



GOVERNMENT OF KARNATAKA

KARNATAKA STATE PRE-UNIVERSITY EDUCATION EXAMINATION BOARD

II YEAR PUC EXAMINATION 2017.

SCHEME OF VALUATION old scheme

Subject Code : 34 [0.5]

Subject: CHEMISTRY (05)

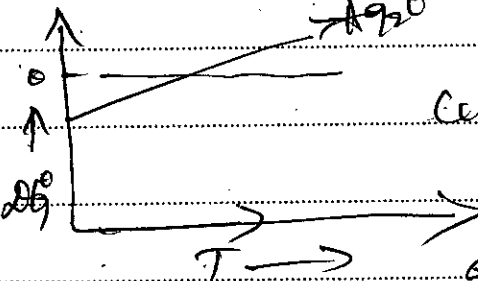
Qn. No.	PART-A	Marks
1	Atmospheric air or Air.	1
2	$[Ar] 3d^{1-10} 4s^{1-2}$	1
3	4 or Four.	1
4	Increases	1
5	$10^{-3} m$	1
6	Relative lowering of vapour pressure OR Osmotic pressure OR Elevation in boiling point. OR depression in freezing point	1

Qn. No.		Marks
7.	The movement of colloids either to the cathode or to the Anode under influence of electric field	1
8.	Cyclo propane	1
9	2, 4, 6. Tri Nitro phenol	1
10	It is a process in which the change in the physical ^{physical} and biological properties of a proteins takes place by the action of heat.	1
PART - B		
11	Limestone act as Flux OR	
	$\text{CaO} \longrightarrow \text{CaO} + \text{CO}_2$	1
	$\text{CaO} + \text{SiO}_2 \longrightarrow \text{CaSiO}_3$	
	Coke act as reducing agent OR	
	$\text{Fe}_2\text{O}_3 + \text{CO} \longrightarrow 3\text{CO}_2 + 2\text{Fe}$	1

Qn. No.		Marks
12	When heated with Oxalic acid CO & CO ₂ are liberated	1
	$\begin{array}{c} \text{COOH} \\ \\ \text{COOH} \end{array} + \text{H}_2\text{SO}_4 \longrightarrow \text{H}_2\text{SO}_4\text{H}_2\text{O} + \text{CO}\uparrow + \text{CO}_2\uparrow$	1
13	In filling air ships weather balloons Any	1 1
14	Carbon-carbon multiple bond each carbon contains two different groups.	2
15	Alkyl halide react with sodium metal in dry ether higher alkane is formed	1
Ex	$\text{C}_2\text{H}_5\text{Br} + 2\text{Na} + \text{BrC}_2\text{H}_5 \xrightarrow[\text{ether}]{\text{dry}} \text{C}_4\text{H}_{10} + 2\text{NaBr}$	1
16	Methylamine contains electron releasing methyl group as active methyl group as due to +I effect	2

Qn. No.		Marks
17	$\text{CH}_4 + \text{Cl}_2 \xrightarrow{\text{h}\nu} \text{CH}_3\text{Cl} + \text{HCl}$	1
	$\text{CH}_3\text{Cl} + 2\text{Na} + \text{C}_2\text{H}_5\text{Cl} \xrightarrow{\text{dry}} \text{C}_2\text{H}_6 + 2\text{NaCl}$	1
18	Certain oils when exposed to air they form hard transparent resin.	1
	Ex linseed oil tung oil etc	1
19	$k = \frac{0.693}{t_{1/2}}$	1
	$k = \frac{0.693}{30}$	1/2
	$= 0.0231/\text{min}$	1/2
20	The degree of dissociation of weak electrolyte are suppressed by adding strong electrolyte which is having common ion	1
	Ex NH_4OH & NH_4Cl CH_3COOH & CH_3COONa	1
21	$\Delta G^\circ = -2.303 RT \log K_p$ OR $\log K_p = -\frac{\Delta G^\circ}{2.303 RT}$	1
	$K_p = 1.608 \times 10^{-11}$	1

Qn. No.		Marks Allotted
22	When the same quantity of electricity passed through two different electrodes the mass of substance deposited or liberated is to chemical equivalent mass of that element	1
	$w \propto E$	1
PART - C		
I		
23.		
(a)	Diagram Description involving the following value points anode, cathode, electrolyte, role of asbestos, steam collection of NaOH cell reaction	1 2 1
b)	O_2	1
24		
a)	EC of Fe^{2+} is $Ar 3d^6 4s^0$ Hybridisation - $d^2 sp^3$ geometry - octahedral shape magnetic property - Diamagnetic	1 1 1 1
b)	which donate a pair of electrons	1

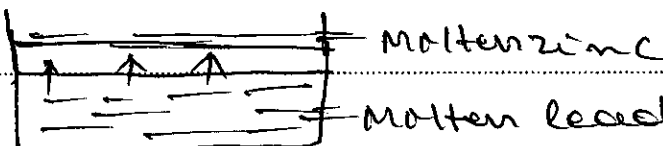
Qn. No.		Marks Allotted
25,		
a)	Any three postulates each 1 mark	3
b)	 <p>At high temp the curve crosses Ag_2O line thus Ag_2O decomposes</p>	1+1
<u>11</u>		
26		
a)	<p>① All cycloalkanes are planar</p> <p>② The deviation of bond bond angle from normal tetrahedral angle.</p> <p>③ Greater the angle strain lesser is the stability or any</p>	4
b)	contains Four different groups	1
27.		
a)	<p>The middle oil fraction ($170^{\circ}-230^{\circ}C$) contains mainly phenol naphthalene and traces of py. It is cooled naphthalene solidifies, it is removed by filtration, crude phenol is washed with dil H_2SO_4 and NaOH to get phenol</p>	2

Q. No.		Marks Allotted
	$C_6H_5OH + NaOH \rightarrow C_6H_5ONa + H_2O$ $C_6H_5ONa + HCl \rightarrow C_6H_5OH + NaCl$	1
b)	Any two uses each one mark	2
28		
a)	<ol style="list-style-type: none"> 1. Molecular formula - $C_6H_{12}O_6$. 2. glucose + HI <u>Red P</u> \rightarrow n-Hexane. 3. presence of Aldehyde group. 4. presence of five -OH group. 	3
b)	<p>The dipolar ion is called zwitter ion</p> $\left[\overset{-}{\text{H}_3\text{N}^+} - \underset{\text{H}}{\overset{\text{CH}_3}{\text{C}}} - \overset{-}{\text{COO}^-} \right] \text{ or Any}$	1
29		
a)	Explanation —	1
(i)	$2 \text{ (Benzene ring with CHO group) } + NaOH \rightarrow \text{ (Benzene ring with CH}_2\text{OH group) } + \text{ (Benzene ring with COONa group) }$	1
(ii)	<p>Explanation —</p> $\text{ (Benzene ring with OH group) } \xrightarrow[-H_2O]{NaOH} \text{ (Benzene ring with ONa group) } \xrightarrow[140^\circ]{CO_2} \text{ (Benzene ring with OH and COONa groups) } \xrightarrow[-NaCl]{HCl} \text{ (Benzene ring with OH and COOH groups) }$	1
(B)	propagation (or) 2-propenone	1

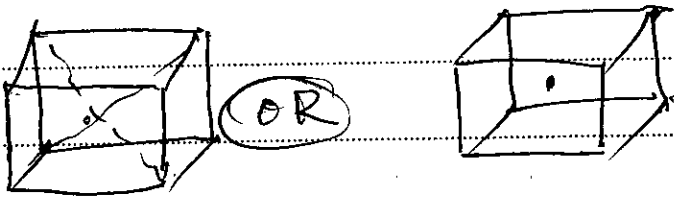
Qn. No.		Mark Allotted
<u>III</u>		
30		
a)	Labelled diagram	1
	Description containing 1M HCl & H ₂ gas at 1 atm in presence of platinum	1
	$\frac{1}{2} \text{H}_2 \rightleftharpoons \text{H}^+ + \text{e}^-$	$\frac{1}{2}$
	$E_{\text{H}_2}^0 = 0$	$\frac{1}{2}$
	Cell representation	
	Pt H ₂ (1 atm) H ⁺ 1M	1
	b) the product of molar concentration of hydrogen & hydroxyl ion conc ⁿ @ $K_w = (\text{H}^+)(\text{OH}^-)$	1
31		
a)	A → products	
	upto $\frac{dx}{dt} = k(a-x)$ — (1)	1
	on integrating	
	$-\ln(a-x) = kt + c$ — (2)	
	Find value of c put t=0, x=0	1
	c = -ln a then eqn (2) becomes	
	$-\ln(a-x) = kt - \ln a$	
	$kt = \ln \frac{a}{a-x}$	1
	$k = \frac{1}{t} \ln \frac{a}{a-x}$	
	$(k = \frac{2.303}{t} \log \frac{a}{a-x})$	1

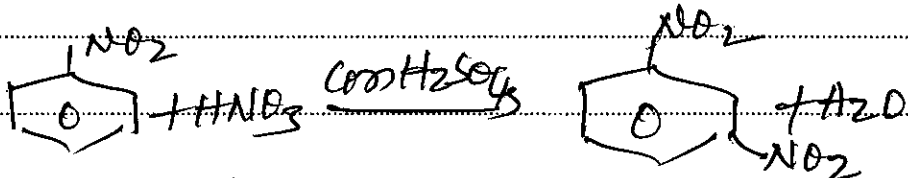
Qn. No.		Marks Allotted
b)	Differs by a one proton or H^+	1
32		
a)	$pOH = pK_b + \log \frac{\text{Salt}}{\text{Base}}$	1
	$pK_b = -\log K_b$	
	$= -\log 1.8 \times 10^{-5}$	1
	$= 4.7447$	$\frac{1}{2}$
	$pOH = 4.7447 + \log \frac{0.8}{0.4}$	$\frac{1}{2}$
	$pOH = 4.7447 + \log 2$	
	$= 4.7447 + 0.3010$	1
	$= 5.0457$	
b)	The conversion of freshly prepared precipitate into colloidal state by adding suitable electrolyte Ex	1
	$Fe(OH)_3$ prepared by add $FeCl_3$ or Any Example.	1
33		
a)	The list of standard reduction electrode potential arranged in the order of increasing values	1

Qn. No.		Marks Allotted								
	<p>Applications</p> <p>1) Elements at the top of list are good reducing agents and at the bottom are good oxidising agents.</p> <p>2) A metal in the electrochemical list can displace another metal below it from its solution (oo) Any</p>	1								
b)	$EMF_{\text{cell}} = E_{+ve} - E_{-ve}$ $= E_{\text{Cathode}} - E_{\text{Anode}}$ $= -0.76 - (-2.38)$ $= 0.76 + 2.38$ $= 1.62 \text{ V}$	1								
34	<p>a) Any three differences</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Ideal solution</td> <td style="width: 50%;">Non ideal solution</td> </tr> <tr> <td>$\Delta H_{\text{mix}} = 0$</td> <td>$\Delta H_{\text{mix}} \neq 0$</td> </tr> <tr> <td>$\Delta V_{\text{mix}} = 0$</td> <td>$\Delta V_{\text{mix}} \neq 0$</td> </tr> <tr> <td>obeys Raoult's law</td> <td>Does not obey Raoult's law</td> </tr> </table>	Ideal solution	Non ideal solution	$\Delta H_{\text{mix}} = 0$	$\Delta H_{\text{mix}} \neq 0$	$\Delta V_{\text{mix}} = 0$	$\Delta V_{\text{mix}} \neq 0$	obeys Raoult's law	Does not obey Raoult's law	3
Ideal solution	Non ideal solution									
$\Delta H_{\text{mix}} = 0$	$\Delta H_{\text{mix}} \neq 0$									
$\Delta V_{\text{mix}} = 0$	$\Delta V_{\text{mix}} \neq 0$									
obeys Raoult's law	Does not obey Raoult's law									

Q. No.		Marks Allotted
b)	<p>continuous random or zigzag movement of colloidal particles in a colloidal solution.</p> <p>Due to the collision of moving molecules of the dispersion medium particles with colloidal particles</p>	1
	<p style="text-align: center;">PART - D</p> <p style="text-align: center;">D1</p>	
12/35		
a)		1/2
	<p>principles Any two</p> <p>procedure Argentiferous lead is melted 800°C and treated with molten Zn most of the silver dissolves in Zn forming a Zn-Ag alloy this solidified and floats on the surface it is separated</p>	1
	<p>Distillation process</p>	1/2
b)	$\frac{p_0 - p}{p_0} = \frac{n_2}{n_1 + n_2}$	1

Qn. No.	Mark Allotted
$n_2 = \frac{3}{60} = 0.05 \quad n_1 = \frac{9}{18} = 0.5$ $\frac{p_0 - p}{p_0} = \frac{0.05}{0.5 + 0.05}$ $= 0.0909 \text{ Pa.}$	1
<p>(OR)</p> $\frac{p_0 - p}{p_0} = \frac{w_2}{w_1} \times \frac{M_1}{M_2}$ $= \frac{3}{9} \times \frac{18}{60}$ $= \underline{\underline{0.1 \text{ Pa.}}}$	
<p>c) BCC = $\frac{1}{8} \times 8 + 1$ at Centre</p> $= 1 + 1 = 2 \text{ particles}$	1 1
<p>d) It is Nucleophilic substitution unimolecular reaction, or S_N1 mechanism.</p> <p>Step ①</p> $\text{H}_3\text{C}-\text{C}(\text{CH}_3)_2-\text{Br} \longrightarrow \text{H}_3\text{C}-\text{C}^+(\text{CH}_3)_2 + \text{Br}^-$ <p>Step ②</p> $\text{H}_3\text{C}-\text{C}^+(\text{CH}_3)_2 + \text{OH}^- \longrightarrow \text{H}_3\text{C}-\text{C}(\text{CH}_3)_2-\text{OH}$	1 1

Qn. No.		Marks Allotted
36		
a)	<p>Zinc has a configuration $3d^{10}4s^2$ and there is no unpaired electron. Hence it is diamagnetic.</p>	1
b)	<p>Any two differences each one mark.</p>	2.
c)	<p>The rate of reaction is independent of concentration of the reactant. Does not depend on concⁿ of reactant.</p> <p>Ex</p> <p>1) $H_2 + Cl_2 \xrightarrow{h\nu} 2HCl$ (OR)</p> <p>2) $2HI \xrightarrow{\text{gold foil}} H_2 + I_2$ (OR)</p> <p>3) $2NH_3 \xrightarrow{Mo} N_2 + 3H_2$</p>	1
d)		1
e)	<p>Any two differences each one mark</p>	2
f)	<p>The number of grams of Iodine which react with 100g of an oil or fat</p>	1

Qn. No.	Marks Allotted
D ₂	
IV	
37	
a)	1
	
	1
<p>procedure: mixing of the reagents separating the product as a yellow solid</p>	1
b)	2
<p>It is general test for proteins when protein mixed with NaOH solⁿ and two drops of CuSO₄ to form violet colour</p>	2
38.	
<p>Acid hydrolysis of methyl acetate. $\text{CH}_3\text{COOCH}_3 + \text{H}_2\text{O} \xrightarrow{\text{H}^+} \text{CH}_3\text{COOH} + \text{CH}_3\text{OH}$</p>	1
<p>procedure: involving 0.5N HCl 15cm³ Methyl acetate 0.1N NaOH. pheno phthalene indicators at endpoint colourless to pale pink different intervals 0, 5, 10, 15, 20, 25 to get concordant values.</p>	2

Qn/No.		Marks Allotted
	tabular column calculation conclusion graph -	1 1/2 1/2
39	<p>Reactions</p> $2\text{KMnO}_4 + 10\text{FeSO}_4 + 8\text{H}_2\text{SO}_4$ \downarrow $\text{K}_2\text{SO}_4 + 2\text{MnSO}_4 + 5\text{Fe}_2(\text{SO}_4)_3 + 8\text{H}_2\text{O}$ <p>Equivalent mass of $\text{KMnO}_4 = 31.6$</p> <p>procedure: titration of Mohr's Salt solution against KMnO_4 in acidic medium. At the end point of titration the colour of solution changes to pale pink colour.</p> <p>tabular column calculation of KMnO_4 present per 250cm^3</p> $= \frac{N \times E \times 250}{1000}$ $= \frac{N \times 31.6}{4} = 4 \text{ g.}$	2 1 1

* * *

Name of the Chapter	No of teach hours	marks	Knowledge					Under standing					Applications					Skill					Total			
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5				
Metalurgy-2	4	6	1	2	3	4	1	2	3	4	1	2	3	4	5										7	
Industrial important compounds	4	6		1				1																		6
Noble gases	2	3																								3
d-block elements	2	3																								3
co-ordination compounds	5	7	1+1																							6
Chemical bonding	4	6	1	1	1																					6
Chemical kinetics	5	8		1																						9
Electrochemistry	12	19	1+1	1+1																						19
Theory dil-solutions	3	5	1																							6
Thermodynamics-2	3	4																								2
Colloids	3	5	1	1+1																						5
Solids	2	3																								3
concepts in organic chemistry	1	2																								2
Synthetic org chemistry	1	2		1																						2
isomerism-2	1	2	1	1																						3
Hydro carbons-2	4	5																								5
Halocarbons	3	5		1																						5
organic compound containing oxygen	8	11		1+1+1																						11
Amines	2	3																								2
Carbohydrates	2	3																								3
oils and fats	2	3		1																						3
Amino acids & Proteins	2	3		1																						3
Biochemicals	15	19	12	32	12	04	05	10	06	12	01	10	06													15
																										129

60%

33%

17%

4 315