



CHEMISTRY

BOOKS - NTA MOCK TESTS

JEE MOCK TEST 17

Chemistry

1. A metallic element exists in cubic lattice. Each edge of unit cell is 4 \AA . The density of metal is 6.25 g/m^3 . How many unit cells will be present in 100 g of metal?

A. 1×10^{22}

B. 2.5×10^{29}

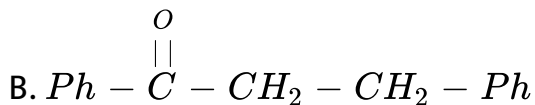
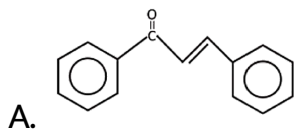
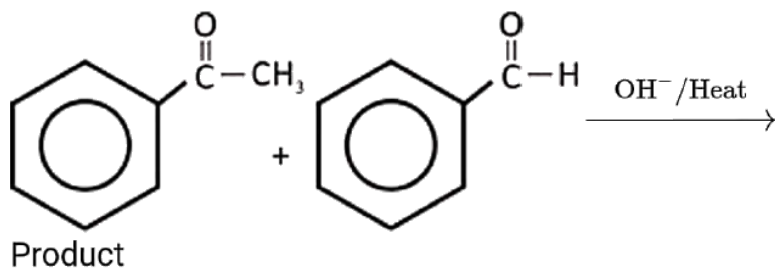
$$C. 5 \times 10^{23}$$

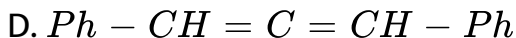
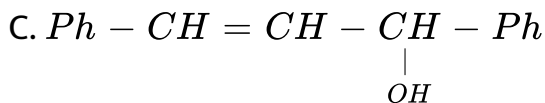
$$D. 2 \times 10^{23}$$

Answer: B

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2. Complete the following reaction





Answer: A

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3. The vapour pressure of pure liquid A is 10 torr and at the same temperature when 1 g solid B is dissolved in 20g of A , its vapour pressure is reduced to 9.0 torr . If the molecular mass of A is 200amu , then the molecular mass of B is

A. 100 amu

B. 90 amu

C. 75 amu

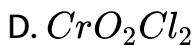
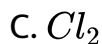
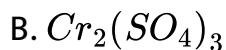
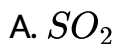
D. 120 amu

Answer: B



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4. The gas obtained by roasting of sulphide ore is reacted with acidified potassium dichromate. A green colored compound 'X' is formed. The compound X can be :

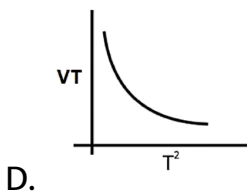
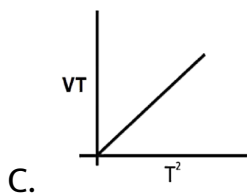
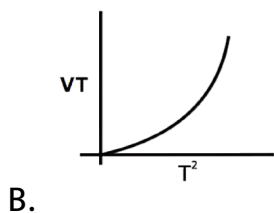
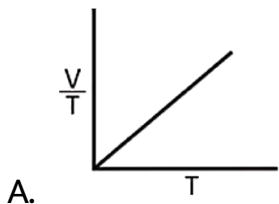


Answer: B



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5. Which of the following curve is correct for a given amount of an ideal gas at constant pressure?



Answer: C



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6. The standard molar heats of formation of ethane, carbon dioxide, and liquid water are -21.1 , -94.1 , and -68.3kcal , respectively. Calculate the standard molar heat of combustion of ethane.

A. -372kcal/mol

B. 162kcal/mol

C. -240kcal/mol

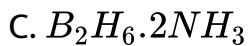
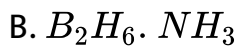
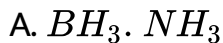
D. 183.5kcal/mol

Answer: A



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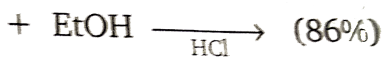
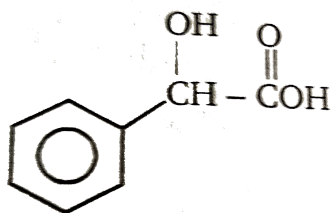
7. Diborane reacts with ammonia to initially forms X which on further heating gives borazine X is



Answer: C

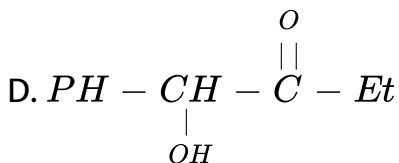
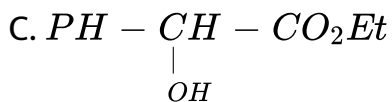
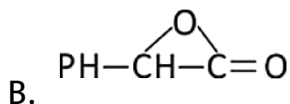
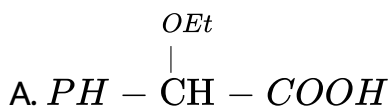


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8. (Mandelic acid)

Identify product of above Fischer esterification reaction :



Answer: C



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9. Which of the following statement is wrong

A. $[RuCl_6]^{2-}$ has a t_{2g}^4 configuration

B. $[Fe(Ox)_3]^{3-}$ is a low spin complex

C. Pairing energy of 4d and 5d series metal tend to be lower than the 3d series metals

D. Number of unpaired electrons in $[Mn(CN)_6]^{3-}$ is 2

Answer: B



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10. Lithium hydride reacts with aluminum chloride to form a complex. The geometry of the complex and the ligand present in the complex is

A. Octahedral, chloride

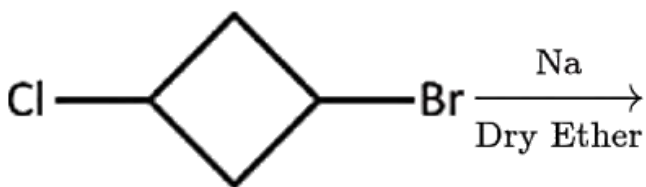
B. Tetrahedral, hydride

C. Octahedral, bridging chloride

D. Tetrahedral, Chloride and hydride

Answer: B

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11.



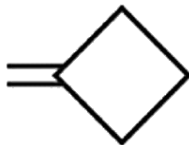
A.



B.



C.



D.

Answer: B



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12. The gas which has similar shape and bond order as that of azide ion is:

A. Sulphur dioxide

B. Ozone

C. Sulphur trioxide

D. Carbon dioxide

Answer: D



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13. The incorrect order of first ionization energy is:

A. $Au > Cu > Ag$

B. $Pt > Ni > Pd$

C. $C > Pb > Sn$

D. $B > Ga > Al$

Answer: B



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14. Oxidation state of iron and chromium in chromite ore is :

A. 2,3

B. 3,2

C. 2,2

D. 3,3

Answer: A

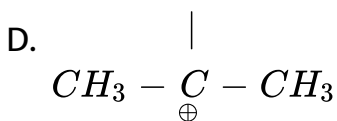
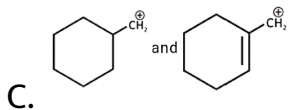


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15. Some pairs of ions are given below. In which pair, first ion is more stable than second ?



B.



Answer: B



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16. The solubility of AB_2 is 0.05 g per 100 mL at $25^\circ C$. Calculate K_{sp} of AB_2 at $25^\circ C$? [Atomic mass of A = 20 amu, atomic mass of B = 40 amu]

A. 10^3

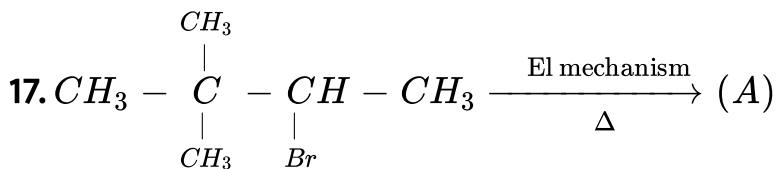
B. 5×10^{-7}

C. 10^{-6}

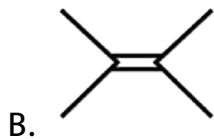
D. 5×10^{-3}

Answer: B

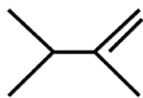
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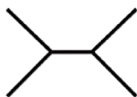
Major product (A) is



C.



D.



Answer: B



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18. incorrect statement related to extraction of copper from copper pyrite is:

- A. Iron silicate is obtained as slag
- B. Copper matte in the form of $CuS + FeS$ is obtained
- C. Copper is obtained by self reduction
- D. Blister copper is obtained after reduction process

Answer: B



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19. Aniline is prepared in presence of Fe/HCl from

A. Benzene

B. Nitrobenzene

C. Dinitrobenzene

D. Aniline

Answer: B



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20. Which of the following sols is negatively charged?

- A. Ferric hydroxide
- B. Aluminium hydroxide
- C. Aresenious sulphide
- D. Silver iodide in silver nitrate solution

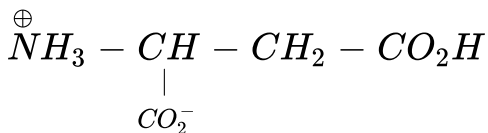
Answer: C

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21. How many isomer of C_4H_8O when reacts with CH_3MgBr followed by acidification to give 2° alcohol (only consider carbonyl isomers) ?
(including stereoisomer)

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22. How many acidic group is present in given amino acid ?



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23. Four different solution containing 1M each of Au^{+3} , Cu^{+2} , Ag^+ , Li^+ are being electrolysed by using inert electrodes. In how many samples, metal ions would be deposited at cathode?

$$\left[\text{Given : } E_{Ag^+ / Ag}^0 = 0.8, E_{Au^{+3} / Au}^0 = 1.00V \right.$$

$$\left. E_{Cu^{+2} / Cu}^0 = 0.34V, E_{Li^+ / Li}^0 = - 3.03V \right]$$

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24. 16 g of a radio active substance is reduced to 0.5 g after 1 hour. The half life of the radioactive substance in minutes is



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25. 5 mol of $Fe_2(C_2O_4)$ is oxidised by x mol of $K_2Cr_2O_7$ in acidic medium, calculate the value of x ?



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