

CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 101

Chemistry

1. SbF_3 reacts with XeF_4 and XeF_6 to form ionic compounds $[XeF_3^+][SbF_6^+]$ and $[XeF_5^+][SbF_6^-]$ then molecular shape of $[XeF_3^+]$ ion and $[XeF_5^+]$ ion respectively

- A. square pyramidal, T - shaped
- B. Bent - T - shape, square pyramidal
- C. See - saw, square pyramidal
- D. Square pyramidal, See - saw

Answer: B

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2. ' a ' gm KHC_2O_4 is used to neutralize 100 mL of 0.02 M $KMnO_4$ in acid medium, where as ' b ' gm KHC_2O_4 is used to neutralize 100 mL of 0.02 M $Ca(OH)_2$ then,

A. $a = b$

B. $4a = 5b$

C. $5a = 4b$

D. $2a = b$

Answer: B

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3. Which of these compounds are aromatic in character?

A. 

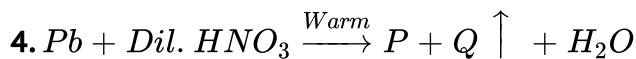
B. 

C. 

D. All of these

Answer: D

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Incorrect statement for Q is:

A. Paramagnetic colourless gas

B. It is oxidized to paramagnetic coloured gas by air

C. It combines with $Fe_2(SO_4)_3$

D. It is also obtained by disproportionation of HNO_2

Answer: C

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5. In the given reaction $C_6H_5 - O - CH_2 - CH_3 \xrightarrow{\text{Excess HI} / \Delta} (X) + (Y)$

X and Y will respectively be

- A. C_6H_5I and $CH_3 - CH_2 - I$
- B. $C_6H_5 - OH$ and $CH_3 - CH_2 - I$
- C. C_6H_5I and $CH_3 - CH_2OH$
- D. C_6H_5OH and $CH_2 = CH_2$

Answer: B

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6. A gas expands adiabatically at constant pressure such that:

$$T \propto \frac{1}{\sqrt{V}}$$

The value of γ i.e., (C_P / C_V) of the gas will be:

A. 1.30

B. 1.50

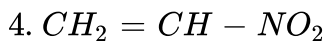
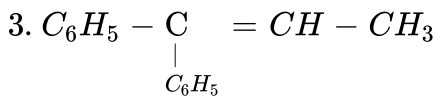
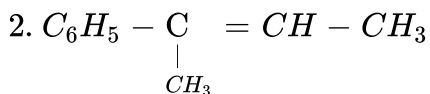
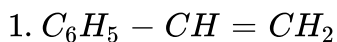
C. 1.70

D. 2

Answer: B

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7. Arrange reactivity of given compounds in decreasing order for electrophilic addition reaction



Select the correct answer from codes given below

A. 4, 1, 2, 3

B. 3, 2, 1, 4

C. 2, 3, 1, 4

D. 2, 3, 4, 1

Answer: B

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8. Consider the oxy acids $HClO_n$ series here value of n is 1 to 4. then incorrect statement regarding these oxyacids is:

A. Acidic character of oxy acids increases with increasing value of n

B. Oxidising power of oxy acids increases with decreasing value of n

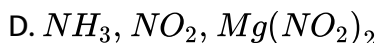
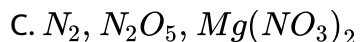
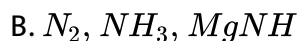
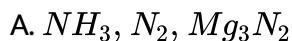
C. Thermal stability of oxy acids decreases with increasing value of n

D. $Cl - O$ bond order decreases with decreasing value of n

Answer: C

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9. Calcium imide on hydrolysis will give gas (B) which on oxidation by bleaching powder gives gas (C) gas (C) on reaction with magnesium give compound (D). (D) on hydrolysis gives gas (B). (B), (C) and (D) are



Answer: A

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10. Find out E° for $F^- \rightarrow \frac{1}{2}F_2 + e^-$, If $F_2 + 2e^- \rightarrow 2F^-$, $E^\circ = +2.7V$.

A. 1.35 V

B. $-1.35V$

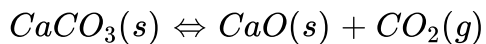
C. $2.7 V$

D. $-2.7V$

Answer: D

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11. For the chemical equilibrium,



$\Delta_r H^\ominus$ can be determined from which one of the following plots?

A. 

B. 

C. 

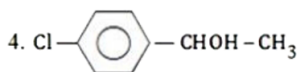
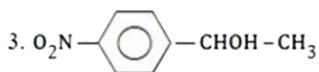
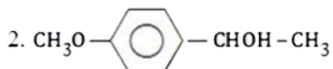
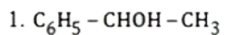
D. 

Answer: A



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12. Arrange reactivity of given alcohols in decreasing order for dehydration reaction with concentrates H_2SO_4



A. 3, 4, 1, 2

B. 4, 3, 2, 1

C. 1, 3, 4, 2

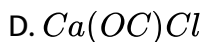
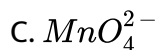
D. 2, 4, 1, 3

Answer: D



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13. Which of the following ionic/molecular species does not disproportionate in water at room temperature?

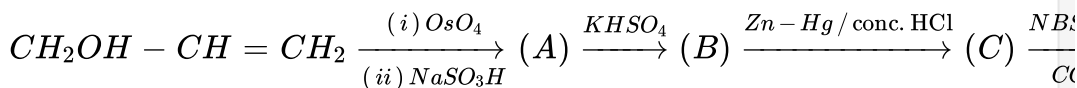


Answer: D



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14. Find the final product 'E'



A. But - 2 - ene

B. But - 1 - ene

C. Isopentene

D. Pen - 2 - ene

Answer: B

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15. A graph plotted between $\log t_{50}$ vs \log concentration is a straight line.

What conclusion can you draw the given graph?



[Given : n = order of reaction]

A. $n = 1, t_{\frac{1}{2}} = \frac{1}{k \cdot a}$

B. $n = 2, t_{\frac{1}{2}} = \frac{1}{a}$

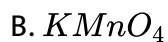
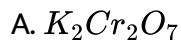
C. $n = 1, t_{\frac{1}{2}} = \frac{0.693}{k}$

D. None of the above

Answer: C

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16. Which of the following compounds is(are) coloured due to charge transfer spectra and not due to d - d transitions?



D. All of these

Answer: D



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17. Identify the final product C here



A. 

B. 

C. 

D. 

Answer: C

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18. The boiling point of an azeotropic mixture of water and ethyl alcohol is less than that of the theoretical value of water and alcohol mixture.

Hence the mixture shows

- A. that solution is highly saturated
- B. positive deviation from Raoult's law
- C. negative deviation from Raoult's law
- D. nothing can be said

Answer: B

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19. Match List - I with List - II and select the correct answer.

List-I	List-II
P. α -D and β -D glucose	1. Enantiomers
Q. D-glucose and D-galactose	2. Anomers
R. Erythrose and threose	3. Epimers
S. D-glyceraldehyde and L-glyceraldehyde	4. Diastereomers

A. P - 3, Q - 2, R - 1, S - 4

B. P - 2, Q - 3, R - 4, S - 1

C. P - 3, Q - 2, R - 4, S - 1

D. P - 2, Q - 3, R - 1, S - 4

Answer: B



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20. Which of the following graphs correctly represents the variation of

$$\beta = - \left(\frac{dV}{dP} \right) / V \text{ with } P \text{ for an ideal gas at constant temperature}$$

A.

B. 

C. 

D. 

Answer: A

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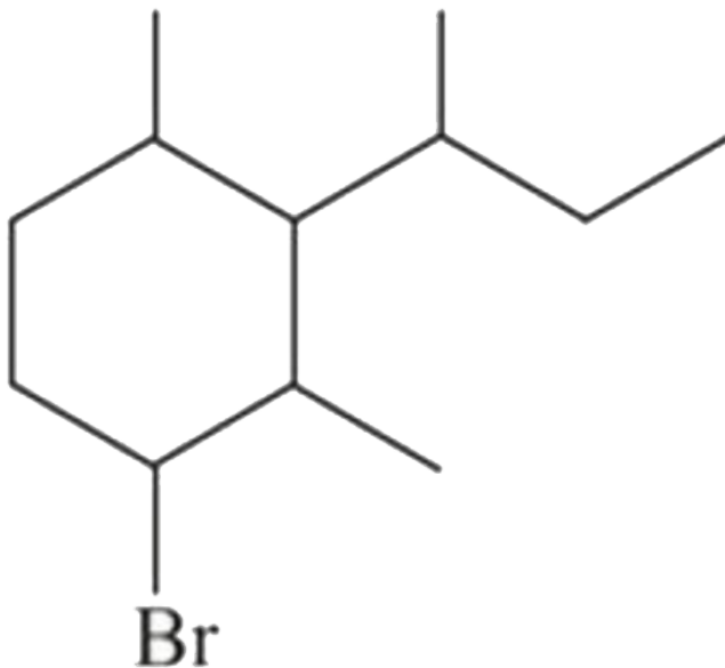
21. A metallic crystal crystallizes into a lattice containing a sequence of layers $ABABAB\dots$. Any packing of spheres leaves out voids in the lattice. What percentage by volume of this lattice is empty space?

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22. Given that $r_{n-1} + r_n = r_{n+1}$ where r represents Bohr's orbit for $(n-1)^{\text{th}}$, n^{th} and $(n+1)^{\text{th}}$ orbit, then n is

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23. The number of chiral centres in the given compound is

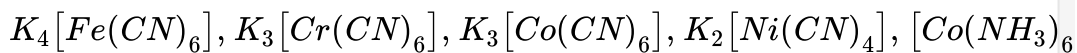


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24. IE_1 for H and He are 13.6 eV and 24.6 eV respectively. Thus, energy required in eV during the formation of He^{2+} by $He \rightarrow He^{2+} + 2e^-$ is

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25. Amongst the following, the total number of species which are diamagnetic is



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