

PO Attainment

Faculty Name: Dr. Kuldeep Chauhan

Class-Sem: MSc-I

Academic Year: 2022-23

Course Name: Analytical Chemistry

Course Code: MCH-104

Program Name: MSc Chemistry

CO-PO MAPPING:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	2			3	3			1			
CO2	2		2	2			3	1				
CO3		3	1			2	1				1	
CO4				2	3			3	3	3		
CO5	3		1		3						1	2
CO6		1		3		1	1	3	1	1		2

CO ATTAINMENT:

Dr. Kuldeep Chauhan	Att. Level
CO1	2.43
CO2	2.43
CO3	2.43
CO4	2.45
CO5	2.40
CO6	2.14

PO ATTAINMENT :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Overall PO Attainment	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.3



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Faculty Name: Dr. Kuldeep Chauhan

Class/Sem: MSC-I

Academic Year: 2022-23

Course Name: Analytical Chemistry

Course Code: MCH-104

Program Name: MSC Chemistry

S. No.	Universities Reg. No.	Student Name	Internal Marks Scheme									Total Internal Marks	End Sem Exam Marks	Total Marks
			First Unit Test	Second Unit Test	First Class Test	Second Class Test	Best One From Unit Test	Best One Form Class Test	Unit Test(UT)	Attendance(AT)	Teacher Assessment(TA)			
			Theory (30)	Theory (30)	Theory (10)	Theory (10)	Theory (30)	Theory (10)	12	12	6	Theory (30)	Theory (70)	Theory (100)
1	MSCH2022002	APEKSHA GANGWAR	13	10	3	3	13	3	5	5	2	12	57	69
	MSCH2022005	AVUSH PANDEY	23	18	7	5	23	7	9	9	4	22	68	70
	MSCH2022006	KRATIKA SINGH	13	10	3	3	13	3	5	5	2	12	57	69
	MSCH2022004	SHIVANI PAL	25	20	7	5	25	7	10	10	4	24	56	80
	MSCH2022001	RAVI KUMAR	28	22	8	7	28	8	11	10	5	26	51	77
53	MSCH2022003	SUSHMA	12	10	7	5	12	7	8	8	4	20	2	22
Students appeared for the examination			1	1	1	1	1	1	1	1	1	1	1	1
Target / satisfactory mark set as benchmark			12	12	4	4	12	4	5	5	2	12	28	40
Students scored above the target set			1	0	1	1	1	1	1	1	1	1	0	0
* Students scored above the target set			100%	0%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%
Attainment Level			3	1	3	3	3	3	3	3	3	3	1	1

	CO1	CO2	CO3	CO4	CO5	CO6	Overall
CO1	3					3	2.43
CO2	3					3	2.43
CO3	3					3	2.43
CO4		1	3	3	3	3	2.45
CO5		1	3	3	3	3	2.40
CO6		1				3	2.14

Rubric:		Overall attainment	2.38
% Students	Level		
<5%	1		
5-75%	2		
>75%	3		

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Q.No	Questions	Marks (70)	CO	BL
1-I	What is accuracy and precision?	01	CO1	L2
1-II	Systematic error is caused with poor calibration of the instrument; this statement is true or false?	01	CO2	L1
1-III	How many significant figures are present in the number 3.5×10^{14} ?	01	CO2	L2
1-IV	Zero error is an indication of instrument error; this statement is true or false?	01	CO3	L3
1-V	What is buffer solution?	01	CO2	L1
1-VI	How many significant figures are present in the number 6504?	01	CO1	L1
1-VII	What is the mean value of the 48.32, 48.36, 48.23, 48.11 and 48.38?	01	CO1	L1
2-I	What is activity coefficient?	01	CO1	L1
2-II	A determinate error can be evaluated by experimentally and theoretically both this statement is true or false?	01	CO1	L1
2-III	How many significant figures are present in the number 0.040?	01	CO1	L1
2-IV	How many significant figures are present in the number 3.5×10^{14} ?	01	CO1	L2
2-V	How many significant figures will the 3.10×4.520 ?	01	CO1	L1
2-VI	How many significant figures will the $22.101 - 0.9307$?	01	CO1	L3
2-VII	Which elements are known as d-block elements?	01	CO1	L1
3-I	a) Explain the significance of statistical test; describe the F test, 'T' test and the chi-test. OR b) What is accuracy and precision explain with proper examples?	7	CO2	L2
3-II	a) Define the systematic errors and random errors? OR b) Define normal error curve and also explain propagation of error.	7	CO3	L2
4-I	a) Discuss the conjugate acid and conjugate base. OR b) What are the seven stages of an analytical method?	7	CO3	L5
4-II	a) What are confidence intervals? Comparing an experimental mean with a known value. OR b) What is the analytical validation?	7	CO4	L3
5	a) What is equilibrium state? Discuss the equilibrium constant expression. OR b) What is amphiprotic species? Discuss the autoprotolysis with proper examples	7	CO5	L4
6	a) What is propagation of error? Discuss with confidence intervals OR b) Define GLP, What are the principles of GLP?	7	CO6	L6

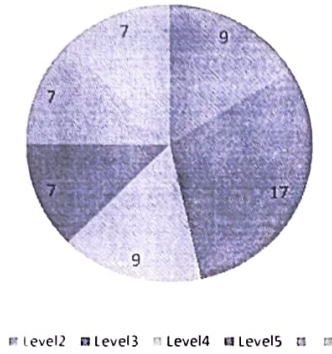
BL – Bloom's Taxonomy Levels

(1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)
CO – Course Outcomes PO – Program Outcomes; PI Code – Performance Indicator Code

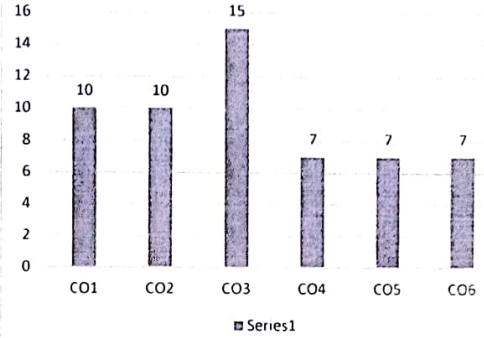
Level	Marks	CO	Marks
Level1	9	CO1	10

Level2	17	CO2	10
Level3	9	CO3	15
Level4	7	CO4	7
Level5	7	CO5	7
Level6	7	CO6	7
Total	56	Total	56

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution



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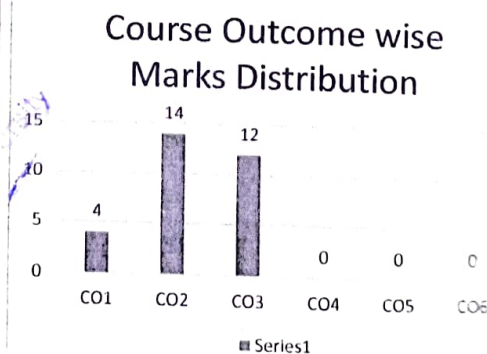
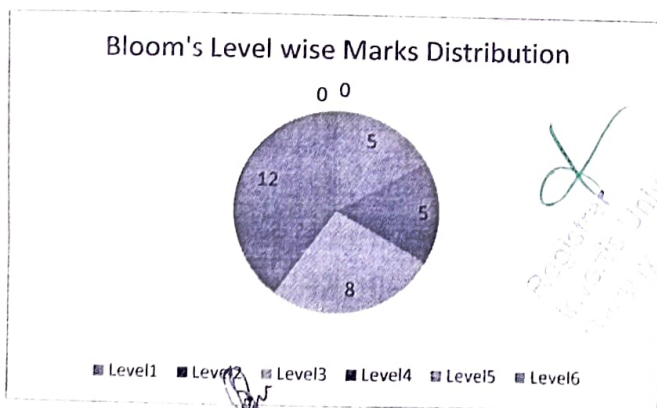
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Q.No	Questions	Marks (30)	CO	BL
1-I	The closeness of data to other data that have been obtained in exactly the same way	01	CO1	L1
1-II	Random error is caused with poor calibration of the instrument; this statement is true or false?	01	CO1	L1
1-III	CH ₃ COONH ₄ is a type of buffer solution this statement is true or false?	01	CO2	L2
1-IV	What is precision?	01	CO1	L2
1-V	NH ₄ Cl is a type of buffer solution gives the acid and base constituents of this buffer?	01	CO1	L1
2-I	The closeness of a result to its true or accepted value is--	01	CO2	L2
2-II	Which elements are known as representative elements?	01	CO2	L1
2-III	Which group of periodic table known as alkali metals?	01	CO2	L2
2-IV	How many significant figures are present in the multiplication of 4.03 x 3.120	01	CO2	L2
2-V	A systematic error can be evaluated by experimentally and theoretically both this statement is true or false?	01	CO2	L1
3	a) Define all the seven stages of an analytical method. b) What are confidence intervals? Comparing an experimental mean with a known value.	08	CO2	L3
4-A	a) What is amphiprotic species? Discuss the autoprotolysis with proper examples. OR b) What are the basic principles of good laboratory practice (GLP)?	06	CO3	L4
4-B	a) What are conjugate acid and base? Discuss the Bronsted Lowry concept with proper examples. OR b) What is equilibrium state? Discuss the equilibrium constant expression.	06	CO3	L4

Level	Marks	CO	Marks
Level1	5	CO1	4
Level2	5	CO2	14
Level3	8	CO3	12
Level4	12	CO4	0
Level5	0	CO5	0
Level6	0	CO6	0
Total	30	Total	30



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Q.No	Questions	Marks (30)	CO	BL
1-I	What is analytical model?	01	CO4	L1
1-II	What is F test?	01	CO4	L1
1-III	Define the Chi test	01	CO4	L2
1-IV	What is the mean value of the 50.35, 51.06, 50.23, 51.11 and 50.68?	01	CO4	L1
1-V	How many significant figures are present in the number 6.50×10^{-12} ?	01	CO4	L1
2-I	What is accuracy?	01	CO4	L2
2-II	What is precision?	01	CO5	L2
2-III	A systematic error can be evaluated by experimentally and theoretically both thi	01	CO5	L2
2-IV	Random error is caused with poor calibration of the instrument; this statement is	01	CO5	L2
2-V	The closeness of data to other data that have been obtained in exactly the same v	01	CO5	L2
3	a) Define the systematic errors and random errors? OR b) What is accuracy and precision explain with proper examples?	08	CO5	L3
4-A	a) What are the principles of GLP? OR b) Discuss with confidence intervals.	06	CO6	L4
4-B	a) Discuss the equilibrium constant expression OR b) Discuss the autoprotolysis with proper examples.	06	CO6	L5

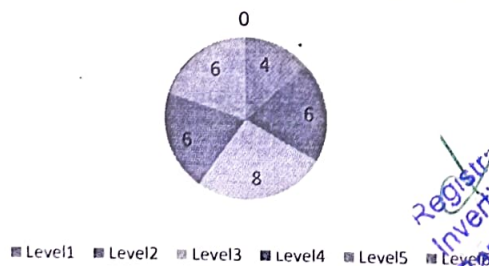
BL – Bloom’s Taxonomy Levels

(1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

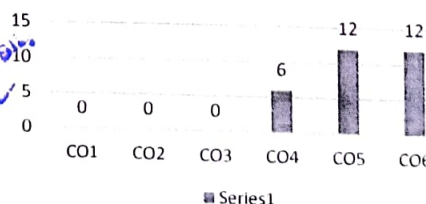
CO – Course Outcomes PO – Program Outcomes; PI Code – Performance Indicator Code

Level1	4	CO1	0
Level2	6	CO2	0
Level3	8	CO3	0
Level4	6	CO4	6
Level5	6	CO5	12
Level6	0	CO6	12
Total	30	Total	30

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution



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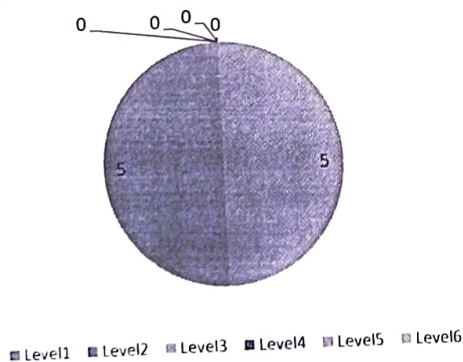
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Q.No	Questions	Marks (10)	CO	BL
1	What is accuracy and precision?	05	CO4	L2
2	Explain the significance of statistical test; describe the F test, 'T' test and the chi-test	05	CO5	L1

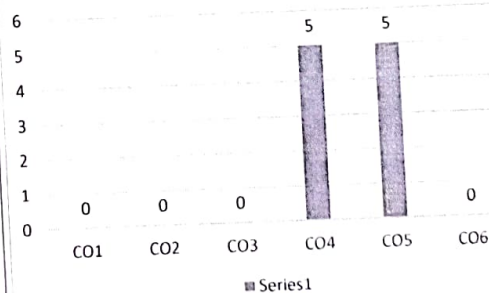
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(1 - Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)
CO – Course Outcomes PO – Program Outcomes; PI Code – Performance Indicator Code

Level	Marks	CO	Marks
Level1	5	CO1	0
Level2	5	CO2	0
Level3	0	CO3	0
Level4	0	CO4	5
Level5	0	CO5	5
Level6	0	CO6	0
Total	10	Total	10

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution



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Q.No	Questions	Marks (10)	CO	BL
1	What is activity coefficient?	05	CO4	L1
2	What is amphiprotic species? Discuss the autoprotolysis with proper examples.	05	CO5	L2

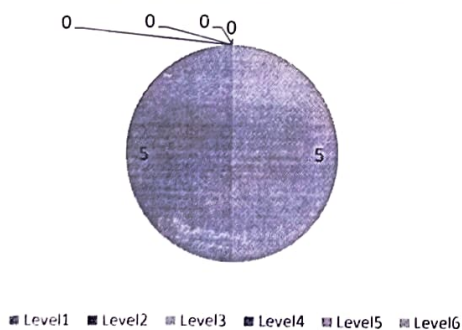
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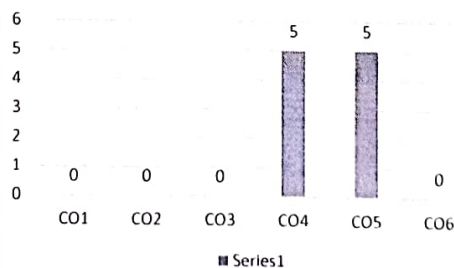
CO – Course Outcomes PO – Program Outcomes; PI Code – Performance Indicator Code

Level	Marks	CO	Marks
Level1	5	CO1	0
Level2	5	CO2	0
Level3	0	CO3	0
Level4	0	CO4	5
Level5	0	CO5	5
Level6	0	CO6	0
Total	10	Total	10

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution



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PROGRAM : MASTER OF SCIENCE (CHEMISTRY)
SEMESTER : FIRST
SESSION : 2022-23
COLLEGE : Faculty of Sciences

Sl. No.	Examination No.	Roll No.	Student ID	Student Name	MCH101			MCH102			MCH103			MCH104			MCH105			Grand Total	Credits Secured	SGPA	CPI														
					Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR	Max Marks	CR																			
1	220220011	2202000011	MSCHE22001	NEENSHA GARGAN AN.	70	1	70	30	100	4	70	30	100	4	70	30	100	4	30	20	50	2	30	20	50	2	181	22	0.00	58.26							
2	220220011	2202000014	MSCHE22006	AYUSH PANDAY	60	11	60	12	62	4	47	12	50	4	68	42	90	4	28	19	17	2	25	15	40	2	29	19	48	2	480	22	0.00	60.26			
3	220220011	2202000015	MSCHE22006	KAMRANA SINGH	51	11	62	4	48	12	60	4	68	12	80	4	57	12	69	4	23	17	40	2	24	16	40	2	193	22	0.00	72.54					
4	220220011	2202000017	MSCHE22006	SHIVANI P.A.L.	36	26	32	4	48	29	77	4	68	28	96	4	56	24	80	4	24	19	43	2	26	18	44	2	205	18	0.00	-					
5	220220011	2202000016	MSCHE22006	RAVI NIRMAL	31	22	35	4	28	23	51	4	30	22	52	4	2	20	22	0	19	18	37	2	26	18	44	2	20	16	16	16	2	297	18	0.00	-
6	220220011	2202000018	MSCHE22006	SESHMA	48	13	13	0	48	14	14	0	48	13	13	0	48	14	14	0	19	17	36	2	25	18	43	2	20	16	16	2	171	5	0.00	-	

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Controller of Examination

Registrar

Vice Chancellor

> CPI of Re-appear Students are not Calculated.
Legend:-
E - External Marks I - Internal Marks
T - Total Marks

Passing marks - 40% in each course

Date : Feb 1, 2023
* Passed with Grace Marks
Credited
DT - Detained
CR - Credit Secured

MCH101: INORGANIC CHEMISTRY-I
MCH102: ANALYTICAL CHEMISTRY-I
MCH103: PHYSICAL CHEMISTRY PRACTICAL-I

MCH104: ORGANIC CHEMISTRY-I
MCH105: INORGANIC CHEMISTRY PRACTICAL-I

MCH106: PHYSICAL CHEMISTRY-I
MCH107: ORGANIC CHEMISTRY PRACTICAL-I