Electrochemistry

1. The charge required for the reduction of 1 mol of MnO_4^- to MnO_2 is
(a) 1 F
(b) 3 F
(c) 5 F
(d) 6 F

▼ **Answer**

Answer: b

---

2. The cell reaction of the galvanic cell.
$Cu(s) / Cu^{2+}(aq) // Hg^{2+}(aq) / Hg(l)$ is
(a) $Hg + Cu^{2+} \longrightarrow Hg^{2+} + Cu$
(b) $Hg + Cu^{2+} \longrightarrow Cu^{+} + Hg^{+}$
(c) $Cu + Hg \longrightarrow CuHg$
(d) $Cu + Hg^{2+} \longrightarrow Cu^{2+} + Hg$

▼ **Answer**

Answer: d

---

3. Which of the following reaction is used to make fuel cell?
(a) $Cd\ (s) + 2Ni(OH)_3\ (s) \longrightarrow CuO\ (s) + 2\ Ni(OH)_2\ (s) + H_2O\ (l)$
(b) $Pb\ (s) + PbO_2\ (s) + 2H_2SO_4\ (aq) \longrightarrow 2PbSO_4\ (s) + 2H_2O\ (l)$
(c) $2H_2\ (g) + O_2\ (g) \longrightarrow 2H_2O\ (l)$
(d) $2Fe\ (s) + O_2\ (g) + 4H^+\ (aq) \longrightarrow 2Fe^{2+}\ (aq) + 2H_2O\ (l)$

▼ **Answer**

Answer: c

---

4. If limiting molar conductivity of Ca^{2+} and Cl^- are 119.0 and 76.3 S cm^2 mol^{-1}, then the value of limiting molar conductivity of CaCl2 will be
(a) 195.3 S cm^2 mol^{-1}
(b) 271.6 S cm^2 mol^{-1}
(c) 43.3 S cm^2 mol^{-1}
(d) 314.3 S cm^2 mol^{-1}.

▼ **Answer**

Answer: b

5. NH4NC>3 is used in salt bridge because
(a) it forms a jelly like material with agar-agar.
(b) it is a weak electrolyte.
(c) it is a good conductor of electricity.
(d) the transport number of NH_4^+ and NO_3^- ions are almost equal.

▼ **Answer**

Answer: d

6.

$$Cr_2O_7^{2-} + X \xrightarrow{H^+} Cr^{3+} + H_2O + \text{Oxidised product of X}$$

X in the above reaction cannot be

(a) $Cr_2O_4^{2-}$ **(b)** Fe^{2+}
(c) SO_4^{2-} **(d)** S^{2-}

▼ **Answer**

Answer: b

---

7. The reaction, $3ClO^-$ (aq) → ClO_3 (aq) + $2Cl^-$ (aq) is an example of
(a) Oxidation reaction
(b) Reduction reaction
(c) Disproportionation reaction
(d) Decomposition reaction

▼ **Answer**

Answer: c

---

8. The emf of the cell:
Ni / Ni^{2+} (1.0 M) // Au^{3+} (1.0 M) / Au ($E° = -0.25$ V for Ni^{2+}/Ni; $E° = 1.5$ V for Au^{3+}/Au) is
(a) 1.25 V
(b) -1.25 V
(c) 1.75 V
(d) 2.0 V

▼ **Answer**

Answer: c

---

9. The standard emf of a galvanic cell involving cell reaction with n = 2 is formed to be 0.295 V at 25° C. The equilibrium constant of the reaction would be
(a) 1.0×10^{10}
(b) 2.0×10^{11}
(c) 4.0×10^{12}
(d) 1.0×10^{2}
[Given F = 96500 (mol^{-1}); R = 8.314 JK^{-1} mol^{-1}]

▼ **Answer**

Answer: a

---

10. If $E°_{Fe^{2+}/Fe} = -0.441$ V and $E°_{Fe^{2+}/Fe^{2+}} = 0.771$ V, the standard EMF of the reaction,
$Fe + 2Fe^{3+} \rightarrow 3Fe^{2+}$ will be
(a) 1.212 V
(b) 0.111 V
(C) 0.330 V
(d) 1.653 V

▼ **Answer**

Answer: a
