CONTINUOUS INTERNAL EVALUATION - 1

Dept: FY(Chemistry)	Sem / Div: I/D,E &F	Sub: Engineering Chemistry	S Code:18CHE12
Date:01/02/2021	Time: 3:00-4:30 pm	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN		Questions	Marks	RBT	CO's
		PART A			
1	a	(a)Explain the classification of batteries with examples (b)Explain the construction and working of nickel-metal hydride battery	10	L1, L2	CO1
	b	Define the terms: (a) free energy (b) entropy An electrochemical cell consists of zinc electrode dipped in 0.5M $ZnSO_4$ and nickel electrode in 0.05M $NiSO_4$. Write the cell representation, cell reaction and calculate the emf of the cell at 298K. (The standard reduction potentials of zinc and nickel are –0.76V and -0.25V respectively).	8	L1, L3	CO1
	c	Define ion selective electrode. Write the construction and working of glass electrode, derive an expression for emf of glass electrode	7	L1, L2	CO1
		OR			
2	a	Define reference electrode. With a neat labeled diagram explain the construction and working of calomel electrode and also obtain an expression for the potential of calomel electrode.	10	L1, L2	CO1
	b	Define single electrode potential and derive Nernst equation	8	L1, L2	CO1
	c	Define concentration cells. A concentration cell was	7	L1,	CO1

		constructed by immersing 2 silver electrodes in 0.05M and 1M $AgNO_3$ solution. Write the cell representation, cell reactions and calculate the emf of the cell.		L3	
		PART B			
3	a	Define corrosion and explain the electrochemical theory of corrosion taking iron as an example with relevant reactions.	10	L1, L2	CO2
	b	(i) Write a note on Galvanization. (ii)Explain Anodizing Aluminium	8	L1, L2	CO2
	c	Explain the effect of following factors on rate of corrosion reaction (a)Ratio of anodic area and cathodic area (b) pH of medium	7	L2	CO2
		OR			
4	a	What is Cathodic protection of metals? Explain sacrificial anode and impressed current method of protecting metals with block diagrams. List the advantages and disadvantages.	10	L1, L2	CO2
	b	Explain the following (a) Differential metal Corrosion (b) Pitting Corrosion	8	L1, L2	CO2
	c	Define metal finishing. List any 5 technical importance of metal finishing.	7	L1	CO2

29/01/2021

Prepared by: Prof. Shwethambika.P.

HOD:Prof. M. Ramananda Kamath 29/01/21