



CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 73

Chemistry

1. CaO and NaCl have the same crystal structure and approximately the same ionic radii. If U is

the lattice energy of NaCl, the approximate lattice energy of CaO is

A. $4u$

B. $2u$

C. u

D. $u/2$

Answer: A



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2. A gas is allowed to expand at constant temperature from a volume of $1.0L$ to $10.0L$ against an external pressure of 0.50 atm . If the gas absorbs $250J$ of heat from the surroundings, what are the values of q and ΔE ?

(Given $1Latm = 101J$)

A. $\begin{vmatrix} q & w & \Delta E \\ 250J & -460J & -210J \end{vmatrix}$

B. $\begin{vmatrix} q & w & \Delta E \\ -250J & -460J & -710J \end{vmatrix}$

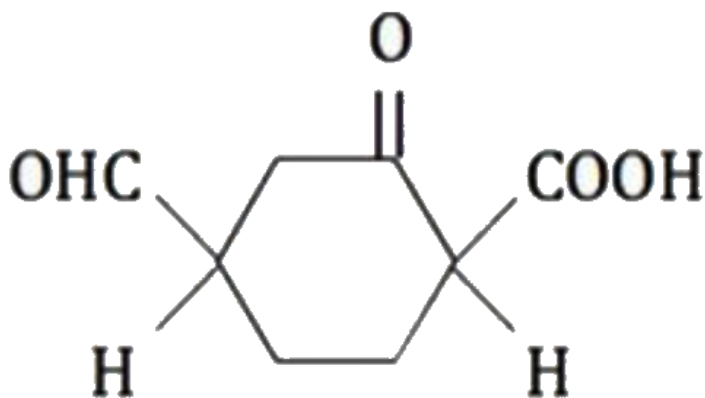
C. $\begin{vmatrix} q & w & \Delta E \\ 250 & 460 & 710J \end{vmatrix}$

D. $\begin{vmatrix} q & w & \Delta E \\ -250 & 460J & 210J \end{vmatrix}$

Answer: A

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3. Write the IUPAC name of the following compound



A. 2, 4 - dioxocyclohexanoic acid

B. 2, 4 - dioxocycloheptanoic acid

C. 4 - formly -2- oxocyclohexane -1- carboxylic acid

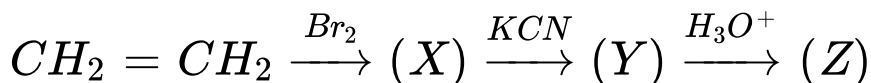
D. 2, 4 - dioxocyclohexane -1- carboxylic acid

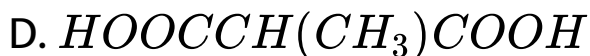
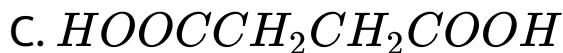
Answer: C



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4. Identify the final product in that follow sequence of reactions.





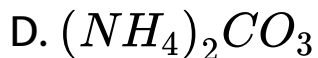
Answer: C



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5. Sodium carbonate, which is one of the most important products of the chemical industry, is prepared by the Solvay process based on the

interaction of sodium chloride with ammonia and carbon dioxide. The reaction yields



Answer: C



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6. The vapour pressure of pure benzene and toluene are 160 and 60 torr respectively. The mole fraction of toluene in vapour phase in contact with equimolar solution of benzene and toluene is:

A. 0.5

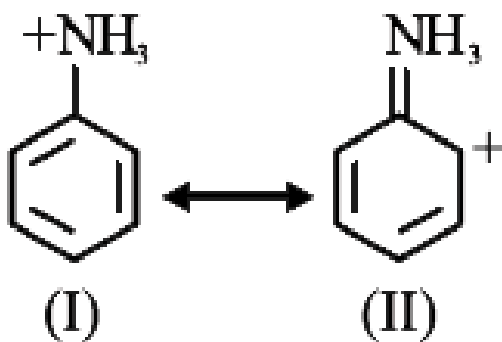
B. 0.6

C. 0.27

D. 0.73

Answer: C

7. Examine the following two structures for the anilinium ion and choose the correct statement from the ones given below :



A. II is not an acceptable canonical structure, because carbonium ions are less stable

than ammonium ions

B. II is not an acceptable canonical structure,

because it is non - aromatic

C. II is not an acceptable canonical structure,

because the nitrogen has 10 valence

electrons

D. II is an acceptable canonical structure

Answer: C



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8. Pick out incorrect statement about $K_2Cr_2O_7$

A. It oxidizes acidified solution of H_2S to S

B. It oxidizes KI to I_2

C. It oxidizes HCl to Cl_2

D. It gives oxygen, which treated with cold dil.



Answer: D



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9. Keto - enol tautomerism is not shown by

A. butan -2- one

B. 1 - phenylbutan -2- one

C. $p - O_2NC_6H_4CH_2COCH_2Ph$

D. $PhCOPh$

Answer: D



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10. A compound does not react with 2,4-dinitrophenyl hydrazine, compound is :

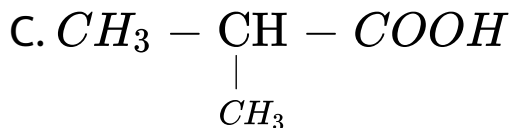
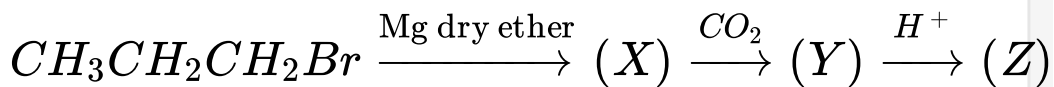


Answer: D



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11. Consider the following sequence of reaction and identify the final product (Z).

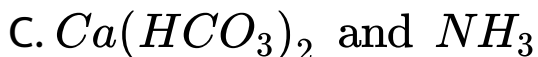
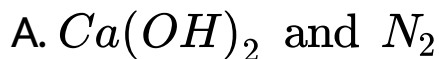


Answer: D



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12. The reaction of calcium cyanamide with water yields

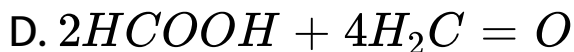
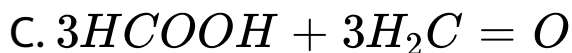
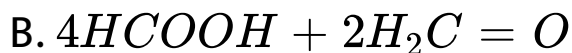
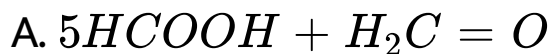


Answer: D



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13. The open - chain glucose on oxidation with HIO_4 gives



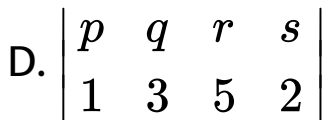
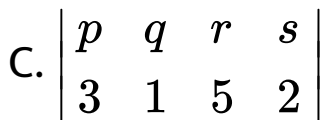
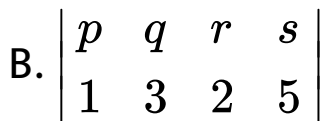
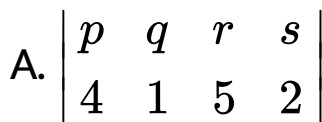
Answer: A



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14. Match list I with list II and select the correct answer using the codes given below the lists.

	List I (Pair of isomers)	List II (Type of isomerism)
(p)	(I) $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$ (II) $[\text{Cr}(\text{NH}_3)_6][\text{Co}(\text{CN})_6]$ }	1. Ionization
(q)	(III) $[\text{PtCl}_2(\text{NH}_3)_4]\text{Br}_2$ (IV) $[\text{PtBr}_2(\text{NH}_3)_4]\text{Cl}_2$ }	2. Hydrate
(r)	(V) $[\text{Co}(\text{SCN})(\text{NH}_3)_5]\text{Cl}_2$ (VI) $[\text{Co}(\text{NCS})(\text{NH}_3)_5]\text{Cl}_2$ }	3. Coordination
(s)	(VII) $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$ (VIII) $[\text{CrCl}_2(\text{H}_2\text{O})_4]\text{Cl} \cdot 2\text{H}_2\text{O}$ }	4. Geometrical
		5. Linkage isomerism



Answer: C



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15. Which of the following on reactions with nitrous acid, followed by treatment with $NaOH$ produces a blue colouration?

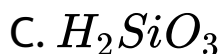
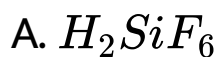


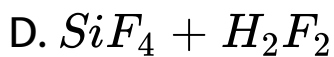
Answer: C



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16. When a fluoride is heated with concentration H_2SO_4 in a glass tube and if a drop of water is held at the mouth of the glass tube, a white deposit formed is of





Answer: C



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17. How many moles of $KMnO_4$ will be needed to react completely with one mole of ferrous oxalate (FeC_2O_4) in acidic solution?

A. $\frac{2}{5}$

B. $\frac{1}{5}$

C. $\frac{3}{5}$

D. $\frac{2}{3}$

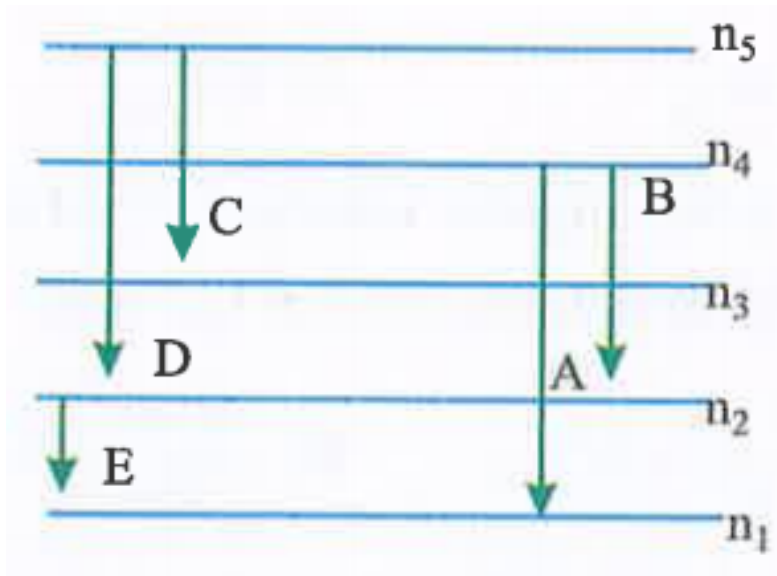
Answer: C



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18. For a hypothetical H like atom which follows Bohr's model, some spectral lines were observed as shown. If it is known that line 'E' belongs to the visible region, then the lines possibly belonging to ultraviolet region will be (n_1 is not necessarily ground state). [Assume for this atom, no spectral series shows overlaps with

other series in the emission spectrum



A. B and D

B. D only

C. C only

D. A only

Answer: D



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19. Pick out the incorrect statement regarding halogens

A. Chlorine is hydrolysed by water to form hydrochloric acid and hypochlorous acid

B. Bromine and iodine react with NaOH solution to form halide and halate ion

C. Chlorine reacts with cold dilute $NaOH$ solution to give sodium chloride and

sodium chlorate

D. Iodine forms a deep blue colour with starch solution

Answer: C



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20. The dissociation constant of two weak acids are k_{a_1} & k_{a_2} respectively. Their relative strength is -

A. $\frac{K_{a_2}}{K_{a_1}}$

B. $\left(\frac{K_{a_1}}{K_{a_2}}\right)^{\frac{1}{2}}$

C. $\frac{K_{a_1}}{K_{a_2}}$

D. $\left(\frac{K_{a_1} \times K_{a_2}}{K_{a_1}}\right)^{\frac{1}{2}}$

Answer: B



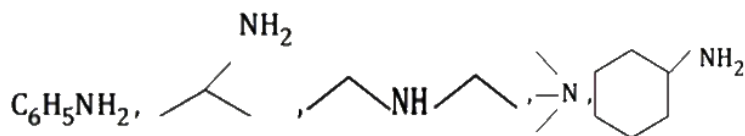
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21. If Mn^{2+} has 'X' number of unpaired electrons and 'Y' other positive oxidation states than +2. What is the sum of $X + Y$ here?



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22. How many of these compounds can show positive test for Hinsberg reagent



$(Ph)_3N$, $Ph - CH_2OH$



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23. When an electric current is passed through acidified water, 112ml of H_2 gas at NTP is

collected at the cathode is 965 seconds. The current passed in amperes is



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24. How many of these polymers are condensation polymers?

Nylon - 6, 6, Dacron, Bakelite, Teflon, Buna - N,

Nylon - 6, Glyptal, Polythene



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25. Semiconductors have a conductivity range of 10^{-6} to $10^n \text{ ohm}^{-1}\text{m}^{-1}$. What is the value of n here?



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