Chemistry

SECTION – A

Single Correct (1-4)

1. Which of the following equation is correct?

(1) $3LiNO_3 \xrightarrow{heat} 2LiNO_2 + O_2$

(2) $NaNO_3 + NaNH_2 \xrightarrow{80°-90°C} 2NaOH + N_2O$

(3) Potassium formate is heated with freeexposure to air.

$2HCOOK + O_2 \longrightarrow K_2CO_3 + H_2O + CO_2$

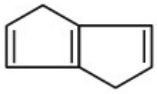
(4) Solid $KBrO_3$ is heated with powdered charcoal.

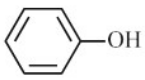
$2KBrO_3 + 3C \longrightarrow 2KBr + 3CO_2$

2. Calculate the lattice energy of a salt MX(s) fromthe date given below:
Heat of formation of MX(ΔH) = –550 kJ/molHeat of sublimation of M(S) = 80 kJ/mol Heat of dissociation of X_2(D) = 155 kJ/mol Ionization energy of M(I) = 347 kJ/mol Electron affinity of X€ = – 343 kJ/mol

(1) –838.5 kJ/mol (2) –938.5 kJ/mol
(3) –711.5 kJ/mol (4) –638.5 kJ/mol

3. Which of the following will not react with Na metal?

(1)  (2) 

(3)  (4) 

4. A volume of 20 ml of 8.5% (w/v) H_2O_2 solution is diluted to 50 ml. A volume of 10 ml of the diluted solution is reacted with excess of an oxidant. It will cause liberation of ml of _____ gas at 0°C and 1 atm.

(1) 11.2, O_2 (2) 112, O_2
(3) 11.2, H_2 (4) 112, H_2

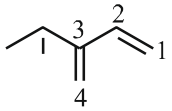
More than one correct (5-10)

5. The dipole moments of AX_3, YX3 and ZW3 are 4.97 × 10–30, 0.60 × 10–30, and zero cm respectively. Select the correct statement(s) for AX_3, YX_3 and ZW_3:
(1) Both AX_3 and YX_3 are planar
(2) Both AX_3 and YX_3 are pyramidal
(3) ZW_3 is pyramidal
(4) ZW_3 is planar

6. Which of the following statements is correct?

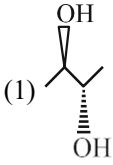
(1) Metallic hydrides are deficient of hydrogen
(2) Metallic hydrides conduct heat and electricity
(3) Ionic hydrides do not conduct electricity insolid state
(4) Ionic hydrides are very good conductors ofelectricity in solid state

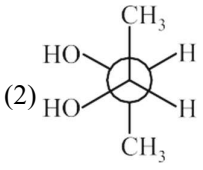
7. Which of the following statements re incorrectabout this molecule?

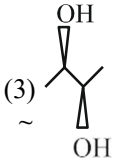


(1) C_1—C_2 and C_3—C_4 bonds are of same length
(2) C_1—C_2 bond is shorter than C_3—C_4 bond
(3) C_1—C_2 bond is longer than C_3—C_4 bond
(4) C_1—C_2 and C_2—C_3 bonds are of same length

8. Which of the following molecules are chiral?

(1) 

(2) 

(3) 

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