CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 107

Chemistry

1. The IUPAC name of the compound $CH_2 = CH - CH(CH_3)_2$ is
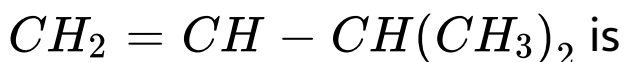
A. 1, 1 - dimethyl 1 - 2 - butene

B. 3 - methyl -1 - butene

C. 2 - vinyl propane

D. None of these

Answer: B

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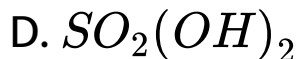
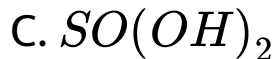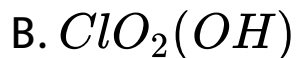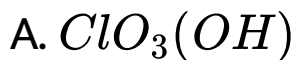**2.** Reaction of esters with Grignard reagents give rise to :

A. Primary alcohol

B. Secondary alcohol

C. Teritary alcohol

D. Ketone

Answer: C

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3. Which of the following is the strongest

acid?

A. $ClO_3(OH)$

B. $ClO_2(OH)$

C. $SO(OH)_2$

D. $SO_2(OH)_2$

Answer: A

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4. $OHC(CH_2)_3COCH_3 \xrightarrow[\Delta]{OH^-}$
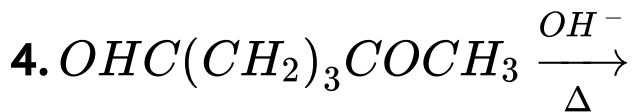
The major product is ?
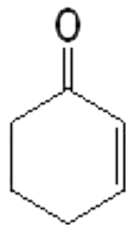
A.
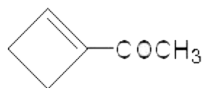
B.
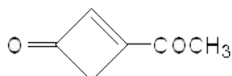
C.

D.
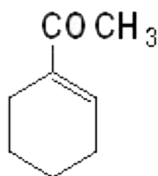
Answer: A

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5. In chromite ore, the oxidation number of iron and chromium are respectively.

    A. $+3, +2$

    B. $+3, +6$

    C. $+2, +6$

    D. $+2, +3$

Answer: D

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6. The pH of $10^{-8}M$ solution of HCl in water is

  A. 8

  B. -8

  C. between 7 and 8

  D. between 6 and 7

Answer: D

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7. In the synthesis of glycerol from propene, the steps involved are :

A. Allyl chloride, gamma allyl alcohol and

$\beta-$ monochlorohydrin

B. Glycerol trichloride and glycerol $\alpha-$

chlorohydrin

C. Allyl alcohol and $\alpha-$ chlorohydrin

D. Allyl alcohol and monosodium

glycerolate

Answer: A

8. In brown ring Fe and NO exist as Fe^+ and NO^+ rather than Fe^{2+} and NO. These forms can be differentiated by

    A. Measuring the conductivity of an aqueous solution of the complex

    B. By careful crystallization of the complex under special conditions and measuring

the magnetic moment in solid state

C. Estimating the concentration of iron

D. Determining elevation in boiling point

using the complex as solute

Answer: B

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9. The percentage of oxygen in CH_2O is

A. 40 %

B. 6.6 %

C. 53.33 %

D. 49 %

Answer: C

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10. Which of the followingis not correct?

A. The metallic conduction is due to the

movement of electrons in the metal

B. The electrolytic conduction is due to the movement of ions in the solution

C. The current carrying ions are not necessarily discharged at the electrodes

D. The metallic conduction increases with the increase in temperature, whereas that of electrolytic conduction decreases with temperature.

Answer: D

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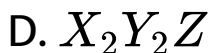**11.** Which among the following is the most reactive

A. Icl

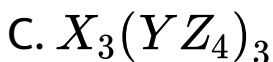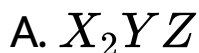B. Cl_2

C. Br_2

D. I_2

Answer: A

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12. A compound contains three elements X, Y and Z. The oxidation number of X, Y and Z are $+3, +5$ and -2 respectively. The possible formula of the compound is

A. X_2YZ

B. XYZ_3

C. $X_3(YZ_4)_3$

D. X_2Y_2Z

Answer: C

13. Identify the metal M whose extraction is based on the following reactions:

$$MS + 2O_2 \rightarrow MSO_4$$

$$2MS + 3O_2 \rightarrow 2MO + 2SO_2$$

$$MS + 2MO \rightarrow 3M + SO_2$$

$$MS + MSO_4 \rightarrow 2M + 2SO_2$$
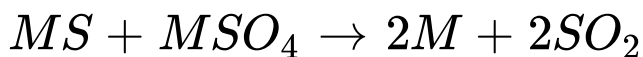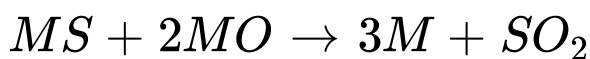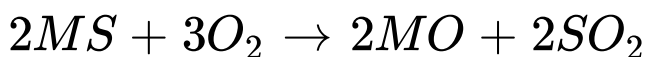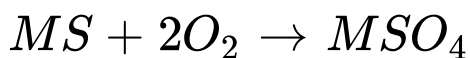
A. Mg

B. Pb

C. Sn

D. Fe

Answer: B

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14. The reaction between phosphorus (P_4) and hydrogen (H_2) can result in the formation of phosphine (PH_3) as shown :

$$P_4(s) + 6H_2(g) \Leftrightarrow 4PH_3(g)$$
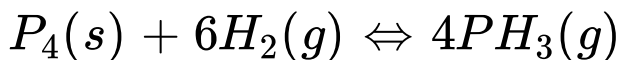
The graph shows the change in concentration of hydrogen for this reaction in which the

system was distrubed after four hours.
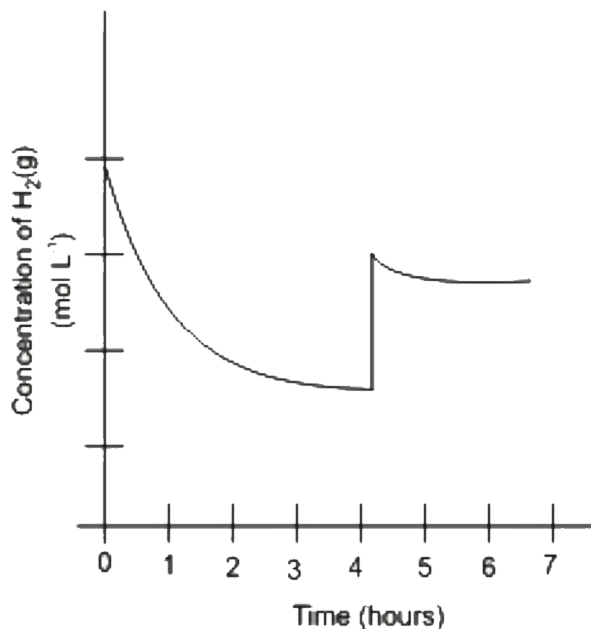
Which of the following could explain the

change in hydrogen concentration at time = 4

hours?

A. The volume on the reaction vessel was

decreased

B. A catalyst was added

C. The pressure on the reaction mixture

was decreased

D. More phosphorus was added

Answer: A

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15. Rate of physisorption increases with :

A. Decrease in temperatureq

B. Increase in temperature

C. Decrease in pressure

D. Decrease in surface area

Answer: A

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16. The nodal plane in the π-bond of ethene is located in:

A. A plane parallel to the molecular plane

B. A plane perpendicular to the molecular plane which bisects the carbon - carbon $\sigma -$ bond at right angle.

C. A plane perpendicular to the molecular plane which contains the carbon - carbon $\sigma -$ bond.

D. Along the molecular plane

Answer: D

17. The solubility of fluorides of alkali metals in water is

A. $LiF > NaF > KF > RbF > CsF$

B. $CsF > RbF > KF > NaF > LiF$

C. $LiF > KF > NaF > CsF > RbF$

D. $CsF > KF > NaF > RbF > LiF$

Answer: B

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18. The substance used in the thermite process of reducing metal ores is

    A. Aluminium

    B. Thorium

    C. Heated Pt gauge

    D. Carbon

Answer: A

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19. In the hydrogen atom spectrum, the least energetic photon takes place during the transition from n = 6 energy level to n = ... energy level.
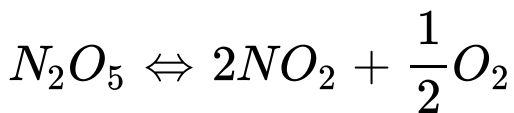
A. 1

B. 3

C. 5

D. 4

Answer: C

20. What is the activation energy for the decomposition of N_2O_5 as

$$N_2O_5 \Leftrightarrow 2NO_2 + \frac{1}{2}O_2$$

If the values of the rate constants are 3.45×10^{-5} and 6.9×10^{-3} at $27°C$ and $67°C$ respectively

A. $112.3 \text{ kJ mol}^{-1}$

B. $200.55 \text{ kJ mol}^{-1}$

C. $149.5 \text{ kJ mol}^{-1}$

D. $11.25 \text{ kJ mol}^{-1}$

Answer: A

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21. Number of chiral centres in Pencillin is

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22. Diamonds are formed from graphite under high pressure in coal mines. Calculate the

equilibrium pressure (in atm) at which graphite is converted to diamonds at $25°C$ (assumed constant) given densities of

$\rho_{\text{graphite}} = 2g/cc \& \rho_{\text{diamond}} = 3g/cc \left(\Delta G_f^\circ \right)$

for diamonds is 3 k J m^{-1} from graphite

23. At $300K$, $36g$ of glucose present per litre in its solution has an osmotic pressure of 4.98 bar. If the osmotic pressure of the solution is

1.52 bar at the same temperature, what would

be its concentration?

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24. In borax number of $B - O - B$ bonds are

X and number of boron atoms are Y. Then

$X + Y$ is

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25. Find the molaity of water. Given:

$$\rho = 1000 kg/m^3$$

[Report your answer upto one decimal place].