Assignment Submission -

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Bussiness letter and Job Application.

Introduction :-

Bussiness correspondence can be defined as a mean's of communication in Writting A Bussiness latter is a letter Written in Formal language. It used usally When Writtern From one bussiness to other Bussiness of other parties.

meaning :-

The Business letter is the Written Way of communication Which is used communication to more effective It also serves as a legal document or the evidere of communication Heance It also called a Formal Way of communication.

quadities or essentical element of Bussi letter :-

The qualities Which are essential For a good bussiness latter are calletive called the seven cs of communicatio

Qualities of Bussiness latter

1] candid

2] clarity
   i] clarity of thought
   ii] clerity of experession

3] completness

4] conciseness

5] consideration

6] courtesy

7] correctness.

They are essential element of Bussiness letter it is sevencs of communication.

Job Application letter and Resume.

Job Application letter.

From:
mr Abhijeet Nate.
Pimpalgaon Pune
Abhijeet Nate 80 @gamil.com
8080853740

Date : 14th sep 2023.

To
The H.R/manager.
Kentury Inka LTd.
Pimpri Pune.

Subject :- Application For the post of Accountant.

Dear sir/madam.
With reference to your adverticment Publish in the local newspaper sakal dated 9th sep 2023 inviting applications For the Accountant Post in your organisation look Forward to receive an inter vieW call From your end

Thanking You
Yours Forth Fully
Mr Abhijeet Nate
End:(1) Resume

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2. पत्रलेखन

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* खाजगी पत्रलेखन करताना :-

- कोणत्या कारणासाठी पत्र लिहित आहे ते नेमकेपणाने मांडावे. संबंध पत्रव्यवहार लिहिलेला असावा. आभिवादन हे वय पाहून करावे

- पत्राची भाषा, सोपी आणी स्पष्ट असावी. शब्दाचा वापर करताना सावध असले पाहिजे. आपल्या शब्दांनी समोरच्या दुखावला गेला नाही पाहिजे याची काळजी घ्यावी.

- पत्रात अनावश्यक गोष्टी न लिहिता मुख्य विषयाला सुरुवात करावी. आपले विचार स्पष्टपणे मांडावे. समोरच्या व्यक्तीच्या भावनांचा आणी विचारांचा आदर करता आला पाहिजे. तो पत्रातून स्पष्टपणे दिसला पाहिजे.

- पत्रात आपला हेतू अथवा अभिप्राय करण्यासाठी लहान वाक्यांचा वापर करावा. अतिशोयुक्त पूर्ण भाषा टाळण करत. त्यामुळे अतिशोयुक्त अलंकारिक भाषा जपुनच वापरावी.

★ खाजगी पत्रातील आभिवादन व शेवट

नाते	आभिवादन	सुरुवात	शेवट
आई - वडिल	तीर्थरूप	शतशः नमस्कार	तुमचाच
नाते वाईक	तीर्थरूप	साष्टांग नमस्कार	आपलाच
गुरुजनांना	आदरणीय	सप्रेम नमस्कार	आपला नम्र
मित्र	प्रिय मित्रास	सप्रेम नमस्कर	तुझा मित्र
लहान भाऊ	प्रिय	अनेक आशीर्वाद	तुझा

★ प्रशासनिक पत्रव्यवहार

प्रशासनीक पत्रव्यवहार हा विविध शासकीय कार्यालयाशी होत असतो. त्यावे विशिष्ट काम ज शासकीय अथवा निमशासकी विभागाशी संबधीत आहे त्या विभागाशी केला गेलेला पत्रव्यवहार हा प्रशासनिक पत्रव्यवहार म्हणता त्यात अनेक गोष्टींचा समावेश असतो. प्रशासनिक पत्र व्यवहार करताना खालील बाबी लक्षात घेतात.

• प्रशासन ही सतत चालणारी प्रक्रिया आहे त्यामुळे कोणताही पत्रव्यवहार हा त्यातील एक महत्वाचा भाग असतो

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• त्या पत्राशी संबंधीत पूर्वसंदर्भ देणे अत्यंत आवश्यक आहे.

• पत्राचा वापर संदर्भ द्यावा लागत असल्यास किंवा एकापेक्षा अधिक संदर्भ असल्यास त्या संदर्भाचा क्रमांक मजकुरात दिल्यास उत्तम..

• पत्र नेमके कोणाला उद्देशून लिहिले आहे त्याचा विषय काय आहे, त्याचा संदर्भ काय आहे हे पत्रात स्पष्ट झाले पाहिजे.

• पत्र हाताने अथवा टंकलिखित केले तरी चालते.

• पत्रामध्ये लेखन निर्दोष सुस्पष्ट व सुटसुटीत असल्यास पत्रावरील कार्यवाहीचा वेग वाढतो. गती मिळते.

• भाषाही साधी, सरळ आणि सोपी असावी. पत्रात सुबोधता असावी.

• प्रशासनिक पत्रव्यवहाराचा हेतू शासकीय अधिकाऱ्यास समजण्यासाठी पूर्ण दिनांक अर्जदार विषय व गोष्टी स्पष्ट कराव्यात.

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- प्रशासनिक पत्र आल्याबरोबर ते कोणत्या विभागाकडे द्यायचे आहे हे चटकन संबंधितांच्या लक्षात आले पाहिजे.

- संदर्भाचा त्वरित उल्लेख आला तर त्यावर कार्यवाही करणे सोपे जाते. कार्यवाही वेगा मिळते.

- सर्व प्रकारच्या विषयाची माहिती ही सुटसुटीत असावी. नकरा केल्यास ही त्या बाबत समस्या निर्माण होण्याची शक्यता असते. पत्राचा अर्थ न लागल्यास पत्राचे उत्तर मिळत नाही. किंवा कार्यवाहीस वेळ लागल्यावर पत्राचे उत्तर मिळत नाही.

- विविध विषयांची सुसंगतवार मांडणी करावी आणि त्यांच्या योग्य संदर्भासह मांडणी करावी.

- विविध प्रशासनिक संज्ञांचा वा पारिभाषिक संज्ञांचा चपखल वापर करावा त्यात परस्परविरोधी वाक्य अथवा संकल्पना नकोत.

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• जी शासकीय माहिती दिली असेल त्या संदर्भातील निर्देश हे सुस्पष्ट असावेत त्यांचे संदर्भ परिपूर्ण असावेत. त्यासाठी त्या मुद्दयाचा योग्य अभ्यास करूनच त्यांची मांडणी करावी आणि मागणी करावी.

• गुंतागुंतीचे प्रकरण असेल तर घटनांची संगतवार मांडणी करून त्याचे विश्लेषण करावे. म्हणजे संबंधितास ते समजणे सोपे होईल.

• प्रशासकीय लेखनात भावनांना स्थान नसते. किंवा वैयक्तिक मतांना स्थान नसते प्रशासन ही सार्वजनिक बाब आहे.

• विविध अधिसूचना, अधिनियम आणि शासकीय नियमांच्या आणि कायदयांच्या चौकडी करून प्रशासकीय कामकाज पार पडत असते. त्यामुळे कायदेबाह्य अथवा निरर्थक मागणी पत्राद्वारे करू नये अथवा तसे पत्रलेखन करू नये.

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Prachi Ramesh Kaule
Class - S.Y. BSc
Sub : Chemistry

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Q.1. Difference between Atomic orbital and Molecular orbital theory.

	AOs	MOs
i)	It is monocentric.	It is polycentric.
ii)	It contain single nucleus.	It contain more than one nucleus.
iii)	They are named s, p, d, f	They are named as σ, π, δ.
iv)	It has definite shape size and energy.	Shape, size and energy depend on atomic orbital.
v)	Nucleus of atom is a fixed in space	Nucleus of atom is fixed at their proper orientation.

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Q.2. LCAO principle

→ i) If the two wave function of atomic orbital having same sign then it will result in formation of bonding molecular orbital.

a) $\pm\psi_1 \pm \psi_2 \longrightarrow$ BMO (A, B) b) $+\psi_1 - \psi_2 \longrightarrow$ ABMO (A, B)

ii) If two function of atomic orbital have different sign it will result in of antibonding MO.

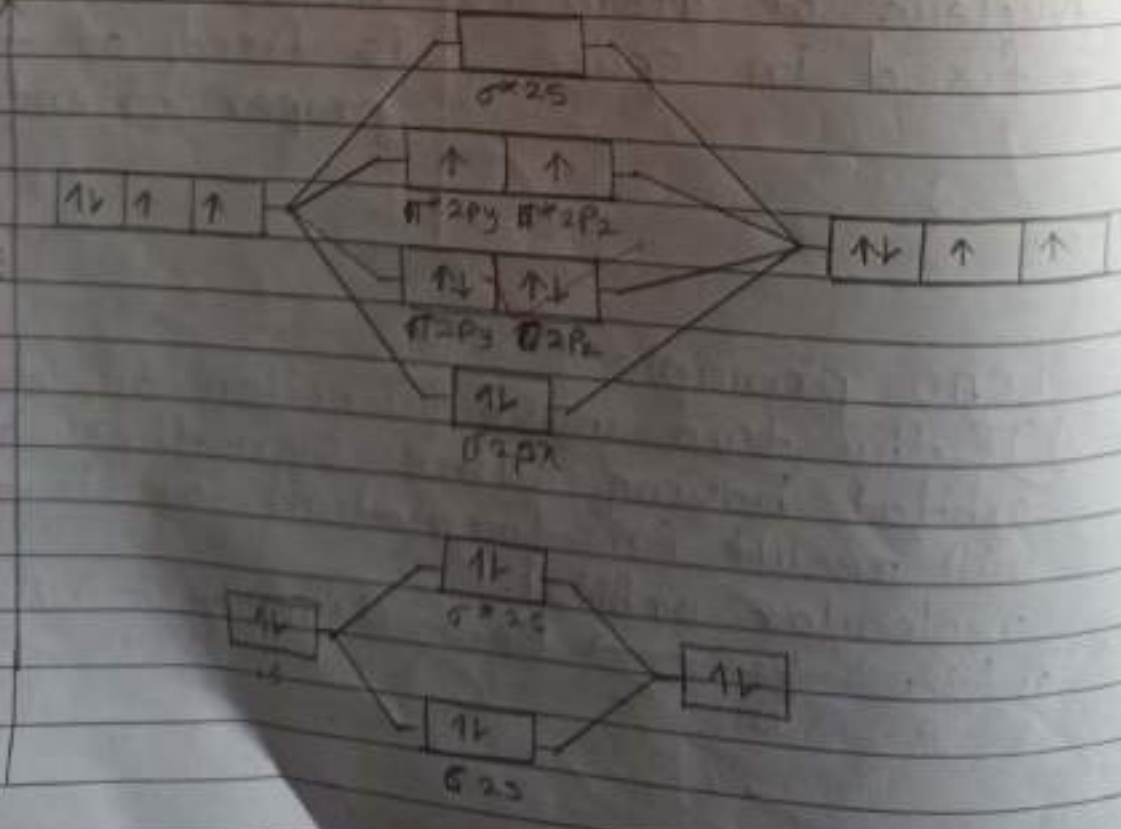
iii) The number of molecular orbital formed will be equal to no. of atomic orbitals taking part in combination.

iv) If there are three atomic orbitals combination then result in formation of one Bonding one Antibonding one non-bonding molecular orbital.

Q.3 Draw MO energy level diagram of O_2, O_2^-, O_2^+

i) O_2

$_8O = 1s^2, 2s^2, 2p^4$ $_8O = 1s^2, 2s^2, 2p^4$



MO electronic configuration

$[K(\sigma 2s)^2, (\sigma^* 2s)^2, (\pi 2p_x)^2, (\pi^* 2p_y)^2, (\pi 2p_z)^2, (\pi^* 2p_y)^2, (\pi^* 2p_z)^2]$

Bond energy = No. of electrons in BMO $\times(-B)$ + No. of electrons in ABMO $\times(+B)$

$= 8 \times (-B) + 4 \times (+B)$

$-8B + 4B$

$= -4B$

Bond order $= \frac{1}{2}[8 - 4]$

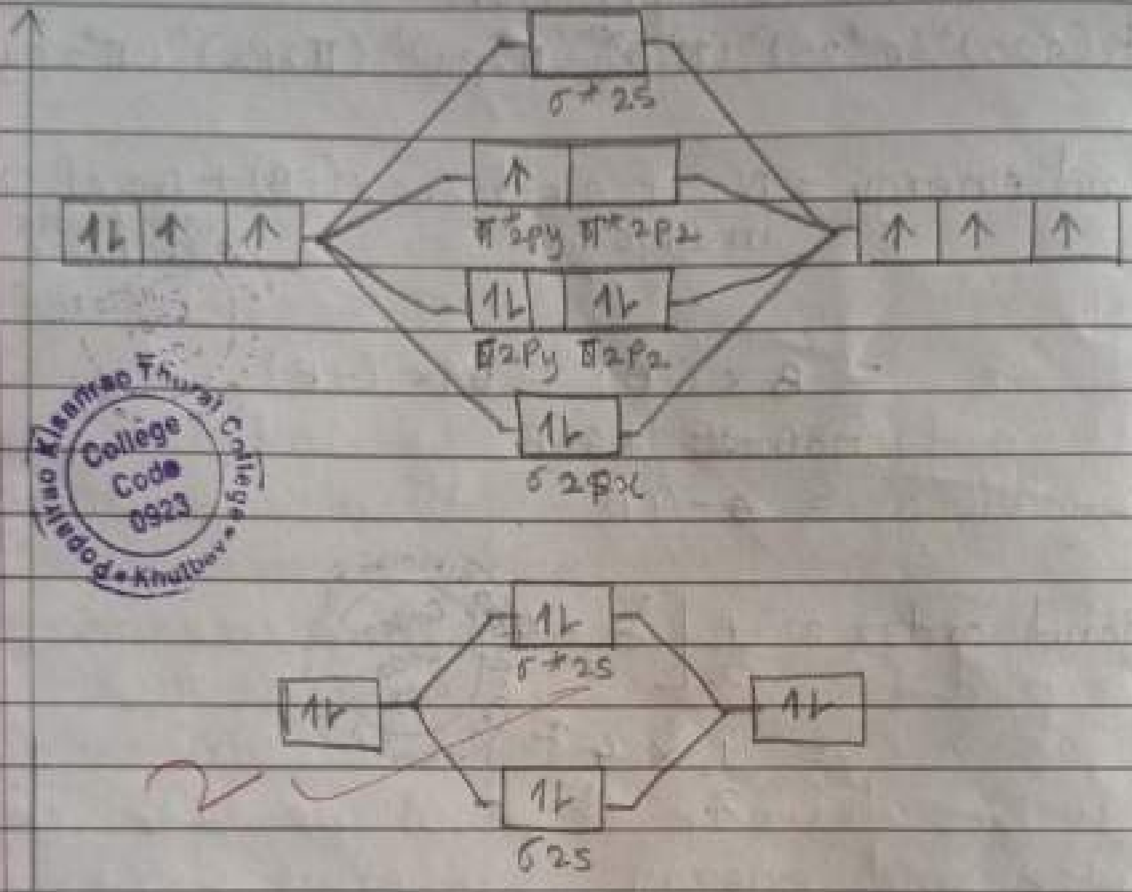
$= \frac{1}{2} \times 4^2$

$= 2$

Magnetic character = It shows paramagnetic character.

2) O_2^+

$_8O = 1s^2, 2s^2, 2p^4$ $\qquad$ $_7O = 1s^2, 2s^2, 2p^3$



MO electronic configuration = [K $(\sigma 2s)^2$, $(\sigma^* 2s)^2$, $(\sigma 2p$
$(\pi 2px)^2$, $(\pi 2py)^2$, $(\pi 2pz)^2$, $(\pi^* 2py)^2$]

Bond energy $= 8 \times (-\beta) + 3 \times (+\beta)$
$= -8\beta + 3\beta$
$= -5\beta$

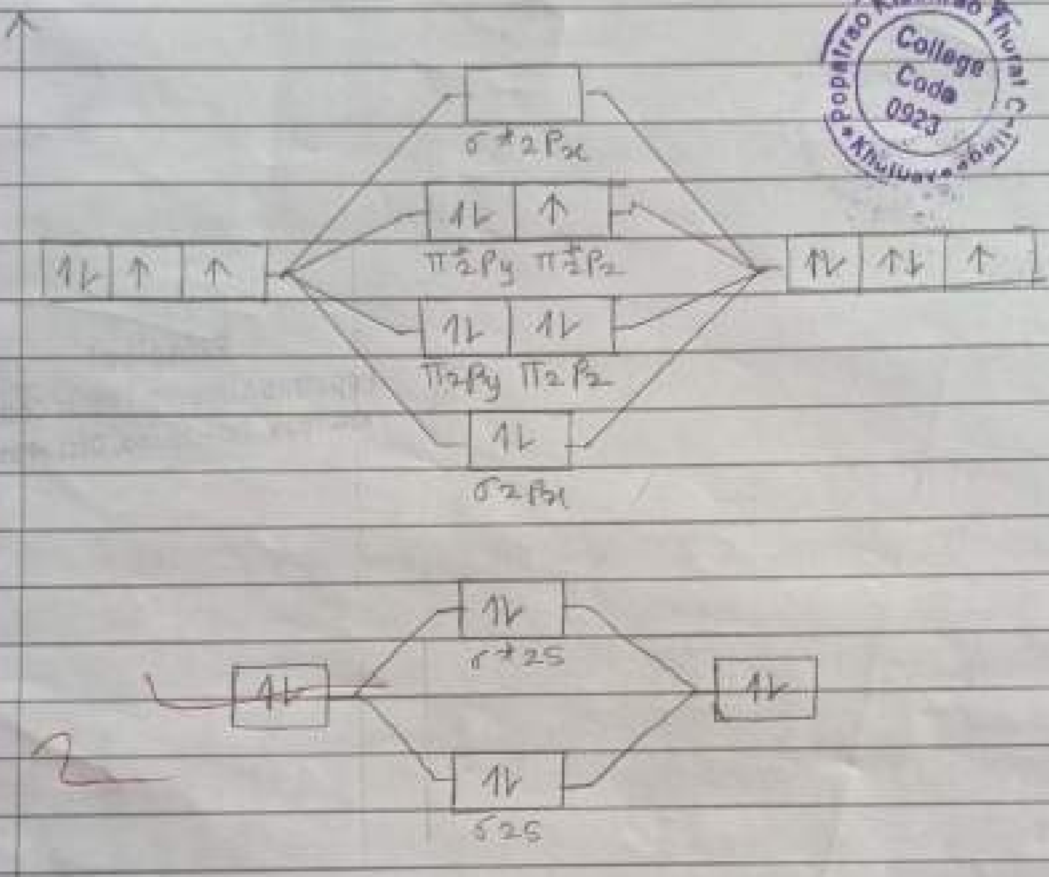
Bond order $= \frac{1}{2}[8-3]$
$= \frac{1}{2} \times 5$
$= 2.5$

Magnetic character :- It shows paramagnetic character as ABMO contain single electron.

O_2^-

$_8O = 1s^2, 2s^2, 2p^4$

$_9O = 1s^2, 2s^2, 2p^5$



MOEC = $[K(\sigma 2s)^2 (\sigma^* 2s)^2 (\sigma 2p_x)^2 (\pi 2p_y)^2 (\pi 2p_z)^2, (\pi^* 2p_y)^2 (\pi^* 2p_z)^1]$

Bond energy $= 8 \times (-\beta) + 5 \times (+\beta)$

$= -8\beta + 5\beta$

$= -3\beta$

Bond order $= \frac{1}{2} [8 - 5]$

$= \frac{1}{2} \times 3$ 1.5

$= 1.5$

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Magnetic character = It shows paramagnetic character.

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Surprise - Test - 1

Name : Aakanksha Bapurao Dhavale
Class : S.Y.Bsc
Subject : Physical & Analytical chemistry
Date : 14/08/2024

17/30

Answers

Define

Chemiabsorption :

In chemical absorption the gas molecule are held on the surface of the absorbent by forces which are similar to chemical bond

Activated carbon

Activated carbon is carbon produced from carbonaceous source material such as bamboo, coconut husk, willow peat, wood, coal petroleum pitch etc.

Physisorption

Physisorption is the adsorption of gas molecule onto the surface of solid. It can happens through either vander waals forces or electro-statics force

Absorbent

The substance which adsorbs another substance is called an adsorbent

Mean deviation

* The average of all derivation for the number of the set data without regard to the sign is called mean derivation (D)

$$\bar{\Delta} = \frac{\Delta_1 + \Delta_2 + \dots + \Delta_n}{n}$$

Accuracy

Difference between the measured value & true value is called Accuracy. It generally expressed in the term of relative error

Pricision

Degree of replicate measurement is same is called pricision
It is measure in term of mean deviation

Neutralization

Neutralization is the chemical reaction in which acid & a base react with an equivalent quantity of each other

Titri metric analysis

Titrimetric analysis is a method of analysis in which a solution of the treated with a solution of suitable reagent of exactly known concentration

End point of titration

The point at which the indicator change it's colour during a titration is called end point of titration

Q2 Explain E.D.T.A as complexing agent

→ Complexing agent : A complexation reaction with a metal ion involve the replacement of one or more of the co-ordinated solvent molecule by other nucleophilic group the group bond to the central metal ion are ligand termed as complexing agent

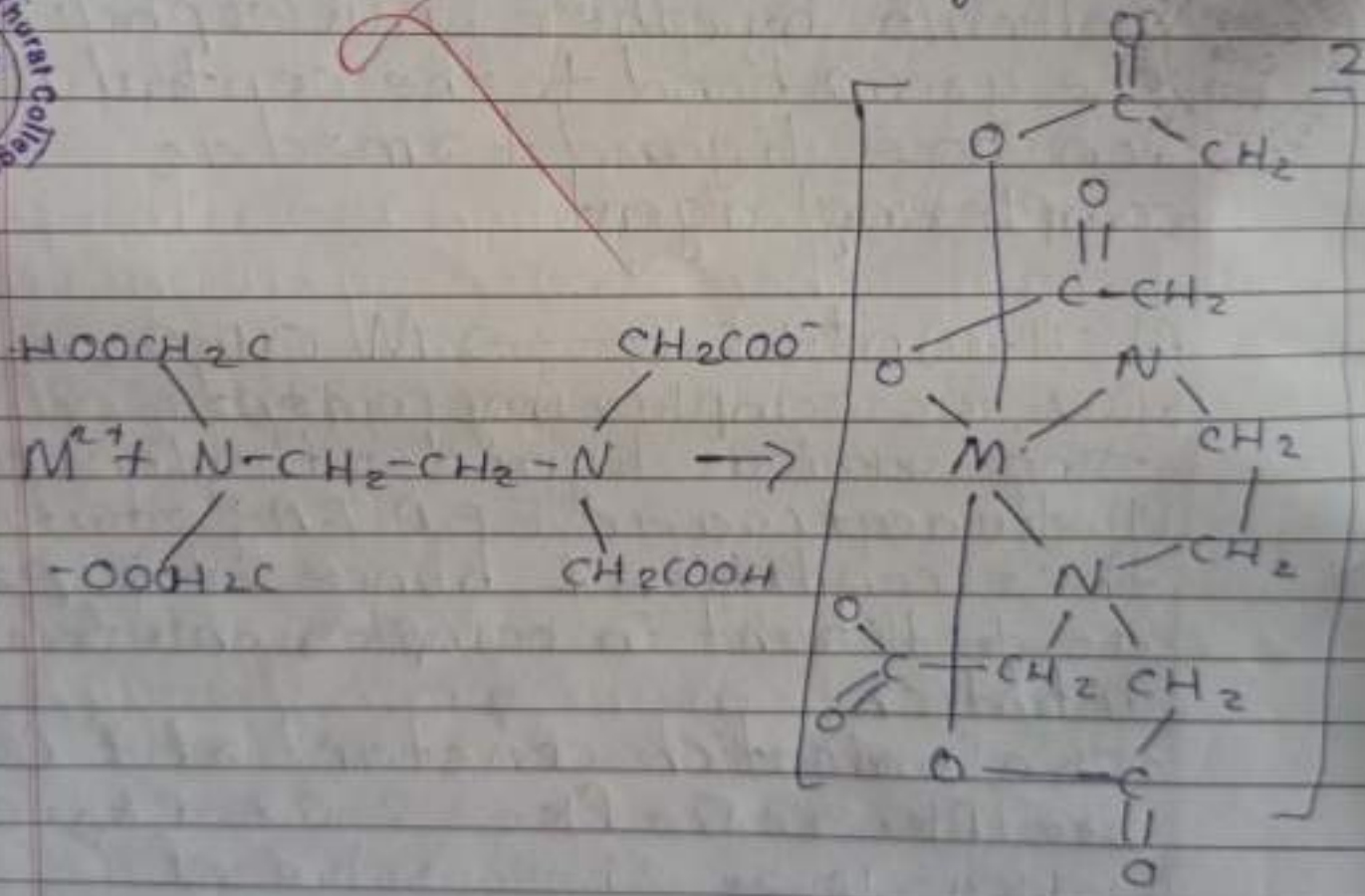
$M(H_2O)n^{+} + L \longleftrightarrow M(H_2O)_{n-1}L + H_2O$

EDTA as complexing agent:

The various ligand ethylenediamine tetraacetic acid [E.D.T.A] satisfies this condition & hence it is popular as titrant in complexometric titration

The ionisation constant of E.D.T.A are $pK_1 = 2.0$, $pK_2 = 2.67$ $pK_3 = 6.16$ & $pK_4 = 10.26$ These value of ionisation constants suggest that E.D.T.A behaves as a strong dibasic acid the high value of pK_3 & pK_4 indicate that remaining two carboxylic group behave differently thase the two strongly acidic carboxylic group

E.D.T.A is usually used as it's disodium salt [$Na_2H_2C_{10}H_{12}O_8N_2 \cdot 2H_2O$] with a molecular weight 372.25 The salt is moderately soluble in water & it's 0.1 M solution has PH approximately 5.



Explain the error (classification)

Classification of error

Determinate error

Indeterminate error

Operational & personal error

Instrumental & reagent error

Error of method

Additive & proportional error

Determinate error: Sometime it is called as systhematic error
These are the error which have some assignable cause
Determinate error can be eliminated

a) Operational & personal error:
These are the error for which the individual worker is held responsible & are not connected with the method or procedure

b) Instrumental & reagent error:
These error are arise due to deficiencies in quality of measuring devices & the reagents used for the experimental

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c) Error of Methods :
These errors are originated from incorrect sampling & form incompletenass of reaction. They can be corrected by changing the condition of the experiment or running blank & applying appropriated correction

d) Additive & proportional error
Additive error are sometimes called constant error. In additive error for different weight of the sample the absoluted value of this error remain the same

2) Indeterminate errors :
These error are sometimes called random error or accident error
These error are caused by unknown or uncontrollable factor
Inderminated error can be personal instrumental or due to variation in external condition

Write a note on minimization of error

- The determinate error can be minimized by various method
- Callibration of apparatus. In this method the determinate error of instrument & apparatus are corrected by callibration
- Running blank determination: It is an analysis without sample by using with reagent only
- Running control in determinate: In experiment using a standard substace under similar experimental condition
- Using Independent method of analysis
- The analysis of particular constituent carried out by two entirely diff. method
- Running a parallel determinate error parallel show accidental error or variation of determinate error
- Amplification method: The amplification & concentration & property of substance is made use of determination of conc. of constituent in original sample

Q5) Write note on Langumuir adsorption isotherm

The basic theory of absorption of gases on solids is due to Irving Langmuir (1916) He derives the adsorption isotherm called langmuir adsorption isotherm on the following assumption

i) All the elementary spaces are identical in their affinity for a gas molecule

ii) The presence of a gas molecule on given space does not affect the properties of neighbouring spaces

iii) At equilibrium the rate of condensation of molecule is equal to rate of evaporation

iv) The adsorbed molecule are dissociated

v) langmuir adsorption isotherm equation is $\frac{x}{m} = \frac{ap}{bp+1}$

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Assignment -

Date - 06/03/2024

Name :- Shinde Aishwarya Ramdas

College :- P. K. T College Khutbav

31/40

Std :- F. Y. BSC

Sneha

sub :- physical Chemistry Assignment

Q1. What are Electrolytes? Explain types of Electrolytes.

Ans:- Substance which Conduct electrolytes in aqueous solution due to Presence of ions is called electrolytes

① Strong electrolytes :- The electrolytes when dissolves in Water ionise or dissociates almost Completely is called Strong electrolytes

e.g Strong acid = HCl, KCl
Strong base = NaOH, KOH

② Weak Electrolytes :- The electrolytes when dissolve in Water ionise or dissociates partially for only 5% is called Weak electrolytes.

eg Weak acid = CH_3COOH
Weak base = NH_3, NH_4OH

③ Moderate Electrolytes :- The electrolytes when dissolve in Water ionise or dussociates 50% is called moderate electrolytes

e.g At optimum temperature and Concentration Strong acid behaves as moderate electrolytes

Q2. What is PH ? Describe the Henclerson Hassel buffer equation for acidic buffer ?

ans The Sorensen defined the PH of Solution is the negative logarithm to the base 10 of the malar Concentration of hydrogen ions present in Solution.

PH of Salt

$$[H^+] = ch$$

Substituting value from eq^n

$$[H^+] = c \times \sqrt{\frac{k\omega}{kb \times c}}$$

$$[H^+] = \sqrt{c} \times \sqrt{c} \times \sqrt{\frac{k\omega}{kb \times c}}$$

$$[H^+] = \sqrt{\frac{k\omega \times c}{kb}}$$

taking -ve logarithm on both sides

$$-\log [H^+] = -\log \sqrt{\frac{k\omega \times c}{kb}}$$

$$-\log [H^+] = -\log \left(\frac{k\omega \times c}{kb}\right)^{\frac{1}{2}}$$

$$-\log [H^+] = -\frac{1}{2} \log \left(\frac{k\omega \times c}{kb}\right)$$

$$-\log [H^+] = -\frac{1}{2} [\log K_w + \log c - \log K_b]$$

$$-\log [H^+] = \frac{1}{2} [-\frac{1}{2} \log K_w - \log c + \log K_b]$$

- $$pH = \frac{1}{2} [pK_w - \log c - pK_b]$$

$$pH = \frac{1}{2} [pK_w - pK_b - \log c]$$

6 B. Dirve equation between hydrolyis Constant of salt of weak acid & strong base?

ans - hydrolysis of sodium acetate (CH_3COONa) is a salt of weak acid and strong base when Sodium acetate dissolved in water it undergoes complete dissociation as

$$CH_3COONa \rightarrow H_3CCOO^- + Na^+$$

$$H_3CCOO^- + H^+ \rightarrow H_3CCOOH$$

$$H_3CCOO^- + Na^+ + H_2O \rightleftharpoons H_3CCOOH + Na^+ + OH^-$$

by Appling low of chemical equilibrium

$$K_h = \frac{[H_3CCOOH]\,[Na^+]\,[OH^-]}{[H_3CCOOH^-]\,[Na^+]}$$

Degree of Hydrolysis

$$CH_3COONa + H_2O \rightleftharpoons CH_3COOH + NaOH$$

initial molar concentration	C	0	0
Concentration at equilibrium	C(1-h)	ch	ch

$$K_h = \frac{[CH_3COOH]\,[NaOH]}{[H_3CCOONa]}$$

$$= \frac{ch \times ch}{c(1-h)}$$

$$= \frac{c \times h^2}{1-h}$$

$$= \frac{ch^2}{(1-h)}$$

Then 1-h is approximately equals to 1

$$K_h = \frac{c \times h^2}{1-h} = c \times h^2$$

$$\therefore h = \sqrt{\frac{K_h}{c}}$$

$$h = \sqrt{\frac{K_h}{c}} = \sqrt{\frac{\frac{K_w}{K_a}}{c}}$$

$$h = \sqrt{\frac{K_w}{K_a \times c}}$$

PH of salt

Due to hydrolysis of salt of weak acid and strong base the salt solution becomes alkaline.

$\therefore [OH^-] = c \times h$

$[H^+] = \frac{Kw}{[OH^-]}$ $(\because Kw = [H^+][OH^-]$

$[H^+] = \frac{Kw}{c \times h}$

$[H^+] = \frac{Kw}{c \times \sqrt{\frac{Kw}{Ka \times C}}}$

$[H^+] = \frac{Kw}{C} \times \sqrt{\frac{Ka \times C}{Kw}}$

$[H^+] = \sqrt{\frac{Kw}{C}} \times \sqrt{\frac{Kw}{C}} \times \sqrt{\frac{Ka \times C}{Kw}}$

$[H^+] = \sqrt{\frac{Ka \times Kw}{C}}$

taking negative logorithum on both side

$-\log [H^+] = -\log \sqrt{\frac{Kw \times Ka}{C}}$

$$[H^+] = -\log \left(\frac{Kw \times Ka}{C}\right)^{\frac{1}{2}}$$

$$-\log [H^+] = \frac{1}{2} \log \left(\frac{Kw \times Ka}{C}\right)$$

$$-\log [H^+] = \frac{1}{2} [-\log Kw + \log Ka - \log C]$$

$$-\log [H^+] = \frac{1}{2} [-\log Kw - \log Ka + \log C]$$

$$-\log [H^+] = \frac{1}{2} [PKw + PKa + \log C]$$

$$\boxed{PH = \frac{1}{2} [PKw + PKa + \log C]}$$

G4 Derive the relation between hydrolysis constant degree of hydrolysis and PH of salt of weak base and strong Acid

ans:- hydrolysis of ammonium chloride is a salt of strong acid and weak base when ammonium chloride dissoved in water it undergoes complete dissociation as:

$$NH_4Cl \rightarrow NH_4^+ + Cl^-$$

$$NH_4^+ + OH^- \rightarrow NH_4OH$$

$$NH_4^+ + Cl^- + H_2O \rightleftharpoons NH_4OH^+ + Cl^- + H^+$$

$\therefore kh = ch^2$

$h^2 = \frac{kh}{c}$

$h = \sqrt{\frac{kh}{c}}$

$h = \sqrt{\frac{k\omega}{\frac{kb}{c}}}$

$$\boxed{h = \sqrt{\frac{k\omega}{kb \times c}}}$$

Open-book Test

27/30

Name = Akanksha Shitole
Std = T.Y.B.Sc
Subject = Analytical Chemistry

Q.1] Answer the following question.

1. Explain the Common Ion Effect.

Ans. In an ionic reaction, the particular ion can be derived from two sources,

1. from the compound which is all ready present in solution
2. from the added reagent.

Consider a weak electrolyte BA which shows an equilibrium between ions and unionised molecule in aqueous medium.

$$BA \rightleftharpoons B^+ + A^-$$

$$K = \frac{[B^+][A^-]}{[BA]}$$

If now another electrolyte which also contain either B^+ ion or A^- ion is added to the above solution it will increases the concentration of B^+ and A^- ion. In order to keep the value of K constant at given temperature, the concentration of BA increases. Hence, the degree of dissociation of the electrolyte BA decreases.

Conclusion: To the weak electrolyte, when another electrolyte containing a common ion is added, the degree of dissociation of weak electrolyte is suppressed.

2. Explain the factors affecting thermogravimetric curves.

Ans. The factors which affect the thermogravimetric curves can be classified into two main groups.

1. Instrumental (Thermobalance) Factors

a] Heating rate:- If a substance is heated at a faster rate, it decomposes at a higher temperature while if it is heated at slower rate, it decomposes at a lower temperature.

b] Furnance atmosphere:- The atmosphere in the furnance also affects the nature of the thermogravimetric curve. The furnace atmosphere is kept according to the nature of the sample. Generally any of the following furnace atmosphere is used in thermogravimetric

i. Static air
ii. Dynamic air
iii. Inert atmosphere

c] Sample holder:- The shape and size of the sample holder can change the nature of TG curve. Sample holder in the form of flat plates and crucibles are in use. Generally a shallow dish is preferred to deep shapes because it ensures more uniform heating and rapid exchange

2. Characteristics of the sample -

a. Weight of the sample:- A smaller weight of the sample gives better results than a longers weight which causes deviation from the linear curve of weight loss, with rise in temperature.

b. Particle size of the sample:- If the particle size of sample is small, decomposition takes place at a lower temperature.

c. Heat of reaction:- The heat of reaction makes the temperature of the sample and the furnace different. If the reaction is exothermic the temperature of the sample is more than the furnace.

d. Compactness of the sample:- A compressed sample will decompose at a higher temperature than a loose sample.

3. Write difference between Co-precipitation and Post-Precipitation

Co-Precipitation	Post-Precipitation
1. It is maximum at the time of the formation of the main precipitate (i.e at zero time)	1. It is minimum or zero at the time of the formation of the main precipitate (i.e. at zero time)
2. The concentration of the precipitate impurity decreases on standing.	2. The concentration of the precipitate impurity increases on standing.
3. The concentration due to co-precipitation is generally small as (10^{-2} times the main precipitate)	3. The concentration due to post-precipitation may be even as high as 100 per cent of the substrate.
4. The concentration of the impurity is generally less when the reaction is carried out at high temperature	4. The reaction is faster at high temperature. So the concentration of the impurities is more at high.
5. As it takes place during precipitation, the contamination due to co-precipitation is negligible when the impurity is added after the precipitate is formed.	5. The degree of contamination due to post precipitation when the impurity is added after the precipitate is formed, is same as when impurity is present.

4. Write a note on Thermogravimetric Analysis (TGA).

Ans Thermogravimetric Analysis resembles classical gravimetric analysis. The substance under study is recorded as a function of time or temperature. If the temperature is varied during the study, than the weight is plotted as a function of

temperature. If the temperature is kept constant, the weight is plotted as a function of time. The change in weight can be used as quantitative analysis and the temperature at which the change in weight takes place can be used for qualitative analysis.

There are three types of thermogravimetry:-

1. Isothermal or static thermogravimetry - In this technique, the sample weight is recorded as a function of time at constant temperature.

2. Quasistatic thermogravimetry :- In this technique, the sample is heated to a constant weight at each of a series of increasing temperature.

3. Dynamic thermogravimetry - In this technique the sample is heated in an environment whose temperature is changed in a linear manner.

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5. Write a note on Differential Thermal Analysis (DTA)

Ans: 1. Differential thermal analysis (DTA) is the analytical technique in which the temperature difference between the sample and a nonreactive reference material is monitered when the two substances are subjected to an identical heating programme.

2. The thermal curve is a plot of the difference in temperature between the sample and the reference as a function of the temperature difference between the sample and reference material when sample does not undergo chemical or physical change.

3. If any reaction takes place, there will be a temperature difference between ΔT between the sample and the reference material.

4. If the changes is endothermic, the sample temperture is lower than the reference material eg when the sample melts or is dehydrated, sample temperature is lowered.

5. This change in temperature will be observed only till the reaction completes and on completion of the reaction the change in temperature

6. Write a criteria for choosing an analytical method.

Ans: Out of all the available methods the analyst will choose a method following criteria are considered-

1. Accuracy:- Accuracy is defined as the degree of agreement between the experimentally measured result and the expected result in analysis. Accuracy is expressed in two ways namely Absolute error and the Relative error Based on the magnitude of relative error, all the analytical method can be divided into three groups:
   1. Highly Accurate
   2. Moderatly Accurate
   3. Low Accuracy

2. Precision:- It is defined as the degree of agreement between replicate measurements in an analysis. The closer the agreement, better is the precision. It should be noted that the good precision does not necessarily mean good accuracy. Accuracy expresses the correctness of a measurement, and precision the reproducibility of a measurement.

3. Sensitivity:- It is defined as the change in signal per unit change in the amount of analyte. Sensitivity is the ability of a method to distinguish between two samples having different amount of analyte. It is equivalent to the k (Proportinality constant) in the equation. If ΔS_A is the smallest increment in signal that can be measured, then the smallest difference in the amount of the analyte that can be detected.

4. Selectivity:- Samples usually contain many other compounds other than the analyte that can cause inteference in the analysis. An analytical method is selective if its signal is a function of only the amount of analyte present in the sample.

If the constituents present in the sample other than the analyte also contribute to the analytical signal they are referred to as interferents.

5. Robustness and Ruggedness:- A method are affected by the presence of various chemical and physical interferences that might contribute uncertainty or error in analysis. When a method is found to be relatively free from a chemical interferences it can be applied to the determination of analyte in a wide variety of sample matrices. Such a method is called as a robust method.

Slight variations in the experimental conditions like temperature pH, reaction time etc. can cause errors and introduce uncertainty in the results obtained by the method used. A method that is insensitive to the experimental changes is called as rugged method.

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