V.S.R Govt. Degree & P.GCollege-Movva
Affiliated to Krishna University, Machilipatnam.
Department of Electronics

S.No.	Subject	Sem	Date	Topic	No of students	Name of the Lecturer
				2022-2023		
29	Electronics	I	07-11-2022	Difference between AC and DC	8	S.KIRANMAYI
	"	I	07-11-2022	Thevinen's theorem	8	"
	"	I	24-11-2022	Maximum power transfer Theorem	8	"
	"	I	24-11-2022	Star to delta&delta to star conversion	8	"
	"	I	08-12-2022	Low pass and high pass filters	8	"
	"	I	08-12-2022	Working and characteristics of JFET And MOSFET	8	"
	"	I	07-02-2023	Frequency response of RC & RL circuits	8	"
	"	I	07-02-2023	Half wave and full wave rectifiers	8	"
	"	I	21-02-2023	Light dependent resistor(LDR)	8	"

	"	I	21-02-2023	light Emitting Diode	8	"
30	Electronics	II	11-05-2023	Decimal,binary,octal,hexa decimal number system	8	S.KIRANMAYI
	"	II	11-05-2023	NAND And NOR gates are universal gates	8	"
	"	II	15-05-2023	1's,2's,9's,10's complements of addition,subtraction	8	"
	"	II	15-05-2023	Half adder and Full Adder	8	"
	"	II	22-05-2023	De-morgan's theorem	8	"
	"	II	22-05-2023	J-K Flip flop and master-slave flip flop	8	"
	"	II	31-05-2023	PLA and PAL	8	"
	"	II	31-05-2023	Multiplexer and demultiplexer	8	"
	"	II	08-06-2023	BCD to Seven Segment Display decoder	8	"
	"	II	08-06-2023	Encoder and Decoder	8	"
31	Electronics	III	07-11-2022	Block diagram of OP-Amp	24	S.KIRANMAYI
	"	III	07-11-2022	IC-555 Functional block diagram	24	"
	"	III	24-11-2022	OP-Amp as voltage Regulator	24	"
	"	III	24-11-2022	Need for modulation	24	"
	"	III	08-12-2022	OP-Amp as Inverting and non-inverting	24	"
	"	III	08-12-2022	Mathematical representation of FM wave	24	"
	"	III	07-02-2023	Diode detector	24	"
	"	III	07-02-2023	Super heterodyne AM Receiver	24	"
	"	III	21-02-2023	Phase locked loop(PLL)	24	"
	"	III	21-02-2023	Difference between AC and DC	24	"
32	Electronics	IV P4	11-05-2023	INTEL 8085 Architecture	24	S.KIRANMAYI
	"	IV P4	11-05-2023	Pin diagram of 8085	24	"
	"	IV P4	15-05-2023	Addressing modes of 8085	24	"
	"	IV P4	15-05-2023	alp for addition of two 8 bit numbers	24	"
	"	IV P4	22-05-2023	Serial communication interface (8251-USART)	24	"
	"	IV P4	22-05-2023	Pin description of 8086	24	"
	"	IV P4	31-05-2023	Architecture of 8086	24	"
	"	IV P4	31-05-2023	ARM Architecture and organization	24	"
	"	IV P4	08-06-2023	16/32 bit processor	24	"
	"	IV P4	08-06-2023	Program status word(PSW)	24	"

	"	IV P5	11-05-2023	Difference between micro proccesor and micro controlller	24	S.KIRANMAYI
	"	IV P5	11-05-2023	Pin diagram of 8051	24	"
	"	IV P5	15-05-2023	Block diagram of 8051 micro controller	24	"
	"	IV P5	15-05-2023	control of Stepper motor	24	"
	"	IV P5	22-05-2023	Interfacing seven segment displays	24	"
	"	IV P5	22-05-2023	alp for addition of largest/smallest order	24	"
	"	IV P5	31-05-2023	Addressing modes of 8051	24	"
	"	IV P5	31-05-2023	Development tools for micro controller	24	"
	"	IV P5	08-06-2023	Architecture of 8051	24	"
	"	IV P5	08-06-2023	Temparature mesurment (LM35)	24	"
33	Electronics	V P6	27-10-2023	Halfwave&Full wave and bridge rectifiers	24	S.KIRANMAYI
	"	V P6	27-10-2023	Types of filters	24	"
	"	V P7	25-10-2023	Types of electronic instruments	24	"

			Date	Topic		
1	CHEMISTRY	SEM				K.R.MANJULA
2	CHEMISTRY	VI	30-03-2022	Acid-Base titrations , Indicators and theories of indicators	23	K.R.MANJULA
3	CHEMISTRY	VI				K.R.MANJULA
4	CHEMISTRY	VI	12-04-2022	Redox titrations and Complexometric titrations	23	K.R.MANJULA
5	CHEMISTRY	VI				K.R.MANJULA
6	CHEMISTRY	VI	19-04-2022	Precipitation and Iodometric titrations	23	K.R.MANJULA
7	CHEMISTRY	VI				K.R.MANJULA
8	CHEMISTRY	VI	20-04-2022	Gravimetric analysis	23	K.R.MANJULA
9	CHEMISTRY	VI				K.R.MANJULA
10	CHEMISTRY	VI	29-04-2022	Errors and types of errors , Accuracy and Precision , Significant figures	23	K.R.MANJULA
11	CHEMISTRY	VI				K.R.MANJULA
12	CHEMISTRY	VI	06-05-2022	Solvent extractions and Ion exchange chromatography	23	K.R.MANJULA
13	CHEMISTRY	VI				K.R.MANJULA
14	CHEMISTRY	VI	17-06-2022	phy- Principle and Classifications, Paper chromatography - Principle, types an	23	K.R.MANJULA
15	CHEMISTRY	VI				K.R.MANJULA
16	CHEMISTRY	VI				K.R.MANJULA
17	CHEMISTRY	VI	22-06-2022	Column chromatography-Principle, procedure and applications	23	K.R.MANJULA
18	CHEMISTRY	VI				K.R.MANJULA

19	CHEMISTRY	VI				K.R.MANJULA
20	CHEMISTRY	VI	30-06-2022	High Performance Liquid Chromatography	23	K.R.MANJULA
21	CHEMISTRY				30	K.R.MANJULA
22	CHEMISTRY	Sem - I	22-01-2022	SN-1 , SN-2 Nucleophilic Substitution Reaction Mechanism	30	K.R.MANJULA
23	CHEMISTRY	Sem - I	24-01-2022	Preparation of Alcholos	30	K.R.MANJULA
24	CHEMISTRY	Sem - I	25-01-2022	IR - Spectra Principle,Instrumentation, Fingerprint region, and Applications	30	K.R.MANJULA
25	CHEMISTRY	Sem - I	27-01-2022	Chromophore, Auxochrome,Bathochromic Shift	30	K.R.MANJULA
26	CHEMISTRY	Sem - I	28-01-2022	Preparation of Acetoacetic Ester by Claisen Condensation	30	K.R.MANJULA
27	CHEMISTRY	Sem - I	01-02-2022	Pinacol-Pinacoline Rearrangement Reaction	30	K.R.MANJULA
28	CHEMISTRY	Sem - I	02-02-2022	Reimer Tiemann Reaction and Kolbe Schmidt reaction	30	K.R.MANJULA
29	CHEMISTRY	Sem - I	03-02-2022	Preparation of Aldehydes and Ketones	30	K.R.MANJULA
30	CHEMISTRY	Sem - I	04-02-2022	PerkinReaction,Benzoin Condensation	30	K.R.MANJULA
31	CHEMISTRY	Sem - I	18-02-2022	Haloform reaction mechanism	30	K.R.MANJULA
32	CHEMISTRY	Sem - I	13-03-2022	D/B Thermochemical and Photochemical Reactions	34	K.R.MANJULA
33	CHEMISTRY	Sem - I	12-04-2022	High and Low Quantum Yeild with examples	34	K.R.MANJULA
34	CHEMISTRY	Sem - I	28-04-2022	Carbohydrates , Mutarotation , Ring Structure of Glucose	34	K.R.MANJULA
35	CHEMISTRY	Sem - I	06-05-2022	Amino Acids , Preparation and Properties	34	K.R.MANJULA
36	CHEMISTRY	Sem - I	11-05-2022	Nitro Alkanes Preparation , Properties , Tautomerism	34	K.R.MANJULA
37	CHEMISTRY	Sem - I	16-06-2022	Heterocyclic Compounds	34	K.R.MANJULA
38	CHEMISTRY	Sem - I	23-06-2022	Seperation of Amines	34	K.R.MANJULA
39	CHEMISTRY	Sem - I	02-07-2022	Organo Metallic Compounds	34	K.R.MANJULA
40	CHEMISTRY	Sem -	17-03-2023	Quantitative Analysis	30	K.R.MANJULA
41	CHEMISTRY	Sem -	20-03-2023	Redox titrations and Complexometric titrations	30	K.R.MANJULA
42	CHEMISTRY	Sem -	21-03-2023	Acid-Base titrations	30	K.R.MANJULA
43	CHEMISTRY	Sem -	29-03-2023	Indicators and theories of indicators	30	K.R.MANJULA
44	CHEMISTRY	Sem -	24-04-2023	Solvent extractions	30	K.R.MANJULA
45	CHEMISTRY	Sem -	23-06-2023	Ion exchange chromatography	30	K.R.MANJULA

VSR GOVERNMENT DEGREE & PG COLLEGE, MOVVA

DEPARTMENT OF CHEMISTRY

DATE : 13/6/23 CLASS : II BSc SEM : IV TOPIC : Transport number

NAME OF THE LECTURER : Smt. M.NAGAPARAMESWARI

Name of the student :

B. Naga Lalitha. ASSIGNMENT- 01

13/6/23

Q. What are transport numbers. Describe Hittorf's method for the determination of transport number.

ANSWER: Transport number :- "The fraction of the current carried by an ion is called as its transport number". If n_a and n_c are the transport number of anion and cation respectively.

$$\text{Transport number of anion } (n_a) = \frac{\text{Current carried by an anion}}{\text{Total current passed through the solution}}$$

$$\text{and transport number of cation } (n_c) = \frac{\text{Current carried by the cation}}{\text{Total current passed through the solution.}}$$

The transport number of an ion depends upon the speed with which it moves.

Thus fall of concentration around the electrode is proportional to the speed of ions moving away from that electrode.

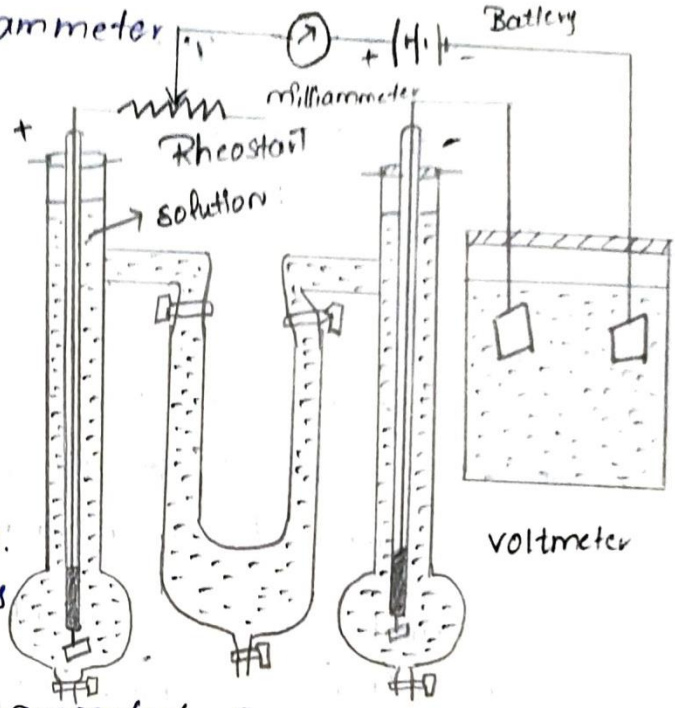
$$n_c = \frac{\text{fall of concentration around the anode}}{\text{Total fall of concentration.}}$$

$$\text{Similarly } n_a = \frac{\text{fall of concentration around the cathode}}{\text{Total fall of concentration}}$$

and $n_a + n_c = 1$.

Experimental determination of transport number by Hittorf's method: The Hittorf's apparatus consists of two vertical glass tubes connected by a U-tube in the middle. The end tubes

containing the anode and cathode compartments. The tubes are provided with stop clock at the bottom. The electrodes are metallic and sealed into glass tubes. The apparatus is connected in series with a voltmeter, variable resistance a battery and also a milli ammeter.



Suppose it is required to determine the transport numbers of silver and nitrate ions in silver nitrate. The Hittorf's apparatus is filled with a standard solution of silver nitrate. Silver electrode & voltmeter are used in the process. A steady current of 0.01 amperes is passed for about 3 hours. During electrolysis, silver is transported from the anode compartment towards the cathode. In the anode compartment, nitrate ions attacks silver anode. when it dissolves to form silver nitrate.

Calculation :-

Before electrolysis "a" grams of $AgNO_3$ sol contains "c" gm of Ag

After electrolysis, it contains "b" gm of Ag.

Increase in the weight of Ag in anode compartment = $b - c = w$

weight of silver deposited in the voltmeter = W gm

fall in concentration due to the migration of Ag^+ ions = $W - w$ gms

Transport number of Ag^+, $n_{Ag^+} = \frac{W-w}{W}$

so transport number of nitrate ion = $1 - n_{Ag^+}$

Sfate &

VSR GOVERNMENT DEGREE & PG COLLEGE, MOVVA

DEPARTMENT OF CHEMISTRY

DATE : 5/6/23 CLASS : II BSC SEM : IV TOPIC : order of a reaction.

NAME OF THE LECTURER : Smt. M.NAGAPARAMESWARI

Name of the student :-
K. pusa

ASSIGNMENT-01

Q. what is order of a reaction. Describe varies methods used for determining the order of reaction.

ANSWER : order of a reaction :- "The order of a reaction is given by the number of atoms (or) molecules whose concentrations alter during the chemical change." Thus the order of a reaction can be defined by the sum of the power of the concentrations in the rate equation.

Eg : 1) Decomposition of hydrogen peroxide is 1st order.

$$H_2O_2 \longrightarrow H_2O + \frac{1}{2}O_2$$

2) Acid catalysed ester hydrolysis is 1st order.

$$CH_3COOC_2H_5 + H_2O \xrightarrow{H^+} CH_3COOH + C_2H_5OH$$

3) SN^2 reaction is 2nd order

$$CH_3Cl + NaOH \longrightarrow CH_3-OH + NaCl$$

4) formation of hydrogen iodide is 2nd order.

$$H_2 + I_2 \longrightarrow 2HI$$

methods of determining the order of a reaction :-

i) Integration or substitution method :- In this method, known amounts of reactants are mixed and the progress of the reaction is determined time to time by analysis. the data thus obtained the values of t, a, a − x, x are substituted in the kinetic equations of first order, second order and third order.

$$k_1 = \frac{2.303}{t} \log \frac{a}{a-x} \quad \text{(first order)}$$

$$k_2 = \frac{1}{at} \times \frac{x}{a-x} \quad \text{(second order)}$$

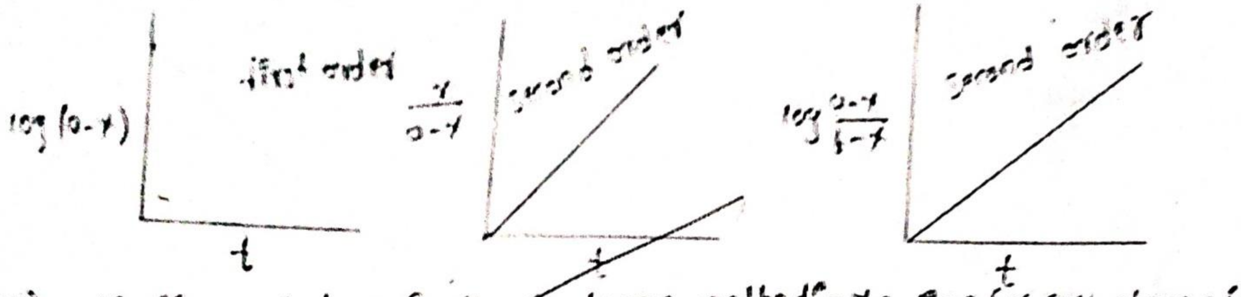
$$k_2 = \frac{2.303}{t(a-b)} \log \frac{b(a-x)}{a(b-x)} \qquad k_3 = \frac{1}{2t}\left[\frac{1}{(a-x)^2} - \frac{1}{a^2}\right] \quad \text{(third order)}$$

The equation which gives constant value of rate constant indicates the appropriate order of the reaction

ii) Graphical method:- If a straight line is obtained by plotting log (a−x) against time it indicates first order reaction.

If a straight line is obtained by plotting $\frac{x}{a-x}$ against time it indicates second order reaction in which the concentrations of reactants are equal.

If a straight line is obtained by plotting $\log \frac{a-x}{b-x}$ against time also indicates second order in which the concentration of reactants are not equal.



iii) Half life method or fractional change method:- the time for 50% change in concentration of the reactants is called time for half change.

It has been proved that the time (t) required to complete half of the reaction is independent of initial concentration for a first order reaction.

i.e $t \propto \frac{1}{a^0}$ --- (first order)

The time (t) required to complete half of the reaction is inversely proportional to the initial concentration for a second order reaction.

i.e $t \propto \frac{1}{a}$ --- (second order).

The time (t) required to complete half of inversely proportional to square of initial concentration for a third order reaction.

i.e $t \propto \frac{1}{a^2}$ --- (third order).

In general, the time (t) required to complete for order reaction puts

$t \propto \frac{1}{a^{n-1}}$ (nth order).

Then $t_1 \propto \frac{1}{a_1^{n-1}}$ and $t_2 \propto \frac{1}{a_2^{n-1}}$ $\frac{t_1}{t_2} = \left[\frac{a_2}{a_1}\right]^{n-1}$ where n is the order of reaction.

iv) as twald's isolation method:- This method involves by taking of all the reactants in large amounts except one. so that concentration remains constant through out this change. The order of the reaction is determined with respect to isolated reactant which is not taken in large amount. The experiment is repeated by isolating each reactant in turn. the total sum of the order obtained in each case gives the order of reaction.

eg:- $2FeCl_3 + SnCl_2 \longrightarrow 2FeCl_2 + SnCl_4$.

In the first experiment, the reactant $FeCl_3$ is taken in large quantity. the order of reaction with respect to $SnCl_2$ is first order.

In the second experiment, the reactant $SnCl_2$ is taken in large quantity. the order of reaction with respect to $FeCl_3$ is second order.

Thus over all order of reaction is (1+2) = 3 i.e third order.