



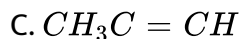
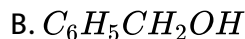
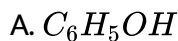
CHEMISTRY

PHYSICAL, INORGANIC, AND ORGANIC CHEMISTRY

FUNDAMENTAL CONCEPT

Organic Chemistry Fundamental Concept

1. Among the following the dissociation constant is highest for



Answer: 4



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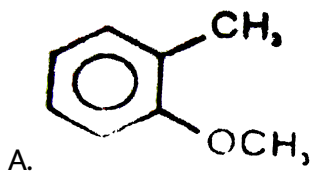
2. Which of the following is more basic than aniline? .

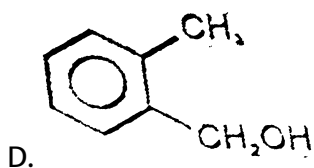
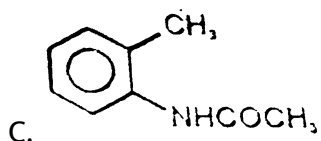
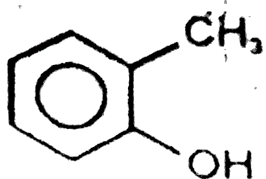
- A. *p* – Nitroaniline
- B. Benzyl amine
- C. Diphenyl amine
- D. Triphenyl amine

Answer: 2

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3. Which one of the following is most reactive towards electrophilic reagent ?

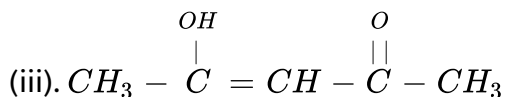
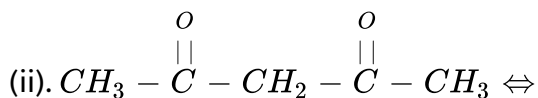
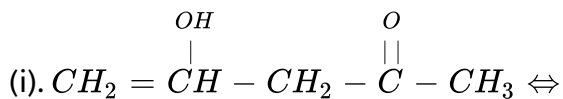




Answer: 2

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4. The order of stability of the following tautomeric compounds is



A. $III > II > I$

B. $II > I > III$

C. $II > III > I$

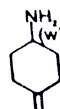
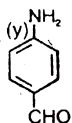
D. $I > II > III$

Answer: 1

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5. The correct order of $C - N$ bond lengths for the following compounds

is :



A. $w > x > y > z$

B. $y > x > w > z$

C. $w > y > z > x$

D. $x > y > z > w$

Answer: A

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6. Which compound give CO_2 with $NaHCO_3$?

- A. Phenol
- B. Glycerol
- C. *n* – butanol
- D. Acetic acid

Answer: 4

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7. Correct order of basic nature is





D. None of these

Answer: 3

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8. In the anion $HCOO^-$, the carbon-oxygen bonds are found to be of equal length. This is due to :

A. The anion is obtained by the removal of a proton from the acid molecule.

B. Electronic orbitals of carbon atoms are hybridised.

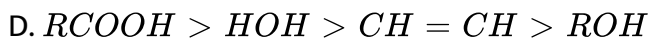
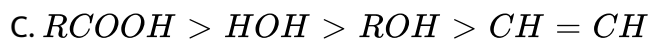
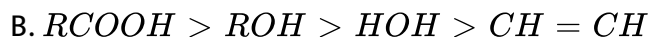
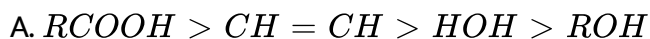
C. The $C = O$ bond is weaker than $C - O$ bond.

D. The anion $HCOO^-$ has two equally stable resonating structures.

Answer: 4

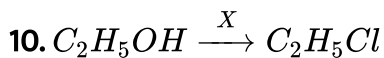
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9. Which of the following orders of acid strength is correct?



Answer: 3

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X can be except :



C. PCl_5

D. $NaCl$

Answer: D



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11. The conversion of $Cl - CH = CH - Cl$ to $CHCl_2 - CHCl_2$ can be carried out with ,

A. HCl (excess)

B. $Cl_2 / h\nu$

C. Cl_2 / CCl_4

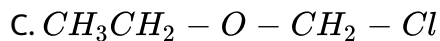
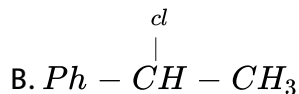
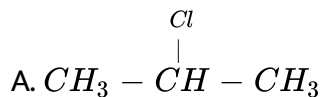
D. $Cl_2 / NaOH$

Answer: B



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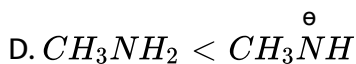
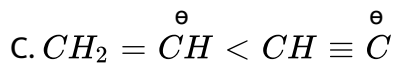
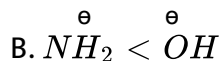
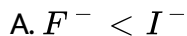
12. In which of the following rate of S_N1 is very fast ?



Answer: 3

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13. Which is the correct order for basicity ?



Answer: 4

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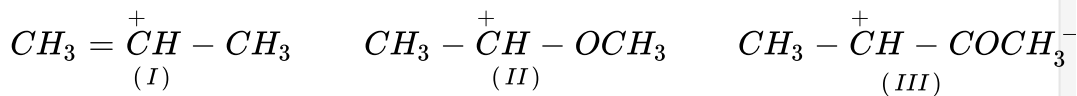
14. Pyridine is less basic than triethylamine because .

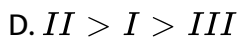
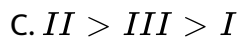
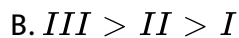
- A. Pyridine has aromatic character
- B. Nitrogen in pyridine is sp^2 hybridised
- C. Pyridine is a cyclic system
- D. In pyridine, lone pair of nitrogen is delocalised

Answer: 2

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15. The decreasing order of the stability of the ions :

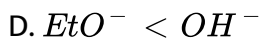
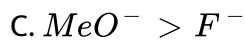
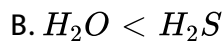




Answer: 4

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16. Which order is correct for both nucleophilicity and basicity ?



Answer: C

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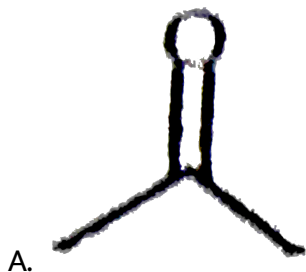
17. Arrange pH of the given compounds in decreasing order :

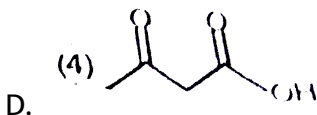
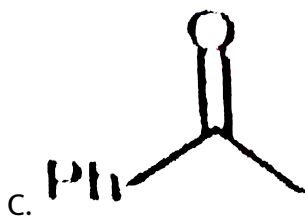
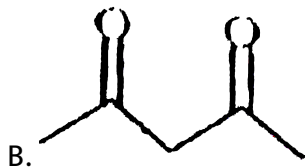
- A. Phenol
- B. Ethyl alcohol
- C. Formic acid
- D. Benzoic acid

Answer: 2

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18. Maximum enol content is in :

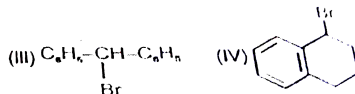
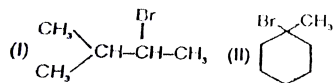




Answer: 2

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19. Consider the S_N1 solvolysis of the following halides in aqueous formic acid :



Which one of the following is correct sequence of the halides given above in the decreasing order of their reactivity ?

A. $III > IV > II > I$

B. $II > IV > I > III$

C. $I > II > III > IV$

D. $III > I > II > IV$

Answer: 1

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20. In the following groups:

(I) $-OAc$, (II) $-OMe$, (III) $-OSO_2Me$, (IV) OSO_2CF_3 the order of leaving group ability is-

A. $i > ii > iii > iv$

B. $iv > iii > i > ii$

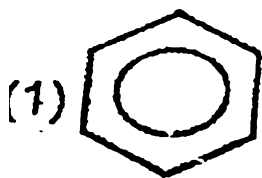
C. $iii > ii > i > iv$

D. $ii > iii > iv > i$

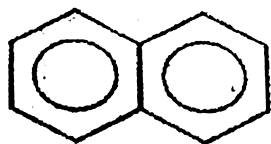
Answer: B

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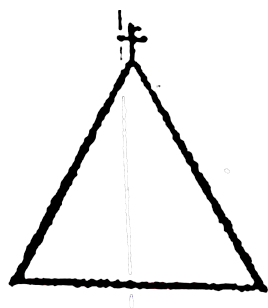
21. The chemical system that is non – aromatic is



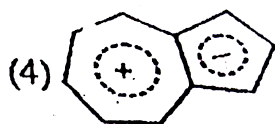
A.



B.



C.



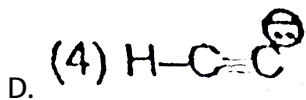
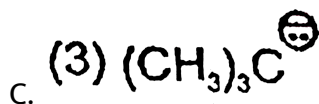
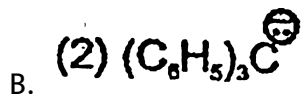
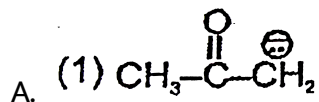
D.

Answer: 3



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22. Which of the following is the least stable carbanion?

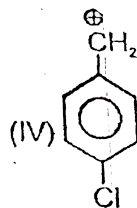
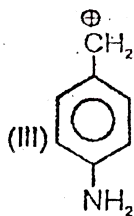
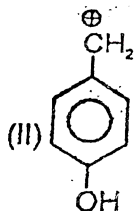
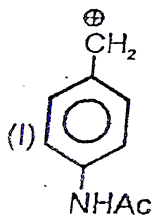


Answer: 3



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23. Arrange stability of the given carbocation in decreasing order :



A. $I > II > III > IV$

B. $III > II > I > IV$

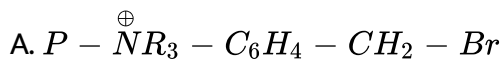
C. $IV > I > II > III$

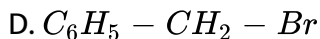
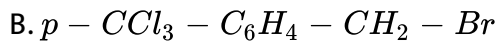
D. $II > III > I > IV$

Answer: 2

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24. Which of the following compound give solvolysis reaction with slowest rate ?

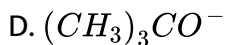
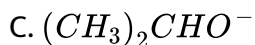
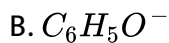
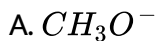




Answer: C

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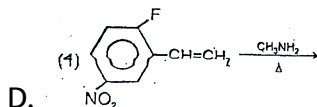
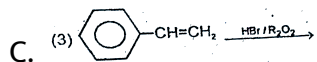
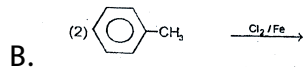
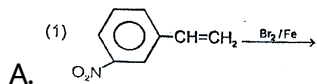
25. Which of the following alkoxides is the most reactive nucleophile?



Answer: A

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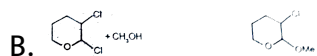
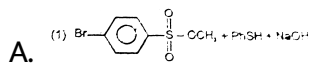
26. Which is the correct matched for the following reactions



Answer: D

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27. Which is correctly matched



Answer: 4

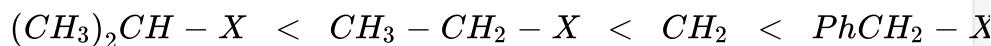
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28. The correct increasing order of the reactivity of halides for $S_N 1$ reaction is :

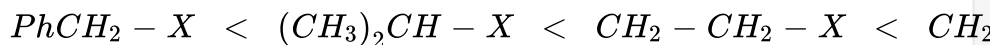
A.



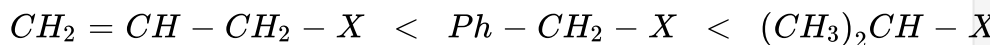
B.



C.



D.



Answer: 1





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29. Reaction intermediate of *EicB* reaction is :

- A. Carbocation
- B. Carbanion
- C. Benzyne
- D. Free radical

Answer: B



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30. Select false statement from the following ?

- A. Formation of dechlorocarbene from $CHCl_3$ is an elimination reaction.
- B. Carbocations and free radicals are planar chemical species.

C. In the rearrangement of carbocation, 1° – carbocation may convert into 2° – carbocation.

D. CCl_3 group is *o, p* – directing because it exhibit hyperconjugation with benzene ring.

Answer: 4

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31. Which of the following is not electrophile ?

A. CN^-

B. H^+

C. Br^+

D. $AlCl_3$

Answer: 1

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32. Which statement is incorrect :

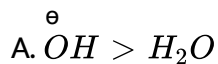
- A. Halogens are deactivating groups but have ortho-para directing nature.
- B. Nitrobenzene, gives metanitrotoluence on reaction with $CH_3Cl / AlCl_3$.
- C. Nitro group is meta directing.
- D. Aniline does not give Friedal Craft reaction directly.

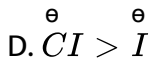
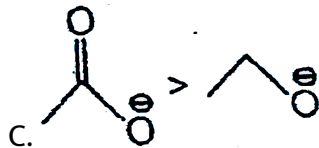
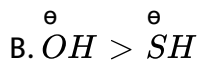
Answer: 2



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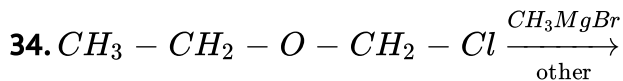
33. The correct leaving group ability order is :





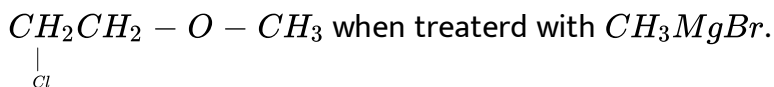
Answer: 3

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Which statement is incorrect for the above reaction :

A. $CH_3 - CH_2 - O - CH_2 - Cl$ react faster than



B. Resonance stabilised carbonium ion is formed in the above reaction.

C. Product of the reaction is diethyl ether

D. Reaction is proceed through S_N2 mechanism.

Answer: 2

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35. Which of the following is not a nucleophile ?

A. CH_3ONa

B. $PhLi$

C. PH_3

D. $\overset{\ominus}{N}H_4$

Answer: 4

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36. Select the correct option :

S_1 : Catechol is less acidic than resorcinol.

S_2 : Ortho - nitrophenol is less acidic than para - nitrophenol.

S_3 : Ortho- cresol is less acidic than its meta and para isomers.

S_4 : Generally ortho substituted phenols are less acidic than their corresponding meta & para isomers.

A. All are correct

B. Only S_1 , S_2 & S_3 are correct.

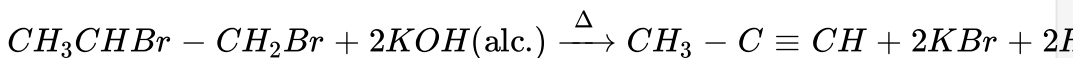
C. Only S_1 and S_2 are correct

D. Only S_1 and S_3 are correct.

Answer: 2

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37. The reaction is :



A. Dehalogenation

B. Dehydrohalogenation

C. Decarboxylation

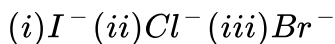
D. Dehydration

Answer: 2



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38. For the following



the increasing order of nucleophilicity would be:



Answer: 4

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39. Orbital interaction (partial overlapping) between the sigma bonds of a substituent group and a neighbouring pi orbital is known as

- A. Hyperconjugation effect
- B. Inductive effect
- C. Steric effect
- D. Dipole-dipole interactions

Answer: 1

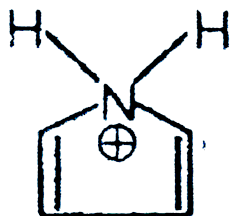
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40. In which delocalisation of positive charge is possible

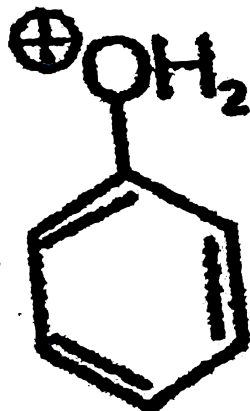
(1)



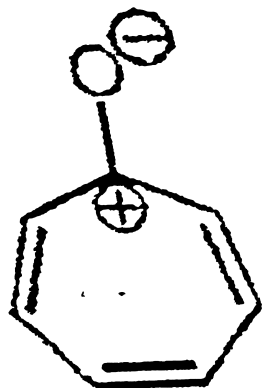
A.



B.



C.



D.

Answer: 4



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