



CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 67

Chemistry

1. An α -particle and a proton are accelerated from rest through the same potential difference V . Find the ratio of de-Broglie wavelength associated with them.

A. $\frac{1}{2}$

B. $\frac{1}{\sqrt{2}}$

C. $\frac{1}{2\sqrt{2}}$

D. $2\sqrt{2}$

Answer: C

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2. The standard reduction potential at 298 K for single electrodes are given below!

Electrode	electrode potential (volt)
Mg^{2+}/Mg	-2.34
Zn^{2+}/Zn	-0.76
Fe^{2+}/Fe	-0.44

From this we can tell that

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A. Zn can reduce both Mg^{2+} and Fe^{2+}

B. Fe can reduce both Mg^{2+} and Zn^{2+}

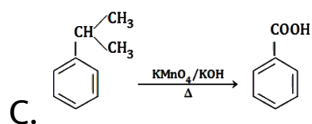
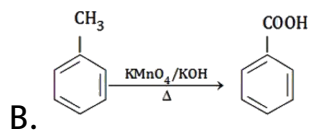
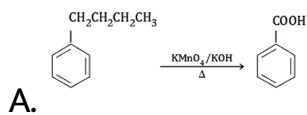
C. Mg can reduce both Zn^{2+} and Fe^{2+}

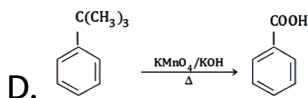
D. Mg can reduce Zn^{2+} but not Fe^{2+}

Answer: C

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3. Which of the following reaction does not occur?





Answer: D

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4. For the reaction, $2N_2O_5 \rightarrow 4NO_2 + O_2$ rate and rate constant are $1.02 \times 10^{-4} M \text{ sec}^{-1}$ and $3.4 \times 10^{-5} \text{ sec}^{-1}$ respectively, the concentration of N_2O_5 , at that time will be

A. 1.732 M

B. 3 M

C. $3.4 \times 10^5 M$

D. $1.02 \times 10^{-1} M$

Answer: B



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5. Calculate $[H^+]$ and % dissociation of 0.1 M solution of ammonium hydroxide solution . The ionisation constant for NH_4OH is $K_b = 2.0 \times 10^{-5}$.

A. $7.09 \times 10^{-12} M, 3 \%$

B. $7.09 \times 10^{-12} M, 1.4 \%$

C. $9.02 \times 10^{-12} M, 2.4 \%$

D. $9.02 \times 10^{-12} M, 3 \%$

Answer: B



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6. A nucleoside on hydrolysis gives

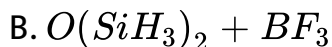
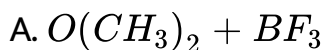
- A. an aldopentose and a nitrogenous base
- B. an aldopentose and phosphoric acid
- C. an aldopentose, a nitrogenous base and phosphoric acid
- D. a nitrogenous base and phosphoric acid

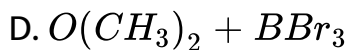
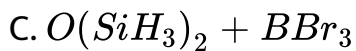
Answer: A



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7. Which one shows the best formation of adduct ?

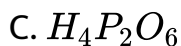
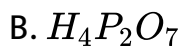
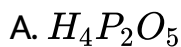




Answer: D

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8. Which of the following oxyacid contains both P-H and P-P bond simultaneously?

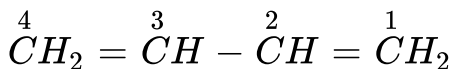


D. None of these

Answer: D



9. Which of the following statements are correct for butadiene



(1) The $C_1 - C_2$ and $C_3 - C_4$ bonds are longer than a carbon double bond.

(2) The $C_1 - C_2$ and $C_3 - C_4$ bonds are shorter than a carbon - carbon double bond.

(3) The $C_2 - C_3$ bond is slightly shorter than a carbon - carbon single bond.

(4) The $C_2 - C_3$ bond is slightly longer than a carbon - carbon double bond.

A. 1, 2

B. 2, 3

C. 1, 3

D. 3, 4

Answer: C



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10. The incorrect statement is

- A. Be^{2+} cation has largest hydration energy among alkaline earth metal
- B. The second ionisation enthalpies of alkaline earth metal are smaller than those of the corresponding alkali metals
- C. Li is the strongest reducing agent among all elements
- D. $LiCl$ and $MgCl_2$ are most ionic in their groups

Answer: D



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11. K_p for the reaction



at $250^\circ C$ is 0.82. Calculate the degree of dissociation at given temperature under a total pressure of $5atm$. What will be the degree of dissociation if the equilibrium pressure is $10atm$, at same temperature.

A. 27.5°

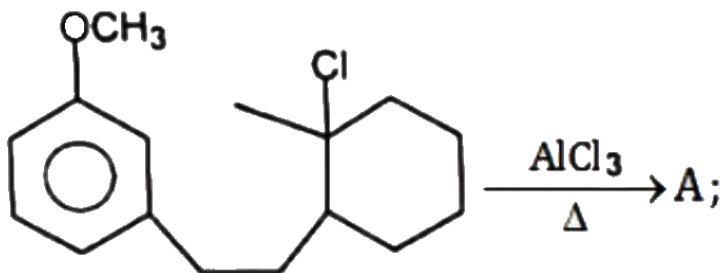
B. 23 %

C. 35.5 %

D. 40 %

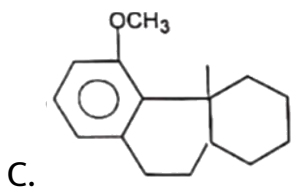
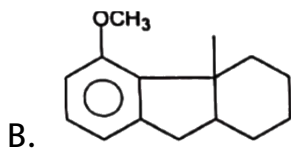
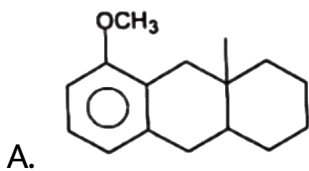
Answer: A

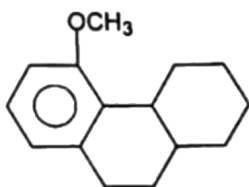
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12.

Identify 'A' in the reaction





D.

Answer: C



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13. It is observed that H_2 and He gases always show positive deviation from ideal behaviour i.e., $Z > 1$. This is because

A. the value of 'a' is very large due to high attractive forces

B. the weak intermolecular forces of attraction due to

which 'a' is very small and $\frac{a}{V^2}$ is negligible

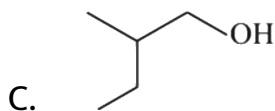
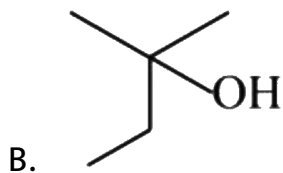
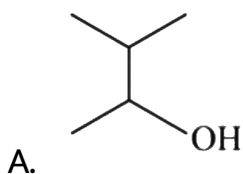
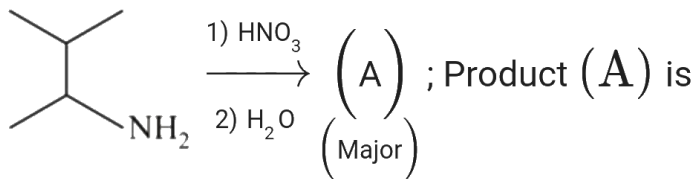
C. the value of 'b' is very large due to large size of the

molecules

D. both 'a' and 'b' are very small and negligible

Answer: B

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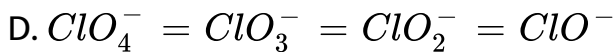
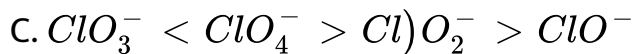
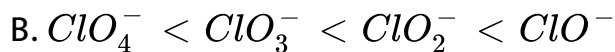
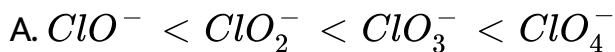


D. All of these

Answer: B

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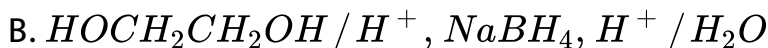
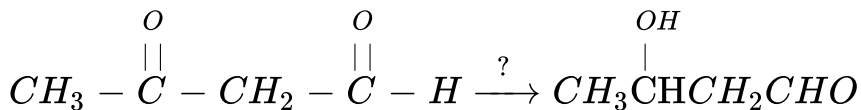
15. The correct order of O^- bond lengths in ClO^- , ClO_2^- , ClO_3^- and ClO_4^- is



Answer: B

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16. What sequence of reactions would best accomplish the following conversion?



Answer: B



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17. $\left(\frac{dG}{dp}\right)_T =$

A. V

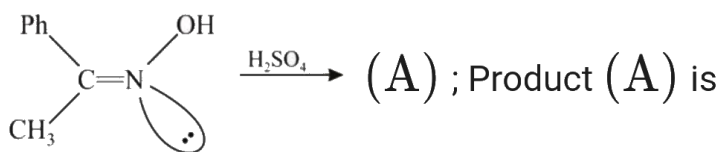
B. S

C. $-S$

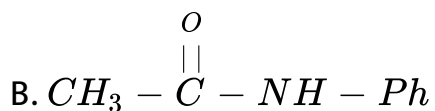
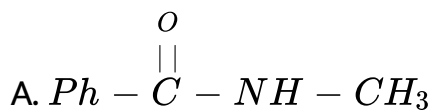
D. $-V$

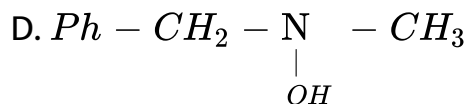
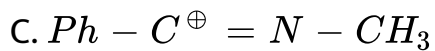
Answer: A

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18.



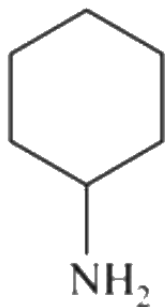


Answer: B



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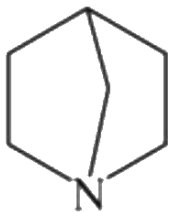
19. Which of the following compound will not undergo amine inversion?



A.



C. NH_3



D.

Answer: D

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20. Match the column I with column II and mark the appropriate choice.

	Column I		Column II
(p)	Natural polymer	(i)	Rayon
(q)	Addition polymer	(ii)	Bakelite
(r)	Copolymer	(iii)	Silk
(s)	Semi-synthetic polymer	(iv)	Neoprene

A. (p) - (i),(q) - (ii), (r) - (iv), (s) - (iii)

B. (p) - (iii), (q) - (iv), (r) - (ii), (s) - (i)

C. (p) - (ii), (q) - (iii), (r) - (i), (s) - (iv)

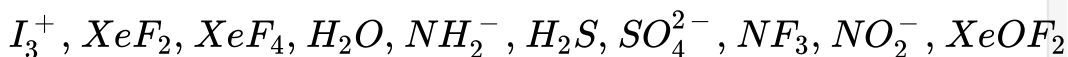
D. (p) - (iv), (q) - (i), (r) - (iii), (s) - (ii)

Answer: B



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21. Find the number of molecule having two lone e^- pairs, on central atom.



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22. Iron crystallizes in body centered cubic system with edge length 2.86\AA . The density of iron is nearly X g/ml. What is the value of X here?

Report your answer by rounding it upto nearest whole number.



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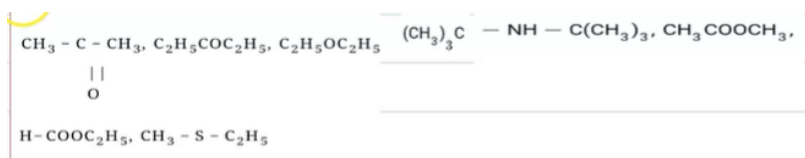
23. What volume of hydrogen in ml will be liberated at STP by the reaction of Zn on 50 ml of dilute H_2SO_4 of specific gravity 1.3 having purity of 40 % ?

Report your answer by rounding it upto nearest whole number.



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24. How many of these compounds can show metamerism here ?



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25. Here how many ligands are ambidentate?



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