DPP of Electrochemistry

1. The mass of copper deposited from a solution of by passage of 5 *A* current for 965 second is (*Mol*. *wt*. of Copper = 63.5)  **[AIIMS 2001]**

(a) 15.875 *g* (b) 1.5875 *g*

(c) 4825 *g* (d) 96500 *g*

1. The current in a given wire is 1.8 *A*. The number of coulombs that flow in 1.36 minutes will be **[AIIMS 2001]**

(a) 100 *C* (b) 147 *C*

(c) 247 *C* (d) 347 *C*

1. A solution of a salt of a metal was electrolysed for 150 *minutes* with a current of 0.15 *amperes*. The weight of metal deposited was 0.783 *gm*. The equivalent weight of the metal is **[AFMC 2001]**

(a) 55.97 *gm* (b) 65.97 *gm*

(c) 75.97 *gm* (d) 85.97 *gm*

1. The resistance of 0.01*N* solution at  is 200 Ω. Cell constant of conductivity cell is 1 *cm*–1. The equivalent conductance is  **[CBSE PMT 1999]**

(a)  (b) 

(c)  (d) 

1. Which of the following reaction is possible at anode

**[AIEEE 2002]**

(a) 

(b) 

(c) 

(d) None of these

1. What is the standard cell potential for the cell



 for 

**[AIIMS 1980]**

(a) 

(b) 

(c) 

(d) 

1. Normal aluminium electrode coupled with normal hydrogen electrode gives an  of . So the standard electrode potential of aluminium is **[KCET 1987]**

(a)– 1.66 *V* (b) + 1.66 *V*

(c) – 0.83 *V* (d) + 0.83 *V*

1. Which one among the following is the strongest reducing agent







 **[BHU 1998]**

(a)  (b) 

(c)  (d) 

1. The cell reaction of the galvanic cell  is **[EAMCET 2003]**

(a) 

(b) 

(c) 

(d)

1. The specific conductivity of *N*/10 solution at  is  and the resistance of cell containing this solution at  is 55 *ohm*. The cell constant is

**[AIIMS 1999]**

(a) 1.166 

(b) 2.173 

(c) 3.324 

(d) 4.616 

1.  In . This is called

**[CPMT 1988; MP PET 2000]**

(a) Gibb's equation

(b) Gibb's–Helmholtz equation

(c) Nernst's equation

(d) Vander Waal's equation

1. Four alkali metals A, B, C and D are having respectively standard electrode potential as –3.05,–1.66,–0.40 and 0.80. Which one will be the most reactive

**[MP PMT/PET 1988 ; CPMT 1983;**

**MNR 1993; UPSEAT 2002]**

(a) A (b) B

(c) C (d) D

1. Which one of the following metals cannot evolve from acids or  or from its compounds

**[MP PET/PMT 1988; CPMT 1996;**

#### AFMC 1998, 99; Pb. PET 1999; BVP 2003]

(a)  (b) 

(c)  (d) 

1. Which one of the following reaction is not possible

**[MP PMT 1991]**

(a) 

(b) 

(c) 

(d) 

1. The oxide which is not reduced by hydrogen is

**[JIPMER 1999]**

(a)  (b) 

(c)  (d) 

1. The limiting molar conductivities for *NaCl,* *KBr* and *KCl* are 126, 152 and 150  respectively. The  for *NaBr* is **[AIEEE 2004]**

(a)  (b) 

(c)  (d) 

1. On the basis of the electrochemical theory of aqueous corrosion, the reaction occurring at the cathode is

**[MP PET 1994; UPSEAT 2001]**

(a) 

(b) 

(c) 

(d) 

1. The reaction 

occurs in the galvanic cell

**[IIT 1985; AMU 2002; KCET 2003]**

(a) 

(b) 

(c) 

(d) 

1. The reaction  has a standard potential of . This means **[KCET 1992]**

(a)  can't replace hydrogen from acids

(b)  is a reducing agent

(c)  is a oxidising agent

(d) is a reducing agent

1. The standard electrode potential for the above reaction is (in volts) **[CPMT 1988]**

(a) 0 (b) + 1

(c) – 1 (d) None of these

1.  and  metals may be arranged in the decreasing order of their standard electrode potentials as **[CPMT 1990]**

(a)  (b) 

(c)  (d) 

1. The correct order of chemical reactivity with water according to electrochemical series **[MP PMT 1991]**

(a)  (b) 

(c)  (d) 

1. The standard reduction potential for the half reactions are as





The *EMF* for cell reaction  is

**[IIT 1988; CBSE PMT 1993, 96; BHU 1995, 2000;**

**CPMT 2000; KCET 2000; AIIMS 2001; Orissa JEE 2002]**

(a)  (b) 

(c)  (d) 

1. The number of electrons to balance the following equation  is **[IIT Screening 1991]**

(a) 5 (b) 4

(c) 3 (d) 2

1. The standard  for the given cell reaction  is  at . The  for the cell reaction, when  and  solutions are used, at  is

**[MNR 1994; AMU 1999; UPSEAT 2002]**

(a)  (b) 

(c)  (d) 

1. A gas  at  is bubbled through a solution containing a mixture of  and  at . If the reduction potential of , then **[IIT 1999]**

(a)  will oxidize  and not 

(b)  will oxidize  and not 

(c)  will oxidize both  and 

(d)  will reduce both  and 

1. The oxidation potential of a hydrogen electrode at *pH* = 10 and  **[JIPMER 2000]**

(a) 0.059 *V* (b) 0.59 *V*

(c) 0.00 *V* (d) 0.51 *V*

1. The decomposition of hydrogen peroxide is an example of

**[Roorkee 2000]**

(a) Exothermic reaction (b) Endothermic reaction

(c) Negative catalysis (d) Auto-oxidation

1. Aluminium oxide may be electrolysed at 1000°C to furnish aluminium metal (At. Mass = 27 *amu*; 1 *Faraday* = 96,500 *Coulombs*). The cathode reaction is



To prepare 5.12*kg* of aluminium metal by this method would require **[AIEEE 2005]**

(a)  of electricity

(b)  of electricity

(c)  of electricity

(d)  of electricity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Electrolyte : | *KCl* | *KNO*3 | *HCl* | *NaOAc* | *NaCl* |
| Λ∞(*Scm*2*mol*–1) : | 149.9 | 145.0 | 426.2 | 91.0 | 126.5 |

Calculate  using appropriate molar conductances of the electrolytes listed above at infinite dilution in  at 25°*C* **[AIEEE 2005]**

(a) 517.2 (b) 552.7

(c) 390.7 (d) 217.5

1. The mass of carbon anode consumed (giving only carbondioxide) in the production of 270*kg* of aluminium metal from bauxite by the Hall process is **[CBSE PMT 2005]**

(a) 180*kg* (b) 270*kg*

(c) 540*kg* (d)90*kg*

1. 4.5*g* of aluminium (at mass 27*amu*) is deposited at cathode from  solution by a certain quantity of electric charge. The volume of hydrogen produced at STP from  ions in solution by the same quantity of electric charge will be

**[CBSE PMT 2005]**

(a) 22.4 *L*  (b) 44.8 *L*

(c)5.6 *L* (d) 11.2 *L*

1. What amount of *Cl*2 gas liberated at anode, if 1 *amp*. current is passed for 30 *min*. from *NaCl* solution.

**[BHU 2005]**

(a) 0.66 moles (b) 0.33 moles

(c) 0.66 *g* (d) 0.33 *g*

1. The hydrogen electrode is dipped in a solution of  at . The potential of the cell would be (the value of  is 0.059 *V*) **[KCET 1993,2005]**

(a) 0.177 *V* (b) – 0.177 *V*

(c) 0.087 *V* (d) 0.059 *V*

1. The standard electrode potentials of  and  are  and  respectively. The standard potential of the cell is **[KCET 1993]**

(a) 1.56 *V* (b) 0.036 *V*

(c) – 1.562 *V* (d) 0.799 *V*

1. The standard reduction potentials at for the following half reactions are given against each

⇌; – 0.762

⇌; – 0.740

⇌; 0.00

⇌; 0.770

Which is the strongest reducing agent

**[IIT 1981; MP PET/PMT 1988; MP PMT 1989;**

**MH CET 2001]**

(a)  (b) 

(c)  (d) 

1. When  piece is kept in  solution, the copper get precipitated due to standard potential of zinc is

**[CPMT 1999]**

(a) > copper (b)< copper

(c) > sulphate (d) < sulphate

1. Which of the following metal does not react with the solution of copper sulphate  **[CPMT 1999]**

(a)  (b) 

(c)  (d) 

1. A solution containing one mole per litre of each  and  is being electrolysed by using inert electrodes. The values of standard electrode potentials in volts (reduction potentials) are with increasing voltage, the sequence of deposition of metals on the cathode will be

**[IIT 1984; AMU 1999; Kerala PMT 2004]**

(a)  (b) 

(c)  (d) 

1. The standard reduction electrode potentials of four elements are

 

 

The element that displaces A from its compounds is

(a) B (b) C

(c) D (d) None of these

1. The standard oxidation potential of zinc and silver in water at are





Which of the following reactions actually take place

**[NCERT 1983, 84; KCET 2003]**

(a) 

(b) 

(c) 

(d) 

1. Beryllium is placed above magnesium in the second group. Beryllium dust, therefore when added to solution will

**[CPMT 1977]**

(a) Have no effect

(b) Precipitate  metal

(c) Precipitate 

(d) Lead to dissolution of metal

1. The name of equation showing relation between electrode potential standard electrode potential  and concentration of ions in solution is

(a) Kohlrausch's equation (b) Nernst's equation

(c) Ohm's equation (d) Faraday's equation

1. The correct representation of Nernst's equation is

(a) 

(b) 

(c) 

(d) None of the above

1. Standard electrode potential of  at 298 K is

(a) 0.05 *V* (b) 0.1 *V*

(c) 0.00 *V* (d) 0.11 *V*

1. When a copper wire is placed in a solution of , the solution acquires blue colour. This is due to the formation of

**[Roorkee 1989]**

(a)  ions

(b)  ions

(c) Soluble complex of copper with 

(d)  ion by the reduction of 

1. Consider the reaction . The standard reduction potential values of the elements  and  are  and  respectively. The order of their reducing power will be **[NCERT 1990]**

(a)  (b) 

(c)  (d) 

1. When a rod of metal  is dipped in an aqueous solution of metal (concentration of ion being 1*M*) at , the standard electrode potentials are =–0.76 volts, /*B* = + 0.34 volts **[KCET 1992]**

(a)  will gradually dissolve

(b)  will deposit on 

(c) No reaction will occur

(d) Water will decompose into  and 

1. of cell  (Where  for  is  for  is  is **[MP PET 1993; MP PMT 2000]**

(a) + 1.25 *V* (b) 

(c)+ 1.75 *V* (d) + 4.0 *V*

1.  ion is not stable in aqueous solution because of disproportionation reaction.  value for disproportionation of  is

(Given , ) **[IIT 1995]**

(a) – 0.49 *V* (b) 0.49 *V*

(c) – 0.38 *V* (d)0.38 *V*