Model Question Paper

Electro Chemistry I - Part II

12th Standard

Chemistry

Reg.No. : | | | | | | |

I.Answer all the questions.

II.Use blue pen only.

Time : 01:30:00 Hrs

Total Marks : 70

Part-A

5 x 1 = 5

1) Which one of the following relationship is correct ?

(a) $pH = \frac{1}{[H^+]}$ (b) $pH = log_{10}[H^+]$ (c) $log_{10} pH = [H^+]$ (d) $pH = log_{10}\frac{1}{[H^+]}$

2) When 10^{-6} mole of a monobasic strong acid is dissolved in one litre of solvent,the pH of the solution is .....

(a) 6 (b) 7 (c) less than 6 (d) more than 7

3) When pH of a solution is 2, the hydrogen ion concentration in moles litre-1 is .....

(a) 1×10^{-12} (b) 1×10^{-2} (c) 1×10^{-7} (d) 1×10^{-4}

4) The pH of a solution containing $0.1N$ $NaOH$ solution is .....

(a) 1 (b) 10^{-1} (c) 13 (d) 10^{-13}

5) A solution which is resistant to changes of pH on addition of small amounts of an acid or a base is known as.....

(a) buffer solution (b) true solution (c) isohydric solution (d) ideal solution

Part-B

5 x 3 = 15

6) What is common ion effect ? Give examples.

7) What is a buffer action?

8) What are indicators?

9) Define specific and equivalent conductance.How are they related?

10) What is Henderson equation?

Part-C

6 x 5 = 30

11) Calculate the pH of 0.02 m $Ba(OH)_2$ aqueous solution assuming $Ba(OH)_2$ as a strong electrolyte.

12) Find the pH of a buffer solution containing 0.20 mole per litre CH_3COONa and 0.15 mole per litre CH_3COOH, K_a for acetic acid is 1.8 X 10^{-5}

13) The K_a of propionic acid is 1.34 X 10^{-5}. What is the pH of a solution containing 0.5 M propionic and 0.5 M sodium proportionate ? What happens to the pH of the solution when volume is doubled by adding water ?

14) What is the electrochemical equivalent of a substance when 150 gm of it is deposited by 10 ampere of current passed for 1 sec ?

15) Write notes on Ostward's theory of indicators.

16) Write notes on Quinonoid theory of indicators.

17) Distinguish metallic conduction and electrolytic conduction

Part-D

2X10=20

18) a) The electrochemical equivalent of an electrolyte is 2.35 gm. amp $^{-1}$ sec. Calculate the amount of the substance deposited when 5 ampere is passed for 10 sec ? $^{-1}$. Calculate the amount of the substance deposited when 5 ampere is passed for 10 sec ?

b) To 1 M solution of $AgNO_3$, 0.75 F quantity of current is passed. What is the concentration of the electrolyte, $AgNO_3$ remaining in the solution ?

19) a) Explain the buffer action of a basic buffer with an example.

b) How will you choose a suitable indicator for an acid base titration?

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