



CHEMISTRY

BOOKS - NTA MOCK TESTS

JEE MOCK TEST 23

Chemistry

1. The pH of pure water at $25^\circ C$ and $35^\circ C$ are 7 and 6, respectively.

Calculate the heat of formation of water from H^\oplus and OH^\ominus .

A. $\Delta H = 84.551 \text{ kcal/mol}$

B. $\Delta H = -84.551 \text{ kcal/mol}$

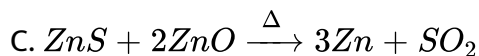
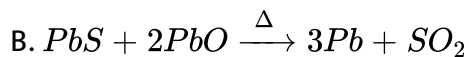
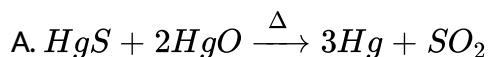
C. $\Delta H = 44.981 \text{ kcal/mol}$

D. $\Delta H = -44.981 \text{ kcal/mol}$

Answer: B

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2. Which reaction does not occur in reduction process.

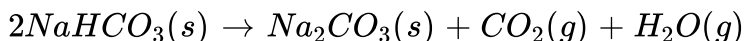


D. None of these

Answer: C

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3. Percentage loss in mass, when $NaHCO_3(s)$ is heated in open vessel



A. 21.12 %

B. 36.9 %

C. 30 %

D. 32.23 %

Answer: B

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4. A fire work gave bright crimson light. It probably contain an element of

A. Ca

B. Sr

C. Ba

D. Mg

Answer: B

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5. The gas produced by the passage of air over hot coke is

- A. Carbon monoxide
- B. Carbon dioxide
- C. Producer gas
- D. Water gas

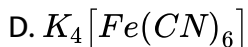
Answer: C



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6. Which amongst the following has zero magnetic moment ?

- A. $[Ni(NH_3)_6]Cl_2$
- B. $Na_3[FeF_6]$
- C. $[Cr(H_2O)_6]SO_4$



Answer:

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7. The correct statement is

- A. Potassium dichromate is more soluble than sodium dichromate
- B. All $Cr - O$ bond lengths in dichromate ion are equal.
- C. Potassium dichromate is used as a primary standard in volumetric titrations
- D. All are correct

Answer: C

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8. Incorrect matches is

A. COCl_2 -phosgene

B. SO_2Cl_2 - Thionyl chloride

C. $\text{ClCH}_2\text{CH}_2\text{SCH}_2\text{CH}_2\text{Cl}$ - mustard gas

D. H_2SO_5 - Caro's acid

Answer: B



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9. The $p\pi - p\pi$ bond is present in

A. XeO_3

B. SO_4^{2-}

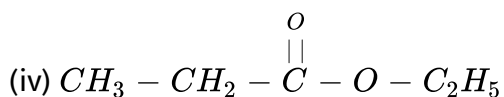
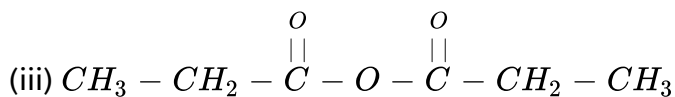
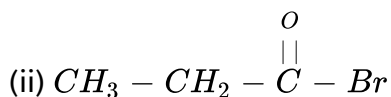
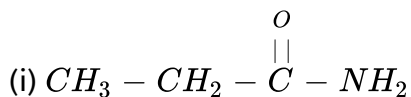
C. SO_2

D. All of these

Answer: C

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10. The decreasing order of rate of reaction for the following compounds towards S_N2 (bimolecular nucleophilic substitution with tetrahedral intermediate) reaction is



A. $I > II > III > IV$

B. $II > III > I > IV$

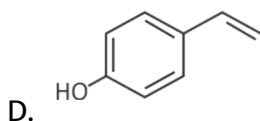
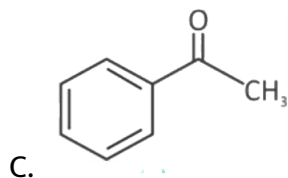
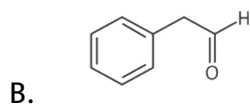
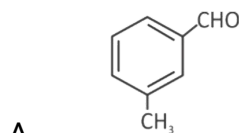
C. $III > II > IV > I$

D. $II > III > IV > I$

Answer: D

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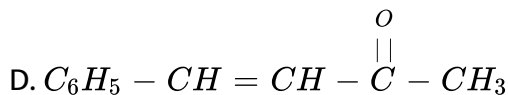
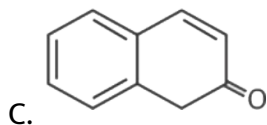
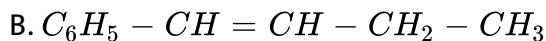
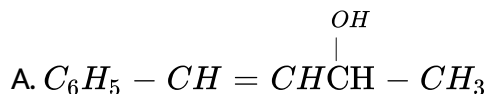
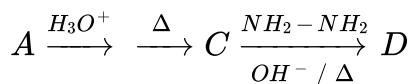
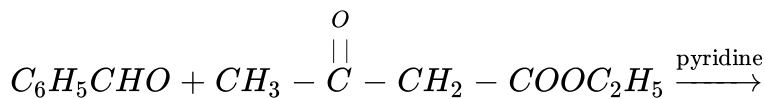
11. A benzenoid organic compound $A(C_8H_8O)$ gives B and white crystalline solid C with Cl_2 and $NaOH$. On heating compound B gives a compound with unpleasant smell with $CH_3 - CH_2 - NH_2$ and alcoholic KOH. Compound A is



Answer: C

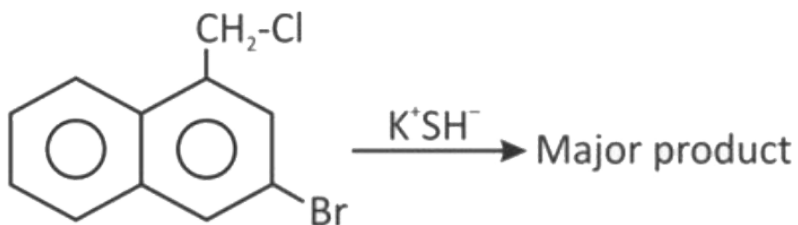
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12. Find the last product [D] in reaction sequence



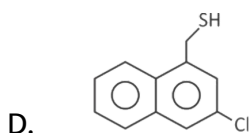
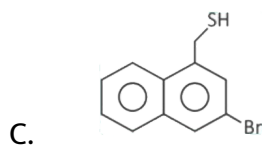
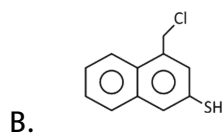
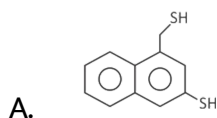
Answer: B

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Major
product

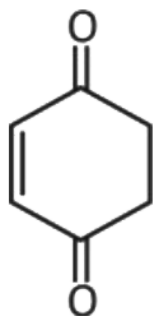
Major



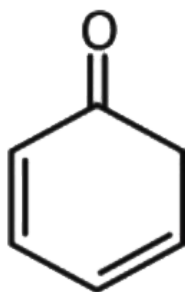
Answer: C

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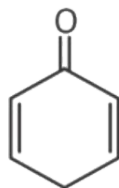
14. Which of the following compound do not undergo enolisation?



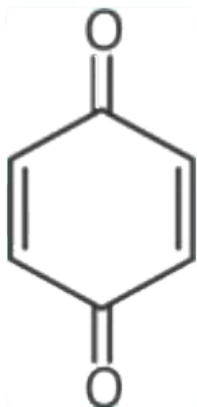
A.



B.



C.

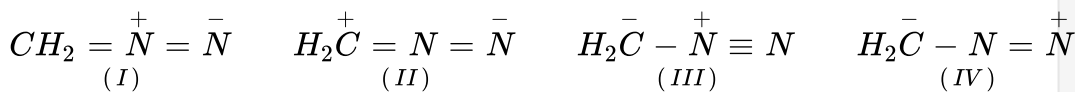


D.

Answer: D

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15. Arrange the following resonating structures in order of increasing stability



A. $II > I > IV > III$

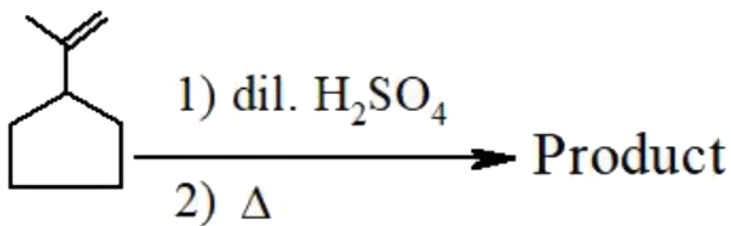
B. $I > II > IV > III$

C. $III > II > IV > I$

D. $IV > II > III > I$

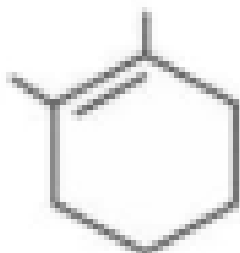
Answer: A

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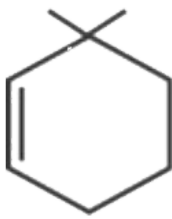


16.

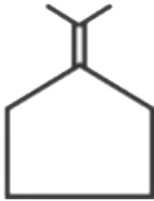
Major product of the reaction is



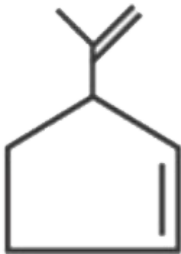
A.



B.



C.



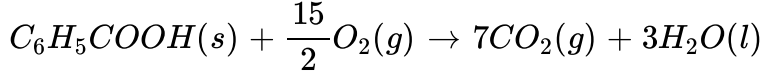
D.

Answer: A



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17. Calculate ΔH when 2 moles of solid benzoic acid undergo complete combustion at 300 K if



$$\Delta U_{reaction} = -750kJ/\text{mole}$$

A. $-1.247kJ$

B. $-2.494kJ$

C. $+2.494kJ$

D. $+1.247kJ$

Answer: B



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18. For the reaction, $A + 2B \rightarrow C$, the differential form of the rate law is:

A. $R = k[A]^2[B]^1$

B. $R = k[A][B]$

C. $R = k[A]^1[B]^0$

D. $R = k[A][B]^{-1}$

Answer: B

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19. A 5.25 % solution of a substance is isotonic with a 1.5 % solution of urea (molar mass = 60g mol^{-1}) in the same solvent. If the densities of both the solutions are assumed to be equal to 1.0g cm^{-3} , molar mass of the substance will be:

A. 105.0 g mol^{-1}

B. 210.0 g mol^{-1}

C. 90.0 g mol^{-1}

D. 15.0 g mol^{-1}

Answer: B

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20. The ionization constant of a weak electrolyte is 25×10^{-6} while the equivalent conductance of its 0.01 M solution is $19.6 \text{ S cm}^2 \text{ eq}^{-1}$. The equivalent conductance of the electrolyte at infinite dilution (in $\text{S cm}^2 \text{ eq}^{-1}$) will be

- A. 250
- B. 196
- C. 392
- D. 384

Answer: C

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21. 0.5g of an organic compound on *Kjeldahl's* analysis gave enough ammonia to just neutralize 10 cm^3 of $1 \text{ M H}_2\text{SO}_4$. The percentage of nitrogen in the compound is

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22. Number of crystal systems having only 2 types of bravais lattices = x ,
number of crystal system having at least two interfacial angles equal = y
and number of crystal systems having all the three edge lengths equal =
 z . Then find the value of $x \times y \times z$.

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23. The pK_a values of ionisable groups in lysine are 2.18, 8.95 and 10.79
respectively. Find isoelectric point of lysine.

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24. Among the following, total number of radioactive elements are In, Ac,
At, Ba, Tc, Pm, Ta, Xe

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25. In sample of excited hydrogen atoms, electron make transition from $n = 2$ to $n = 1$. Emitted quanta strike on a metal of work function $[\phi]4.2\text{eV}$. Calculate the wavelength (in \AA) associated with ejected electrons having maximum kinetic energy.

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