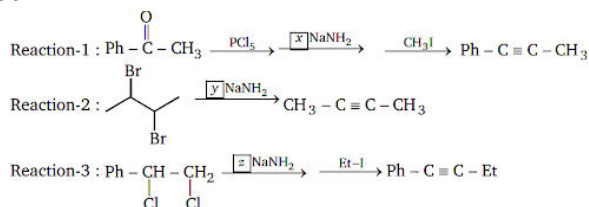
28. Examine the structural formulas of compounds given below and identify number of compounds which show positive iodoform test.



29. Of the following carbonyl compounds, how many would give Aldol condensation reaction.



- 30.



x, y, z are moles used.  
 Sum of  $[x + y + z = ]$