

Exam ch.3

Name:

QUESTION 1 :

A) Write the scientific expression indicated by the following sentences:

1. The quantity of formed or consumed material at any electrode if it is gas or solid is directly proportional to the quantity of electricity that passes in the electrolytic solution.
2. Electric cell in which the energy from an external source is used to make a non-spontaneous reduction oxidation reaction.
3. A quantity of electricity pass through silver nitrate in one second and 1.118 mg of silver is receipted.
4. Substance used as solvent for bauxite.
5. Descending arrangement for oxidation potential of elements.

B) From the following circuit in which platinum electrodes are used, answer the following:

a) Write the equation of the depositing silver on the cathode in the cell of silver nitrate solution.

b) On passing the current for 30 minute, 0.403 gm of silver deposited. Calculate:

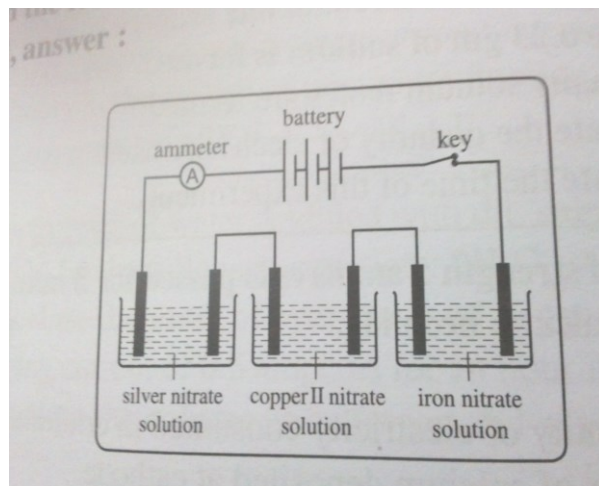
1- The current strength passing in the electric circuit.

2- The mass of copper deposited in the copper II nitrate cell.

3- If 0.07 gm iron deposited in the iron nitrate cell, **show the substances** of electrolyte used if it is iron II nitrate or iron III nitrate solution.

C) Give reasons for:

- 1-Recently caryolite is exchanged by using a mixture of fluoride salts in Aluminum extraction,
- 2- The secondary cells are considered as storage batteries.
- 3- Graphite anode in extraction cell of aluminum are usually exchanged
- 4- On the purification of copper by electrolysis, the iron , zinc, silver and gold don't deposit on the cathode.
- 5- Copper sulphate solution blue color gradually disappear by dipping zinc rode.



QUESTION 2 :

A) calculate the current strength required to pass in a solution of H_2CrO_4 for 25 minutes to cover 1 m^2 of a cheap metal with a layer of chromium of thickness 0.05 mm. giving that the density of chromium is 7.19 gm/ cm^3 $\text{Cr} = 52$

B) Compare between Anode and cathode in galvanic and electrolytic cell

c) Lead acid battery and alkaline nickel -cadmium battery are
From galvanic cells.

1) Compare between the two cells related to the type of anode Substance.

2) Are the two batteries from primary cells or secondary cells?

3) Write the total reaction of the alkaline nickel -cadmium

QUESTION 3 :

A) On passing a current of 2 amperes for 2.3 minutes in 0.25 liter of silver nitrate, all the silver ions are deposited at cathode calculate the concentration of silver nitrate before electrolysis process.

$\text{Ag} = 108$ $\text{N} = 14$ $\text{O} = 16$

B) Write the alphabetical letter for the correct choice which corresponds to the answer for each of the following:

1) In the galvanic cell, the anode is the.....process takes place.

A) Negative pole where the oxidation b) Negative pole where the reduction

C) Positive pole where the reduction D) positive pole where the oxidation.

2) To precipitate one gram/atom of a trivalent metal in solution

Of one of its salts, the quantity of electricity needed equals..... Coulomb.

a) 9650 b) 96500 c) 189000 d) 289500

3- When 3F are passed in molten alumina grams of aluminum are deposited.

a-3 b- 9 c- 18 d- 27

4- The pH of acid solution in the **S.H.E.** must be equal

....

a- zero b- 1 c-14 d- 7

C) What is happening if?

1. Density of dilute sulphuric acid in lead storage cell, becomes less than 1.2 g/cc

2. Salt bridge in galvanic cell is removed

D) the opposite figure represents dry cell, label each no.

1-, 2-, 3-(electrolyte), 4-,.....

