NABIRA MAHAVIDYALAYA, KATOL , DIST. NAGPUR (MAHARASHTRA)

NABIRA MAHAVIDYALAYA, KATOL

Criterion 1 - Curricular Aspects

1.1 - Curricular Planning and Implementation

1.1.2 – The Institution adheres to the academic calendar including for the conduct of Continuous Internal Evaluation (CIE)

NABIRA MAHAVIDYALAYA, KATOL

K.K. Chandak Marg, Dhantoli, Katol
Distt. Nagpur (M.S.) Pin - 441 302

Graduation & Post Graduation in
Arts, Commerce, Science & Management

Phone : 07112 - 222004 Mobile : 8857026884
Email : nmv.college@rediffmail.com Website : www. nabiracollegecampus.com

NAAC'S B++ Accredited College

Ref.No. :

Date : 09/11/2024

DECLARATION

This is to declare that the information, reports, true copies and numerical data etc. furnished in this file as supporting documents are verified by IQAC and found correct.

Hence this is certificate.

Dr. Punit Raut
Co-Ordinator
IQAC, NMV Katol

Dr. S. K. Navin
Principal
Nabira Mahavidyalaya,
Katol, Dist. Nagpur.

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF PHYSICS

B.Sc III (Semester V)

Unit Test I (Dt: 17/10/2023)

Max. Mark: 10] [Time: 45 min

Attempt any Four (2.5 x 4 =10)

(i) Find the possible values for four quantum number for an electron in K shell

(ii) Explain Bohr's theory.

(iii) Explain Stern Gerlach Experiment

(iv) Describe the experimental arrangement of Stark effect

(v) An element is placed in a magnetic field of flux density 0.3 tesla. How for apart the zeeman component of spectral line of wavelength 4500Å.

(Given, $e = 1.6\times10^{-19}$ C , $m = 9.1\times10^{-31}$ Kg

NABIRA MAHAVIDYALAYA, KATOL, Dist.- Nagpur

B.Sc. Semester V Unit Test

Physics Paper II

Quantum Mechanics, Nanomaterials and Nanotechnology.

Time - 50 Minutes] [Maximum Marks: 10

Note:- (i) Attempt any four questions. (ii) Each question: 2.5 Mark from EITHER / OR.

EITHER

Q.1 (A) What are the inadequecies of classical Mechanics?

(B) What is Compton effect? Discuss experimental arrangements of Compton effect.

(C) A photon of initial energy 90 keV undergoes Compton scattering at angle of 60°. Find the energy of scattered photon.

(D) Discuss wave nature of matter wave and obtain de Broglie relation for material particle.

(E) Define phase velocity and group velocity and derive their expressions.

(F) What is Heisenberg's uncertainty principle? Give its physical interpretation

(G) An electron has speed of 300 m/s with accuracy to 0.01%. Calculate the ~~location of~~ position of electron with fundamental accuracy.

(H) Obtain Planck's radiation formula.

(I) How does Davison and Germer's experiment prove the wave nature of matter waves?

(J) Calculate the de-Broglie wavelength of an electron accelerated through a potential difference of 1.25 kilo-Volt.

OR

Q.2. (A) Derive Schrodinger's time independent wave equation

(B) Show that the function $f(x) = \sin(ax)$ is an eigen function with respect to the operator $\frac{d^2}{dx^2}$.

(C) Give the physical significance of ψ.

(D) Obtain operator for energy in the quantum mechanics

(E) Derive Schrodinger's time dependent equation for matter waves.

(F) Using momentum operator, find an operator for kinetic energy of a particle.

(G) State the postulates of Quantum mechanics.

(H) Find the lowest energy of an electron confined to move in a one-dimensional potential box of length 1 A.U.

(I) Find the lowest energy of a neutron confined to a nucleus of size 10^{-14} meter.

(J) Obtain an expression for the eigen function of a free particle in one dimensional box.

NABIRA MAHAVIDYALAYA, KATOL, DIST - NAGPUR

B.Sc. Semester III UNIT TEST

PHYSICS - PAPER-II

PHYSICAL OPTICS AND ELECTOMAGNETIC WAVES

Time - 50 Minutes] [Max Marks: 10

Note: (1) All question carry equal marks

(2) Solve any four questions

Q.1 (A) Show that the diameter of dark rings due to reflected light in Newton's ring experiment are proportional to square ~~root~~ root of natural number.

(B) Explain interference in thin film due to transmitted light.

(C) Explain the construction and working of Michelson Interferometer

(D) How will you determine the refractive index of a liquid using Newton's ring?

(E) Explain, how is the ~~Michelson Interferometer~~ formation of circular fringes and localised fringes occurs in Michelson Interferometer.

(F) In the Newton's ring experiment, the diameter of the 25th ring is 0.7 cm. and that of 15th ring is .44 cm. If the radius of curvature of lens is 120 cm., calculate the wavelength of light.

(G) In the Michelson Interferometer, the initial and final position of micrometer screw are 8.8347 mm and ~~8.80~~ 8.8047 mm, when 200 fringes pass from field of view. Calculate the wavelength of light.

(H) In Newton's ring arrangement, diameter of 20th dark ring due to wavelength 6000 A° in the air is 0.5 cm. Find the radius of curvature of lens.

(I) Explain the fringes of equal inclination.

(J) Explain, the phase change of light in denser medium due to reflection.

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS

ATTENDANCE SHEET (Session: 2023-2024)

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. I.H.Dhadade

Unit Test (17/10/2023)

S. N	Name Of The Student	Signature
1	Aditya Deepak Amparwar	Absent
2	Anikesh P. Kumeriya	[illegible]
3	Ankush Ashok Bhange	Bhange
4	Bhagyshri D. Raut	Raut.
5	Dipanjali Manohar Alone	DAlone.
6	Geetkumar Bhasme	Gbasme
7	Harshal Anil Deshmukh	Absent
8	Hina Anil Dhannade	Absent
9	Isha Bhagwat Kasare	I.B.kasare.
10	Sumit Thakre	Absent
11	Nayan K. Sambhare	Absent
12	Neha Harihar Sable	Absent
13	Neha Kakde	NSkakde.
14	Paranay Pramod Malvi	Absent
15	Pawan Vishnuji Junghare	PJunghare
16	Pragati Gunvant Munne	Pmunne.
17	Pranjali Dinesh Rewatkar	Rewatkar
18	Vishal Shrawan Tonge	Absent
19	Vrunda Shriram Hajare	Absent
20	Vrushali Premdas Shende	Absent.

Dhadade
17/10/2023

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS

ATTENDANCE SHEET (Session: 2023-2024)

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. I.H.Dhadade

Unit Test (17/10/2023)

21	Aachal Rajendra Charde	Absent
22	Devanshu Maraskolhe	Absent
23	Gayatri Dilip Damedhar	Absent
24	Janvi Madhukar Thakre	[illegible]
25	Jay Pratap Kumeriya	Pkumeriya
26	Kanchan Rajendra Gurao	K. R. GURAU
27	Manish K. Shende	Mshende
28	Mayuri Anilrao Junankar	Mayuri
29	Mohnish G. Dharme	M.G.Dharme
30	Ritu Eknath Yenorkar	[illegible]
31	Ruchika R. Bhasme	Absent
32	Sahil Hanif Sheikh	S. Sheikh
33	Saniya M.Ali Sheikh	Absent
34	Sarang Vishnuji Wagh	Absent
35	Satish Shamrao Taywade	STaywade
36	Sayama R. Sheikh	Sheikh
37	Sneha Suresh Dhote	S. S. Dhote
38	Sonali M.Pandey	Pandey
39	Yogesh Bhujang Mahalle	[illegible]
40	Ravikant A. Jodh	Jodh

Dhadade
17/10/2023

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
Session: 2023-2024

Marksheet of Unit Test

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. I.H.Dhadade

Unit Test (17/10/2023)

Sr.No	Name Of The Student	Obtained mark out of 10
1	Aditya Deepak Amparwar	Absent
2	Anikesh P. Kumeriya	05
3	Ankush Ashok Bhange	05
4	Bhagyshri D. Raut	04
5	Dipanjali Manohar Alone	05
6	Geetkumar Bhasme	07
7	Harshal Anil Deshmukh	Absent
8	Hina Anil Dhannade	Absent
9	Isha Bhagwat Kasare	05
10	Sumit Thakre	Absent
11	Nayan K. Sambhare	Absent
12	Neha Harihar Sable	Absent
13	Neha Kakde	06
14	Paranay Pramod Malvi	Absent
15	Pawan Vishnuji Junghare	04
16	Pragati Gunvant Munne	06
17	Pranjali Dinesh Rewatkar	06
18	Vishal Shrawan Tonge	Absent
19	Vrunda Shriram Hajare	Absent
20	Vrushali Premdas Shende	Absent

Teacher Incharge

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
Session: 2023-2024

Marksheet of Unit Test

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. I.H.Dhadade

Unit Test (17/10/2023)

Sr.No	Name Of The Student	Obtained mark out of 10
21	Aachal Rajendra Charde	Absent
22	Devanshu Maraskolhe	Absent
23	Gayatri Dilip Damedhar	Absent
24	Janvi Madhukar Thakre	07
25	Jay Pratap Kumeriya	07
26	Kanchan Rajendra Gurao	07
27	Manish K. Shende	09
28	Mayuri Anilrao Junankar	08
29	Mohnish G. Dharme	09
30	Ritu Eknath Yenorkar	09
31	Ruchika R. Bhasme	Absent
32	Sahil Hanif Sheikh	07
33	Saniya M.Ali Sheikh	Absent
34	Sarang Vishnuji Wagh	Absent
35	Satish Shamrao Taywade	07
36	Sayama R. Sheikh	06
37	Sneha Suresh Dhote	07
38	Sonali M.Pandey	05
39	Yogesh Bhujang Mahalle	07
40	Ravikant A. Jodh	04

Dhadade

Teacher Incharge

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
Session: 2023-2024

Marksheet of Unit Test

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. I.H.Dhadade

Unit Test (17/10/2023)

Sr.No	Name Of The Student	Obtained mark out of 10
1	Aditya Deepak Amparwar	Absent
2	Anikesh P. Kumeriya	05
3	Ankush Ashok Bhange	05
4	Bhagyshri D. Raut	04
5	Dipanjali Manohar Alone	05
6	Geetkumar Bhasme	07
7	Harshal Anil Deshmukh	Absent
8	Hina Anil Dhannade	Absent
9	Isha Bhagwat Kasare	05
10	Sumit Thakre	Absent
11	Nayan K. Sambhare	Absent
12	Neha Harihar Sable	Absent
13	Neha Kakde	06
14	Paranay Pramod Malvi	Absent
15	Pawan Vishnuji Junghare	04
16	Pragati Gunvant Munne	06
17	Pranjali Dinesh Rewatkar	06
18	Vishal Shrawan Tonge	Absent
19	Vrunda Shriram Hajare	Absent
20	Vrushali Premdas Shende	Absent

Teacher Incharge

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
Session: 2023-2024

Marksheet of Unit Test

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. I.H.Dhadade

Unit Test (17/10/2023)

Sr.No	Name Of The Student	Obtained mark out of 10
21	Aachal Rajendra Charde	Absent
22	Devanshu Maraskolhe	Absent
23	Gayatri Dilip Damedhar	Absent
24	Janvi Madhukar Thakre	07
25	Jay Pratap Kumeriya	07
26	Kanchan Rajendra Gurao	07
27	Manish K. Shende	09
28	Mayuri Anilrao Junankar	08
29	Mohnish G. Dharme	09
30	Ritu Eknath Yenorkar	09
31	Ruchika R. Bhasme	Absent
32	Sahil Hanif Sheikh	07
33	Saniya M.Ali Sheikh	Absent
34	Sarang Vishnuji Wagh	Absent
35	Satish Shamrao Taywade	07
36	Sayama R. Sheikh	06
37	Sneha Suresh Dhote	07
38	Sonali M.Pandey	05
39	Yogesh Bhujang Mahalle	07
40	Ravikant A. Jodh	04

Dhadade

Teacher Incharge

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF PHYSICS

B.Sc III (Semester VI)

Unit Test I (Dt: 03/04/2024)

Max. Mark: 10] [Time: 45 min

Attempt any Four (2.5 x 4 =10)

1) What are the three basic logic gates ? Give their circuit symbols and truth tables

2) State De-Morgan's theorems and prove them.

3) Convert the decimal number 19.638 into binary equivalent

4) What is double dabble method ? Explain with suitable example.

5) Discuss 1's complement method for subtraction of binary number with example.

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
ATTENDANCE SHEET (Session: 2023-2024)
Course Name :B.Sc III (Semester VI)
Name of the Teacher : Dr. I.H.Dhadade
Unit Test on Physics II (Unit- 4)

Sr.No	Name Of The Student	Signature
1	Aditya Deepak Amparwar	Aditya. A
2	Anjali Narendra Gaikwad	— ABSENT —
3	Ankush Ashok Bhange	— ABSENT —
4	Bhagyshri D. Raut	BRaut.
5	Dipanjali Manohar Alone	DAlone.
6	Geetkumar Bhasme	GBh
7	Harshal Anil Deshmukh	— ABSENT —
8	Isha Bhagwat Kasare	I.B. kasare.
9	Sumit Thakre	SThakre
10	Nayan K. Sambhare	— ABSENT —
11	Neha Kakde	NSkakde
12	Paranay Pramod Malvi	Pramalvi
13	Pawan Vishnuji Junghare	— ABSENT —
14	Pragati Gunvant Munne	— ABSENT —
15	Pranjali Dinesh Rewatkar	Rewatkar
16	Vishal Shrawan Tonge	— ABSENT —
17	*Aachal Rajendra Charde*	Charde
18	*Devanshu Maraskolhe*	— ABSENT —
19	*Gayatri Dilip Damedhar*	Gdamedhar
20	*Janvi Madhukar Thakre*	JMThakre
21	*Jay Pratap Kumeriya*	Kumeriya
22	*Kanchan Rajendra Gurao*	K.R.GURAU
23	*Manish K. Shende*	MShende
24	*Mayuri Anilrao Junankar*	Mayuri
25	*Mohnish G. Dharme*	M.G. Dharme
26	*Ritu Eknath Yenorkar*	RYenorkar
27	*Sahil Hanif Sheikh*	— ABSENT —
28	*Satish Shamrao Taywade*	STaywade
29	*Sayama R. Sheikh*	SSheikh.
30	*Sneha Suresh Dhote*	— ABSENT —
31	*Sonali M.Pandey*	SPandey..
32	*Yogesh Bhujang Mahalle*	— ABSENT —
33	*Ravikant A. Jodh*	— ABSENT —

Dhadade
3/4/2024

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
Marksheet of Unit Test (Session: 2023-2024)
Date : 03/04/2024

Course Name :B.Sc III (Semester VI) Subject Name: Physics II
Name of the Teacher : Dr. I.H.Dhadade

S.N	Name Of The Student	Marks out of 10
1	Aditya Deepak Amparwar	06
2	Anjali Narendra Gaikwad	Absent
3	Ankush Ashok Bhange	Absent
4	Bhagyshri D. Raut	06
5	Dipanjali Manohar Alone	05
6	Geetkumar Ashok Bhasme	05
7	Harshal Anil Deshmukh	Absent
8	Isha Bhagwat Kasare	06
9	Sumit K. Thakre	04
10	Nayan K. Sambhare	Absent
11	Neha Sudhakar Kakde	09
12	Paranay Pramod Malvi	05
13	Pawan Vishnuji Junghare	Absent
14	Pragati Gunvant Munne	Absent
15	Pranjali Dinesh Rewatkar	10
16	Vishal Shrawan Tonge	Absent
17	Aachal Rajendra Charde	10
18	Devanshu Maraskolhe	Absent
19	Gayatri Dilip Damedhar	07
20	Janvi Madhukar Thakre	05
21	Jay Pratap Kumeriya	06
22	Kanchan Rajendra Gurao	07
23	Manish K. Shende	09
24	Mayuri Anilrao Junankar	09
25	Mohnish G. Dharme	07
26	Ritu Eknath Yenorkar	09
27	Sahil Hanif Sheikh	Absent
28	Satish Shamrao Taywade	08
29	Sayama R. Sheikh	Absent
30	Sneha Suresh Dhote	Absent
31	Sonali M.Pandey	07
32	Yogesh Bhujang Mahalle	Absent
33	Ravikant A. Jodh	Absent

IHDhadade
6/4/2024

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
Session: 2023-2024

Marksheet of Unit Test

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. A.B.Sharma

Unit Test (20/10/2023)

Sr.No	Name Of The Student	Obtained mark out of 10
1	Aditya Deepak Amparwar	05
2	Anikesh P. Kumeriya	04
3	Ankush Ashok Bhange	AA
4	Bhagyshri D. Raut	06
5	Dipanjali Manohar Alone	07
6	Geetkumar Bhasme	06
7	Harshal Anil Deshmukh	AA
8	Hina Anil Dhannade	AA
9	Isha Bhagwat Kasare	05
10	Sumit Thakre	AA
11	Nayan K. Sambhare	06
12	Neha Harihar Sable	AA
13	Neha Kakde	AA
14	Paranay Pramod Malvi	04
15	Pawan Vishnuji Junghare	04
16	Pragati Gunvant Munne	0 AA
17	Pranjali Dinesh Rewatkar	06
18	Vishal Shrawan Tonge	AA
19	Vrunda Shriram Hajare	AA
20	Vrushali Premdas Shende	AA

ABSharma

Teacher Incharge

Head, Physics Deptt
Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF PHYSICS
Session: 2023-2024

Marksheet of Unit Test

Course Name :B.Sc III (Semester V) Name of the Teacher : Dr. A.B.Sharma

Unit Test (20/10/2023)

Sr.No	Name Of The Student	Obtained mark out of 10
21	Aachal Rajendra Charde	09
22	Devanshu Maraskolhe	AA
23	Gayatri Dilip Damedhar	09
24	Janvi Madhukar Thakre	10
25	Jay Pratap Kumeriya	07
26	Kanchan Rajendra Gurao	AA
27	Manish K. Shende	06
28	Mayuri Anilrao Junankar	AA
29	Mohnish G. Dharme	06
30	Ritu Eknath Yenorkar	07
31	Ruchika R. Bhasme	AA
32	Sahil Hanif Sheikh	AA
33	Saniya M.Ali Sheikh	AA
34	Sarang Vishnuji Wagh	AA
35	Satish Shamrao Taywade	07
36	Sayama R. Sheikh	05
37	Sneha Suresh Dhote	07
38	Sonali M.Pandey	08
39	Yogesh Bhujang Mahalle	07
40	Ravikant A. Jodh	06

Teacher Incharge

Nabira Mahavidyalaya, Katol

Nabira Mahavidyalaya, Katol

Department of Physics

Unit Tests conducted during the Session : 2023-24

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Unit Test Result
Sem 1 (2023-24)

Sr.No.	Name of Student	ETP	RM	MP	Ele
1	ACHAL DHANESHWAR DESHMUKH	10	10	12	9
2	AMIT SHUDHODHAN PATIL	11	8	Ab	5
3	SUVARNA ASHOK KHAWASE	9	12	11	10
4	KALAYANI DILIP CHAPLE	7	8	12	8

Co-Ordinator

Co-Ordinator
P.G.T.D. of Physics
N.M.V. Katol

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Unit Test Result
Sem 2 (2023-24)

Sr.No.	Name of Student	CM	SP	Spect
1	ACHAL DESHMUKH	11	9	12
2	AMIT S PATIL	10	Ab	8
3	SUVARNA KHAWASE	9	12	11
4	KALAYANI CHAPLE	7	8	10

Co-Ordinator

Co-Ordinator
P.G.T.D. of Physics
N.M.V. Katol

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Unit Test Result
Sem 3 (2023-24)

Sr.No.	Name of Student	QM	Material Sci II	SSP	NanoScience
1	Dinesh Lakshman Barde	10	4	Ab	10
2	Gunjan Eknath Yenorkar	15	8	15	18
3	Janhavi Narendrapure	18	12	18	15
4	Mayuri Suresh Puri	7	8	12	13
5	Shejal Shankar Ghormade	4	3	10	11
6	Yamini Prabhakar Wasule	2	5	6	8
7	Vanshika Sanjay Uke	1	3	4	6

Co-Ordinator

Co-Ordinator
P.G.T.D. of Physics
N.M.V. Katol

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Unit Test Result
Sem 4 (2023-24)

Sr.No.	Name of Student	ETP M.M.-25	Material Sci	NP	SSP
1	Dinesh Lakshman Barde	Ab	04	Ab	03
2	Gunjan Eknath Yenorkar	14.	09.	16	04
3	Janhavi Narendrapure	17	12	19	04
4	Mayuri Suresh Puri	06.	05.	04	04
5	Shejal Shankar Ghormade	04.	03	12	00
6	Yamini Prabhakar Wasule	01	01	11	Ab
7	Vanshika Sanjay Uke	04.	03.	04	Ab

Co-Ordinator

Co-Ordinator
P.G.T.D. of Physics
N.M.V. Katol

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Assignment
Sem1(2023-24)

Sr.No.	Name of Student	Assignment
1	ACHAL DHANESHWAR DESHMUKH	
2	AMIT SHUDHODHAN PATIL	
3	SUVARNA ASHOK ~~PATIL~~ KHAWASE	
4	KALAYANI DILIP CHAPLE	

Co-Ordinator

Co-Ordinator
P.G.T.D. of Physics
N.M.V. Katol

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Assignment
Sem2(2023-24)

Sr.No.	Name of Student	Sign
1	ACHAL DHANESHWAR DESHMUKH	Achal Deshmukh
2	AMIT SHUDHODHAN PATIL	Amit Patil
3	SUVARNA ASHOK KHAWASE	S.A.Khawase
4	KALAYANI DILIP CHAPLE	Chaple

Co-Ordinator
(Dr. Y.P. Mahaud)
Co-Ordinator
P.G.T.D. of Physics
N.M.V. Katol

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Assignment
Sem 3 (2022-23)

Sr.No.	Name of Student	Sign
1	Dinesh Lakshman Barde	
2	Gunjan Eknath Yenorkar	
3	Janhavi Narendra~~pure~~ Dautpure	
4	Mayuri Suresh Puri	
5	Shejal Shankar Ghormade	
6	Yamini Prabhakar Wasule	
7	Vanshika Sanjay Uke	

Co-Ordinator

Co-Ordinator
P.G.T.D. of Physics
N.M.V. Katol

Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Assignment
Sem IV th(2023-24)

Sr.No.	Name of Student	Sign
1	Dinesh Lakshman Barde	
2	Gunjan Eknath Yenorkar	
3	Janhavi Narendra Dautpure	
4	Mayuri Suresh Puri	
5	Shejal Shankar Ghormade	
6	Yamini Prabhakar Wasule	
7	Vanshika Sanjay Uke	

Co-Ordinator

(Dr. Y.P. Mahant)

Nabira Mahavidyalaya Katol

Post Graduate Department of Physics

Unit Test 1

ETP

Time :1 Hour **M.M: 25**

1) What do you mean by sensors? What should different specification one must consider while designing or using sensors.

2) What is Scintillation? How does it work?

3) What are different types of pressure sensors? Discuss basic principle of each one of these.

4) Discuss different region of gas filled detector for detection of x-rays. Which is most suitable for detection of weak signal?

5) What are common characteristics of sensors? Which type of sensors are suitable, in a condition for smooth functioning of a machine? How this sensor works to protect machine?

6) What is acoustic sensor? How acoustic sensors can be used for Naval battlefield application?

7) What is the role of electromagnetic spectrum in materials characterization? Discuss with example.

8) What is the basic difference between induction and capacitance sensors?

Nabira Mahavidyalaya Katol

P.G. Dept. Of Physics

Unit Test 1

Subject: Research Methodology

Time :1 Hour **MM: 25**

1) Define Research and give its significance.

2) Distinguish between Research Methods and Research Methodology.

3) Write short note on objectives in research and criteria of good research.

4) Describe different steps involved in Research.

5) State problems faced by Researchers in India.

Nabira Mahavidyalaya Katol

P.G. Dept. Of Physics

Unit Test 2

Subject: Research Methodology

Time :1 Hour **MM: 25**

1) Define Research Problem. Give example.

2) What is the necessity of defining Research Problem? Explain.

3) Write short note on

   a) Pilot Survey
   b) Rephrasing the Research Problem

4) What are the components of Research Problem.

5) What are the main issues which receives the attention of the researchers in formulating research problem.

Nabira Mahavidyalaya, Katol

Master of science (M.Sc. Physics) Semester -3

Sub: Material science **Date:26 /12/2023**

Mark:30

Que:1 Any Two

A) What is phase rule? Explain phase diagram of component A & B with partially solid solubility

B) Explain the terms statically entropy and thermal entropy? Explain level rule

c) Explain the kinetics of thermally active reaction A+BC=AB+C and explain internal energy and enthalpy of system

Que:2

A) Describe the mass flow process under steady state conditions

B) Show that the rate of changes of concentration C, for a non-steady state flow of mass is given by $\frac{dc}{dt} = D\frac{dc}{dx}$

OR

C)Classify the solid-state electrolytes & state properties of solid-state electrolytes

D)What is potentiometric sensors & amperometry sensors

Que:3 All question are compulsory

A) What is eutectic and eutectoid reaction?

B) What is stable, unstable, and metastable state?

C) What is kirkendall effect?

Nabira Mahavidyalaya, katol

Master of science (M.Sc. Physics) Semester -3

Sub: Material science **Date:26 /12/2023**

Mark:30

Que:1 Any Two

A) What is phase rule? Explain phase diagram of component A & B with partially solid solubility

B) Explain the terms statically entropy and thermal entropy? Explain level rule

C)Explain the kinetics of thermally active reaction A+BC=AB+C and explain internal energy and enthalpy of system

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OR

C)Classify the solid-state electrolytes & state properties of solid state electrolytes

D)What is potentiometric sensors & amperometry sensors

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A) What is eutectic and eutectoid reaction?

B) What is stable, unstable, and metastable state?

C)What is kirkendall effect?

Nabira Mahavidyalaya, Katol

Master of science (M.Sc. Physics)

Semester -4

Sub: Material science 2 **Date:24 /04/2024**

Mark:25

1. Explain origin of GMR and CMR effect in magnetic heterostructure materials.

2. Explain the difference between the emf series and the galvanic series of metals.

3 Explain the elastic behaviour of solid using atomic model and show that it depends on the type of bonding.

4 Explain the viscoelastic behaviour in solids.

5 What are the different types of corrosions? How the corrosion of materials is prevented?

6 Define spin glasses. How they are different from normal magnetic materials?

7 Explain the stress-strain curve. Discuss the slip mechanism of plastic deformation.

Nabira Mahavidyalaya, Katol

Master of science (M.Sc. Physics)

Semester -4

Sub: Material science 2 **Date:24 /04/2024**

Mark:25

1. Explain origin of GMR and CMR effect in magnetic heterostructure materials.

2. Explain the difference between the emf series and the galvanic series of metals.

3 Explain the elastic behaviour of solid using atomic model and show that it depends on the type of bonding.

4 Explain the viscoelastic behaviour in solids.

5 What are the different types of corrosions? How the corrosion of materials is prevented?

6 Define spin glasses. How they are different from normal magnetic materials?

7 Explain the stress-strain curve. Discuss the slip mechanism of plastic deformation.

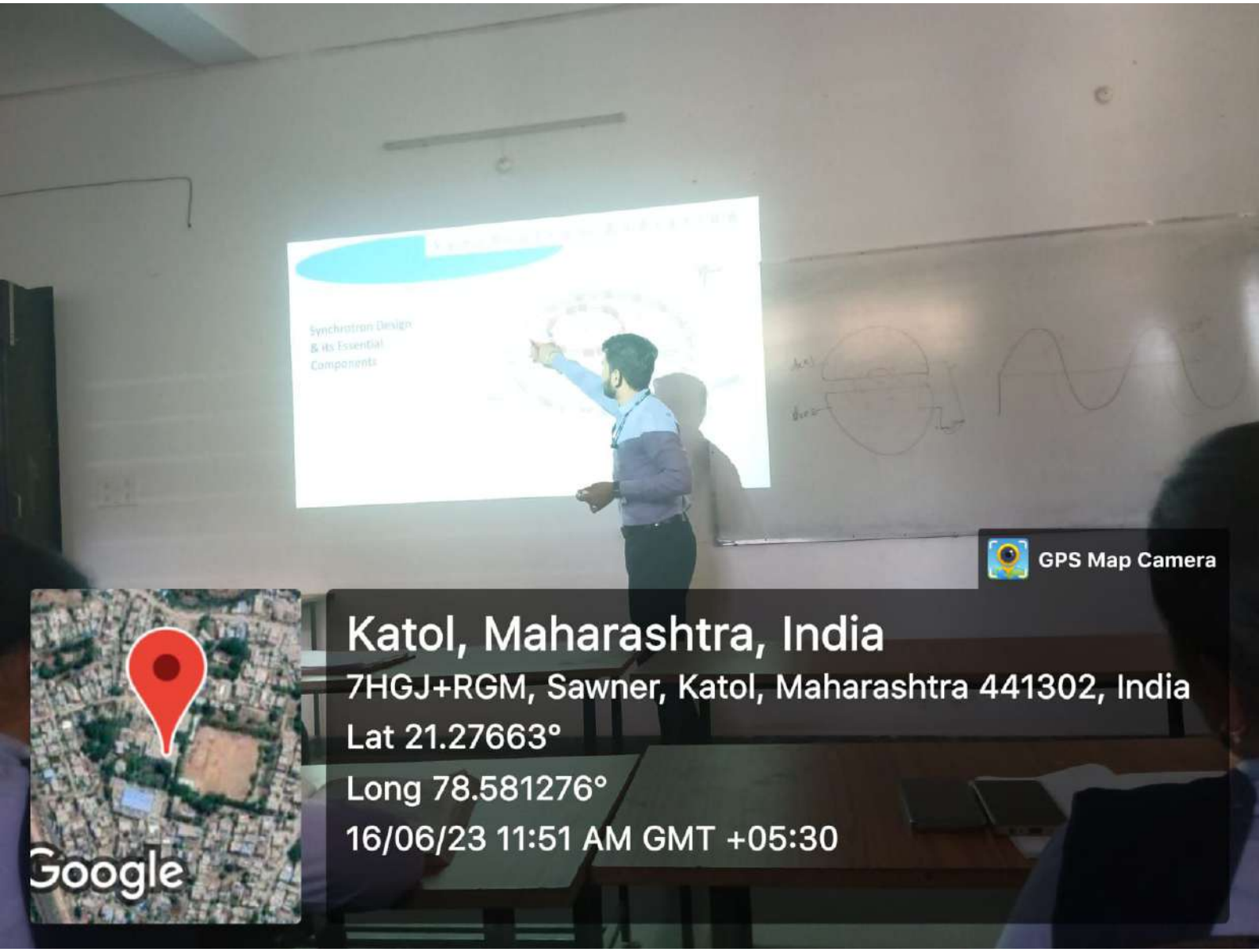
Nabira Mahavidyalaya Katol
Post Graduate Department of Physics
Project (Seminar)
Sem IV th(2023-24)

Sr.No.	Name of Student	Sign
1	Dinesh Lakshman Barde	
2	Gunjan Eknath Yenorkar	
3	Janhavi Narendra Dautpure	
4	Mayuri Suresh Puri	
5	Shejal Shankar Ghormade	
6	Yamini Prabhakar Wasule	
7	Vanshika Sanjay Uke	

Internal Examiner
Dr. Y. P. Mahant
Asst. Prof. NMV, Katol.

External Examiner
Dr. P. A. Zingare
Asst. Prof. K.N.M. Nagpur

Nabira mahavidyalaya
katal
Department of physics
Topic: motion of charged
particles in magnetic field


Synchrotron Design
& its Essential
Components
GPS Map Camera
Google
Katol, Maharashtra, India
7HGJ+RGM, Sawner, Katol, Maharashtra 441302, India
Lat 21.27663°
Long 78.581276°
16/06/23 11:51 AM GMT +05:30

More Sir

B.Sc. Sem. IV
Subject - Chemistry
Paper - II (Physical chemistry)
2023-24
Assignment

Dt. 27.03.2024

S.N.	Name of student	Signature	Signature (Submission)	
1	Tina S. Yelekar	Yelekar	Yelekar	12/04/24
2	Khushali D. Thombre	Thombre		
3	Rajshree R. Rawatkar	Rawatkar	Rawatkar	12/04/24
4	Iakita U. Mokode	Dumande	Dumande	12/04/24
5	Sameer S. Aram	Sameer S. Aram	Sameers. Aram	12-04-2024
6	Shivprasad P. Suryawanshi	Suryawanshi	Suryawanshi	12/04/2024
7	Ajon S. Sheikh	Sheikh	Sheikh	12-04-24
8	Vikki V. Doble	Vikki	Barcui	15/4/24
9	Vikas D. Barcui	Barcui	Chinpure	12-04-24
10	Aparna G. Chinchmalatpure	Chinchpure	Dongare	12/04/24
11	Samiksha C. Dongare	Dongare	Bagh	12/04/24
12	Kalyani B. Babhulkar	Bagh	Vaishnavi	12/04/24
13	Vaishnavi L. Nibude	Vaishnavi	J.N. mehar	12/4/24
14	Janhavi N. Meher	J.N. mehar	Kambale	12/4/24
15	Ashwini Y. Kambale	Kambale	ARDhongade	12/4/24
16	Anjali R. Dhongade	ARDhongade	D.A. Giradkar	12-4-24
17	Disha A. Giradkar	D.A. Giradkar	Dhanvi Somkuwar	12/04/24
18	Dhanvi S. Somkuwar	Somkuwar	Rupali Gorle	
19	Rupali R. Gorle	Gorle	M.M. Aage	12/04/24
20	Manisha M. Aage	M.M. Aage	P.D. Pule	15/04/24
21	Pooja P. Pambhale	Pambhale	Om Wadule	12/04/24.
22	Pratiksha D. Pole	P.D. Pule	Ruchik P. Malvi	12/04/24
23	Chhakuli M. Wadule	Om Wadule	Divya Chapekar	12/04/2024
24	Ruchika P. Malvi	Malvi	Sharda Chandele	
25	Divya S. Chapekar	Chapekar	D.W. Sawai	12/04/24
26	Sharda O. Chandele	Chandele	Purva S. Kharpkar	
27	Darshika W. Sawai	Sawai	H.R. Kale	
28	Purva S. Kharpkar	Kharpkar	S. M. Barmase	12/04/24
29	Hemlata R. Kale	H.R. Kale	K. Raut	
30	Sarojini M. Barmase	Barmase 3/04/24	Tekade	16/
31	Khushi H. Raut	K. Raut 3/04/24		
32	Prachi R. Tekade	Tekade 3/04/24		

Head, Chemistry Deptt
Nakoda Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT

SESSION -2023-24 (WINTER) CLASS- B.Sc. SEM-V (Chem-I)

QUE-1 : Explain Nucleophilic substitution reaction in Nitrobenzene ?

QUE-2: Why Nitroalkanes are acidic in nature ? how nitroalkanes undergo reduction?

QUE-3: Explain the basicity of amines?

QUE-4: How will you separate primary , secondary and tertiary amines by using Hinsberg method?

QUE-5: How will you prepare

1. Tertiary butyl alcohol from acid chloride
2. Isopropyl alcohol from methyl formate
3. Amines from chloramine
4. Acetic acid from methyl magnesium bromide.

QUE-6: How will you prepare alkyl lithium? Write any three chemical reactions of alkyl lithium?

QUE-7: Explain Molecular Orbital Picture of Furan ?

QUE- 8: Explain Electrophilic Aromatic Substitution reaction in Pyridine ?

QUE- 9: How will you prepare Indole by Fishcher -Indole Synthesis ?

QUE-10: Explain Skraup Quinoline Synthesis

Professor in-charge

Mr. Nilesh G. Jadhao
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT SUBMISSION

SESSION -2023-24 (Winter)

CLASS- B.Sc. SEM-V (Chem-I)

Sr.No.	Name of Student	Signature
1.	Sakshi prabhakar Dhote	S. P. Dhote
2.	Bhagyashri Dnyaneshwar Raut	Braut.
3.	Vaishnavi Kisnaji choudhari	Choudhari
4.	Vaishnavi Sudhakar walke	Swalke
5.	Vedinee Sanjay Tathode	Tathode
6.	Sahili Anand Jaybhaye	Jaybhaye
7.	Pawan V. Junghare	P Junghare
8.	Khushi B. Goswami	K.B.Goswami
9.	Ranjali O. Rewatkar	Rewatkar
10.	Sumit K. Thakre	Sumit
11.	Ruchika S. Dhawale	Dhawale
12	Achal S. Watane	Watane
13.	Shraddha G. Gore	Gore
14.	Isha T. Gharad	Isha
15.	Riya D. Bangare	Riya.
16.	Janhvi R. Tatte	Janhvi.
17	Priyanka M. Bondre	P.M. Bondre.
18	Deepali H. Thombre	D.H. Thombre
19	Sakshi P. Kale	Skale
20	Aadesh D. Dhengre	Dhengre
21	Isha B. kasare	I. B. kasare.
22	Dipanjali M. Alone	DAlone
23	Harshal A. Deshmukh	Deshmukh
24)	Jay S. Patpile	Jpatil
25)	Himanshu H. Naik	HN
26)	Janvi S. Kakde.	Janvik
27)	Amisha A. Dambhare	Dambhare
28)	Bhagyashri A. Wangal.	B.A. Wangal.
29)	Mahima G. choudhari	Choudhari

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT SUBMISSION

SESSION -2023-24 (Winter) CLASS- B.Sc. SEM-V (Chem-I)

Sr.No.	Name of Student	Signature
30	Bhagyashri S. choudhari	Bhuwlhari
31	Durga G. Wankhede	D. G. Wankhede
31	Hina. M. Ninave	Ninave
32	Ashwini Rakshit	Akshit
33	Raksha S Kothe	Raksha
34	Aditya. D. Ampawar	Aditya. D
35	Mohit D. Parkhi.	Parkhi
36	Sujal K. Wahane	
37	Ashwini Kumari	
38	Vishal Tatke	
39	Shital Pawbakar	
40	Yashwi Fule	

Mr. Nilesh G. Jadhao
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

Head, Chemistry Dept.
Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT SUBMISSION

Jadhav Sir.

SESSION -2023-24 (Summer) **CLASS- B.Sc. SEM-VI (Chem-II)**

Sr.No.	Name of Student	Signature
1	Khushi B. Goswami	K.B. Goswami
2	Pranjali D. Rewatkar	Rewatkar
3.	Bhagyashri D. Raut	Braut.
4.	Isha B. Kasare	I. B. Kasare.
5.	Sakshi Dhote	S.P. Dhote
6.	Janhvi Tatte	Janvi.
7.	Isha Gharad	Isha.
8)	~~Saksh~~	
9)	Janvi S. Kakde	Janvi
10)	Achal S. Watane	Achal
11)	Ruchika S. Dhawale	Dhawale
12)	Bhagyashri S. Choudhari	Bhaudhari
13)	Mahima G. Choudhari	Choudhari
14)	Deepali H. Thombre	D.H. Thombre
15)	Bhagyashri A. Wangal	B.A. Wangal
16)	Tushal D. Fule	[illegible]
17)	Harshal A. Deshmukh	Deshmukh
18)	Jay S. Pawik	[illegible]
19)	Vishal S. Tonge	[illegible]
20)	Amisha A. Dambhare.	Dambhare.
21)	Priyanka M. Bondre	P.M. Bondre
22)	Sejal K. Wanare	Sejal
23)	Riya D. Bangre	[illegible]
24)	Dipanjali M. Alone	D.M. Alone
25)	Vaishnavi K. Choudhari	Vkhoudhari
26)	Mona Damodhar Parkhi.	Mparkhi.
27)	Aditya D. Amparwar	Aditya. D
28)	Sumit K. Thakre	[illegible]
29)	Shital V. Rewatkar	S. Rewatkar

NAAC'S B++ Accredited College

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT SUBMISSION

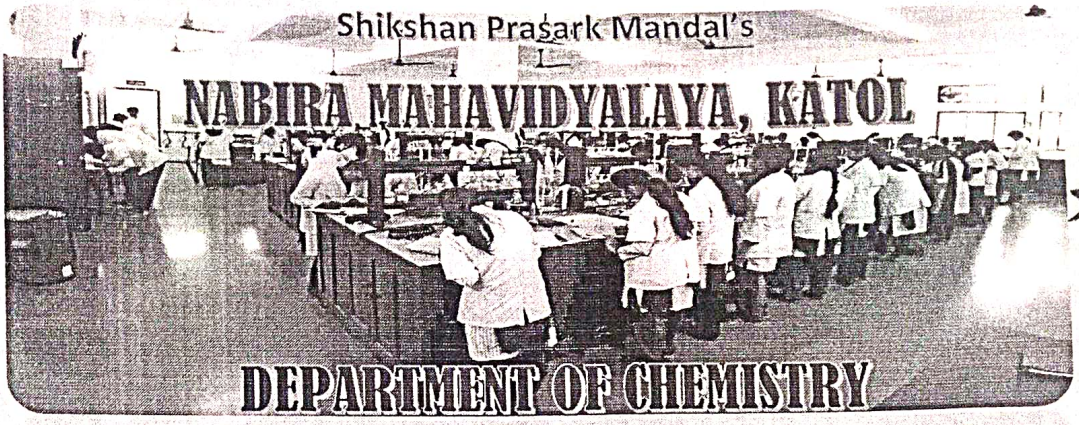
SESSION -2023-24 (Summer)

CLASS- B.Sc. SEM-VI (Chem-II)

Sr.No.	Name of Student	Signature
30	Ashwini Rakshit	Rakshit.
31.	Sakshi S. Kale	Skale
32.	Vaishnavi S. walke	VSwalke
33.	Sahili A. Gaibhiye	gaibhiye
34	Pawan V. Jungbare	PVJungbare
35	Shraddha G. Gore	[illegible]
36	Ounga G. Wankhede	D. G. Wankhede

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Mr. Nilesh G. Jadhao
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol



Department Establishment-1970

E-mail: departmentofchemistry1971@gmail.com

Notice

All students of B.Sc. Sem-V of Chemistry Paper -I (Organic Chemistry) are hereby informed that the Unit Test on Nitrocompounds and Amines (Unit-I) will be held on 27/10/2023 at 10:30 am.

All students should remain present for the unit test.

Venue- Room No. 101.

Mr. Nilesh G. Jadhao

Prof.In-charge

Mr. Nilesh G. Jadhao
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA KATOL

Department of Chemistry

UNIT TEST -1

Session-2023-24

Class- B.Sc-III (Sem-V) | Sub-Chemistry | Paper- I

Time -10:30 am to 11:30 am | Marks : 20 | Date: 27/10/2023

Q-I] Long answer questions –(Attempt Any 4) - 10 Marks

1. How will you prepare Nitroalkanes from I. Alkane II. Alkyl Halide III. Oxime
2. Explain Nucleophilic Substitution reaction in Nitrobenzene?
3. How Picric acid can be prepared from I. Phenol II. Salicylic acid III. Chlorobenzene. give its uses?
4. Explain the method of separation of aliphatic primary, secondary and tertiary amines from their mixtures by Hinsberg Mechanism?
5. How will you Prepare Benzene Diazonium Chloride ? How Chlorobenzene ,Phenol, Benzene, Biphenyl prepared from Benzene Diazonium Chloride?

Q-II] Short answer questions (All questions are compulsory) - 10 Marks

1. Write reduction reaction of nitrobenzene in acidic, basic, neutral medium.
2. What are nitroarenes ? How is nitrobenzene prepared from benzene and aniline?
3. What are amines ? why aliphatic amines are more basic than aromatic amines ?
4. Write a short note on Gabriel Pthalimide reaction.
5. Explain Nitration of Aniline ?

All The Best !

UNIT TEST-1

ATTENDANCE SHEET Session - 2023-2024

Class : BSc-Sem-V Sub- Chemistry Paper -I Date: 27/10/2023

Sr. No.	Name of the Student	Signature	Marks Obtained	Name of the Student	Signature
1]	Sumit K. Thalore		08		
2]	Pawan V. Junghare	P. Junghare	14		
3]	Tushal D Pule	T. Pule	07		
4]	Harshal A. Deshmukh	A. Deshmukh	12		
5]	Aditya D. Amparwar		08		
6]	Anikesh P. Kumeriya		08		
7]	Amisha A. Dambhare	A. Dambhare	10		
8]	Ruchika S. Dhawale		12		
9]	Bhagyashri S. Choudhari	B. Choudhari	15		
10]	Priyanka M. Bondre	P.M. Bondre	14		
11]	Sejal K. WAHANE	Sejal	12		
12]	Riya D. Bangare	R.D. Bangare	10		
13]	Janhvi R. Tatte	Janhvi	16		
14]	Isha L. Gharad	Isha	12		
15]	Shraddha G. Gore		09		
16]	Janvi S. Kakde	Janvi K	08		
17]	Vaishnavi K. Choudhari	V. Choudhari	08		
18]	Bhagyashri A. Wangal	B. Wangal	13		
19]	Mahima G. Choudhary	Choudhary	10		
20]	Isha B. Kasare	I. B. Kasare	12		
21]	Dipanjali M. Alone	D. Alone	14		
22]	Deepali H. Thombre	D. H. Thombre	12		
23]	Hina U. Ninave	H. Ninave	10		
24]	Pranjali D. Rewatkar	Rewatkar	17		
25]	Khushi B. Goswami	K. B. Goswami	15		
26]	Bhagyashri D. Raut	B. Raut	15		

Mr. Nilesh G. Jadhao
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT- SHEET

Class : B.Sc. Sem -I , P-II (Physical Chemistry) **Section :** Grant **Date:** 20/12/2023

Sr. No.	Name of the Student	Assignment -II	Assignment -III	Assignment -IV	Signature
1	Gayatri Ghormade	✓	✓	✓	Ghormade
2	Divyani Dhanwarjuse	✓	✓	✓	Dhanwarjuse
3	Neha p. channe	✓			
4	Shubhangi Chandele	✓	✓	✓	S. Chandele
5	Swapnil S. Kohale	✓	✓	✓	Swapnil.
6	Sanskruti D. Meshram	✓	✓	✓	S. D. Meshram
7	Bhavika C. Bagde	✓	✓	✓	B Bagde
8	Bhagyashree V. channe	✓	✓	✓	B. V. channe
9	Payal A. Chandele	✓	✓	✓	Payal
10	Saloni J Manmode	✓	✓	✓	Manmode
11	Komal R Chaudhari	✓	✓	✓	KRchaudhari
12	Achal A. Lokhande	✓	✓	✓	Lokhande
13	Farhat Naz R. Sheikh	✓	✓	✓	Farhat
14	Trupti N. Charde	✓	✓	✓	Charde
15	Bharti D. Raut	✓	✓	✓	Raut
16	Khushali S. Kathan	✓	✓	✓	Kathan
17	Devyani S. Dawane	✓	✓	✓	D.S.Dawane
18	Gauri P. Raut	✓	✓	✓	Raut
19	Sudhanshu Y. Amale	✓	✓	✓	Amale
20	Sanskruti S. Gajbe	✓	✓	✓	S. S. Gajbe
21	Atpesh. S. Donyre	✓	✓		A. Donyre
22	Srushti R. Nimburkar	✓	✓	✓	Srushti
23	Prachi R. Nehare	✓	✓	✓	Prachi
24	Harshada P. Jagdale	✓	✓	✓	Jagdale
25	Krunali P. Bodhale	✓	✓	✓	Bodhale
26	Dimpal R. Gawande	✓	✓	✓	[illegible]
27	Rudra A. Bisani	✓	✓	✓	Rudra
28	Tejaswini R. Kharpuriye	✓	✓	✓	[illegible]
29	Chetan S. Rewatkar	✓	✓	✓	Rewatkar
30	Pallavi K. Gathe	✓	✓	✓	Gathe
31	Vishakha M. Uke	✓	✓	✓	V.M.Uke
32	Priya G. Sirsam	✓	✓	✓	Sirsam
33	Khushi G. Dhonde.	✓	✓	✓	K. Dhonde
34	Srushti R. Dhok	✓	✓	✓	Dhok

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT- SHEET

Class : B.Sc. Sem -I , P-II (Physical Chemistry) **Section :** Grant **Date:** 22/12/2023

Sr. No.	Name of the Student	Assignment -II	Assignment -III	Assignment -IV	Signature
35	Sakshi N. Fuse	✓	✓	✓	Sakshi
36	Riddhi V. Kalbande	✓	✓	✓	Rkalbande
37.	Tina R. Maboriya	✓	✓	✓	TRMaboriya
38	Chanda R. Rathod	✓	✓	✓	C.R.Rathod
39	Vaishnavi R Chetwan	✓	✓	✓	Chetwan
40	Oshika H. Ghuguskar	✓	✓	✓	Ghuguskar
41	Achal A. Banait	✓	✓	✓	Abanait
42.	Rutuja S. Dhaeme	✓	✓	✓	RS.Dhaeme

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

ASSIGNMENT- SHEET

Class : B.Sc. Sem-I P-II Section : [redacted]grant

Date: 04/09/2023

Sr. No.	Name of the Student	Signature	Sr. No.	Name of the Student	Signature
1	Gayatri Ghormade	Ghormade	36)	Divyani D. Surjuse	[illegible]
2	Sudhanshu Amale	Amale	37)	Anjali D. Sambhare	[illegible]
3	Chanda Rathod	C. Rathod	38)	Priya G. Sirsam	[illegible]
4	Shubhangi Chandele	Schandele	39)	Saloni S. Sirsam	[illegible]
5.	Payal A. Chandele	Payal	40)	Payal V. Shriroome.	[illegible]
6)	Alpesh. S. Dongre	A Dongre	41)	Chetan S. Rewatkar	
7)	Rudra A. Bisani	R. Bisani	42)	Sanskruti S. Gajbe	S.S. Gajbe
8)	Monika M. Barai	Barai	43)	Suhani G. Khodankar	Khodankar
9)	Dimpal H. Kalbande	Dimpale	44)	Neha p. channe	N. P. channe
10)	Chetna. S. Bandre	Bandre	45)	Naina S. Thosar	N. Thosar
11)	Pallavi. K. Gathe	Pathe			
12)	Achal A. Banait	Banait			
13)	Vishakha M. Uke	V.M. Uke			
14)	Sakshi S. Vyawahare	S. Vyawahare			
15)	Sanskruti. D. Meshram	S.D. Meshram			
16)	Khushali S. Kallam	Kallam			
17)	Sunakshi. T. shende	Shende			
18)	Saloni J. Manmode	Manmode			
19)	Komal R. chaudhari	K.R. chaudhari			
20)	Kapilansh. S. Mahorkar	Mahorkar			
21)	Harshada P. Jagdale	Jagdale			
22)	Srushti R. Dhok	Dhok			
23)	Liteshwari D. Bangadkar	Bangadkar			
24)	Farhat R. Sheikh	Farhat			
25)	Achal A. Lokhande	Lokhande			
26)	Ruchika D. suryavanshi	Suryavanshi			
27)	Mrunali C. Nagmote	Nagmote			
28)	Oshika H. Ghuguskar	Ghuguskar			
29)	Tejaswini R. Kharpariye	[illegible]			
30)	Rutuja S. Dhasme	S. Dhasme			
31)	Khushi G. Dhonde.	K.G. Dhonde			
32)	Simpal R. Gawand	D.R. Gawand			
33)	Krunali P. Bodhale	Bodhale			
34)	Riddhi V. Kalbande	Kalbande			
35)	Bhagyashree V. channe	B.V. channe			

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT- 1

Class: B.Sc. Sem-II, P-I **Section: Grant** **Date:17/04/2023**

Sr. No.	Name of the Student	Signature	Sr. No.	Name of the Student	Signature
1)	Ayan S. Sheikh	A.Sheikh	37)	Rajshree R. Rewatkar	Rewatkar
2)	Vikki V. Dole	Vikki	38)	Tina S. Yelekar	Yelekar
3)	Kasturi R. Bhise	K.R.Bhise	39)	Khushali D. Thombre	Kthombre
4)	Rakesh M Yadav	RM	40)	Iakita U. makde	Umakde
5)	Sameer S. Atram	Sameers.Atram	41)	Neha. N. Patil	Neha patil
6)	Ashwini V. Kambale	Kambale	42)	Janhavi N. mehar	J.N. mehar
7)	Anjali R. Dhongade	Adhongade	43)	Mayuri P. Putaraya	Mayuri
8)	Manisha M. Aage	M.M.Aage	44)	Jayashri A. Raut	Raut
9)	Saroj M. Baromase	Bcamase	45	Shivani D Mohite	S.D.Mohite
10)	Vikas D. Barai	Barai	46	Darshika W. Sawai	Sawai
11)	Nugsen R. Bansod	Bansod	47)	Arti C. Kumeriye	Akumeriye
12)	Sharda O. chandele	S.O.chandele	48)	Kalyani C. kalbande	Kalbande
13)	Sneha P. Bandhane	S.P.Bandhane	49)	Rasika K. waghe	Kwaghe
14)	Bhavna H. kuthe	B.H.Kuthe	50)	Vaishnavi L. Nilbade	Vaishnavi
15)	Hemlata R. Kale	H.R.Kale	51)	Kalyani B. Babhulkar	B
16)	khushbu s. chopde	K.schopde	52)	Vinay G. Bagde	Vinay Bagde
17)	Disha A. Girwadkar	D.A Girwadkar	53.	Pankaj. H. Rajpurohit	Pankaj
18)	Kishori R Barange	Barange	54)	Manthan R. Tapare	Tapare
19)	Lohakuli M Wadule	Mwadule	55)	Viraj S Nasre	Snasre
20)	Ruchika P Malvi	Pmalvi	56)	Shivprasad P. Surwanshi	Psurwanshi
21)	Tanisha C. Dongare	Dongare	57	Nandini R. Charpe	Rcharpe
22)	Aparna G. Chinchmalatpure	Achipure	58)	Ashwini Y. Meshram	Ymeshram
23)	Mitali M. Gajbhiye	Gajbhiye			
24)	Divyani D. Banait	Banait			
25)	Divya S. Chapekar	Chapekar			
26)	Rupali R. Londe	R. Londe			
27)	Achal S. Dhamande	Dhamande			
28)	Dhanavi S. Somkuwar	Somkuwar			
29)	Prachi R. Tekade	Rtekade			
30)	Purva S. Khaspkar	Skhas			
31)	Pooja A. Dambhare	Adambhare			
32)	Sejal N. Wadule	Swadule			
33)	Madhuri M. Sarwade	Msarwade			
34)	Shivani P. Mohankar	Mohankar			
35)	Rasika A. Sizsam	Asizsam			
36)	Khushi H. Raut	K. Raut			

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Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

ASSIGNMENT- SHEET

Class: B.Sc. Sem -III, P-II (Organic Chemistry) **Section:** Grant **Date:** 02/10/2023

Sr. No.	Name of the Student	Assignment -I	Assignment -II	Assignment -III	Signature
1.	Divya S. Chapekar	✓	✓	✓	Chapekar
2.	Hemlata R. Kale	✓	✓	✓	H.R. Kale
3.	Ashwini Y. Kambale	✓	✓	✓	Kambale
4.	Saroj M. Barmase	✓	✓	✓	Barmase
5.	Anjali R. Dhongade	✓	✓	✓	ARDhongade
6.	Mitali M. Gajbhiye	✓	✓	✓	Gajbhiye
7.	Chhakuli M. Gadulu	✓	✓	✓	Gadulu
8.	Neha N. Patil	✓	✓	✓	Nehapatil
9.	Mayuri P. Putaloiya	✓	✓	✓	[illegible]
10	Sameer S. Aram	✓	✓	✓	Sameer S. Aram
11	Darshika W. Sawai	✓	✓	✓	Sawai
12.	Purva S. Kharpkar	✓	✓	✓	[illegible]
13	Disha A. Giradkar	✓	✓	✓	D.A. Giradkar
14	Vikas D. Barai	✓	✓	✓	Barai
15	Vidya S. Marasakolhe	✓	✓	✓	Vidya
16	Janhavi N. Mehar	✓	✓	✓	J.N. Mehar
17	Ruchika P. Malvi	✓	✓	✓	[illegible]
18	Samiksha C. Dongare	✓	✓	✓	Dongare
19	Prachi R. Tekade	✓	✓	✓	[illegible]
12	Pooja A. Dambhale	✓	✓	✓	Dambhale
13	Lakita U. Makde	✓	✓	✓	[illegible]
14	Tina S. Yelekar	✓	✓	✓	Yelekar
15)	Rajshree R. Rewatkar	✓	✓	✓	[illegible]
16]	Rupali R. Gorle	✓	✓	✓	R. Gorle
17)	Dharavi S. Somkuwar	✓	✓	✓	[illegible]
18)	Jayashri A. Raut	✓	✓	✓	Raut
19)	Khushali D. Thombre	✓	✓	✓	Thombre
20)	Rasika A. Sirsam	✓	✓	✓	Sirsam
21)	Shivani P. Mohankar	✓	✓	✓	Mohankar
22)	Madhuri M. Sarwate	✓	✓	✓	Sarwate
23)	Apama G. Chinchmalatpure	✓	✓	✓	Chinchpure

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Shikshan Prasarak Mandal's

NABIRA MAHAVIDYALAYA KATOL

DEPARTMENT OF CHEMISTRY

Notice **Date: 14/12/2023**

All Students of B.Sc. Sem-I (Grant) are hereby informed that we are organizing a Test-I on the Unit I and Unit-II of Physical Chemistry on 18th December 2023.

Attempt the test positively. Attendance is mandatory to all students.

for
Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Professor In-Charge
Mr. Kailas A. More
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

Date-18/12/2023

NABIRA MAHAVIDYALAYA, KATOL
DEPARTMENT OF CHEMISTRY
Bachelor of Science (B.Sc.) Semester–I (Test -I on Unit -I & II)
CH-102 CHEMISTRY Paper- II (Physical Chemistry)

Time: Three Hours] **[Maximum Marks: 50**

N.B.: — (1) All **FIVE** questions are compulsory and carry equal marks.
(2) Write chemical equations and draw diagrams wherever necessary.

1.(A) State and explain Hess's law of constant heat summation. Calculate the enthalpy change of the following reaction:
$H_2(g) + Cl_2(g) \rightarrow 2HCl(g)$
Given that the bond dissociation energies of H – H, Cl – Cl and H – Cl are 437.0 kJ mol^{-1} ,244.0 kJ mol^{-1} and 433.0 kJ mol^{-1} respectively. 5

(B) Derive an expression for the work of expansion in an isothermal reversible process,
$W_{max} = -2.303\ nRT \log \frac{P1}{P2}$
One mole of an ideal gas expands from 5 bar to 1 bar at 298 K. Calculate the work Done for reversible expansion. 5

OR

(C) What is Joule-Thomson effect? Show that in Joule-Thomson experiment the enthalpy of gas remains constant. Define Joule-Thomson coefficient. 5

(D) Explain:
(i) Average bond energy and
(ii) Bond dissociation energy.
Calculate the bond energy of C–C bond from the following data:
(i) $2C(s) + 3H_2(g) \rightarrow C_2H_6(g)$ $\Delta H = -84.7$ kJ
(ii) $C(s) = C(g)$ $\Delta H = 718.4$ kJ
(iii) $H_2(g) = 2H(g)$ $\Delta H = 435.9$ kJ
Also, give C–H bond energy as 413.0 kJ mol^{-1} 5

2. (I) What are extensive and intensive properties? Give two examples of each of them. 2½
(II) Distinguish between reversible and irreversible processes. 2½
(III) The heat of combustion of $CH_4(g)$ at constant volume is measured in a bomb calorimeter At 298 K and found to be – 885.389 KJ/mole. Find the value of enthalpy change. $2^{1/2}$
(IV) State and explain Hess's law of constant heat summation. 2½

OR

(V) Explain with examples:
(i) Intensive and (ii) Extensive properties. 2½
(VI) Show that in the Joule-Thomson experiment the enthalpy remains constant under adiabatic expansion of a real gas. 2½
(VII) Explain standard enthalpy of combustion with suitable example. 2½
(VIII) If 28 g of nitrogen is heated from 5° C to 95° C, Calculate the value of ΔE and ΔH. molar heat capacities at constant volume and at constant pressure are 20.5 and 28.814J/K/mole respectively. 2½

3. (A) Derive Kinetic gas equation, $PV = \frac{1}{3} mnu^2$ for an ideal gas. 5

(B) Define critical volume, critical temperature and critical pressure. The critical constants of NH_3 are Tc = 405 K, Pc = 112.04 atm. Find the value of Vc and van der Waal's constant 'b'. ($R = 8.314\ J\ K^{-1}mol^{-1}$). 5

OR

(C) Discuss Maxwell-Boltzmann distribution of molecular velocities. Explain graphically, how the velocities change with temperature. 5

(D) Describe critical phenomenon in the light of Andrew's experiment on CO_2 gas. The van der Waal's constants of a gas are a = 0.751 atm.dm6 mol^{-2} and b = 0.0226 $dm^3\ mol^{-1}$. Calculate its critical volume, critical pressure and critical temperature. ($R = 0.0821$ atm. $dm^3\ K^{-1}\ mol^{-1}$) 5

4. (I) Calculate the temperature at which the root mean square velocity of nitrogen molecule will be 1000 ms^{-1}. ($R = 8.314\ JK^{-1}\ mol^{-1}$) 2½

(II) Define:

(i) Mean free path

(ii) Collision diameter

(iii) Collision number. 2½

(III) Explain the deviation of real gases on the basis of van der Waal's equation. 2½

(IV) For a gas obeying van der Waal's equation, prove that $\frac{8}{3}$ Pc x Vc =RTc 2½

OR

(V) Discuss the following intermolecular forces in liquid:

(i) Dipole–Dipole interactions.

(ii) Dipole–Induced dipole interactions. 2½

(VI) Write a note on seven segment cells. 2½

(VII) Benzene takes 46 seconds to flow through the Ostwald viscometer, while water takes 56 Seconds. Calculate the viscosity of benzene, if densities of water and benzene are 0.9984×10^3 Kg m^{-3} and 0.8106×10^3 Kg m^{-3} respectively. (Given: Coeff. of Viscosity of water = 1.008×10^{-3}Kg ms^{-1}). 2½

(VIII) What is the refractive index of the medium? How can it be determined by Abbe's refractometer? 2½

5. Attempt any **ten** questions:

(i) Define state function.

(ii) Give two statements of first law of thermodynamics.

(iii)Define standard states.

(iv) State Avogadro's law.

(v) What is meant by an Ideal gas?

(vi) Define Boyle temperature

(vii) Which of the following properties are intensive properties?
Entropy, surface tension, chemical potential, specific heat, temperature.

(viii) If the gas is allowed to expand from higher pressure region to lower pressure region through the porous plug above the inversion temperature, what will be the value of Joule-Thomson coefficient?

(ix)Define heat of reaction.

(x) What is meant by an Ideal gas?

(xi) Give the relationship between average velocity and most probable velocity.

(xii) Define compressibility factor.

Nabira Mahavidyalaya, Katol

Bachelor of Science (B.Sc.) Semester–I, UNIT TEST- I

CHEMISTRY (Physical Chemistry)

Paper-II

ATTENDANCE SHEET

Date-18/12/2023 **Time-09:30 am to 12:30 pm**

Sr. No.	Name of Student	Sign
1)	Divyani Dhanraj Surjuse	Surjuse
2)	Shubhangi Omprakash Chandele	Schandele
3)	Krunali Pramod Bodhale	Bodhale
4)	Dimpal Rajendra Gawande	D.R.Gawande
5)	Tina Raju Mahoriya	Mahoriya
6)	Achal Anil Banait	Banait
7)	Tejaswini Ramcharan Kharpuriye	Kharpuriye
8)	Pallavi Khemraj Gathe	Gathe.
9)	Devyani Suresh Daware	D.S.Daware
10)	Srushti Rajiv Nimburkar	Srushti
11)	Rutuja Sudhir Bhagme	R.S.Bhagme
12)	Khushi Girish Dhonde	K.G.Dhonde
13)	Sanskruti Dewanand Meshram	S.D.Meshram
14)	Dipali Dilip Mahapure	D.Mahapure
15)	Oshika Narinarayan Ghuguskar	Ghuguskar
16)	Sakshi Narendra Fuse	Sakshi
17)	Srushti Ratnakar Dhok	Srushti
18)	Anushka Sunilrao Ingole	Ingole
19)	Prachi Raju Nehare	Nehare
20)	Harshada Pramod Jagdale	Jagdale
21)	Samruddhi Devendra Yeole	Yeole.
22)	Riddhi Vijay Kalbande	Kalbande
23)	Janhavi Vasudeo Gharad	Janhavi
24)	Dimpal Hemraj Kalbande	[illegible]
25)	Chetna Sunil Bondre	Bondre.
26)	Rehan Hafeez Sheikh	[illegible]
27)	Chetan Shankaram Rewatkar	Rewatkar.
28)	Swapnil Shankar Kohale	Swapnil.
29)	Rudra Ajay Bisani	Rudra B
30)	Saloni Janardhan Manmode	Manmode
31)	Komal Ramesh Chaudhari	Kchaudhari
32)	Neha pramodrao channe	N.P. channe
33)	Bhagyshree vinod channe	B.V. channe
34)	Khushali sahebrao kallam	K.Kallam.
35)	Trupti Niranjanji charde	Charde
36)	Bharti Devidas Rewt	BRewt

Head, Chemistry Deptt

Nabira Mahavidyalaya, Katol

नबीरा महाविद्यालय, काटोल

परीक्षा _____ (1)

नांव Shubhangi Omprakash Chandele

वर्ग B.Sc. 1st year विषय Chemistry रोल नं. _____

	1	2	3	4	5	एकूण
गुण						
	6	7	8	9	10	
गुण						

तारीख : 18 / 12 / 2023

टिप:- १) उत्तर पत्रिकेच्या पहिल्या पानापासूनच सुरु करावे. परीक्षकाची सही

२) उत्तर पत्रिकेच्या दोन्ही बाजूचा उपयोग करावा.

३) उत्तर पत्रिकेत चित्र किंवा अयोग्य असा कोणताही प्रकार लिहू नये. केल्यास दंडास पात्र होईल.

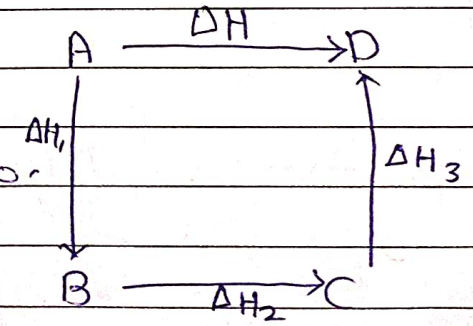
Que. 1

$\frac{1}{2}$

A]

⇒ ① Statement :- Hess's law of constant heat of a summation is define as " The total amount of enthalpy is depend upon the nature of initial reactant and the nature of final product and independant of the path followed by the reaction."

② Consider the reaction has initial state A. and final ~~set~~ state D



It has two way to give pro-duct :-

1st way : $A \rightarrow D$

$\Delta H = \Delta H$

2nd way : $A \rightarrow B \rightarrow C \rightarrow D$

$\Delta H = \Delta H_1 + \Delta H_2 + \Delta H_3$

This is the heat of summation.

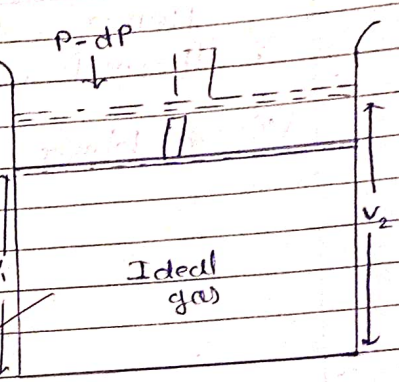
3) It is the law of heat of summation
4] It is used to calculate heat exactly slow reaction
5] It is used to determine heat of transition
6] It is also used to calculat heat of reaction which take place directly.

2) ⇒ Given :- $\Delta H_1 = 437.0\,kJ\,mol^{-1}$ for H-H bond
$\Delta H_2 = 224.0\,kJ\,mol^{-1}$ for Cl-Cl bond
$\Delta H_3 = 433.0\,kJ\,mol^{-1}$ for H-Cl bond

The reaction is,

$$H_{2(g)} + Cl_{2(g)} \longrightarrow 2\,HCl_{(g)}$$

B] Consider an ideal gas enclosed in cylinder fitted with frictionless and weightless piston. as shown in fig.



let V_1 be the volum of a gas at constant temperature and pressure P
P-dP applied pressure to the piston.

Now the piston is moved. Hench the small work done is,

$$dW = -(P - dP)\,dV$$

$$dW = -P\,dV - dP\,dV \quad \text{—} (1)$$

∴ (−ve sign due to the expansion of the system)

from eqn (1) dP dV are very small hence it can be neglected.

$$dW = -P\,dV \quad \text{—} (2)$$

To find, total work done then ~~take~~ Integrating eqn (2) from limits V_1 to V_2, we get,

$$W = -\int_{V_1}^{V_2} P\,dV \quad \text{—} (3)$$

for an Ideal gas $P = \frac{nRT}{V}$ or $PV = nRT$

put the value of P in eqn (3)

$$W = -\int_{V_1}^{V_2} \frac{nRT}{V}\,dV \quad \text{—} (4)$$

Hence the work done is maximum in isothermal reversible process.

(4) $\Rightarrow$ $W_{max} = -\int_{V_1}^{V_2} nRT \frac{dV}{V}$

$= -nRT \int_{V_1}^{V_2} \frac{dV}{V}$

$= -nRT \left[\ln \frac{V_2}{V_1} \right]$

$W_{max} = -2.303\, nRT \log \frac{V_2}{V_1}$ — (5)

For Ideal gas, $P_1V_1 = P_2V_2$

$\frac{V_2}{V_1} = \frac{P_1}{P_2}$

put this value in eqn (5), we get

(5) $\Rightarrow$ $\boxed{W_{max} = -2.303\, nRT \log \frac{P_1}{P_2}}$

This is expression of the work of expansion in an isothermal reversible process.

$\Rightarrow$ Given :- $n = 1$ mole

$R = 8.314\ KJ\ mol^{-1}$

$P_1 = 5$ bar

$P_2 = 1$ bar

$T = 298K$

we know that, $W_{max} = ?$

$W_{max} = -2.303\, nRT \log\left[\frac{P_1}{P_2}\right]$

$= -2.303 \times 1 \times 8.314 \times 298 \times \log\left[\frac{5}{1}\right]$

$= -5705.84 \times 0.6989$

$\boxed{W_{max} = -3987.81 J} \Rightarrow \boxed{W_{max} = -3.987\ KJ}$

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②

परीक्षा _____

नांव _____

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	6	7	8	9	10	
गुण						

तारीख : / /२०

टिप:- १) उत्तर पत्रिकेच्या पहिल्या पानापासूनच सुरु करावे. परीक्षकाची सही
२) उत्तर पत्रिकेच्या दोन्ही बाजूचा उपयोग करावा.
३) उत्तर पत्रिकेत चित्र किंवा अयोग्य असा कोणताही प्रकार लिहू नये.
केल्यास दंडास पात्र होईल.

Que. 2

07/2

I] Extensive property :- The property which depend upon the amount of matter of the system. This property is called as extensive property.
ex :- Mass, volume, density. etc.

Intensive property :- The property which independant on the amount of matter of the system. This Property is called as Intensive property.
ex :- Temperature, Enthalpy etc.

2½

II]

II)

Irreversible process	Reversible process
1) The process in which the product can be give directly is called as Irreversible process	1) The process in which the procedure can not give directly is called a Reversible process.
2) This processes can not be reversed.	2) This process can be reversed.
3] The process ~~is~~ is finite process	3] This process is Infinite process
4] This process are not in equilibrium condition	4] This process are in equilibrium condition.
5) Ex:- Tea	5) Ex:- cooling of ice.

II :- Given :- T = 298 K

IV]

① Hess's law of constant heat of summation is define as the total amount of enthalpy is depend upon nature of initial reactant and nature of final ~~reactes~~ products. Independent of the path followed by the reaction."

② Consider the reaction has initial state A and final state D

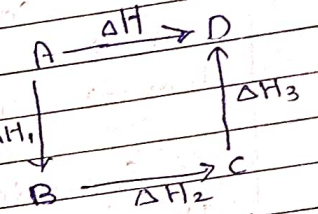
It has two way to give product :-

1st way : $A \rightarrow D$

$\Delta H = \Delta H$

2nd way : $A \rightarrow B \rightarrow C \rightarrow D$

$\Delta H = \Delta H_1 + \Delta H_2 + \Delta H_3$



This is the heat of summation.

③ It is the law of heat of summation

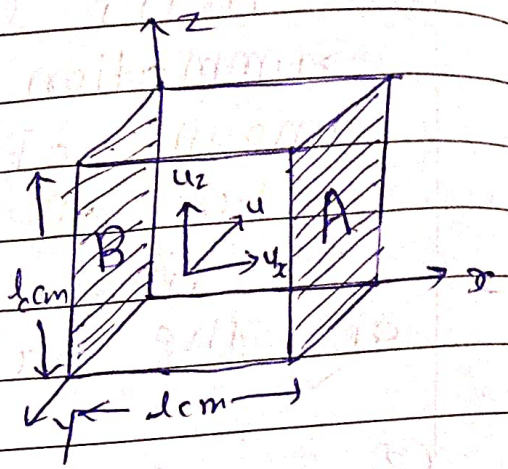
④ It is the used to calculate exactly slow reaction.

⑤ It is used to calculate heat of the reaction which take place directly

⑥ It is also determined by the heat of transmition.

Que. 3 10

A] Consider cubical container take in of an ideal gas as show in fig.



let n → molecules in the container

m → mass of each of gas molecule

lcm → length of ~~cub~~ each side of cube.

Consider a molecule moving with velocity u in any direction. velocity is vector quantity. Velocity divide in to three components u_x, u_y and u_z are in x, y and z ~~dire~~ axises resp. as shown in fig. Then mathematically, $u^2 = u_x^2 + u_y^2 + u_z^2$

Now consider molecule strike on face A with velocity u_x and rebounce with velocity $-u_x$. On face B.

Then the total travelled is = 2l

Hence, Time requide to collision of ~~moving~~ molecule from A to B $= \frac{2l}{u_x}$ sec.

(i) The number of collision per second

$$= \frac{2l}{u_x}$$

(ii) Each impact of molecule is the momentum ~~ab~~ before impact ~~collision~~ is equal to the momentum after impact.

The momentum before impact $= mu_x$

The momentum after impact $= -mu_x$

~~Total momentum is~~ =

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(3)

परीक्षा _____

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गुण						
	6	7	8	9	10	
गुण						

तारीख : / /२०

टिप:- १) उत्तर पत्रिकेच्या पहिल्या पानापासूनच सुरु करावे.
२) उत्तर पत्रिकेच्या दोन्ही बाजूचा उपयोग करावा.
३) उत्तर पत्रिकेत चित्र किंवा अयोग्य असा कोणताही प्रकार लिहू नये.
केल्यास दंडास पात्र होईल.

परीक्षकाची सही

Change in momentum $= mu_x - (-mu_x)$
$= 2mu_x$

(iii) But, no. of collision per second
$= \frac{u_x}{2l}$

Then It can be written as. ~~along x-axis~~
$= 2mu_x \left(\frac{u_x}{2l}\right)$

$= \frac{mu_x^2}{l}$

But the collision will be double along x-axis, $= \frac{2mu_x^2}{l}$

Similarly collision will be double along y and z-axes are $\frac{2mu_y^2}{l}$ and $\frac{2mu_z^2}{l}$ resp.

B] Critical temp :- The ~~ten~~ maximum temperature at which the gas can liquified are called as critical temperature.

~~Cr~~ Critical pressure :- The pressure required to liquifiy at critical temp. called as critical pressure.

Critical volum :- The volume occupied by the one mole of gas at critical temp and critical pressure are called as critical volume.

⇒ Given :- $T_c = 405K$, $P_c = 112.04$ atm
$R = 8.314 J K^{-1} mol^{-1}$
$V_c = ?$ $b = ?$

we know that,

$$T_c = \frac{8a}{27Rb} \quad \text{—①}$$

$$P_c = \frac{a}{27b^2} \quad \text{—②}$$

divide eqn ① by ②, we get,

$$\frac{T_c}{P_c} = \frac{8a}{27Rb} \times \frac{27b^2}{a}$$

$$= \frac{8b}{R}$$

$$\frac{T_c}{P_c} = \frac{8}{R} b$$

$$b = \frac{T_c}{P_c} \times \frac{R}{8} = \frac{405}{112.04} \times \frac{8.314}{8} = \underline{3.75}$$

$$V_c = 3b = 3 \times 3.75 = \underline{11.25 \text{ lit mol}^{-1}}$$

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Professor In
Mr. Kailas A
Assistant P
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Nabira Mah

Hence change in momentum :-

$$= \frac{2mu_x^2}{l} + \frac{2mu_y^2}{l} + \frac{2mu_z^2}{l}$$

$$= \frac{2m}{l}(u_x^2 + u_y^2 + u_z^2)$$

$$= \frac{2mu^2}{l} \qquad (\because u^2 = u_x^2 + u_y^2 + u_z^2)$$

But n molecule are in container

Hence, change in momentum $= \frac{2mnu^2}{l}$

(iv) Force is define as change in momentum per second $= \frac{2mnu^2}{l}$

Area of surface of cube $= 6l^2$

$$\text{Pressure } (P) = \frac{\text{Force}}{\text{Area}} = \frac{2mnu^2}{l} \times \frac{1}{6l^2}$$

$$P = \frac{1}{3}\frac{mnu^2}{l^3}$$

But $l^3 \rightarrow$ volume of cube

$$P = \frac{1}{3}\frac{mnu^2}{V}$$

$$\boxed{PV = \frac{1}{3}mnu^2}$$

$$\boxed{PV = \frac{1}{3}MNu^2}$$

This is kinetich gas eqn.

(B) Critical temp :- The ~~ten~~ maximum temperature at which the gas can liquified are called as critical temperature.

Critical pressure :- The pressure required to liquifiy at critical temp. called as critical pressure.

Critical volum :- The volume occupied by the one mole of gas at critical temp and critical pressure are called as critical volume.

⇒ Given :- $T_c = 405K$, $P_c = 112.04$ atm

$R = 8.314\ J\ K^{-1} mol^{-1}$

$V_c = ?$ $b = ?$

we know that,

$$T_c = \frac{8a}{27Rb} \quad \text{—— (1)}$$

$$P_c = \frac{a}{27b^2} \quad \text{—— (2)}$$

divide eqn (1) by (2), we get,

$$\frac{T_c}{P_c} = \frac{8a}{27Rb} \times \frac{27b^2}{a}$$

$$= \frac{8b}{R}$$

$$\frac{T_c}{P_c} = \frac{8}{R}b$$

$$b = \frac{T_c}{P_c} \times \frac{R}{8} = \frac{405}{112.04} \times \frac{8.314}{8} = 3.75$$

$$V_c = 3b = 3 \times 3.75 = 11.25 \text{ lit mol}^{-1}$$

Que 14

10

I] Given : $T = ?$

$u = 1000\ ms^{-1}$

$R = 8.314\ JK^{-1}mol^{-1}$

molecular weight of nitrogen is 28×10^{-3} kg

Now,

$$u = \sqrt{\frac{3RT}{M}}$$

Squaring both side

$$u^2 = \frac{3RT}{M}$$

$$T = \frac{Mu^2}{3R}$$

$$T = \frac{28 \times 10^{-3} \times (1000)^2}{3 \times 8.314}$$

$$T = \frac{28 \times 10^{-3} \times 10^6}{24.942}$$

$$T = 1.12260 \times 10^3$$

$$\boxed{T = 1122.60\ K}$$

II) i) mean free path :- The path travelled by the gas without collision called as ~~m~~ free path.

ii) The mean path travell by the gas molecule between two sucessive collision is called as mean free path.

नबीरा महाविद्यालय, काटोल

परीक्षा

नांव

वर्ग विषय रोल नं.

	1	2	3	4	5	एकूण
गुण						
	6	7	8	9	10	
गुण						

तारीख : / /२०

टिप:- १) उत्तर पत्रिकेच्या पहिल्या पानापासूनच सुरु करावे. परीक्षकाची सही

२) उत्तर पत्रिकेच्या दोन्ही बाजूचा उपयोग करावा.

३) उत्तर पत्रिकेत चित्र किंवा अयोग्य असा कोणताही प्रकार लिहू नये. केल्यास दंडास पात्र होईल.

ii) Collision diameter :- The two gas molecule approces each other. They can not come very close to each other. If they come close position the distance betn two nucleous of two gas molecule is called as collision diameter.

iii] Collision number :- The total no. of molecule in gass per second per unit volume is called as collision number.

III] Van der waal eqn is,

$$\left(P + \frac{a}{V^2}\right)(V - b) = RT$$

$$PV + \frac{a}{V} - Pb - \frac{ab}{V^2} = RT \quad \text{--- (1)}$$

from the eqn ① here a and b are very small and V^2 are very larger value then $\frac{ab}{V^2}$ are neglect

① ⟹ $PV + \frac{a}{V} - Pb = RT$ — ②

At low pressure :- When P is low, the term Pb can be neglected.

$PV + \frac{a}{V} = RT$ $\quad PV < RT$

$Z = \frac{PV}{RT} < 1$

Hence At low pressure real gas show negative deviation from ideal gas.

At high pressure :- When P is high the term $\frac{a}{V}$ are neglected.

$PV - Pb = RT$ $\quad PV > RT$

$Z = \frac{PV}{RT} > 1$

∴ Hence At high pressure real gas show positive deviation from ideal gas.

At high temperature :- When T is high the ~~Therm~~ term Pb and $\frac{a}{V}$ are very small then PV the bothe Pb and $\frac{a}{V}$ are neglected.

$PV = RT$

∴ At high temp. real gas behaves like ideal gas.

IV] For vander waal's eqn is,

$\left(P + \frac{a}{V^2}\right)(V$

We know that the eqn of critical temp, critical pressure & critical volume,

$V_c = 3b$ — ①

$P_c = \frac{a}{27b^2}$ — ②

$T_c = \frac{8a}{27Rb}$ — ③

from eqn ① $b = \frac{V_c}{3}$ — ④

put in eqn ②, we get,

② ⟹ $P_c = \frac{a}{27\left(\frac{V_c}{3}\right)^2}$

$P_c = \frac{a}{3V_c^2}$

∴ $a = 3P_cV_c^2$ — ⑤

put the eqn ④ & ⑤ in eqn ③

③ ⟹ $T_c = \frac{8(3P_cV_c^2)}{27R\left(\frac{V_c}{3}\right)}$

$T_c = \frac{8}{3}\frac{P_cV_c}{R}$

$\boxed{\therefore \frac{8}{3}P_cV_c = T_cR}$

Hence proved.

3½

Que. 5

v] Ideal gas :- ~~Th~~ in an ideal obey the eqn $pv = nRT$.

xii] Compressibility Factor :- To extend which real gas depart from Ideal gas behaves called as Compresibility factor.

$$Z = \frac{pv}{RT}$$

i] ~~Th~~ State function :- The gas go back to its initial state and it independ upon the path. called as state function.

½

vi] Boyle's temperature :- The temperature at which real gas from Ideal behavior is called as Boyle's temperature.

viii] The value of Jule - Thomson coefficient is zero.

$\mu_{JT} = 0$

Shikshan Prasarak Mandal's

NABIRA MAHAVIDYALAYA KATOL

DEPARTMENT OF CHEMISTRY

Notice **Date: 19/12/2023**

All Students of B.Sc. Sem-I are hereby informed that we are organizing a Practice pre-examination on the whole syllabus of Physical Chemistry-paper II, on 27th Dec. 2024.

Attempt the exam positively. Attendance is mandatory to all students.

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Professor In-Charge
Mr. Kailas A. More
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

Date-27/12/2023

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

Bachelor of Science (B.Sc.) Semester–I (Pre-Exam)

CH-102 CHEMISTRY Paper- II (Physical Chemistry)

Time: Three Hours] **[Maximum Marks: 50**

N.B.: — (1) All **FIVE** questions are compulsory and carry equal marks.
(2) Write chemical equations and draw diagrams wherever necessary.

1. (A)Derive an expression for w, q, ΔE and ΔH for expansion of gases under isothermal reversible process.
Calculate the work done by the gas if two moles an ideal gas at the initial pressure of 3 atmosphere at 0 °C were expanded reversibly under isothermal conditions to a final pressure of 0.3 atm. ($R=8.314 J. K^{-1}mol^{-1}$) 5
(B)Explain: -
(i) Average bond energy and
(ii) Bond dissociation energy.
Calculate the enthalpy change of the following reaction:
$H_{2(g)} + Cl_{2(g)} \rightarrow 2HCl_{(g)}$
Given that the bond dissociation energies of H–H, Cl–Cl and H–Cl are 437.0 kJ mol^{-1}, 244.0 kJ $mol^{-1}$and 433.0 kJ mol^{-1}respectively.
5

OR

1. (C) What are extensive and intensive properties? Give two examples of each of them. 2½
(D) Distinguish between reversible and irreversible processes. 2½
(E) The heat of combustion of $CH_4(g)$ at constant volume is measured in a bomb calorimeter At 298 K and found to be – 885.389 KJ/mole. Find the value of enthalpy change. 2½
(F) State and explain Hess's law of constant heat summation. 2½

2.(A) Discuss Maxwell-Boltzmann distribution of molecular velocities.
Explain graphically, how the velocities change with temperature. 5
(B) Describe critical phenomenon in the light of Andrew's experiment on CO_2 gas. The van der Waal's constants of a gas are a = 0.751 atm.dm6 mol^{-2} and b = 0.0226 dm^3 mol^{-1} . Calculate its critical volume, critical pressure and critical temperature.
($R = 0.0821$ atm. $dm^3 K^{-1} mol^{-1}$) 5

OR

(C) Calculate average velocity and most probable velocity of sulphur dioxide molecule at 700 K. Given that root mean square velocity of sulphur dioxide molecule is 522.3 ms^{-1}. 2½
(D) Define the terms: -
(i) Mean free path and
(ii) Collision diameter. 2½

(E) What is an ideal gas? Discuss the deviation of real gases from ideal behaviour. 2½

(F) Using Vander Waal's equation, deduce the reduced equation of state. 2½

3.(A) What are liquid crystals? Discuss structure and properties of nematic and cholesteric liquid crystals. 5

(B) How can surface tension of a liquid be determined by capillary rise method? A glass capillary of diameter 0.25 cm is dipped in water. Calculate the height to which liquid will rise if density and surface tension of water are 0.9984×10^3 kg m^{-3} and 0.0727 Nm^{-1} respectively. (Given: g = 9.806 ms^{-2}) 5

OR

3.(C) Discuss the following intermolecular forces in liquids:

(i) Dipole-induced dipole interaction and 2½

(ii) London-forces. 2½

(D) Write short note on Thermography. 2½

(E) How is surface tension of liquid determined by drop number method?

(F) Define refractive index. The refractive index of liquid benzene at 298 K is 1.7000 and its density is 0.77×10^3 kg m^{-3}. Find the molar refraction of liquid Benzene at 298 K. 2½

4. (A) What do you understand by adsorption isotherm? Explain Freundlich adsorption isotherm. How can it be verified? 5

(B) Explain (i) Brownian movement and (ii) Tyndall effect of colloidal sols. 5

OR

4. (C) Discuss the types of adsorptions with suitable examples. 2½

(D) Give the classification colloids? 2½

(E) Describe Hardy and Schulze rule. 2½

(F) Give important difference between elastic gels and non-elastic gels. 2½

5. Attempt any **TEN** questions of the following:

(i) Define state function.

(ii) Give two statements of first law of thermodynamics.

(iii) Define standard states.

(iv) State Avogadro's law.

(v) What is meant by an Ideal gas?

(vi) Define Boyle temperature.

(vii) Give any two uses of liquid crystal.

(viii) Why the liquid drop is spherical?

(ix) What is reduced viscosity?

(x) What are adsorbates and adsorbents?

(xi) Give two examples of enzyme catalysis.

(xii) What are promoters?

1×10=10

Nabira Mahavidyalaya, Katol

Bachelor of Science (B.Sc.) Semester–I, PRE-EXAM

CHEMISTRY (Physical Chemistry)

Paper-II

ATTENDANCE SHEET

Date-27/12/2023 **Time-09:30 am to 12:30 pm**

Sr. No.	Name of Student	Sign
1)	Divyani Dhanraj Sursuse.	Sursuse
2)	Tejaswini Ramchandra Khorpaniye	Khorpaniye
3)	Tina Raju Mahobiya	Rmahobiya
4)	Devyani Suresh Daware	~~DSDaware~~
5)	Sakshi Narendra Fuse	Sakshi
6)	Srushti Ratnakar Dhok	Srushti
7)	Riddhi Vijay Kalbande	Rkalbande
8)	Harshada Pramod Jagdale	Jagdale
9)	Sanskruti Sudhakar Gajbe	S. S. Gajbe
10)	Gauri Pramod Raut	Gauri
11)	Trupti Niranjan Charde	Charde
12)	Khushali Sahebrao Kalam	Kalam
13)	Bharti Devidas Raut	Braut
14)	Srushti Raju Nimburkar	Srushti
15)	Sameera Sunil Sayyam	Sayyam.
16)	Farhat Naz Sheikh Rasheed	Farhat
17)	Sanskruti Devanand Neshram	S. D. Neshram
18)	Anjali D. Sembekele	Sembekele
19)	Achal A. Banait	ABanait
20)	Sudhanshu J. Amale	Amale
21)	Pallavi K. Gathe	Pathe

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Shikshan Prasarak Mandal's

NABIRA MAHAVIDYALAYA KATOL

DEPARTMENT OF CHEMISTRY

Notice **Date: 23/04/2024**

All Students of B.Sc. Sem-II (Grant) are hereby informed that we are organizing a Unit Test on the topic "Structure and Bonding and Organic Reaction Mechanism" on 25th April 2024.

Attempt the test positively. Attendance is mandatory to all students.

for

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Professor In-Charge

Mr. Kailas A. More
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

NABIRA MAHAVIDYALAYA, KATOL

Department of Chemistry

Unit Test -I (Summer-2024)

Subject- Chemistry-I (Organic Chemistry) P-I

Class- B.Sc.-I Sem-II

Time: 3 Hours **Maximum Marks: 20**

Note- (1) All questions are compulsory and carry equal marks.

(2) Write chemical equations and draw diagrams wherever necessary.

Q.1. (A) Define and classify hydrogen bonding. Explain effect of hydrogen bonding on solubility. 5

(B) Discuss Homolytic and Heterolytic fission of covalent bond with suitable example. 5

OR

(C) What is hybridization? Explain the structure of ethane on the basis of hybridization. 5

(D) What are Reactive intermediates? Explain the formation and stability of carbocations. 5

(C) Differentiate between Inductive effect and electromeric effect. 2½

(D) Draw MO diagram of acetylene molecule. Give bond length and bond angle data involved in it. 2½

(E) Define free radicals. Discuss the stability of free radicals. 2½

(F) Define the terms :
(i) Bond length and
(ii) Bond angle. 2½

OR

(C) Write a note on Inductive effect. 2½

(D) Classify the following as electrophiles and nucleophiles :

(i) FeCl3 (ii) H2O (iii) CH3NH2 (iv) OH – and (v) BF3 2½

(E) Discuss Hydrogen bonding with reference to alcohol. 2½

(F) Define terms with example :

(i) Substitution reaction (ii) Elimination reaction. 2½

NABIRA MAHAVIDYALAYA, KATOL

DEPARTMENT OF CHEMISTRY

Attendance Sheet, Unit Test -I (S-24)

Class: B.Sc.-I (Sem-II) Subject: Chemistry, P-I, Section: Grant, Date: 25/04/2024

Sr. No.	Name of Students	Sign	Sr. No.	Name of Students	Sign
1	Divyani D. Surjuse	Surjuse	24	Pallavi K. Gathe	Gathe
2	Devyani S. Daware	D.S. Daware	25	Saloni J. Manmode	Manmode
3	Chanda R. Rathod	C. Rathod	26	Sanskruti. D. Meshram	S.D. Meshram
4	Komal R. Chaudhari	Chaudhari	27	Farhat. R. Sheikh	Farhat.
5	Moniza M. Barai	Barai	28	Anjali D. Sembekar	Sembekar
6	Sanakshi J. Shende	Shende	29	Tina R. Mahoriya	Mahoriya
7	Khushali S. Katlam	Katlam	30	Swapnil S. Kohale	Swapnil
8	Trupti N. Charde	Charde	31	Rehan H. Sheikh	
9	Bharti D. Raut	Raut	32		
10	Krunali P. Bodhale	Bodhale	33		
11	Dimpal R. Gawande	Dimpal	34		
12	Samruddhi D. Yeole	Yeole	35		
13	Prachi R. Nehare	Nehare	36		
14	Riddhi V. Kalbande	Kalbande	37		
15	Anushka S. Ingole	Ingole	38		
16	Janhavi W. Bihard	Bihard	39		
17	Sudhansh Amale	Amale	40		
18	Kapilansh Mahorkar	Mahorkar	41		
19	Alpesh Dongre	Dongre	42		
20	Rudra Bisani	Rudra	43		
21	Tejaswini R. Kharpuriye	Kharpuriye	44		
22	Vishakha M. Uke	V.M. Uke	45		
23	Achal A. Banait	Banait	46		

~~24 Swapnil S. Kohale Swapnil~~

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Shikshan Prasarak Mandal's

NABIRA MAHAVIDYALAYA KATOL

DEPARTMENT OF CHEMISTRY

Notice

Date: 04/07/2023

All Students of B.Sc. Sem-II are hereby informed that we are organizing a Practice pre-examination on the whole syllabus of Organic Chemistry-paper I, on 10th July 2023.

Attempt the exam positively. Attendance is mandatory to all students.

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Professor In-Charge
Mr. Kailas A. More
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

Practice paper-23

Bachelor of Science (B.Sc.) Semester–II (CBS) Examination

CH-201: CHEMISTRY

Compulsory Paper—1

(Organic Chemistry)

Time: Three Hours] [Maximum Marks: 50

N.B.:— (1) All **FIVE** questions are compulsory and carry equal marks.

(2) Write chemical equations and draw diagrams wherever necessary.

1. (A) Explain:—

(i) Inductive effect and

(ii) Hydrogen bonding in alcohol. 5

(B) Discuss Homolytic and Heterolytic fission of covalent bond with suitable examples. 5

OR

(C) Explain the formation of acetylene molecules on the basis of hybridization. 2½

(D) Define:—

(i) Bond length and

(ii) Bond angle. 2½

(E) What are free radicals? Explain the formation and stability of free radicals. 2½

(F) Identify the following as electrophiles and nucleophiles: —

(i) H_2O

(ii) BF_3

(iii) H_3O

(iv) CN^-

(v) $R–NH_2$ 2½

2. (A) What is conformation? Explain the conformational analysis of n-Butane. 5

(B) Explain the following terms :

(i) Enantiomers and racemization of Lactic acid

(ii) Diastereomers. 5

OR

(C) What is resolution? Explain the biological method for the resolution of a racemic mixture. 2½

(D) Write a note on 'Walden Inversion'. 2½

(E) Discuss the Geometrical isomerism in maleic acid and fumaric acid. 2½

(F) Give the difference between configuration and conformation. 2½

3. (A) Discuss conformational analysis of Cyclohexane.

(B) What is Markownikoff's rule? Give the ionic mechanism of the addition [illegible] to Propylene. 5

OR

(C) Give the mechanism of free radical chlorination of methane. 2½

(D) Write a short note on LPG.

(E) How propene is prepared from:

(i) n-propyl bromide and

(ii) n-propyl alcohol 2½

(F) What happens when propylene reacts with:

(i) Alkaline cold $KMnO_4$ solution and 2½

(ii) Hot $KMnO_4$ solution?

4. (A) What are dienes? Give their classification. Write chemical reactions of 1, 3-Butadiene with (i)HBr and (ii) Br_2. 5

(B) Explain the mechanism of sulfonation of benzene with an energy profile diagram. 5

OR

(C) Explain the acidic nature of Ethyne. 2½

(D) What is Huckel's rule? Discuss the aromaticity of cyclopentadienyl anion. 2½

(E) Discuss the Diels-Alder reaction. 2½

(F) Explain the molecular orbital structure of benzene. 2½

5. Solve any **TEN** of the following:—

(i) Define Carbonium ion.

(ii) Draw M.O. Structure of Ethane molecule.

(iii) Give one example of an addition reaction.

(iv) What is Asymmetric synthesis?

(v) What is meant by a stereogenic centre?

(vi) What is racemisation?

(vii) Draw structure and give IUPAC name of neopentane.

(viii) Define Cloud Point.

(ix) Define Octane number.

(x) What is an oxyacetylene flame?

(xi) Give the polymerization reaction of acetylene.

(xii) Define lubricants.

1×10=10

Organic Chemistry, Paper -I

Attendance

Class: B.Sc. Sem-II | Section: Grant | Date: 10/07/2023

Sr. No.	Name of the Student	Signature	Sr. No.	Name of the Student	Signature
1.	Anjali. R. Dhongade	ARDhongade			
2.	Ruchika P. Malvi	RPmalvi			
3.	Khushby S chopde	KSchopde			
4.	Samiksha C. Dongre	SCDongre			
5.	Darshika W. Sawai	DWsawai			
6.	Kishori R Barange	KRbarange			
7.	Sameer S. Ahran	Sameer S. Ahran			
8)	Khushali D. Thombre	KDThombre			
9.	Rajshree R. Rewatkar	RRewatkar			
10)	Takita U. Makde	TUmakde			
11)	Tina S. Yelekar	TSyelekar			
12)	Chhakuli M. Wadute	CMwadute			
13)	Rasika A. Sirsam	RAsirsam			
14)	Shivani P. Mohankar	SPMohankar			
15)	Om. S. Gupta	OSGupta			
16)	Vikki V. Dobre	VVdobre			
17)	Ayan S. Sheikh	ASsheikh			
18)	Madhuri. M. Satwaric	MMsatwaric			
19]	Rushali R. Rampure	RRrampure			
20]	Prachi P. Mahajan	PPmahajan			
21]	Shivprasad P. Suryawanshi	SPsuryawanshi			

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

M.G.

Sr. No.	Name of the Student	Signature	Sr. No.	Name of the Student	Signature
1	Bhumeshwari Khawshi	Khawshi			
2	Rita L. manmode	RLmanmode			
3	Pratiksha R. Sahare	Psahare			
4	Domini S. Kewate	Dkewate			
5)	Sapna D. Warkhade	Swarkhade			
6)	Pranali A. Utane	Putane			
7)	Sneha A Gaikwad	Sgaikwad			
8)	Divya V. Mankawade	DMan			
9)	Amisha V. Bujruk	AVBujruk			
10)	Sakshi R. Bujruk	SBujruk			
~~11)~~	~~Sakshi~~				
11)	Nikita p. kalmegh	Nkalmegh			
12)	Alfiya Shah	Alfiya			

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Name: Sameer S. Atram

18/50

Q1 = 09 Q2 = 03 Q3 = 1 Q4 = 05

Q.1 (A) (i) Inductive effect :- polarization induce due to adjecent bond. The inductive effect is permant Method, inductive effect occur in σ bond.

The share pair of electron displacement or shifted to more electronegative atom, this shifting or displacement of electron is called as inductive effect.

example :-

- $C - C - C \xrightarrow{\delta+} Cl^{\delta-}$
- $C - C - C^{\delta+} - Cl^{\delta-}$
- $C - C^{\delta+} - C^{\delta+} - Cl^{\delta-}$
- $C^{\delta+} - C^{\delta+} - C^{\delta+} - Cl^{\delta-}$

2/

03/

The chlorine is a more electronegative atom than carbon, hence the δ− negative charge develop on Cl− atom and δ+ charge develop on C− atom. The more electronegative chlorine atom is electron lover, The carbon atom electron shifted to chlorine atom, similarly second carbon and third carbon atom electron shifted to chlorine atom and generated δ+ positive charge on C−atom.

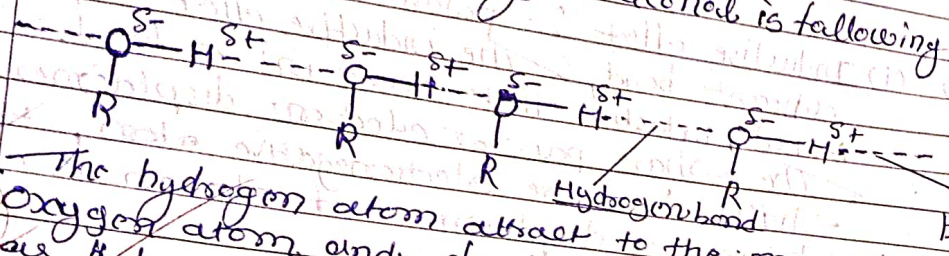
They are two type of inductive effect

1) + Inductive effect and 2) − Inductive effect.

Q.1 CA

(ii) Hydrogen bonding in alcohol :-

- The electrostatic force of attraction between H-a and more electronegative atom is called as Hydrogen bonding.
- The hydrogen bonding in alcohol is following type

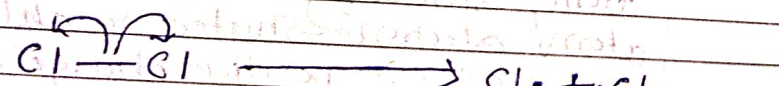


The hydrogen atom attact to the more electronega oxygen atom and develop weaker bond is known as Hydrogen bond. The two polar atom present in alcohol. The R-group increases the decreases Hydrogen bonding.

B) The Homolytic and Heterolytic fission of covalent bond :-

1) Homolytic bond fission :- The breaking or dissociation of covalent bond is equally distributed is known as Homolytic bond fission.

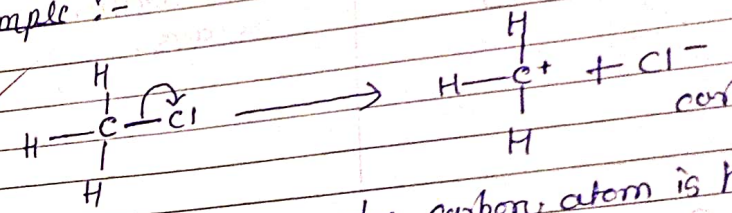
example :-



The species produce in Homolytic bond fission is known as free radical.

2) Heterolytic bond fission :- The breaking of covalent bond is unequally distributed electron. Hence the one atom get two electron and another non-electron, two species produce in Heterolytic bond fission carbocation and carbanion.

example :-



- The positive charge carry by carbon atom is known as carbocation.
- The negative charge carry by carbon atom is known as carbanion.

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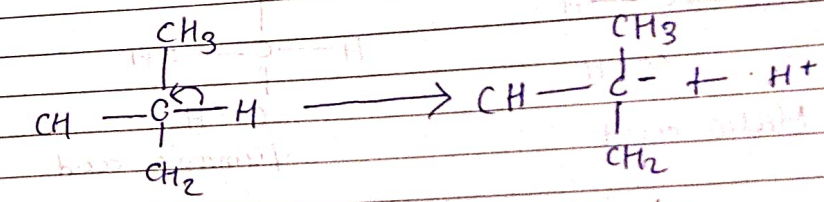


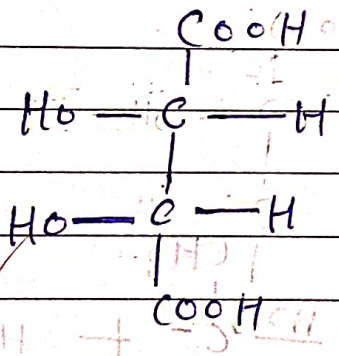
The carbanion act as nucleophyle.
The carbanion is electron rich species.

Q. 2 (C) resolution :— The racemic mixture separated by two active compound, separating of racemic mixture in two active compound is known as resolution.

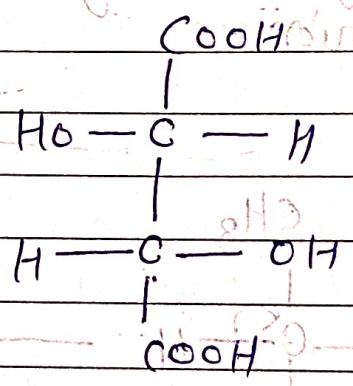
Q. 2 (f)

Configuration	Conformation
• It is occur in single bond	• It is occur in double bond.
• The atom is easally rotates	• The atom is not easally rotates

Q. 2 (e) Geometrical isomerism in maleic acid and fumaric acid.



Malic acid



fumaric acid.

Name:- Semeon G Atrim

Q.4) (A) Dienes :-

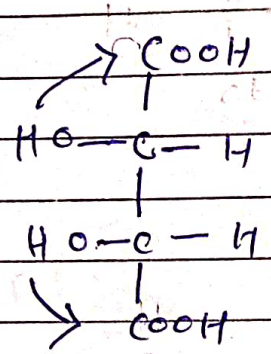
- Dienes is a unsaturated compound containing double bond.
- It is similar in alkene.
- Dienes contain double bond between two carbon atom.

1) $CH_2 - CH - CH = CH_2$

1, 3 - Butadiene.

Q.S. (vi) Racemisation :- The compound is one part rotate chlockwis direction and the another part rotate anticlockwis direction. is known as Racemisation.

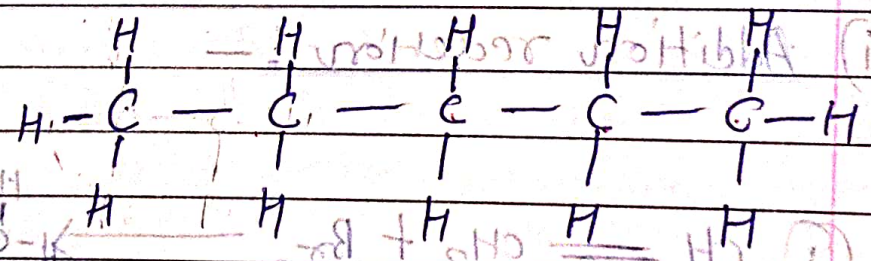
example :-



(±) form

Q.S. (v) - The four different atom or group of atom attached to the Carbon atom, The centre is known as stereogenic centre.

Q.S. (vii)



n- pentane.

Shikshan Prasarak Mandal's

NABIRA MAHAVIDYALAYA KATOL

DEPARTMENT OF CHEMISTRY

Date: 05/01/2024

Notice

All Students of B.Sc. Sem-III are hereby informed that we are organizing a

Practice pre-examination on the whole syllabus of Organic Chemistry-paper II, on 08th Jan. 2024.

Attempt the exam positively. Attendance is mandatory to all students.

for

Head, Chemistry Deptt
Nabira Mahavidyalaya, Katol

Professor In-Charge
Mr. Kailas A. More
Assistant Professor
Department of Chemistry
Nabira Mahavidyalaya, Katol

Nabira Mahavidyalaya, Katol
Bachelor of Science (B.Sc.) Semester–III, Pre-Exam
CHEMISTRY (Organic Chemistry)
Paper-II

Time: Three Hours] **[Maximum Marks : 50**

N.B.: — (1) All **FIVE** questions are compulsory and carry equal marks.
(2) Write chemical equations and draw diagrams wherever necessary.

1. (A) What are activating and deactivating groups? Explain meta-directive influence of $-NO_2$ group in Nitrobenzene for further electrophilic substitution. 5

(B) Explain the alkaline hydrolysis of ter. butyl bromide with reference to:
(i) Reaction
(ii) Kinetics
(iii) Mechanism
(iv) Energy profile diagram. 5

OR

(C) How will you prepare biphenyl from iodobenzene? Name the reaction. 2½

(D) How chlorobenzene obtained by:
(i) Sandmeyer's reaction and
(ii) Raschig's process. 2½

(E) Give the preparation of chloroform from ethanol. 2½

(F) Give any two preparation of toluene. 2½

2. (A) Give a method of preparation of glycerol starting from propylene. What is the action of excess of HI on it? 5

(B) Discuss the reaction and Mechanism of Reimer-Tiemann reaction. 5

OR

(C) Discuss the mechanism of Pinacol-Pinacolone rearrangement reaction. 2½

(D) What is the action of following on ethylene glycol:
(i) Con. HNO_3 and
(ii) Pb $(CH_3COO)_4$ OR HIO_4? 2½

(E) Discuss acidic nature of Phenol on the basis of resonance stabilization of Phenoxide ion. 2½

(F) Write note on Gattermann Synthesis. 2½

3. (A) Discuss the mechanism of Cannizaro's reaction with suitable example. 5

(B) How will you obtain: —
(i) Acetaldehyde from acetyl chloride
(ii) Acetophenone from Benzonitrile? Discuss the structure of Carbonyl group in Aldehyde and Ketones. 5

OR

(C) Write a note on Wolff-Kishner reduction. 2½

(D) Explain the Perkin reaction. 2½

(E)Write reduction reaction of Acetaldehyde with $LiAlH_4$ and $NaBH_4$. 2½

(F) What is the action of following on acetaldehyde?

(i) Tollen's reagents

(ii) Fehling solution 2½

4. (A)Write the synthesis and applications of DDT and BHC. 5

(B) What are esters? What is the action of following on Ethyl acetate:

(i) Ammonia

(ii) Water

(iii).$LiAH_4$ and

(iv) Grignard's Reagent? 5

OR

(C)Discuss the advantages and disadvantages of Agrochemicals 2½

(D) Write a note on Hell-Volhard-Zelinsky reaction. 2½

(E) Discuss the synthesis and application of Endosulphan. 2½

(F) What is the action of heat on:

(i) Succinic acid and

(ii) Phthalic acid? 2½

5. Solve any **ten** of the following:

(i) What is the effect of fuming HNO_3 on Toluene? 1

(ii) What is O/P ratio?. 1

(iii) Write the substrate for SN1 reaction. 1

(iv) Give the structure of Sorbitol. 1

(v) Give the uses of glycerine. 1

(vi) Draw resonance structure of phenoxide ion. 1

(vii) How acetone is obtained from methyl cyanide? 1

(viii) What is the action of peracetic acid on acetone? 1

(ix) Define alpha hydrogen atom in ketone . 1

(x) Give any two physical properties of carboxylic acid. 1

(xi) Define rodenticides. 1

(xii) How is ethyl acetoacetate obtained from ethyl acetate? 1

नबीरा महाविद्यालय, काटोल

परीक्षा

नांव Sameer S. Atram

वर्ग Bsc III - Sem विषय Chemistry - II रोल नं.

	1	2	3	4	5	एकूण
गुण						
	6	7	8	9	10	
गुण						

तारीख 08 / 01 / 2024 परीक्षकाची सही

टिप : १) ~~उत्तर पत्रिकेच्या पहिल्या पानापासूनच सुरु करावे.~~
२) उत्तर पत्रिकेच्या दोन्ही बाजूचा उपयोग करावा.
३) उत्तर पत्रिकेत चित्र किंवा अयोग्य असा कोणताही प्रकार लिहू नये. केल्यास दंडास पात्र होईल.

21/50

(Q.1 – A)

→ • Activating group :-

• When substituted benzene derivative more rapidly react than that of benzene, that then substituent are called as Activating group. for example Methoxy benzene are more react than that of Benzene. Such activating group are, $-CH_3$, $-NH_2$ etc.

• It means that, ~~the~~ each substituent group present on benzene ring and further substitution take place, the incoming electrophile attack on ortho and para position.

• The activating group are ortho – para directing in nature.

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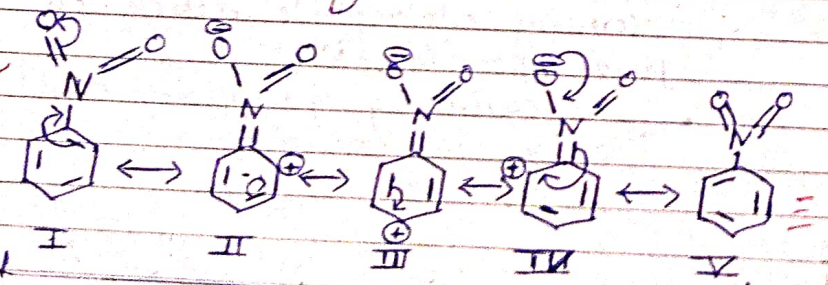
Deactivating group :-

- When substituted benzene derivative more slowly react than that of benzen, That they substituent are called as deactivating group.
- for example, the bromination of Nitrobenzene are more react than bromination of benzene.
- The deactivating group are Meta directing in nature.
- Such deactivating group are, $-NO_2$
- It means that, If substituent present on benzene ring and further substitution take place, the incoming electrophile attack Meta position.

Meta-directive influence of $-NO_2$ group in Nitrobenzene :-

- The Nitro group ($-NO_2$) are more electro negative group, Hence Nitro-group attract electron from benzen ring, Hence they show Meta-directing nature.



Resonating structure.

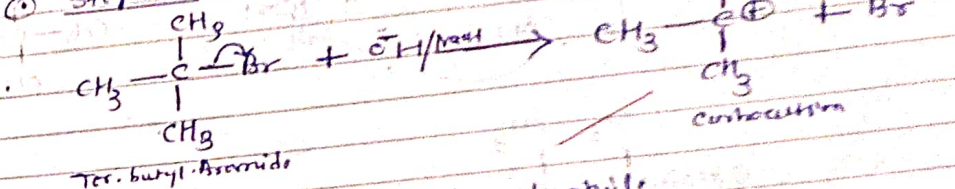
- The electron deficiency is maximum at ortho and para position, in resonating structure of Nitrobenzene (II, III, IV and V)

Q.1 – B) Alkaline Hydrolysis of ter. butyl bromide:

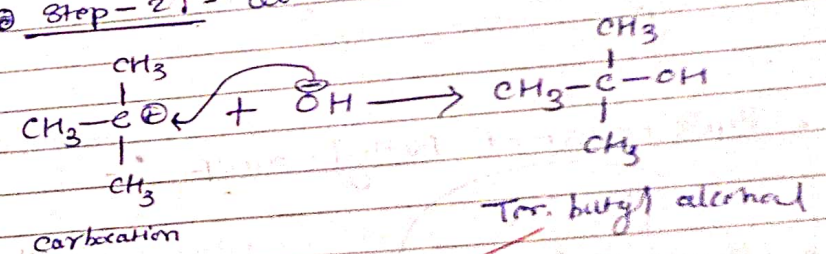
- It is also known as SN_1 reaction
- It is two-step reaction

⊙ Reaction :- $C(CH_3)_3Br + KOH \longrightarrow C(CH_3)OH + KBr$

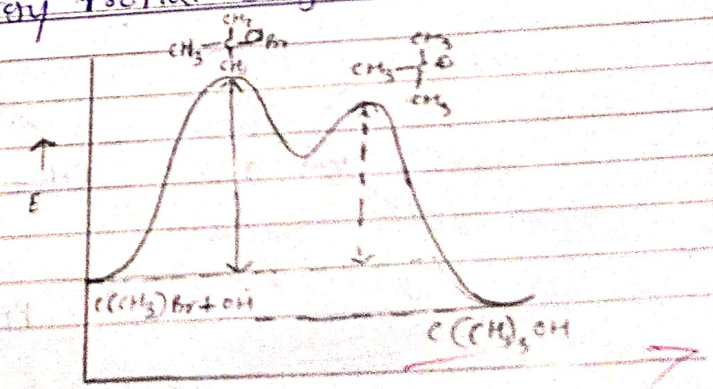
⊙ Step-1 : formation of Carbocation



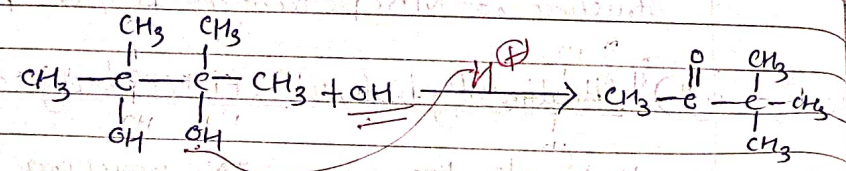
⊙ Step-2 :- attack of Nucleophile



⊙ Energy Profile diagram :-

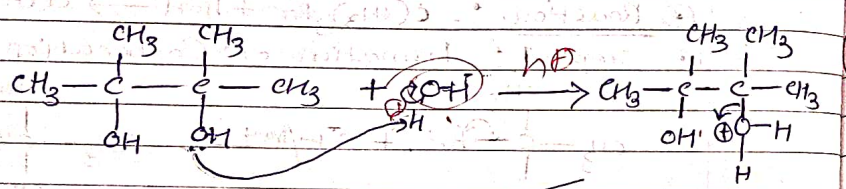


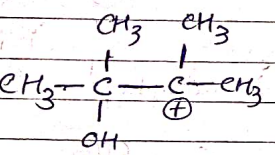
(Q.2 — B) Pinacol – Pinacolone rearrangement



Pinacol

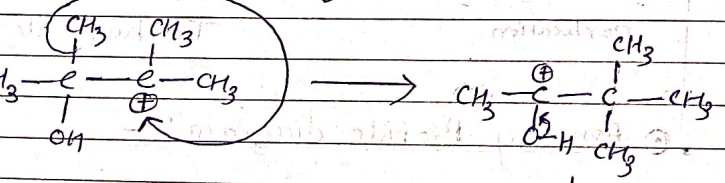
- Mechanism :- formation of carbocation.

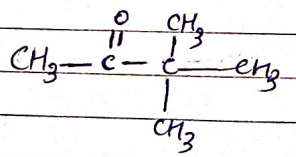




04

- Replacement of Methyl group :-

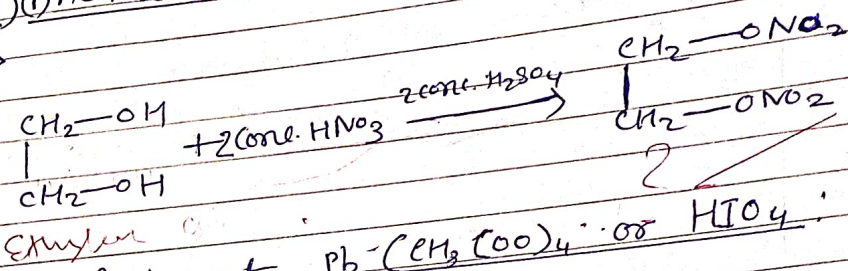




Pinacolone

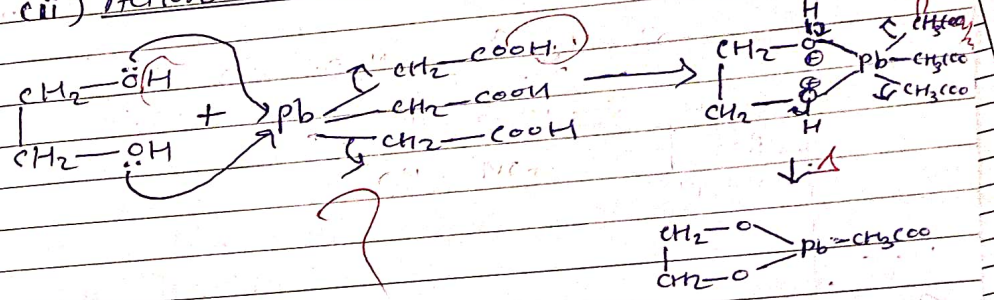
(Q.2 — B) (i) Action of conc. HNO_3 on ethylene-glycol

=>

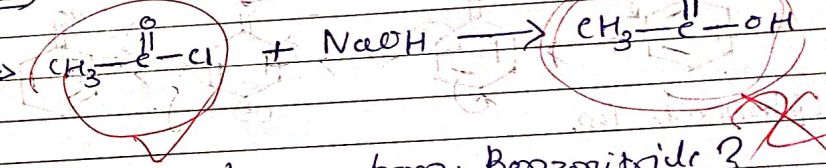


Ethylene

(ii) Action of $Pb(CH_3COO)_4$ or HIO_4 :



(Q.3 — B) (i) Acetaldehyde from acetyl chloride ?

=> 

(ii) Acetophenone from Benzonitrile ?

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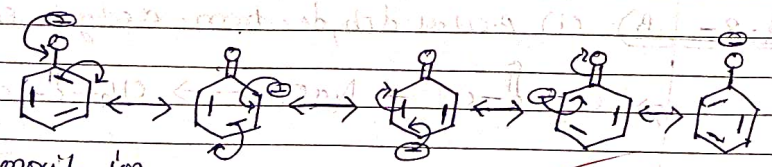
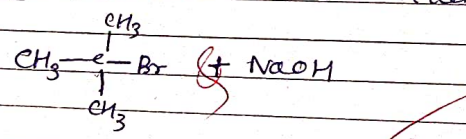
(Q.3 – A) Cannizaro' reaction :-

(Q.5 – vi) resonance structure of phenoxide ion



Phenoxide ion.

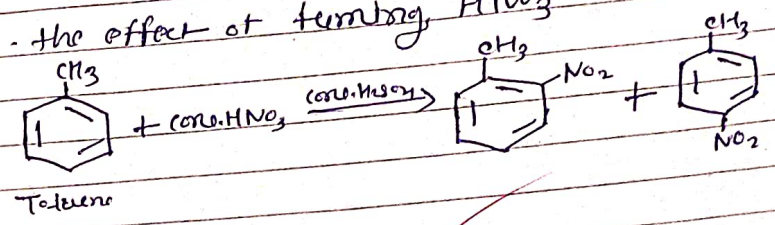
(Q-5 – iii) Substrate for SN1 reaction



(Q-5 – ii) O/P ratio :-

- when monosubstituted benzene.

(Q-5 – i) the effect of turning HNO_3 on Toluene

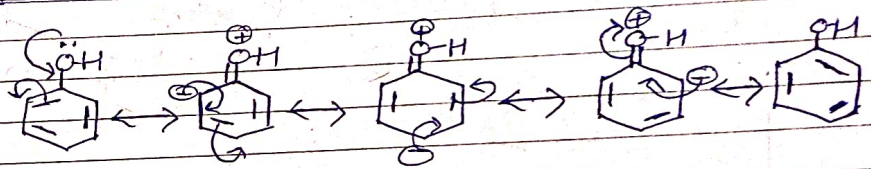


(Q-2 – iE) Acidic Nature of Phenol on the basis of Resonance stabilization of Phenoxide ion.

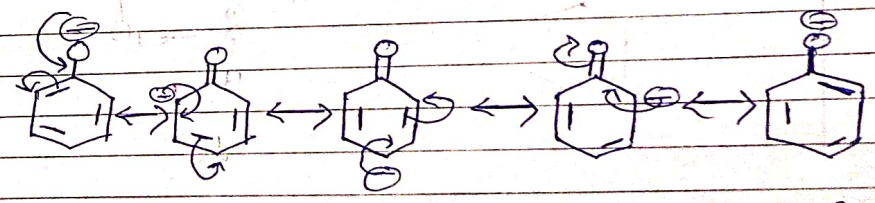
⇒ The donate of proton in molecules is called acidic Nature.

- The phenol having tendency to donate proton by forming phenoxide ion.

- Resonance of Phenol :-



- Resonance of phenoxide ion :



- The phenoxide ion has more stable than phenol. because phenol resonating structure get negative charge on more electronegative oxygen atom.

Nabira Mahavidyalaya, Katol

Bachelor of Science (B.Sc.) Semester–III, Pre-Exam

CHEMISTRY (Organic Chemistry)

Paper-II

ATTENDANCE SHEET

Date-08/01/2024 Time-09:30 am to 12:30 pm

Sr. No.	Name of Student	Sign
1	Sameer S. Atram	Sameer S. Atram
2	Rajshree R. Rewatkar	Rewatkar
3	Tina S. Yelekar	[illegible]
4	Lakita U. Makde	Lamakde
5	Mitali M. Gajbhiye	Gajbhiye
6	Aparna G. Chinchmalatpure	AChinchpure
7	Vaishnavi L. Nibude	Vaishnavi
8	Ruchika P. Malvi	Ramalvi
9	Hemlata R. Kale	H.P.Kale
10	Disha A. Girpadkar	D.A.Girpadkar
11	Purva S. Kharpkar.	[illegible]

Head, Chemistry Deptt

Nabira Mahavidyalaya, Katol

GEOTAGGED PHOTOGRAPHS OF UNIT TEST:

Nabira Mahavidyalaya, Katol

Department of Mathematics

Test Examination (2023-24)

B. Sc. Semester-I (Paper-I)

Date: 28/10/2023

Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature
1	Arjun.U.Pande	Arjun	31	H.A. Bodad	Bodad	61		
2	Sumit G. Dhanme	Dhanme	32	D.D. Surjuse	Surjuse.	62		
3	Hitesh S. Dongre	Dongre.	33	P. A. chandele	Chandel	63		
4	Sarang.D.Rewatkar	Sarang	34	S.O.Chandele	Schandele	64		
5	Sarang D. Kahal	Kahale	35	Y.D. Raut	Raut	65		
6	Bharat.R. Rushiya	Rushiya	36	S.P.Narnaware	Sakshi	66		
7	Hujef R. Sheikh	hujefa	37	S.R. Nimburkar	Sruthi	67		
8	Nilay.M.Bagde	Bagde	38	S.S. Gajbe	S.S. Gajbe	68		
9	Mahendra R. Bhakte	RBhakte	39	D.S. Daware	D.S Daware	69		
10	Shubham. Meshram	S.H. Meshram	40	S.A. Bidkar	SABidkar	70		
11	Mayur.R.Wadbude	MRWadbudhe	41	A.G. Dhote	Dhote	71		
12	Rohani A. Rewatkar	Rewatkar	42	V.H. Sahare	Sahare	72		
13	Bhavana R. Wertulkar		43	K.A. Renghe	K.A Renghe	73		
14	Gunjan R. Raut	Raut	44	B.V.Channe	B.V Channe	74		
15	Gauri P. Bagde		45	D.R. Gawande		75		
16	Kajal R. Kajale	Kajale	46	S.S. Akhare	Akhare	76		
17	Ruchal Salam		47	V.H. Tabhane		77		
18	Pratiksha Dandle	P. dandle	48	K.R. Kadue	RKadue	78		
19	Arpita A. Kadu	AKadu	49	Samiksha S. Chaple	Chaple	79		
20	Rani Kharpuriya		50	Rohani Keikey	Keikey	80		
21	A.S. Kamde	A. Kamde	51	Sakshi chichmalkar	Chichmalkar	81		
22	Prapti Takar	Takar	52	Krutika.A.Junghare	K.A. Junghare	82		
23	Varsha N. Dongare	V.N. Dongare	53	Dimpal N. Dongre	Dongre	83		
24	Bhairavi U. Mahale	Mahale	54	Bhagyoshri Dhandale	Dhandale	84		
25	P.D. Rewatkar	Rewatkar	55	Prachi Padoriya	Prachi	85		
26	P.K. Gathe	Gathe	56	Suhani R. Bakare	Bakare	86		
27	T.A. Kharpuriya	T.	57			87		
28	A.A Banait	Banait	58			88		
29	P.S. Rewatkar	P.S. Rewatkar	59			89		
30	G.M. Shembekar	Shembekar	60			90		

Name & Signature of Teacher: N. T. Katre

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Nabira Mahavidyalaya, Katol

Department of Mathematics

Test Examination (2023-24)

B. Sc. Semester-I (Paper-II)

Date:

Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature
1	P. S. Padoriya	Padoriya	31	Shreya akhare		61		
2	S. R. Borkar	Borkar	32	Bhavika Bogade	Bogade	62		
3	B. D. Dhandale	Dhandale	33	Prajakta Dhage	Prajakta	63		
4	S. D. Rewatkar	SARANSH	34	Gauri Raut	Gauri	64		
5	A. D. Dongre	Dongre	35	Sanskruti Gajbe	S. S. Gajbe	65		
6	M. R. Vasbudhe	M. R. Vasbudhe	36	Payal Chandde	Payal	66		
7	N. M. Bagde	Bagde	37	Divyani Surwase	Surwase	67		
8	S. A. Bidkar	Bidkar	38	Devyani S. Dawane	D. S. Dawane	68		
9	A. G. Dhote	Dhote	39	Sr. R. Nimburkar	Nimburkar	69		
10	Y. D. Raut	Raut	40	Shubhangi Chandel	Chandel	70		
11	K. R. Katare	Katare	41	Achal A. Banait	Banait	71		
12	R. A. Rewatkar	Rewatkar	42	Tejaswini R. K		72		
13	G. D. Rewatkar	Rewatkar	43	Bhairavi Mankar	Bhairavi	73		
14	S. H. Meshram	S. H. Meshram	44	Payal Rewatkar	P. S. Rewatkar	74		
15	M. R. Bhakte	Bhakte	45	Pallavi K Gedam	Pallavi	75		
16	Sumit G. Dhoame	Dhoame	46	Samiksha Schapte	Schapte	76		
17	Arjun pande		47	Sakshi Chichmalkar		77		
18	Kalyani Kadu	Kadu	48	K. R. Junghare	K. R. Junghare	78		
19	Kalyani Renghe	Renghe	49	Rani Kharpuriya		79		
20	Shreyat Rushiya		50	Devina Khase	D. R. Khase	80		
21	Hujef Shaikh	Hujef	51	Rutuja Raut	R. Raut	81		
22	S. P. Narnaware	Sakshi P. Narnaware	52	Arpita A. Kadu	A. Kadu	82		
23	Dimpal Dongre	Dongre	53	Hira P. Dewase	Dewase	83		
24	Bhavana Wewalkar	Bhavana	54	~~Sumit G. Dhoame~~		84		
25	S. S. Shriramane	S. Shriramane	55	Prathiksha Dandhore		85		
26	Vaishnavi Sahare	Sahare	56	~~Hujef R. Shaikh~~		86		
27	Gunjan Shambharkar	Shambharkar	57			87		
28	Hemshankar Bond		58			88		
29	Suhani Khadankar	Khadankar	59			89		
30	Vaishnavi T. Dhore		60			90		

Name & Signature of Teacher: Mr. R. B. Chawase

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Nabira Mahavidyalaya, Katol

Department of Mathematics

Test Examination (2023-24)

B. Sc. Semester-III (Paper-I)

Date:

Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature
1	chitra alekhar Ghadge	Ghadge	31	Divya kumbhare	divya	61		
2	Vikas. Barai	Barai	32			62		
3	Pritam D. Ingole	Pritam	33			63		
4	Ishant .U. Ghagare	Ghagare	34			64		
5	Ekta .R. Baramse	Baramse	35			65		
6	Vaishnavi.A Pawade	Pawade	36			66		
7	Tanushri Dhote	T.D.Dhote	37			67		
8	K.V. Panchbhai	Kirti	38			68		
9	Ruchal S. Burait	Burait	39			69		
10	Sharwch.P	Pathan	40			70		
11	om S. Gupta	omg	41			71		
12	Ayan. S. Shaikh	Shaikh	42			72		
13	Vikki V. Dabre	Vikki	43			73		
14	Leena R. Tiple	Tiple	44			74		
15	Mayuri D. kapase	Kapase	45			75		
16	Vaishali. T. Dawase	Dawase	46			76		
17	Minal. K. Dhande	Dhande	47			77		
18	Samiksha D. Tarose	Tarose	48			78		
19	Divya R. Bondre	Bondre	49			79		
20	Aliya Pathan	Pathan	50			80		
21	Vaibhavi S. Kadao	Kadao	51			81		
22	Shreya m. Shedame	Shedame	52			82		
23	Prachi R Telrande	Telrande	53			83		
24	Divya Chapekar	Chapekar	54			84		
25	Dhanavi Somkuwar	Somkuwar	55			85		
26	Saroj Barmase	Barmase	56			86		
27	Bhagyashri Ghorse	Ghorse	57			87		
28	Sharda O. chandile	Chandile	58			88		
29	Darshika W. Sawai	Sawai	59			89		
30	Nikita Chauhan	Chauhan	60			90		

Name & Signature of Teacher: Mr. R.B. Chawase

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Nabira Mahavidyalaya, Katol

Department of Mathematics

Test Examination (2023-24)

B. Sc. Semester-III (Paper-II)

Date: 28/10/2023

Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature
1	Abhay Chopade	A.D.Chopade	31	Divya. Kumbhare	Divya.	61		
2	Chintu Y. Mahare	[illegible]	32	Dhanshri Kalambe	D.G.Kalambe	62		
3	Tushar D. Waghmare	Waghmare	33	Vaibhavi S. Kadawe	[illegible]	63		
4	Pritam D. Ingole	[illegible]	34	Toshika K. Deshmukh	[illegible]	64		
5	Ishant. V. Gihagare	[illegible]	35	Divya S. Chapekar	[illegible]	65		
6	Ayan S. Sheikh	[illegible]	36	Dharavi S. Somkuwar	[illegible]	66		
7	Lokesh G. Sawarkar	[illegible]	37	Khushi H Raut	K. Raut	67		
8	Lakshmikant S. Khandait	L.S.Khandait	38	Prachi R. Tekade	[illegible]	68		
9	Yash R Jurghuel	[illegible]	39	Alfiya A. Pathan	[illegible]	69		
10	Vikas. D Barai	D Barai	40	Bhagyashri O. Ghorse	[illegible]	70		
11	Kunal. G. G	[illegible]	41	Shreya M. Shedame	Shedame	71		
12	Jayant S. M.	Jayant	42	Saroj M. Barmase	[illegible]	72		
13	Sarvesh. G.	[illegible]	43	Rupali R. Gorle	R. Gorle	73		
14	Kushal N.	K.R.Nasar	44	Manisha M. Aage	M.M.Aage	74		
15	Sharwich P.	[illegible]	45	Darshika W. Sawai	[illegible]	75		
16	Nayan S. Yelekar	[illegible]	46	Sharda O. Chandele	[illegible]	76		
17	Mayuri O. Kapase	[illegible]	47	Vidya S. Mutoskhe	[illegible]	77		
18	Leena R. Tiple	[illegible]	48	Anjali N. Gaikwad	[illegible]	78		
19	Minal. K. Dhande	[illegible]	49			79		
20	Sakshi. O. Dhoke	[illegible]	50			80		
21	Samiksha D. Tarase	[illegible]	51			81		
22	Tanushri Dhote	T.D.Dhote	52			82		
23	Divya R. Bondre	[illegible]	53			83		
24	Ruchita Kalbande	R.S.Kalbande	54			84		
25	Anchal Bunait	[illegible]	55			85		
26	Divyani Ninje	[illegible]	56			86		
27	Vaishnavi Pawade	[illegible]	57			87		
28	Chitralekha Ghadge	[illegible]	58			88		
29	Ekta Barmase	[illegible]	59			89		
30	Nikita Chauhan	[illegible]	60			90		

Name & Signature of Teacher: N.T. Katre

Scanned with CamScanner

Nabira Mahavidyalaya, Katol

Department of Mathematics

Test Examination (2023-24)

B. Sc. Semester-V (Paper-I)

Date:

Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature
1	Ku. Aachal R. Chade		31	Mr. Pranay P. Malvi		61		
2	Ku. Anjali P. Sawarkar		32	Mr. Sahil H. Sheikh		62		
3	Ku. Bhagyashri D. Raut		33	Mr. Satish S. Taywade		63		
4	Ku. Dipanjali M. Alone		34	Mr. Sumit K. Thakre		64		
5	Ku. Gayatri D. Dameshar		35	Mr. Vishal S. Tonge		65		
6	Ku. Janvi M. Thakre		36			66		
7	Ku. Hina A. Dhamade		37			67		
8	Ku. Isha B. Kasare		38			68		
9	Ku. Kanchan R. Gurao		39			69		
10	Ku. Karina N. Dhobale		40			70		
11	Ku. Neha H. Sabale		41			71		
12	Ku. Neha S. Kakde		42			72		
13	Ku. Pranjali D. Rewatkar		43			73		
14	Ku. Pragati G. Munne		44			74		
15	Ku. Ruchika R. Bhaisne		45			75		
16	Ku. Ritu E. Yenerkar		46			76		
17	Ku. Riba E. Baig		47			77		
18	Ku. Sonali Pandey		48			78		
19	Ku. Sayama R. Sheikh		49			79		
20	Ku. Sneha S. Dhote		50			80		
21	Ku. Vrunda S. Hajare		51			81		
22	Mr. Aditya D. Ampanwar		52			82		
23	Mr. Anikesh P. Kumeriya		53			83		
24	Mr. Ankush A. Bhange		54			84		
25	Mr. Geet Kumar A. Bhasme		55			85		
26	Mr. Jay P. Kumeriya		56			86		
27	Mr. Manish K. Shende		57			87		
28	Mr. Mohnish G. Dharme		58			88		
29	Mr. Nayan K. Sambhare		59			89		
30	Mr. Pawan V. Junghare	P.Junghare	60			90		

Name & Signature of Teacher: Mr. N. T. Katre

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Nabira Mahavidyalaya, Katol

Department of Mathematics

Test Examination (2023-24)

B. Sc. Semester-V (Paper-II)

Date: 30/10/2023

Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature	Sr. No.	Name of Students	Signature
1	Pawan Junghare	Junghare	31			61		
2	Sumit Thakre	Thakre	32			62		
3	Harshal Deshmukh	Deshmukh	33			63		
4	Aditya. Amparwar		34			64		
5	Pranay Malvi	P.P. Malvi	35			65		
6	G. A. Bhaisme	GAB	36			66		
7	Satish S. Tajnapde	S Tajnapde	37			67		
8	J. P. Kumeriya	Kumeriya	38			68		
9	S. h. Sheikh	S. Sheikh	39			69		
10	A. Ankush. Bhong		40			70		
11	R. E. Yenokar	RY	41			71		
12	Kanchan R. GURAU	K. R. GURAU	42			72		
13	Mayuri Junata	Mayuri	43			73		
14	Sneha Dhote	S. S Dhote	44			74		
15	Sonali Pandey	Pandey	45			75		
16	Aachal Charde	Charde	46			76		
17	Gayatri Damedhar	Damedhar	47			77		
18	Ranjali Rewatkar	Rewatkar	48			78		
19	Janvi Thakre		49			79		
20	Sayama Sheikh	Sheikh	50			80		
21	Isha B. Kasare	I. B. Kasare	51			81		
22	Di Panjali M. Alone	Alone.	52			82		
23	Bhagyashri D. Raut	Raut.	53			83		
24	Neha Kakde	Skakde.	54			84		
25	Pragati Munne	P. Munne	55			85		
26	Manish Shende	M Shende	56			86		
27	Yogesh mahalle	Mahalle	57			87		
28	Anikesh Kumeriya		58			88		
29	Mohnish G. Dhoma	M. G. Dhoma	59			89		
30			60			90		

Name & Signature of Teacher: Mr. N. T. Katre

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Nabira Mahavidyalaya, Katol

Department of Mathematics

Session (2023-24)

B. Sc. Semester -II (Mathematics-I)

Test Examination Attendance

	S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
8/11	1	Sohani R. Borkar	Borkar	38		
6/9	2	prachi S. padoliy	Padoliy	39		
6/9	3	Dayani S. Dawate	S.S. Dawate	40		
8/12	4	Bhagyashri Dhandale	Dhandale	41		
8/11	5	Alpesh S. Dongre	Dongre	42		
9/13	6	Sarang D. Rewatkar	Rewatkar	43		
9/14	7	Bharat R. Rushiya	Rushiya	44		
8/12	8	Hujef R. Sheikh	Sheikh	45		
9/13	9	Shubham H. Meshram	S.H. meshram	46		
8/12	10	Mahendra R. Bhakte	MRBhakte	47		
8/12	11	Gauri P. Bagde	Gaurl	48		
8/12	12	Gunjan H. Shembekar	Gunjan	49		
8/12	13	Sakshi P. Narnaware	Sakshi	50		
7/10	14	Vaishnavi H. Sahare	Sahare	51		
8/12	15	Bhavana R. Werulkar	Bhavana	52		
7/10	16	Akanksha Dhote	Akanksha	53		
8/12	17	Sayali Shrirame	Sshrirame	54		
8/12	18	Gunjan D. Rewatkar	GRewatkar	55		
8/12	19	Rohani A. Rewatkar	Rewatkar	56		
6/9	20	Ruchal D. Salam	Ruchal	57		
6/9	21	Pratiksha P. Dandhre	Pdandhre	58		
8/12	22	Achal A. Banait	ABanait	59		
9/13	23	Divyani D. Sujjuse	Sujjuse	60		
9/13	24	Payal A. chandele	Payal	61		
9/13	25	Payal S. Rewatkar	P.S. Rewatkar	62		
9/13	26	Gauri P. Raut	Raut	63		
7/10	27	Kalyani R. Kadoe	KKadoe	64		
6/9	28	Kalyani A. Rengte	K.A Rengte	65		
9/13	29	Vaishnavi H. Tabhane	[illegible]	66		
8/12	30	Sumit G. Dhenme	SDhenme	67		
9/13	31	Arjun V. pande	[illegible]	68		
8/12	32	Sanskruti S. Gajbe	S.S Gajbe	69		
	33			70		
	34			71		
	35			72		
	36			73		
	37			74		

Name & Signature of Teacher: R. B. Chaware

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Test Examination

B.Sc. Sem-II Maths-II

2ND SEM

Score	Full Name
1 / 10	Achal Anil Banait
4 / 10	Akanksha Dhote
3 / 10	Alpesh Dongre
7 / 10	Arjun pande
5 / 10	Bhagyashri Dilip Dhandale
2 / 10	Bhavana werulkar
6 / 10	Devyani Suresh daware
4 / 10	Dimpal Dongre
5 / 10	Divyani Dhanraj Surjuse
2 / 10	Gauri purushottam bagde
4 / 10	Gunjan Dinesh Rewatkar
9 / 10	Gunjan shembekar
5 / 10	Hira Prabhakar Dewase
4 / 10	Hujef sheikh
7 / 10	Kalyani Arvind Renghe
5 / 10	Mahendra Rajendraji Bhakte
2 / 10	Mayur Rajendra Wadbudhe
3 / 10	Pallavi Khemraj Gathe
3 / 10	Payal Sheshraoji Rewatkar
7 / 10	Prachi sandesh padoliya
2 / 10	Pragati D Rewatkar
5 / 10	Pratiksha purushottam Dandhare
1 / 10	Rani kharpuriya
3 / 10	Rohani Arjun Rewatkar
5 / 10	Ruchal Devendra Salam
1 / 10	Rutuja Ajay raut
4 / 10	Sakshi narnaware
3 / 10	Samiksha Shankar chaple
2 / 10	Sanika Ashish Bidkar
5 / 10	Sarang rewatkar
~~2 / 10~~	~~Sayali Sunil shrirame~~
5 / 10	Sayali Sunil shrirame
~~0 / 10~~	~~Shreya akhare~~
3 / 10	Shreya akhare

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5 / 10	Shubham Harishchandra Meshram
6 / 10	Shubhangi omprakash chandele
8 / 10	Suhani Ravichandra Borkar
6 / 10	Vaishnavi hirachandra Sahare

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Session (2023-24)
B. Sc. Semester -IV (Mathematics-I) Topic: Real No. System
Test Examination Attendance

Date: 26/04/2024

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Divyani R. Nimje	Nimje	32		
2	Samiksha D. Tarase	Tarase	33		
3	Divya. R. Kumbhare	Divya	34		
4	Divya R. Bondre	Bondre	35		
5	Shreya m. Shedame	Shedame	36		
6	Vaishnavi A Pawade	Pawade	37		
7	Tanushri Dhote	T. D. Dhote	38		
8	Manisha M. Aage	M. M. Aage	39		
9	Dharavi S. Somkuwar		40		
10	Prachi R. Tekade	Tekade	41		
11	Divya S. Chapekar	Chapekar	42		
12	Leena R. Tiple	Tiple	43		
13	Chitralekha V. Ghadge	Ghadge	44		
14	Bhagyashri D. Ghorse		45		
15	Anjali N. Waikwad	Anjali	46		
16	Vaishali T. Dewase	Dewase	47		
17	Sarvesh M. Gedhbhiye		48		
18	Abhay D. Chopade	A.D. Chopade	49		
19	Ishant U. Ghagare	Ghagare	50		
20	Ayan S. Sheikh.	Sheikh.	51		
21	Chintu U. Kujur		52		
22	Lukesh G. Sawarkar		53		
23	Kushal R. Nasare	K. R. Nasare	54		
24	Aditya H. Pathade	A. H. Pathade	55		
25	Yash R. Junghare	Junghare	56		
26	Lakshmikant S. Khandait	L. S. Khandait	57		
27	Vikki V. Jobre		58		
28	Om. S. Gupta		59		
29	Mayuri D. Kapase	D. Kapase	60		
30			61		
31			62		

Name & Signature of Teacher: N. T. Katre
26/04/2024

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Nabira Mahavidyalaya, Katol

Department of Mathematics

Session (2023-24)

B. Sc. Semester -IV (Mathematics-II)

Test Examination Attendance

	S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
8/11	1	Kushal R. Nasare	K.R.nasare	38		
6/9	2	Vikas. D. Barai	Barai	39		
7/10	3	Yash. R. Jungharе	Jungharе	40		
8/12	4	Lukesh G. Sawarkar	Lsawarkar	41		
7/10	5	K. A. Gauvande	[illegible]	42		
6/9	6	P. D. Ingole	Ingole	43		
5/07	7	Ishant. U. Ghagare	Ghagare	44		
8/11	8	Rupali R. Gorle	Rgorle	45		
9/13	9	Dharavi S. Somkuwar	[illegible]	46		
6/9	10	Ekta. R. Baromase	Baromase	47		
6/8	11	Tanushri Dhote	T. D. Dhote	48		
6/8	12	Vaishnavi A. Raukde	Vaikude	49		
6/9	13	Anjali N. Gaikwad	Anjali	50		
8/11	14	Divya S. Chapekar	Chapekar	51		
7/10	15	Mayuri D. Kapase	Kapase	52		
5/07	16	Prachi B. Tekade	Tekade	53		
6/8	17	Bhagyashri D. Ghorse	[illegible]	54		
7/10	18	Chitralekha V. Ghodge	Ghodge	55		
5/7	19	Abhay. D. Chopade	A.D.Chopade	56		
5/7	20	Chinmay Y. Kawar	[illegible]	57		
6/08	21	Sharukh Pathan	Pathan	58		
6/9	22	Aditya. H. Pathade	A.H.Pathade	59		
7/10	23	Minal. K. Dhamde	[illegible]	60		
7/10	24	Leena R. Tiple	Tiple	61		
6/8	25	Himanshu Narnaware	[illegible]	62		
6/8	26	Sakshi Dhopre	[illegible]	63		
5/7	27	Shreya Shedame	Shedame	64		
	28			65		
	29			66		
	30			67		
	31			68		
	32			69		
	33			70		
	34			71		
	35			72		
	36			73		
	37			74		

Name & Signature of Teacher: : R. B. Chaware

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Session (2023-24)
B. Sc. Semester -VI (Mathematics-I)
Test Examination Attendance

Topic: Vector spaces
Date: 25/04/2024

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Aditya D. Amparwar		31	Janhavi M. Thakre	
2	Anikesh P. Kumeriya		32	Jay P. Kumeriya	
3	Ankush A. Bhange		33	Kanchan R. Gurao	K. R. Gurao
4	Bhagyshri D. Raut		34	Karina N. Dhobale	
5	Dipanjali M.r Alone		35	Manish K. Shende	
6	Geetkumar Bhasme		36	Mayuri A. Junankar	M. Junankar
7	Harshal A. Deshmukh		37	Mohnish G. Dharme	M.G. Dharme
8	Hina A.Dhannade		38	Nikita M. Dhole	
9	Isha B. Kasare	I. B. Kasare	39	Pranav G. Wanjari	
10	Krutika M. Kale		40	Ravikant A. Jodh	
11	Lucky C. Ikhar		41	Riba M.E. Baig	
12	Nayan K. Sambhare		42	Ritu E. Yenorkar	
13	Neha H. Sable		43	Ruchika R. Bhasme	
14	Neha S.Kakde		44	Sahil H. Sheikh	S. Sheikh
15	Pawan V. Junghare		45	Sakshi S. Kumeriya	
16	Pragati G. Munne		46	SaniyaP.M.A. Sheikh	
17	Paranay P. Malvi		47	Satish S. Taywade	
18	Pranjali D. Rewatkar		48	Sayama R. Sheikh	
19	Pravina P Lokhande		49	Shivan J. Didawat	
20	Rahul R. Wankhede		50	Sneha S. Dhote	
21	Rohit R. Jaiswal		51	Sonali M. Pandey	
22	Sumit K.Thakre		52	Yogesh B. Mahalle	
23	Vishal S. Tonge		53		
24	Vrunda S. Hajare		54		
25	Aachal R. Charde		55		
26	Anjali P. Sawarkar		56		
27	Bhawana R. Bhoyar		57		
28	Chaitali S. Murkute		58		
29	Devanshu L. Maraskolhe		59		
30	Gayatri D. Damedhar		60		

Name & Signature of Teacher: N. T. Katre

25/04/2024

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Session (2023-24)
B. Sc. Semester -VI (Mathematics-II)
Test Examination Attendance

Date: 16/04/2024

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Aditya D. Amparwar		31	Janhavi M. Thakre	
2	Anikesh P. Kumeriya		32	Jay P. Kumeriya	
3	Ankush A. Bhange		33	Kanchan R. Gurao	
4	Bhagyshri D. Raut		34	Karina N. Dhobale	
5	Dipanjali M.r Alone		35	Manish K. Shende	
6	Geetkumar Bhasme		36	Mayuri A. Junankar	
7	Harshal A. Deshmukh		37	Mohnish G. Dharme	
8	Hina A.Dhannade		38	Nikita M. Dhole	
9	Isha B. Kasare		39	Pranav G. Wanjari	
10	Krutika M. Kale		40	Ravikant A. Jodh	
11	Lucky C. Ikhar		41	Riba M.E. Baig	
12	Nayan K. Sambhare		42	Ritu E. Yenorkar	
13	Neha H. Sable		43	Ruchika R. Bhasme	
14	Neha S.Kakde		44	Sahil H. Sheikh	
15	Pawan V. Junghare		45	Sakshi S. Kumeriya	
16	Pragati G. Munne		46	SaniyaP.M.A. Sheikh	
17	Paranay P. Malvi		47	Satish S. Taywade	
18	Pranjali D. Rewatkar		48	Sayama R. Sheikh	
19	Pravina P Lokhande		49	Shivan J. Didawat	
20	Rahul R. Wankhede		50	Sneha S. Dhote	
21	Rohit R. Jaiswal		51	Sonali M. Pandey	
22	Sumit K.Thakre		52	Yogesh B. Mahalle	
23	Vishal S. Tonge		53		
24	Vrunda S. Hajare		54		
25	Aachal R. Charde		55		
26	Anjali P. Sawarkar		56		
27	Bhawana R. Bhoyar		57		
28	Chaitali S. Murkute		58		
29	Devanshu L. Maraskolhe		59		
30	Gayatri D. Damedhar		60		

Name & Signature of Teacher:

(N. T. Kathe)

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NABIRA MAHAVIDYALAYA, KATOL

Dept. of Mathematics

Test Examination : 2023–24

B.Sc. Sem–1 / Maths–1 / Unit–1

Date: 28/10/2023

M. M. : 10

Attempt Any Three:

① State and Prove De Moivre's theorem for any integer n. (4M)

② Prove that:

$$(a+ib)^{m/n} + (a-ib)^{m/n} = 2(a^2+b^2)^{m/2n} \cos\left(\frac{m}{n}\tan^{-1}\frac{b}{a}\right)$$

(3M)

③ Prove that:

$$\left[\frac{1+\sin\theta + i\cos\theta}{1+\sin\theta - i\cos\theta}\right]^n = \cos\left(\frac{n\pi}{2} - n\theta\right) + i\sin\left(\frac{n\pi}{2} - n\theta\right)$$

(3M)

④ Solve the equation $z^5 + 32 = 0$. (3M)

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NABIRA MAHAVIDYALAYA, KATOL

Dept. of Mathematics

Test Examination: 2023-24

B.Sc. Sem-3 / Maths-2 / Unit-1

Date:- 28/10/2023

(1) Define the following:

(i) group (ii) cyclic group

(iii) Order of an element of a group.

(3M)

(2) If $S = \{0, 2, 4\}$, then show that $(S, +_6)$ is a subgroup of the group $(I_6, +_6)$.

(3M)

(3) If G is a group, then prove that

(i) $(a^{-1})^{-1} = a$, $\forall a \in G$

(ii) $(ab)^{-1} = b^{-1}a^{-1}$, $\forall a, b \in G$.

(4M)

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Department of Mathematics

Test Examination: 2023-24

B.Sc. Sem-5 / Maths-1 / Unit-1

M.M. 10

Q.1: Attempt Any Two (8 M)

(A) Show that the function $f(z)$ is constant if it is analytic with constant modulus.

(B) Show that $f(z) = \bar{z}$ is continuous at $z = z_0$ but not analytic at $z = z_0$.

(C) If $f(z) = u + iv$ is analytic function of z, then prove that $\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right)|f(z)|^2 = 4|f'(z)|^2$.

Q.2: Attempt Any One (2M)

(a) Find the derivative of $f(z) = z^3$ by using first principle.

(b) For what values of z, the function $w = z^{1/3}$ ceases to be analytic?

—x—

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Department of Mathematics

Test Examination : 2023 – 24

B. Sc. Sem – 5 / Math – 2 / Unit – 3

Date: 30/10/2023

Max. Marks : 10

Attempt Any Two :

① If $a \leq b$ ~~& $a \leq a$~~ then prove that $a * b = a$ and Conversely. (3M)

② If $b \leq c$ then prove that $a * b \leq a * c$ and $a \oplus b \leq a \oplus c$ (4M)

③ Prove that $(a * b)' = a' \oplus b'$ (3M)

—x—x—

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

Test Examination: 2023-24

B.Sc. Sem-II / Maths-2 / Unit-1

Max. Marks: 10

Date: 27/04/2024

Attempt Any Two:

(1) A particle moves along the curve $x = a\cos t$, $y = a\sin t$, $z = at\tan\alpha$. Determine the velocity and accelⁿ at any time t and their magnitude at $t=0$.

(2) Find the direnal derivative of $xy^2 + yz^3$ at the point $(2,-1,1)$ along the tangent to the curve $x = at\sin t$, $y = a\cos t$, $z = at$ at $t = \pi/4$.

(3) (i) If $\bar{r} = x\hat{i} + y\hat{j} + z\hat{k}$ and $r = |\bar{r}|$, find $\operatorname{div}(\bar{r}/r^2)$.

(ii) Determine whether the vector $\bar{V} = yz\hat{i} + xz\hat{j} + xy\hat{k}$ is irrotational?

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

Test Examination: 2023-24

B.Sc. Sem-IV / Maths-1 / Unit-1

Max. Marks: 10

Date: 27/04/2024

Que 1: Attempty Any Two (6 marks)

(A) Prove that $\sup(X+Y) = \sup X + \sup Y$, if X, Y are non-empty bdd subsets of R.

(B) State and Prove the Archimedean Property.

(C) Prove that the union of an arb. Collection of open sets is open.

Que 2: Attempty Any Two (4 marks)

(a) Define interior point and limit point of a set, open set and closed set.

(b) For any set X, prove that $X^{oo} = X^{o}$.

(c) Prove that $|x| = 0$ iff $x = 0$. Hence prove $|x-y| = 0$ iff $x = y$ for $x, y \in R$.

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DATE.: / /

B.Sc. Sem-6 : 2023-24

Unit Test

Maths-2 (Sp. Th. of Relativity) : Unit-1

(1) (A) Prove that $\nabla^2 - \frac{1}{c^2}\frac{\partial^2}{\partial t^2}$ is invariant under special Lorentz transformation. (5M)

OR

(1) (B) Derive general and simple Galilean transformations considering two inertial frames S & S'. Also obtain their inverse transformations. (5M)

(2) Solve any Two (5M)

(a) State the fundamental postulates of special relativity.

(b) Show that the circle $x'^2 + y'^2 = a^2$ in S' is measured to be an ellipse in S if S' moves with uniform velocity relative to S.

(c) ~~Discuss~~ Show that $(ds)^2 = (dx)^2 + (dy)^2 + (dz)^2 - (cdt)^2$ is Lorentz invariant.

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Test Examination

Dept. of Mathematics

B.Sc. Sem-VI: Maths-1/Unit-1

Time: 45 minutes M.M.: 10

(1) Attempt Any two: (8 marks)

(A) If S is a nonempty subset of a vector space V, then prove that $L(S)$ is a subspace of V.

(B) Let U & W are subspaces of a vector space V. Prove that $U \cup W$ is a subspace of V if $U \subset W$ or $W \subset U$.

(C) In a vector space V over a field F, prove that

(i) $\alpha \cdot 0 = 0 \quad \forall \alpha \in F,\ 0 \in V$

(ii) $0 \cdot u = 0, \ \forall u \in V$

(2) Attempt Any two: (2 marks)

(a) Define vector space and subspace.

(b) Define L.I. vectors and linear span of a set.

~~(c) If a nonempty subset S of a vector spa~~

(c) If S is a subspace of a v.sp. V, then prove that $u+v, \alpha u \in S \quad \forall u, v \in S$ & $\alpha \in F$.

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

M.Sc Sem-II (2023-24) N.E.P

Unit Test-2 Attendance record.

09/05/24

S.N	Name of Students	P-1 RA	P-2 ANM	P-3 DG	P-4 OR
1	Bhagyashri Raut	Braut	Braut	Braut	Braut
2	Latika Bhange	Bhange	Bhange	Bhange	Bhange
3	Urmila Choudhari	Choudhary	Choudhary	Choudhary	Choudhary
4	Divya Musale	Musale	Musale	Musale	Musale

HOD, Maths

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

M.Sc Sem-II(2023-24)

Unit Test-1 Attendance record.

S.N	Name of Students	P-1 RA	P-2 ANM	P-3 DG	P-4 OR
1	Bhagyashri Raut	Braut.	Braut.	Braut.	Braut
2	Latika Bhange	Bhange.	Bhange.	Bhange.	Bhange.
3	Urmila Choudhari	Choudhary	Choudhary	Choudhary	Choudhary
4	Divya D Musale	Musale	Musale	Musale	Musale.

Co-ordinator, Maths

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Nabira Mahavidyalaya Katol

Department of Mathematics

M.Sc Sem-IV (2023-24)

Unit Test-3, Attendance Record

S.N	Name of Students	P-1 DS	P-2 P.D.E	P-3 A.N.M	P-4 COSMO	P-5 OR-II
1	Chaitali Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar
2	Himani Gawande	Gawande	Gawande	Gawande	Gawande	Gawande
3	Kishor Dhok	Dhok	Dhok	Dhok	Dhok	Dhok
4	Nilesh Ukey	Ukey	Ukey	Ukey	Ukey	Ukey

co-ordinator, dept of Maths

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

M.Sc Sem-IV (2023-24)

Unit Test-2 Attendance record

S.N	Name of Students	P-1 DS	P-2 P.D.E	P-3 ANM	P-4 COSMO	P-5 OR-II
1	Chaitali Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar
2	Himani Gawande	Gawande	Gawande	Gawande	Gawande	Gawande
3	Nilesh Ukey	Ukey	Ukey	Ukey	Ukey	Ukey
4	Kishor Dhok		Dhok	Dhok	Dhok	Dhok

co-ordinator, dept of Maths

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

M.Sc Sem-IV (2023-24)

Unit Test-1 Attendance record

S.N	Name of Students	P-1 DS	P-2 P.D.E	P-3 ANM	P-4 COSMO	P-5 OR-II
1	Chaitali Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar
2	Himani Gawande	Gawande	Gawande	Gawande	Gawande	Gawande
3	Nilesh Ukey	Ukey	Ukey	Ukey	Ukey	Ukey
4	Kishor Dhok	Dhok	Dhok		Dhok	

Co-ordinator,
dept of Maths

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Nabira Mahavidyalaya Katol

Department of Mathematics

M.Sc Sem-I (2023-24) N.E.P

Unit Test-II Attendance Record

S. N	Name of Students	P-1 ALG	P-2 TOP	P-3 ODE	P-4 IE	P-5 RM
1	Bhagyashri Raut	Raut	Raut	Raut	Raut	Raut
2	Latika Bhange	Bhange	Bhange	Bhange	Bhange	Bhange
3	Urmila Choudhari	Choudhary	Choudhary	Choudhary	Choudhary	Choudhary
4	Divya Musale	Musale	Musale	Musale	Musale	Musale

Co-ordinator,
dept of Maths

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Nabira Mahavidyalaya Katol

Department of Mathematics

M.Sc Sem-I (2023-24) N.E.P

Unit Test-I Attendance Record

S.N	Name of Students	P-1 ALG	P-2 TOP	P-3 ODE	P-4 IE	P-5 RM
1	Bhagyashri Raut	Braut	Braut	Braut	Braut	Braut
2	Latika Bhange	L.V.Bhange	L.V.Bhange	L.V.Bhange	L.V.Bhange	L.V.Bhange
3	Urmila Choudhari	Uchaudhary	Uchaudhary	Uchaudhary	Uchaudhary	Uchaudhary
4	Divya Musale	Dmusale	Dmusale	Dmusale	Dmusale	Dmusale

co-ordinator,
dept of Maths.

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

M.Sc Sem-III (2023-24)

Unit Test-III Attendance record

S.N	Name of Students	P-1 CA	P-2 FA	P-3 MM	P-4 GR	P-5 OR-I
1	Chaitali Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar
2	Himani Gawande	Gawande	Gawande	Gawande	Gawande	Gawande
3	Nilesh Ukey	Ukey	Ukey	Ukey	Ukey	Ukey
4	Kishor Dhok	Dhok				

co-ordinator.
dept of Maths.

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NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

M.Sc Sem-III (2023-24)

Unit Test-1 Attendance record

S.N	Name of Students	P-1 CA	P-2 FA	P-3 MM	P-4 GR	P-5 OR-I
1	Chaitali Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar
2	Himani Gawande	Gawande	Gawande	Gawande	Gawande	Gawande
3	Nilesh Ukey	Ukey	Ukey	Ukey	Ukey	Ukey
4	Kishor Dhok		Dhok	Dhok	Dhok	Dhok

co-ordinator, Maths

NABIRA MAHAVIDYALAYA, KATOL

Department of Mathematics

M.Sc Sem-III (2023-24)

Unit Test-2 Attendance record

S.N	Name of Students	P-1 CA	P-2 FA	P-3 MM	P-4 GR	P-5 OR-I
1	Chaitali Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar	Sawarkar
2	Himani Gawande	Gawande	Gawande	Gawande	Gawande	Gawande
3	Nilesh Ukey	Ukey	Ukey	Ukey	Ukey	Ukey
4	Kishor Dhok	Dhok	Dhok	Dhok	Dhok	Dhok

co-ordinator, Maths

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Nabiea Mahavidyalaya Katol.
Department of Mathematics
M.Sc Sem-4 (P.D.E)
paper-2 (2023-24).
Unit test - III

Duration: 1 Hr Max marks: 25

Q.1 (Solve any two questions)

A) Solve $u_t = u_{xx}$, $-\infty < x < \infty$, $t > 0$
$u(x,0) = f(x)$, $-\infty < x < \infty$
where $f(x) = \begin{cases} 0, & x < 0 \\ a, & x > 0 \end{cases}$

B) Solve $u_t = u_{xx}$, $0 < x < l$, $t > 0$
$u(0,t) = u(l,t) = 0$
$u(x,0) = x(l-x)$, $0 \le x \le l$

C) Solve the Boundary Value problem
$\frac{\partial u}{\partial x} = 4\left(\frac{\partial u}{\partial y}\right)$ if $u(0,y) = 8e^{-3y}$

Q.2) Compulsory

A) Solve by method of Separation of Variables
$\frac{\partial^2 z}{\partial x^2} - 2\frac{\partial z}{\partial x} + \frac{\partial z}{\partial y} = 0$.

Nabira Mahavidyalaya Katol.
Department of Mathematics
M.Sc sem - 4 (2023-24)
Paper - 3 (Cosmology).
Unit test - I^{st}

Duration: 1Hr Max marks : 25.

Q.1 (solve any two questions)

A) obtained the Einstein model of Universe

B) P.T the Einstein model is an isotropic form

$$ds^2 = \frac{-1}{\left(1+\frac{\rho^2}{4R^2}\right)^2}\left[d\rho^2 + \rho^2 d\theta^2 + \rho^2 \sin^2\theta \, d\phi^2\right] + dt^2$$

C) obtain the motion of the test particle in Desitter Universe.

Q.2) Solve the any one question.

A) Consider the transformation $r = R\sin\psi$.

B) Discuss in Brief the pressure and density in Einstein Universe.

Nabiea Mahavidyalaya Kaital
Department of Mathematics N.E.P.
M.Sc Sem - 2 (Differential Geometry).
paper - 3 (2023 - 24)
Unit test - II nd

Duration : 1 Hr Max marks : 25.

Q.1 (Solve Any two questions).

A) The canonical geodesic equation can be written as
$$E u'' + F v'' + \frac{1}{2} E_1 u'^2 + E_2 u' v' + (F_2 - \tfrac{1}{2} G_1) v'^2 = 0$$

B) P.T the geodesic equation on a Right circular cone $x = u \cos v$, $y = u \sin v$, and $z = u \cot \alpha$. are given by
$u = h \sec(v \sin\alpha + \beta)$.

c) show that the geodesic on Anchor Ring.
$x = (b + a\cos u)\cos v$, $y = (b + a\cos u)\sin v$,
$z = a \sin u$, $0 \le u, v \le 2\pi$
are given by $dv = \dfrac{c\, a\, dr}{r\sqrt{a^2 (r-b)^2}\sqrt{r^2 - c^2}}$
where $r = b + a\cos u$ & c is constant.

Q 2) (Solve any one question).
A) In the geodesic polar form prove that the Gaussian Curvature $K = -\dfrac{g_{11}}{g}$
where $g = \sqrt{G}$

B) Define christoffel symbol of I st and II nd kind

Nabira Mahavidyalaya Katol
Department of Mathematics
M.Sc Sem-I (2023-24)
Paper - Integral equation

Duration: 1Hr Unit test - I Max marks: 12

Q.1) Solve Any two questions.

A) Form an Integral equation corresponding to differential equation.

$$y'' + 2xy' + y = 0 \quad \text{with } y(0) = 1 \ \& \ y'(0) = 0$$

B) Find the Resolvent kernel

$$K(x,y) = e^{k(x-y)} \quad \text{for } a=0 \ \& \ b=1$$

and $R(x,y;\lambda) = -\sum_{n=1}^{\infty} \lambda^{n-1} K_n(x,y)$

C) Form an Integral equation corresponding to the differential equation.

$$\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = 0$$

with initial condition, $y(0) = 0$ & $y'(0) = -1$

Q.2) Solve any one question.

A) Show that the function $y(x) = e^x(2x - 2/3)$ is a solution of Fredholm Integral equation

$$y(x) + 2\int_0^1 e^{x-t}\, y(t)\, dt = 2x e^x.$$

B) define Iterated Kernel & Hermitian Kernel.

Nabira Mahavidyalaya Katol
Department of Mathematics
M.Sc Sem - III (2023-24)
Paper - Mathematical Methods
Unit test - I

Time: 1 Hr Max marks: 12

Q.1 Solve any two questions.

A) Show that $F_s\left[\frac{e^{at}}{t}; \xi\right] = \sqrt{\frac{2}{\pi}} \tan^{-1}\left(\frac{\xi}{a}\right)$

B) If $F(\xi) = F_c\left[e^{-t^2/2}; \xi\right]$ then show that $\frac{dF}{d\xi} = -\xi F$, $F(0) = 1$ and Hence deduced that $F(\xi) = e^{-\xi^2/2}$

C) The fourier transform of convolution of f and g is the product of fourier transform of $F(\xi)$ and $G(\xi)$.
$F[f.g; \xi] = F(\xi).G(\xi)$.

Q.2) Solve any one question.

A) Find the finite sine transform of $f(x)$, if $f(x) = x(a-x)$

B) P.T $F_s^{-1}[n^{-1}; x] = \frac{\pi}{a}(1 - x/a)$.

Nabira Mahavidyalaya Katol
Department of Mathematics
M.Sc. - Sem-4 (2023 - 24)
Paper - 1 D.S.
Unit Test - 2nd

Duration :- 1 Hr. Maximum Marks 25

Q.1] Solve any two question of the followings

A] Let S be a local section at 0 and suppose $\phi_{t_0}(z_0) = 0$, then show that given a nbd of t_0, there is an open set $U \subset W$ containing z_0 and unique c^1 map $\tau : U \to R$ such that $\tau(z_0) = t_0$ and $\phi_{\tau(x)}(x) \in S$, $\forall\ x \in U$.

B] Let $y \in [L_\omega(x) \cup L_\alpha(x)]$. Then show that the trajectory of y crosses any local section atmost more than one point.

C] State and prove Poincare Bendixon Theorem.

Q.2] Solve any one of the following.

A] Prove that every trajectory of Voltera Lotka equation is closed orbit except the equilibrium and coordinate axes.

B] Define a monotone sequence along a trajectory.

Nabira Mahavidyalaya katol
Department of Mathematics
M.SC- sem-4 (2023-24)
Paper-1 D.S

Duration: 1 Hr. unit test-3rd max. marks 25

Q1] solve any two question of the followings.

A] - state and prove Liapunov's stability theorem.

B] Discuss the behaviour of the equilibrium point of the non-linear system $x' = f(x)$, $\begin{bmatrix} x_1 - x_1x_2 \\ x_2 - x_1^2 \end{bmatrix}$

C] Discuss the motion of a pendulum moving in a vertical plane as an example of a non-linear sink.

Q2] solve any one question of the followings.

A] Define the following terms.
i] Stable equilibrium
ii] Asymptotically stabe equilibrium
iii] Unstable equilibrium.

B] show that the α-limit set and ω-limit set of any trajectory are closed invarient.

Nabira Mahavidyalaya Katol
Department of Mathematics
M.Sc. sem-2 (2023-24)
Unit test-2 (F.A)

Duration: 1 Hrs. max. marks - 25

Q1] solve any two questions of the following

A] suppose f maps a convex set $E \subset R^n$ into R^m, f is differentiable in E and there is a real no. M such that $\|f'(x)\| \leq M$ for every $x \in E$
Then prove that $|f(b) - f(a)| \leq M|b-a|$ $\forall$ $a, b \in E$

B] if X is a complete metric space if ϕ is contraction of X into X then $\exists$ one and only one $x \in X$ such that $\phi(x) = x$

C] let Ω be the set of all invertible operators on R^n
i) if $A \in \Omega$, $B \in L(R^n)$ and if $\|B - A\| . \|A^{-1}\| < 1$ then $B \in \Omega$

Q2] solve any one questions of the following

A] Prove that a linear operators A on a finite dimensional vector space X is one to one if range of A is all of X.

B) let E be an open subset in R^n and f maps from E into R^m and $x \in E$ also

$$\lim_{h \to 0} \frac{|f(x+h) - f(x) - A(h)|}{|h|} = 0$$

with $A = A_1$ & $A = A_2$ then $A_1 = A_2$

Nabira Mahavidyalaya Katol
Department of Mathematics
M.Sc. Sem-III 2023-24
Paper-2 Functional Analysis

Time. 1 hrs. Unit test-II max. marks. 25

Q1 Solve any two questions.

a) If Y is a Banach space then $B(X,Y)$ is a Banach space.

b) The dual space X' of a normed space X is always a Banach space whether or not X

c) let X be an inner product space and let Y be non-empty complete subspace of X then for any $x \in X$ $\exists$ an element $z = (x-y)$ $y \in Y$ which is orthogonal to Y.

Q.2 Solve any one

a) let (f_1, f_2, f_3) be a dual basis of a basis (e_1, e_2, e_3) of R^3 where $e_1 = (1,1,1)$ $e_2 = (1,1,-1)$ $e_3 = (1,-1,-1)$ find $f_1(x)$ $f_2(x)$, $f_3(x)$ at a point $x = (1,0,0) \in R^3$

b) In l^p-space, $p \neq 2$ is not an inner product space.

Nabira Mahavidyalaya, Kadol.
Subject - Algebra-I
Unit Test 1 (2023-24) max.mark-25
Time : 1 hrs. M.SC- Sem-I (maths)
Name of student :

Q.1 solve any two of the followings.

a) state and prove Gauss lemma.

b) define PID, The principle ideal generated by any two element of an integral domain are equal iff these element are associates.

c) Every PID is a UFD but a UFD is not neccessary a PID.

Q.2 solve any one of the followings.

a) An irreducible element of a Commutative principle ideal domain ~~ed~~ is always prime.

b) Every field is an integral domain and also A finite integral domain is a field.

c) an integral domain with unity every element is irreducible.

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -II (2023- 24)N.E.P

Unit Test-III (Online)

Sr no	DATE	TIME	SUBJECT
1	19/05/2024	11:00-12:00 pm	Real Analysis
2	20/05/2024	11:00-12:00 pm	A.N.M
3	21/05/2024	11:00-12:00 pm	Differential Geometry
4	22/05/2024	11:00-12:00 pm	Operations Research

HOD, Maths

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -II (2023- 24)N.E.P

Unit Test-II

Sr no	DATE	TIME	SUBJECT
1	09/05/2024	11:00-12:00 pm	Differential Geometry
2	13/05/2024	11:00-12:00 pm	A.N.M
3	11/05/2024	11:00-12:00 pm	Real Analysis
4	15/05/2024	11:00-12:00 pm	Operations Research

HOD, Maths

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Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -IV (2023- 24)

Unit Test-II

Sr no	DATE	TIME	SUBJECT
1	02/04/2024	11:30-12:30 pm	Dynamical system
2	03/04/2024	11:30-12:30 pm	P.D.E.
3	04/04/2024	11:30-12:30 pm	A.N.M
4	05/04/2024	11:30-12:30 pm	Cosmology
5	06/04/2024	11:30-12:30 pm	Operational Research -II

HOD, Maths

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -IV (2023- 24)

Unit Test-III

Sr no	DATE	TIME	SUBJECT
1	18/04/2024	11:00-12:00 pm	Operational Research -II
2	20/04/2024	11:00-12:00 pm	P.D.E.
3	22/04/2024	11:00-12:00 pm	A.N.M
4	24/04/2024	11:00-12:00 pm	Cosmology
5	27/04/2024	11:00-12:00 pm	Dynamical System

HOD Maths

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Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -IV (2023- 24)

Unit Test-I

Sr no	DATE	TIME	SUBJECT
1	23/03/2024	12:00-1:00 pm	Dynamical system
2	26/03/2024	12:00-1:00 pm	P.D.E.
3	27/03/2024	12:00-1:00 pm	A.N.M
4	28/03/2024	12:00-1:00 pm	Cosmology
5	30/03/2024	12:00-1:00 pm	Operational Research -II

HOD, Maths

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -II (2023- 24)

Unit Test-I

Sr no	DATE	TIME	SUBJECT
1	01/04/2024	11:30-12:30 pm	Real Analysis
2	02/04/2024	11:30-12:30 pm	A.N.M
3	03/04/2024	11:30-12:30 pm	Differential Geometry
4	04/04/2024	11:30-12:30 pm	Operations Research

HOD, Maths

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Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM - III (2023 - 24)Unit Test-III

Sr no	DATE	TIME	SUBJECT
1	27/10/2023	11:00-12:00 pm	Operation Research-I
2	28/10/2022	11:00-12:00 pm	Complex analysis
3	30/10/2022	11:00-12:00 pm	Functional analysis
4	31/10/2022	10:00-11:00 am	Mathematical methods
5	01/11/2022	10:00-11:00 am	General relativity

HOD, Maths

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -I (2023- 24)

Unit Test-III

Sr no	DATE	TIME	SUBJECT
1	07/11/2023	12:00-1:00 pm	Algebra
2	08/11/2023	12:00-1:00 pm	ODE
3	09/11/2023	12:00-1:00 pm	Topology
4	10/11/2023	12:00-1:00 pm	Integral Equation

HOD, Maths

Scanned with CamScanner

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -III (2023- 24)

Unit Test-II

Sr no	DATE	TIME	SUBJECT
1	25/09/2023	12:00-1:00 pm	Complex Analysis
2	26/09/2023	12:00-1:00 pm	Functional Analysis
3	27/09/2023	12:00-1:00 pm	Advanced Mathematical Method
4	29/09/2023	12:00-1:00 pm	General Relativity

HOD, Maths

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -I (2023- 24)

Unit Test-II

Sr no	DATE	TIME	SUBJECT
1	16/10/2023	11:00-12:00 am	Algebra
2	17/10/2023	11:00-12:00 am	ODE
3	18/10/2023	11:00-12:00 am	Topology
4	19/10/2023	11:00-12:00 am	Integral Equation

HOD, Maths

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Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -III (2023- 24)

Unit Test-I

Sr no	DATE	TIME	SUBJECT
1	23/08/2023	12:00-1:00 pm	Complex Analysis
2	24/08/2023	12:00-1:00 pm	Functional Analysis
3	25/08/2023	12:00-1:00 pm	Advanced Mathematical Method
4	26/08/2023	12:00-1:00 pm	General Relativity

HOD, Maths

Time Table

Nabira Mahavidyalaya Katol

DEPARTMENT OF MATHEMATICS

M.Sc. SEM -I (2023- 24)

Unit Test-I

Sr no	DATE	TIME	SUBJECT
1	05/09/2023	12:00-1:00 pm	Algebra
2	06/09/2023	12:00-1:00 pm	ODE
3	07/09/2023	12:00-1:00 pm	Topology
4	08/09/2023	12:00-1:00 pm	Integral Equation

HOD, Maths

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -I (paper-I; M-1):Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Ku. Payal Chandele		41	Bhavna R. Wasulkar	
2	Shubhangi chandele		42	Pratiksha P. Dondkase	
3	Tejaswini Khapaniye		43	Arjun U. Pande	
4	Divyani Surjuse		44	Prapti Talekar	
5	Ku. Vaishnavi H. Tabhane		45	Yishika D. Raut	
6	Ku. Sanika A. Bidkar		46	Akanksha G. Dhote	
7	Ku. Shreya S. Akhare		47	Pallavi K. Gathe	
8	Ku. Roshani A. Rewatkar		48	Sameera S. Sayam	
9	Ku. Gunjan D. Rewatkar		49	Suhani R. Borkar	
10	Ku. Varsha N. Dongare		50	Kalyani R. Kadwe	
11	Ku. Dimpal W. Dongre		51	Mayur R. Wadbudhe	
12	Ku. Gauri P. Bagde		52	Bhagyashri D. Dhandale	
13	Ku. Roshani D. Vikey		53	Prachi Padoliya	
14	Ku. Vaishnavi H. Sahare		54	Hira P. Dewase	
15	Ku. Sakshi P. Nasnawase		55	Pallavi M. Bannagare	
16	Ku. Samiksha S. Chaple		56		
17	Ku. Krutika R. Junghare		57		
18	Ku. Sakshi H. Chichamalkar		58		
19	Mr. Hujef R. Sheikh		59		
20	Mr. Sumit G. Dharme		60		
21	Mr. Sarang D. Kohale		61		
22	Mr. Bharat Rushiya		62		
23	Ku. Bhagyashri V. Chaure		63		
24	Ku. Suhani G. Khadankar		64		
25	Peyal S. Rewatkar		65		
26	Achal A. Banait		66		
27	Pragati D. Rewatkar		67		
28	Reshal Salam		68		
29	Harshada Badeut		69		
30	Aapesh Dongre		70		
31	Darjani Daibare		71		
32	Srushti Nimbulkar		72		
33	Gauri Raut		73		
34	Sanskruti Gajbe		74		
35	Bhavika C. Bagwe		75		
36	Mahendra R. Bhakte		76		
37	Shubham H. Meshram		77		
38	Kajal R. Katare		78		
39	Gunjan M. Shembekar		79		
40	Rani I. Kharpuriya		80		

Name & Signature of Teacher : Mr. N.T. Kathe

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester-I (Paper-II): Assignment-I

S.N.	Name of Students	Signature	Name of Students	Signature
1	Kartika R. Junghare	K.R. Junghare	43. Dameesha S. Sayam	Sayam.
2	Sakshi H. chichmalkar	Schichmalkar	44. Devyani S. Dawre	D.S. Dawre
3	Bhagyashree V. Channe	Bvchanne	45. Gauri P. Raut	Raut
4	S. H. Meshram	S. H. Meshram	46. Achal Kamde	A.S. Kamde
5	M. R. Bhakte	MRBhakte	47. Varsh Dongare	V.N. Dongare
6	M.R. Waddhdhe	M.R. waddhdhe	48. Yishika D. Raut	Raut
7	D.R. Gawande	D.R. Gawande	49. Payal S. R	P.S. Rewatkar
8	S.A. Bidkar	SABidkar	50. Bhavika C. Bajre	Bajre
9	S. D. Rewatkar	Srewatkar	51. Dimpal W. Bergre	Bergre
10	A.R. Pande	Arjun	52. Gunjan M. Shembekar	Gshembekar
11	Divyani D. Surjuse	Surjuse.	53. Kalyani Kadwe	Kkadwe
12	Payal A. chandele	Payal	54. Prapti Talekar	Ptalekar
13	Tejaswini R. Khapparige	TR		
14	Achal A. Banait	A.Banait		
15	Pallavi K. Gathe	Pathe		
16	Rutuja A. Raut	ARaut		
17	Hira P. Dewase	Hdewase		
18	Suhani R. Borkar	Borkar		
19	Sanskruti Gajbe	S.S. Gajbe		
20	Shubhangi Chandele	Schandele		
21	Srushti Nimburkar	Srushti		
22	Prachi. Padoliya	Ppadoliya		
23	Akanksha Dhole	[illegible]		
24	Rohani Rewatkar	RRewatkar		
25	Gunjan Rewatkar	GRwdk		
26	Gauri Purushottom Bayde			
27	Sayali Shriirame	Sshriirame		
28	Vaishnavi Sahare	Sahare		
29	Samiksha S. Chaple	Schaple		
30	Suhani G. Khodankar	Skhodankar		
31	Alpesh S. Dongre	Dongre		
32	Bhairavi V. Marbate	Marbate		
33	Kajal R. Kataree	Kataree		
34	Bhagyashri D. Dhondale	Bdhondale		
35	Shreya S. Akhare	SAkhare		
36	Vaishnavi Tabhare	[illegible]		
37	Sakshi P. Narnaware	Sakshi P. Narnware		
38	Rani Kharpuriya	RK		
39	Ankita A. Kadu	AKadu		
40	Devina R. Khause	DRKhause		
41	Pragati D. Rewatkar	Drewatkar		
~~42~~	~~Gunjan~~			
42.	Bhavana. Werulkar	Bhewng		

Name & Signature of Teacher } Mr. R.B. Chawase

Nabi ... havidyalaya, Katol
Dep ... nt of Mathematics
Assign ... ubmission attendance
... ion (2023-24)
B.Sc Semeste ... III paper-I; M-5): Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Chitralekha V. Chadge	Chadge	41	Anjali N. Waikwad	Anjali
2	Vikas . D. Barai	Barai	42	Ruchita S Kabande	R.S. Kabande
3	Lukesh G. Sawarkar	Lsawarkar	43	Prachi R Tekade	Prekade
4	Vidya S. Marasakolhe	Vidya	44	Sakshi Dhope	Dhope
5	Sharda O. chandele	Chandele	45	Bhagyashri Chavase	[illegible]
6	Kunal G. Crawande	[illegible]	46	Leena R. Tiple	Tiple
7	Sooraj M. Baramase	Baramase	47	Vaishnavi A Tawade	Atawade
8	Ekta R. Baramase	Baramase	48	Om S. Gupta	Oms
9	Mayuri D. Kapase	Kapase	49	Divyani R. Ninje	Rninje
10	Aliya A. Pathan	Pathan	50	Laxmikant S. Khandait	L.S. Khandait
11	Sneha P. Bandhare	S.P. Bandhare	51	Dhanashri G. Kalambe	
12	Manisha M. Aage	M.M. Aage	52	Toshika K. Deshmukh	
13	Divya R. Bandre	Rbandre	53	Aditya H. Pathade	A.H. Pathade
14	Vikki V. Doble	[illegible]	54		
15	Divya S. Chapekar	Chapekar	55		
16	Vaishali T. Deoase	Deoase	56		
17	Shreya M. Shedame	Shedame	57		
18	Sharukh pathan	Spathan	58		
19	Ayan S. Sheikh	Asheikh	59		
20	Darshika W. Saoji	Dsaoji	60		
21	Dhanavi S. Somkuwar	[illegible]	61		
22	Vaibhavi V. Kadawe	Vkadawe	62		
23	Rupali R. Gorde	R. Gorde	63		
24	Pritam D. Ingole	Pingole	64		
25	Yash R. Junghare	Ryughare	65		
26	Kushal R. Nasane	K.R. Nasane	66		
27	Nayan S Yelekar	Yelekar	67		
28	Samiksha D. Tarase	[illegible]	68		
29	Tanushri Dhote	T.D. Dhote	69		
30	Nikita N Chauhan	Chauhan	70		
31	Ishant U. Ghagare	Ighagare	71		
32	Ashay D. Chopade	A.D. Chopade	72		
33	Vinay G. Bagde	Vinay Bagde	73		
34	Auchal S. Bunait	ABunait	74		
35	Kirti Panchbhai	Kirti	75		
36	Divya Kumbhare	divya	76		
37	Sarvesh N. Gajbhiye	Sarvesh	77		
38	Minal K. Dhamde	Mdhamde	78		
39	Tushar D. Waghmare	Dwaghmare	79		
40	Chinty Y. Hajare	Yhajare	80		

Name & Signature of Teacher : Mr. R.B. Chavase Rbchavase

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -III (paper-II; M-6):Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Kunal. G. Gawandi		41	Ku. Ruchita Kalbande	R.S.Kalbande
2	Lukesh G. Sawarkar	L.Sawarkar	42	Mr. Sarvesh M. Gajbhiye	
3	Kushal R. nasare	K.R.nasare	43	Kirti V. Panchbhai	
4	Vikas. D. Barai		44	Anchal S. Banait	
5	Divya S. Chapekar		45	Prachi R. Tekade	
6	Ku. M.M. Aage	M.M.Aage	46	Dhanashri Kalambe	D.G.Kalambe
7	Ku. V.A. Pawade		47	Toshika K. Deshmukh	
8	Ku. R.R. Gorle	R. Gorle	48	Minal K. Dhande	
9	Nayan S. Yelekar		49	Vaishali T. Dewase	
10	Anjali Gaikwad		50	Vidya S. Maraskolhe	
11	Dharavi S. Somkuwar		51	Divyani R. Ninje	
12	Saroj M. Barmase		52	Divya. R. Kumbhare	
13	Sharda O. chandele		53	Nikita N. Chauhan	
14	Mr. Abhay D. Chopade		54		
15	Mr. Ishant U. Ghagare		55		
16	Mr. Sharukh V. Pathan		56		
17	Mr. Tushar D. Waghmare		57		
18	Mr. Chintu Y. Hajare		58		
19	Mr. Laxmikant S. Khandait		59		
20	Mr. Yash R. Junghare		60		
21	Ku. Ekta R. Barmase		61		
22	Ku. Chitralekha V. Ghadge		62		
23	Ku. Vaishnavi A. Pawade		63		
24	Ku. Tanushri D. Dhote		64		
25	Ku. Bhagyashri D. Ghorse		65		
26	Ku. Leena R. Tiple		66		
27	Shreya M. Shedame		67		
28	Alfiya A. Pathan		68		
29	Samiksha D. Tarase		69		
30	Divya R. Bondee		70		
31	Darshika W. Savai		71		
32	Mr. Vinay G. Bagde		72		
33	Ku. Sneha Bandhane		73		
34	Sakshi Dhopee		74		
35	Aditya Pathade	A.H.Pathade	75		
36	Mayuri D. Kapase.		76		
37	Ayan S. Sheikh		77		
38	Vikki V. Doble		78		
39	Om S. Gupta		79		
40	Pritam D. Ingole		80		

Name & Signature of Teacher : Mr. N.T. Katre

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Nabira Mahavidyalaya Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -V (paper-I):Assignment-I (Unit 1 : Analytic functions)

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Aditya D. Amparwar	Adityu	31	Janhavi M. Thakre	
2	Anikesh P. Kumeriya		32	Jay P. Kumeriya	Kumeriya
3	Ankush A. Bhange	Bhange	33	Kanchan R. Gurao	K.R.GURAV
4	Bhagyshri D. Raut	B.Raut.	34	Karina N. Dhobale	
5	Dipanjali M. Alone	D Alone.	35	Manish K. Shende	Mshende
6	Geetkumar Bhasme		36	Mayuri A. Junankar	Mayuri
7	Harshal A. Deshmukh	Deshmukh	37	Mohnish G. Dharme	M.G. Dharme
8	Hina A.Dhannade		38	Nikita M. Dhole	
9	Isha B. Kasare	I.B. kasare	39	Pranav G. Wanjari	
10	Krutika M. Kale		40	Ravikant A. Jodh	Jodh
11	Lucky C. Ikhar		41	Riba M.E. Baig	
12	Nayan K. Sambhare	Nsah	42	Ritu E. Yenorkar	
13	Neha H. Sable		43	Ruchika R. Bhasme	
14	Neha S.Kakde	Nkakde	44	Sahil H. Sheikh	S. Shaik
15	Pawan V. Junghare	P.Junghare	45	Sakshi S. Kumeriya	
16	Pragati G. Munne	P.G.Munne	46	SaniyaP.M.A. Sheikh	
17	Paranay P. Malvi		47	Satish S. Taywade	Stayawade
18	Pranjali D. Rewatkar	Rewatkar	48	Sayama R. Sheikh	Sheikh
19	Pravina P Lokhande		49	Shivan J. Didawat	
20	Rahul R. Wankhede	Rwankhede	50	Sneha S. Dhote	S.S.Dhote
21	Rohit R. Jaiswal		51	Sonali M. Pandey	S.M. Pandey
22	Sumit K.Thakre	Sthakre	52	Yogesh B. Mahalle	Y.B. Mahalle
23	Vishal S. Tonge	Tonge.	53		
24	Vrunda S. Hajare		54		
25	Aachal R. Charde	Achede	55		
26	Anjali P. Sawarkar		56		
27	Bhawana R. Bhoyar		57		
28	Chaitali S. Murkute		58		
29	Devanshu L. Maraskolhe	DLM	59		
30	Gayatri D. Damedhar	Gdamedhar	60		

Name & Signature of Teacher : N.T. Rathe

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Nabira Mahavidyalaya Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -V (paper-I):Assignment-II Unit-2 (Conformal Transform)

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Aditya D. Amparwar		31	Janhavi M. Thakre	
2	Anikesh P. Kumeriya		32	Jay P. Kumeriya	
3	Ankush A. Bhange		33	Kanchan R. Gurao	K.R.GURAV
4	Bhagyshri D. Raut		34	Karina N. Dhobale	
5	Dipanjali M.r Alone		35	Manish K. Shende	
6	Geetkumar Bhasme		36	Mayuri A. Junankar	
7	Harshal A. Deshmukh		37	Mohnish G. Dharme	M.G.Dharme
8	Hina A.Dhannade		38	Nikita M. Dhole	
9	Isha B. Kasare	I.B.kasare	39	Pranav G. Wanjari	
10	Krutika M. Kale		40	Ravikant A. Jodh	
11	Lucky C. Ikhar		41	Riba M.E. Baig	
12	Nayan K. Sambhare		42	Ritu E. Yenorkar	
13	Neha H. Sable		43	Ruchika R. Bhasme	
14	Neha S.Kakde		44	Sahil H. Sheikh	
15	Pawan V. Junghare		45	Sakshi S. Kumeriya	
16	Pragati G. Munne	P.G.Munne	46	SaniyaP.M.A. Sheikh	
17	Paranay P. Malvi	P.P.Malvi	47	Satish S. Taywade	
18	Pranjali D. Rewatkar		48	Sayama R. Sheikh	
19	Pravina P Lokhande		49	Shivan J. Didawat	
20	Rahul R. Wankhede		50	Sneha S. Dhote	S.S.Dhote
21	Rohit R. Jaiswal		51	Sonali M. Pandey	
22	Sumit K.Thakre		52	Yogesh B. Mahalle	
23	Vishal S. Tonge		53		
24	Vrunda S. Hajare		54		
25	Aachal R. Charde		55		
26	Anjali P. Sawarkar		56		
27	Bhawana R. Bhoyar		57		
28	Chaitali S. Murkute		58		
29	Devanshu L. Maraskolhe	D.L.Maraskolhe	59		
30	Gayatri D. Damedhar		60		

Name & Signature of Teacher : Mr. N.T. Katse

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Nabira Mahavidyalaya Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -V (paper-II):Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Aditya D. Amparwar		31	Janhavi M. Thakre	
2	Anikesh P. Kumeriya		32	Jay P. Kumeriya	
3	Ankush A. Bhange		33	Kanchan R. Gurao	K.R.GURAU
4	Bhagyshri D. Raut		34	Karina N. Dhobale	
5	Dipanjali M.r Alone		35	Manish K. Shende	
6	Geetkumar Bhasme		36	Mayuri A. Junankar	
7	Harshal A. Deshmukh		37	Mohnish G. Dharme	M.G.Dharme
8	Hina A.Dhannade		38	Nikita M. Dhole	
9	Isha B. Kasare	I. B. Kasare	39	Pranav G. Wanjari	
10	Krutika M. Kale		40	Ravikant A. Jodh	
11	Lucky C. Ikhar		41	Riba M.E. Baig	
12	Nayan K. Sambhare		42	Ritu E. Yenorkar	
13	Neha H. Sable		43	Ruchika R. Bhasme	
14	Neha S.Kakde		44	Sahil H. Sheikh	
15	Pawan V. Junghare		45	Sakshi S. Kumeriya	
16	Pragati G. Munne		46	SaniyaP.M.A. Sheikh	
17	Paranay P. Malvi		47	Satish S. Taywade	
18	Pranjali D. Rewatkar		48	Sayama R. Sheikh	
19	Pravina P Lokhande		49	Shivan J. Didawat	
20	Rahul R. Wankhede		50	Sneha S. Dhote	S.S.Dhote
21	Rohit R. Jaiswal		51	Sonali M. Pandey	
22	Sumit K.Thakre		52	Yogesh B. Mahalle	
23	Vishal S. Tonge		53		
24	Vrunda S. Hajare		54		
25	Aachal R. Charde		55		
26	Anjali P. Sawarkar		56		
27	Bhawana R. Bhoyar		57		
28	Chaitali S. Murkute		58		
29	Devanshu L. Maraskolhe		59		
30	Gayatri D. Damedhar		60		

Name & Signature of Teacher : Mr. N.T. Katre

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Nabira Mahavidyalaya Katol
Department Of Mathematics
Assignment Submission attendance
Session(2023-24)
B.Sc. Semester- II(Paper-I):Assignment-I

SN	Name of Student	Sign	SN	Name of Student	Sign	SN	Name of Student	Sign
1	D. Dongre	Dongre	31	Sanskruti Gajbe	S.S.Gajbe	61		
2	R. Rewatkar	Rewatkar	32	Gauri Raut	Raut	62		
3	S.O. Chandele	Schandele	33	Bhagyashri Chandale	Chandale	63		
4	D.D. Surjuse	Surjuse	34	Hujef Sheikh	Sheikh	64		
5	S. Shriramе	Sshriramе	35	Achal A. Banait	A.Banait	65		
6	P.S. Rewatkar	P. Rewatkar	36	Vaishavi Sahare	Sahare	66		
7	R.D. Salam	R.D. Salam	37	Tejaswini R. Kharpurje		67		
8	G.M. Shembekar	G.Shembekar	38	Pallavi K. Gothe	Pathe	68		
9	A.U. Ponde	[illegible]	39	Sakshi Chichmankar	Chichmankar	69		
10	B.R. Werulkar	Bhoverulkar	40	Kruthika Junghare	K.R. Junghare	70		
11	S.P. Narnaware	Snarnaware	41	Akanksha Dhote	[illegible]	71		
12	G.D. Rewatkar	G.Rewatkar	42	Hiraj Deo	Hiraj	72		
13	P.P. Dandhare	P.Dandhare	43	Sanika Bidkar	S.Bidkar	73		
14	S.R. Borkar	Borkar	44	Samira Sayam		74		
15	P.A. Chandele	Payal	45			75		
16	P.S. Padoriya	P.Padoriya	46			76		
17	V.H. Tabhane	[illegible]	47			77		
18	K.R. Kadue	R.Kadue	48			78		
19	R.I. Kharpurje	[illegible]	49			79		
20	S.S. Akhare	S.Akhare	50			80		
21	M.R. Bhakte	M.Bhakte	51			81		
22	S.P. Rewatkar	S.Rewatkar	52			82		
23	G.P. Bagde	G.Bagde	53			83		
24	B.R. Rushiya	Rushiya	54			84		
25	S.S. Chaple	Chaple	55			85		
26	R.D. Vikey	R.Vikey	56			86		
27	S.H. Meshram	S.H.Meshram	57			87		
28	D.S. Daware	D.Daware	58			88		
29	K.A. Bangde	K.A.Bangde	59			89		
30	A.P. Ressanghe	Rangde	60			90		

Name &Signature of Teacher: R. B. Cleaware

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Nabira Mahavidyalaya, Katol

Department of Mathematics

Assignment Submission attendance

Session (2023-24)

B.Sc. Semester -II (paper-II): Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Sakshi H. chichmalkar	S.Chichmalkar	38		
2	Krutika. R. Junghare	K.R. Junghare	39		
3	Hirai P. Deewase	Deewase	40		
4	Devyani S. Dawane	D.S. Dawane	41		
5	Kalyani A. Renghe	K.A.Renghe	42		
6	Sanskruti S. Gajbe	S.S. Gajbe	43		
7	Payal A. chandele	Payal	44		
8	Shubhangi O. chandele	Schandele	45		
9	Divyani D. Surouse	S.Surouse	46		
10	Suhani R. Borkar	Borkar	47		
11	Prachi S. padoriya	Ppadoriya	48		
12	Vaishnavi H. sahare	Vahare	49		
13	Gauri P. Bagde	Gbagde	50		
14	Dimpal W. Dongre	Dongre	51		
15	Sayali S. Shriramе	Sshriramе	52		
16	Sarang. D. Rewatkar	SARANG	53		
17	Gunjan D. Rewatkar	GRewatkar	54		
18	Sanika A. Bidkar	SABidkar	55		
19	Prapti Talekar	Talekar	56		
20	Bhavana Wesulkar	Bhavana	57		
21	Dameera D. Sayyam	Dsayyam	58		
22	Bharat R. Bushiya	Bushiya	59		
23	Sakshi. P. Narnaware	Snarnaware	60		
24	Rohani A. Rewatkar	Rewatkar	61		
25	Gunjan M. Shembekar	Gshe	62		
26	Tejaswini R. Kharpenje	[illegible]	63		
27	Achal A. Banait	ABanait	64		
28	Pallavi K. Gathe	Gathe	65		
29	Arjun V. Pande	[illegible]	66		
30	Shreya. S. Akhare	SAkhare	67		
31	Pragati D. Rewatkar	Drewatkar	68		
32	Kalyani R. Kadwe	Rkadwe	69		
33	Bhagyashri Dhandale	Dhandale	70		
34	Akanksha Dhote	[illegible]	71		
35	Mahendra Bhakte	MRBhakte	72		
36	Husef Sheikh	[illegible]	73		
37	Vaishnavi Jabhare	[illegible]	74		

Name & Signature of Teacher: N. T. Katre

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc. Semester -IV (paper-I): Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Chitralekha V. Ghadge	Ghadge	32	Sharukh pathan	Pathan
2	Leena R. Tiple	Tiple	33	Minal K. Dhamde	
3	Lukesh G. Sawarkar		34	Sakshi O. Dhopee	
4	Divya S. Chapekar	Chapekar	35	Saroj M. Barmase	
5	Bhagyashri D. Ghoase		36	Darshika Sawai	
6	Tashika Deshmukh	Deshmukh	37	Ayan S. Sheikh	
7	Dhanshri Kalambe	D.G. Kalambe	38	Vikki V. Doble	
8	Pritam D. Ingole	Ingole	39		
9	Sharda O. Chandele	S. O. Chandele	40		
10	Tanushri D. Dhote		41		
11	Mayuri D. Kapase	Kapase	42		
12	Kirti Panchbhai	Kirti	43		
13	Sarvesh Gajbhiye	Sarvesh	44		
14	Tanushri Dhote	T. D Dhote	45		
15	Ekta Barmase	E. Barmase	46		
16	Ishant Ghagare	Ghagare	47		
17	Vaishnavi Pawade		48		
18	Aditya H. Pathade	A.H. Pathade	49		
19	Prachi R. Tekade	Tekade	50		
20	Kunal A. Gawande		51		
21	Kushal R. Nasare	K.R. nasare	52		
22	Yash R. Jungharee	Jungharee	53		
23	Vikas D. Barai	Barai	54		
24	Alfiya A. Pathan	Pathan	55		
25	Samiksha D. Tarase	Tarase	56		
26	Divya R. Bandee	Bandee	57		
27	Vaishali T. Dewase	Dewase	58		
28	Dhanavi S. Somkuwar		59		
29	Shreya M. Shedame	Shedame	60		
30	Anjali N. Waikwad	Anjali	61		
31	Manisha M Aage	M.M. Aage	62		

Name & Signature of Teacher: N.T. Katre

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -IV(paper-II): Assignment-I

	S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
	1	Mayuri D. Kapase	M.Kapase.	41	Himanshu Naonawar	
	2	Dhanshri G. Kalambe	D.G. Kalambe	42	Sakshi Dhopre	
	3	Darshika W. Sawai	Dsawai	43	Toshika Deshmukh	
	4	Chitralekha V. Ghadge	Ghadge	44		
	5	Ekta R. Baramase	Baramase.	45		
	6	Vikki V. Doble	Vikki	46		
Sem II	7	Aditya H. Pathade	A.H.pathade	47		
	8	Alfiya A. Pathan	Afilhan	48		
	9	Vinay Bayde	Vinay Bayde	49		
Sem II	10	Ayan S. Sheikh	Sheikh.	50		
	11	Manisha M Aage	M.M.Aage	51		
	12	Samiksha D. Tarase	Dtarase	52		
	13	Divya R. Bandee	Dbandee	53		
	14	Anchal S. Bancit	Bancit	54		
	15	Kisti Panchbhai	Kisti	55		
	16	Sarvesh M. Gajbhiye	Gajbhiye	56		
	17	Dharavi S. Sankuwar	Dsankuwar	57		
	18	Lukesh G. Sawarkar	Lgsawarkar	58		
	19	Leena R. Tiple	Rtiple	59		
	20	Rupali R. Gorle	Rgorle	60		
	21	Sharda O. Chandele	Schandele	61		
	22	Bhagyashri D. Ghorse	Dghorse	62		
	23	Divya S. Chapekar	Schapekar	63		
	24	Ishant U. Ghagare	Ughagare	64		
	25	Vikas D. Barai	DBarai	65		
	26	Kushal R. Nasare	K.R.nasare	66		
	27	Prachi R. Telkade	Rtelkade	67		
	28	Minal K. Dhamde	Mdhamde	68		
	29	Shreya M. Shedame	Shedame	69		
	30	Saroj M. Baramase	Baramase	70		
	31	Tanushri Dhote	T.D.Dhote	71		
	32	Pritam D. Ingole	Pingole	72		
	33	Abhay D. Chupade	A.D.Chupade	73		
	34	Kunal G. Gawande	Gawande	74		
	35	Anjali N. Gaikwad	Anjali	75		
	36	Vaishnavi A Pawade	Vapawade	76		
	37	Chinmay V. Masam		77		
	38	Vaishali T. Deoease	Tdeoease	78		
	39	Yash R. Jungharee	Yjaharee.	79		
	40	Shahrukh U. pathan	Upathan	80		

Name and Signature of Teacher : R. B. Chawade

Kurde

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -VI (paper-I): Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Aditya D. Amparwar	Aditya. D	31	Janhavi M. Thakre	
2	Anikesh P. Kumeriya		32	Jay P. Kumeriya	Kumeriya
3	Ankush A. Bhange		33	Kanchan R. Gurao	K.R. GURAV
4	Bhagyshri D. Raut	Braut	34	Karina N. Dhobale	
5	Dipanjali M.r Alone		35	Manish K. Shende	Shende
6	Geetkumar Bhasme		36	Mayuri A. Junankar	
7	Harshal A. Deshmukh		37	Mohnish G. Dharme	M.G. Dharme
8	Hina A.Dhannade		38	Nikita M. Dhole	
9	Isha B. Kasare	J. B. kasare	39	Pranav G. Wanjari	
10	Krutika M. Kale		40	Ravikant A. Jodh	
11	Lucky C. Ikhar		41	Riba M.E. Baig	
12	Nayan K. Sambhare		42	Ritu E. Yenorkar	
13	Neha H. Sable		43	Ruchika R. Bhasme	
14	Neha S.Kakde		44	Sahil H. Sheikh	S Sheikh
15	Pawan V. Junghare		45	Sakshi S. Kumeriya	
16	Pragati G. Munne		46	SaniyaP.M.A. Sheikh	
17	Paranay P. Malvi	P. P. malvi	47	Satish S. Taywade	Taywade
18	Pranjali D. Rewatkar		48	Sayama R. Sheikh	
19	Pravina P Lokhande		49	Shivan J. Didawat	
20	Rahul R. Wankhede		50	Sneha S. Dhote	S.S. Dhote
21	Rohit R. Jaiswal		51	Sonali M. Pandey	Pandey
22	Sumit K.Thakre		52	Yogesh B. Mahalle	
23	Vishal S. Tonge		53		
24	Vrunda S. Hajare		54		
25	Aachal R. Charde		55		
26	Anjali P. Sawarkar		56		
27	Bhawana R. Bhoyar		57		
28	Chaitali S. Murkute		58		
29	Devanshu L. Maraskolhe		59		
30	Gayatri D. Damedhar		60		

Name & Signature of Teacher: N. T. Katre

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Nabira Mahavidyalaya, Katol
Department of Mathematics
Assignment Submission attendance
Session (2023-24)
B.Sc Semester -VI (paper-II): Assignment-I

S.N.	Name of Students	Sign	S.N.	Name of Students	Sign
1	Aditya D. Amparwar	Aditya. D	31	Janhavi M. Thakre	
2	Anikesh P. Kumeriya		32	Jay P. Kumeriya	Pkumeriya
3	Ankush A. Bhange		33	Kanchan R. Gurao	K.R.GURAU
4	Bhagyshri D. Raut	Braut.	34	Karina N. Dhobale	
5	Dipanjali M.r Alone	DAlone.	35	Manish K. Shende	MShende
6	Geetkumar Bhasme	GAB	36	Mayuri A. Junankar	Mayuri
7	Harshal A. Deshmukh	Hdeshmukh	37	Mohnish G. Dharme	M.G. Dharme
8	Hina A.Dhannade		38	Nikita M. Dhole	
9	Isha B. Kasare	I. B. kasare	39	Pranav G. Wanjari	
10	Krutika M. Kale		40	Ravikant A. Jodh	
11	Lucky C. Ikhar		41	Riba M.E. Baig	
12	Nayan K. Sambhare	NK. Sab	42	Ritu E. Yenorkar	
13	Neha H. Sable		43	Ruchika R. Bhasme	
14	Neha S.Kakde		44	Sahil H. Sheikh	S. Sheikh
15	Pawan V. Junghare	PJunghare	45	Sakshi S. Kumeriya	
16	Pragati G. Munne	PGMunne	46	SaniyaP.M.A. Sheikh	
17	Paranay P. Malvi	P.P.Malvi.	47	Satish S. Taywade	STaywade
18	Pranjali D. Rewatkar	Rewatkar	48	Sayama R. Sheikh	
19	Pravina P Lokhande		49	Shivan J. Didawat	
20	Rahul R. Wankhede		50	Sneha S. Dhote	S.S.Dhote
21	Rohit R. Jaiswal		51	Sonali M. Pandey	SPandey.
22	Sumit K.Thakre		52	Yogesh B. Mahalle	
23	Vishal S. Tonge		53		
24	Vrunda S. Hajare		54		
25	Aachal R. Charde	Acharde	55		
26	Anjali P. Sawarkar		56		
27	Bhawana R. Bhoyar		57		
28	Chaitali S. Murkute		58		
29	Devanshu L. Maraskolhe		59		
30	Gayatri D. Damedhar	Gdamedhar	60		

Name & Signature of Teacher: N. T. Katre

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Date :

B. Sc. Sem-5 / Mathematics-I

Assignment on Unit-1 (2023-24)

Last Date of Submission: 06/09/2023

NOTE: Solve all these questions in triplicate.

Questions (Short Answer)

1. Define: Analytic function, Harmonic function, orthogonal curves
2. Find the derivative of $f(z)=z^3$ by using first principle.
3. For what values of z, the function ω defined by $\omega=e^z$ ceases to be analytic?
4. For what values of z, the function ω defined by $\omega=z^{1/3}$ ceases to be analytic?
5. Write the Cauchy-Riemann equations in polar form for the analytic function $f(z)=u+iv$.
6. Find the harmonic conjugate of a function $u=2x(1-y)$.

Questions (Long Answer)

1. Show that $f(z)=\bar{z}$ is continuous at $z=z_0$ but not analytic at $z=z_0$.
2. Find the values of a & b such that the function $f(z)=x^2+ay^2-2xy+i(bx^2-y^2+2xy)$ is analytic. Also, find $f'(z)$.
3. Define the analytic function $f(z)$. For what values of z, the function ω defined by the equations $z=\sinh u\cos v+i\cosh u\sin v$, $\omega=u+iv$ ceases to be analytic?
4. Prove that the function $f(z)=u(x,y)+iv(x,y)$ is analytic at any point $z=x+iy$ in a region R, if
   (i) $\partial u/\partial x=\partial v/\partial y$, $\partial u/\partial y=-\partial v/\partial x$, and
   (ii) the partial derivatives $\partial u/\partial x$, $\partial u/\partial y$, $\partial v/\partial x$, $\partial v/\partial y$ are continuous functions of x,y in a region R.

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(5) Prove that the necessary condition for a function $w = f(z) = u(x,y) + iv(x,y)$ to be analytic at any point $z = x+iy$ in a region R is that, u & v satisfy Cauchy-Riemann equations: $\frac{\partial u}{\partial x} = \frac{\partial v}{\partial y}$, $\frac{\partial u}{\partial y} = -\frac{\partial v}{\partial x}$, provided $\partial u/\partial x$, $\partial u/\partial y$, $\partial v/\partial x$, $\partial v/\partial y$ exist.

(6) Show that the function $f(z)$ is constant if it is analytic with constant modulus.

(7) If $w = f(z) = u(x,y) + iv(x,y)$ is analytic function at any point $z = x+iy$ in a region R, then prove the Cauchy-Riemann eqns in polar form are

$$\frac{\partial u}{\partial r} = \frac{1}{r}\frac{\partial v}{\partial \theta} \quad \text{and} \quad \frac{\partial v}{\partial r} = -\frac{1}{r}\frac{\partial u}{\partial \theta}$$

(8) If $u - v = (x-y)(x^2+4xy+y^2)$ and $f(z) = u+iv$ is an analytic function of $z = x+iy$, find $f(z)$ in terms of z.

(9) If $u = x^2 - y^2$, $v = \frac{-y}{x^2+y^2}$, then show that both u and v are harmonic functions of x, y, but $u+iv$ is not an analytic function of z.

(10) If $u+v = \frac{2\sin 2x}{\cosh 2y - \cos 2x}$ and $f(z) = u+iv$ is an analytic function of z, then find $f(z)$ in terms of z.

(11) If $f(z) = u+iv$ is analytic function of z, prove that $\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right)|f(z)|^2 = 4|f'(z)|^2$.

(12) Show that the function
$u = \sin x \cosh y + 2\cos x \sinh y + x^2 - y^2 + 4xy$
is harmonic and determine the corresponding analytic function $f(z) = u+iv$.

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Date :

B. Sc. Sem-5 / Mathematics-I

Assignment on Unit-2 (2023-24)

Last Date of Submission: 30/09/2023

Note: Submit the Solutions of the following Questions in 3 sets.

Questions

(1) (a) Define Conformal and isogonal transformations.

(b) Define critical points and ordinary points of a transformation $w=f(z)$.

(c) Define Mobius (or bilinear) transformation, and fixed points of bilinear transformation.

(d) Show that the bilinear transformation $w=\frac{az+b}{cz+d}$ has one or two fixed points.

(e) Define the transformations given below:

(i) Translation (ii) Rotation (iii) Magnification (iv) Inversion.

(f) Find the fixed points of the following bilinear transformation

(i) $w=\frac{3iz+1}{z+i}$ (ii) $\frac{(2+i)z-2}{z+i}$

(g) Show that the transformation $w=z^2$ transform the line $x=2$ into the parabola in w-plane.

(2) Let a rectangular domain R be bounded by $x=0$, $y=0$, $x=2$, $y=1$. Determine the region R' of w-plane into which R is mapped under the transformation $w=\sqrt{2}\, e^{i\pi/4} z + (1-2i)$.

(3) Consider the transformation $w=z e^{i\pi/4}$. Determine the region R' of w-plane corresponding to the triangular region R bounded by the lines $x=0, y=0$ and $x+y=1$ in z-plane.

(4) Find the image of the infinite strip $\frac{1}{4} \le y \le \frac{1}{2}$ under the transformation $w=\frac{1}{z}$.

(5) Find the image of a circle $|z-3i|=3$ under the mapping $w=\frac{1}{z}$.

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(6) Show that under the transformation $w = \frac{1}{z}$, the image of the hyperbola $x^2 - y^2 = 1$ is the lemniscate $R^2 = \cos 2\phi$.

(7) For the conformal transformation $w = z^2$, show that the circle $|z-1| = 1$ transforms into the cardioid $R = 2(1+\cos\phi)$, where $w = Re^{i\phi}$, in the w-plane.

(8) Find the image and draw a rough sketch of the mapping of the region $1 \le x \le 2$ and $2 \le y \le 3$ under the mapping $w = e^z$.

(9) Find the image of the circle $|z-2| = 2$ under the bilinear transformation $w = \frac{z}{z+1}$.

(10) Show that the transformation $w = \frac{2z+3}{z-4}$ transforms the circle $x^2 + y^2 - 4x = 0$ into the straight line $4u + 3 = 0$.

(11) Show that the transformation $w = \frac{iz+2}{4z+i}$ transforms the real axis in z-plane to a circle in the w-plane.

(12) Find the bilinear transformation that maps the points $z_1 = 2$, $z_2 = i$, $z_3 = -2$ into the points $w_1 = 1$, $w_2 = i$, $w_3 = -1$, respectively.

(13) Find the mapping of x-axis under the transformation $w = \frac{i-z}{i+z}$ onto the w-plane.

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Nabira Mahavidyalaya, Katol
Department of Mathematics (2023-24)
B. Sc. Semester-2 (Maths-II)

Assignment-1

(1) A particle moves so that its position vector is given by $\bar{r} = \cos\omega t\,\bar{i} + \sin\omega t\,\bar{j}$, where ω is a constant. Show that

(i) the velocity $\bar{v}$ of the particle is perpendicular to $\bar{r}$.

(ii) the acceleration $\bar{a}$ is directed towards the origin and has magnitude proportional to the distance from the origin.

(iii) $\bar{r} \times \bar{v}$ = a constant vector.

(2) Evaluate $\bar{\nabla}\cdot(\bar{A}\times\bar{r})$ if $\bar{\nabla}\times\bar{A} = \bar{0}$, where $\bar{A} = A_1\bar{i} + A_2\bar{j} + A_3\bar{k}$ and $\bar{r} = x\bar{i} + y\bar{j} + z\bar{k}$.

(3) Prove that $\nabla^2(r^n) = n(n+1)r^{n-2}$, where n is a constant and $\bar{r} = x\bar{i} + y\bar{j} + z\bar{k}$.

(4) If $\bar{A} = 2t^2\,\bar{i} - (t+2)\,\bar{j} + (t^2-4t)\,\bar{k}$ and $\bar{B} = \cos t\,\bar{i} + 4e^t\,\bar{j} - \sin t\,\bar{k}$, then find $\frac{d^2}{dt^2}(\bar{A}\times\bar{B})$ at $t=0$.

(5) Find the acute angle between the surfaces $xy^2z = 3x + z^2$ and $3x^2 - y^2 + 2z = 1$ at the point $(1,-2,1)$.

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(6) Show that $\nabla^2(\log r) = \frac{1}{r^2}$.

(7) If $\bar{V} = \bar{\omega} \times \bar{r}$, prove that $\bar{\omega} = \frac{1}{2}\,\text{curl}\,\bar{V}$, where $\bar{\omega}$ is a constant vector and $\bar{r} = x\bar{i} + y\bar{j} + z\bar{k}$.

(8) If $\bar{F} = (3x^2y - z)\bar{i} + (xz^3 + y^4)\bar{j} - 2x^3z^2\bar{k}$, then find $\bar{\nabla}(\bar{\nabla}\cdot\bar{F})$ and $\bar{\nabla}\times\bar{F}$.

(9) Find the directional derivative of $x^2y^2z^2$ at the point $(1,1,-1)$ in the direction of the tangent to the curve $x = e^t$, $y = \sin 2t + 1$, $z = 1 - \cos t$ at $t = 0$.

(10) Show that $\bar{F} = (2xy + z^3)\bar{i} + x^2\bar{j} + 3z^2x\bar{k}$ is conservative. Find a scalar potential ϕ such that $\bar{V} = \bar{\nabla}\phi$.

(11) Show that $(y^2z^3\cos x - 4x^3z)\,dx + 2z^3y\sin x\,dy + (3y^2z^2\sin x - x^4)\,dz$ is an exact differential of a function ϕ and then find ϕ.

(12) (a) If $\bar{A}$ is a constant vector, prove that $\bar{\nabla}(\bar{r}\cdot\bar{A}) = \bar{A}$.

(b) Prove that the vector $\bar{A} = 3y^4z^2\bar{i} + 4x^3z^2\bar{j} - 3x^2y^2\bar{k}$ is ~~irrotational~~ solenoidal.

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(c) Show that if $F_1\,dx + F_2\,dy + F_3\,dz$ is an exact differential of a function ϕ, then $\bar{\nabla} \times \bar{F} = \bar{0}$, where $\bar{F} = F_1\bar{i} + F_2\bar{j} + F_3\bar{k}$.

(d) Find a, if $\bar{A} = (axy - z^3)\bar{i} + (a-2)x^2\bar{j} + (1-a)xz^2\bar{k}$ is irrotational.

(e) Find the directional derivative of $\phi = x^2yz + 2xz - 4$ at the point $(2,-1,1)$ in the direction of Y-axis.

(f) Prove that: $\bar{\nabla} \times (\bar{\nabla}\phi) = \bar{0}$, where ϕ is a differential scalar point function of x, y, z.

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Nabisa Mahavidyalaya, Katol

Department of Mathematics (2023-24)

B. Sc. Semester-4 (Maths-1)

Assignment-1

(1) If $X, Y \subseteq R$ be non-empty bounded sets, then prove that

(a) $\sup(X+Y) = \sup X + \sup Y$

(b) $\inf(X+Y) = \inf X + \inf Y$

(2) Let X be a non-empty subset of R which is bounded above. Prove that the real number M is the supremum of X if and only if

(a) $x \leq M, \forall x \in X$, and

(b) for each real no. $\epsilon > 0$, there is a real no. $x \in X$ such that $x > M - \epsilon$.

(3) Let X be a non-empty subset of R which is bounded below, Prove that the real no. m is the infimum of X if and only if.

(a) $x \geq m, \forall x \in X$, and

(b) for each real no. $\epsilon > 0$, there is a real no. $x \in X$ such that $x < m + \epsilon$.

(4) Prove that the completeness property imply the Dedekind Property, and conversely.

(5) State and Prove Archimedean Property.

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(6) For $x, y \in R$, prove that

(i) $|x| = 0 \Leftrightarrow x = 0$, (ii) $|-x| = |x|$ and

(iii) $|xy| = |x|\,|y|$ (iv) $|x+y| \leq |x| + |y|$

(v) $|x-y| \leq |x| + |y|$

(7) Prove that the union of an arbitrary collection of open sets is open.

(8) Prove that the finite intersection of open sets is open. Illustrate by an example that the infinite intersection of open sets need not be open.

(9) For $X, Y \subseteq R$, prove that

(a) $X \subset Y \Rightarrow X^\circ \subset Y^\circ$ (b) $(X \cap Y)^\circ = X^\circ \cap Y^\circ$

(c) $(X \cup Y)^\circ \supset X^\circ \cup Y^\circ$.

(10) Let $X \subseteq R$. Prove that

(a) X° is an open set

(b) X° is the largest open subset of X

(c) X is open if and only if $X^\circ = X$.

(11) Define

(i) Bounded above set (ii) Bounded below set

(iii) Bounded set (iv) Supremum of a set

(v) infimum of a set (vi) neighbourhood of a point

(vii) open set (viii) interior point of a set

(ix) interior of a set (x) Limit point of a set

(xi) Closed set (xii) Derived set (xiii) Closure of a set

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(12) If $X \subseteq R$ is a non-empty bounded set, then Prove that

(a) $-\sup(-X) = \inf X$, (b) $-\inf(-X) = \sup X$.

(13) (i) If $x, y \in R$, then show that $|x-y| = 0$ iff $x = y$.

(ii) If $x \in R$ and $0 \leq x < \frac{1}{n}$, $n \in N$, then prove that $x = 0$.

(iii) Prove that an open interval is a nbd of each of its points.

(iv) Prove that the finite set is not a nbd of any of its points.

(v) For any set X, prove that $X^{\circ} \subset X$.

(vi) For any set X, prove that $X^{\circ\circ} = X^{\circ}$.

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(N.T.Katre)

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Nabira Mahavidyalaya, Katol

Department of Mathematics (2023-24)

B. Sc. Semester-6 (Maths-1)

Assignment-1

① Define Subspace of a vector space V. Prove that if S is a nonempty subset of a vector space V then $L(S)$ is the smallest subspace of V containing S.

② Define Linear span of a Subset, Prove that if S is a subset of a vector space V, then $L(S) = S$ iff S is a subspace of V.

③ Prove that a nonempty subset S of a vector space V is a subspace of V iff
(i) $u+v \in S$, $\forall u, v \in S$ (ii) $\alpha u \in S$, $\forall \alpha \in F$ & $\forall u \in S$.

④ Show that the ordered set $\{(1,1,2), (1,-1,1), (1,3,3), (-1,3,0), (1,0,1)\}$ is linearly dependent. Find the largest linearly independent subset of it.

⑤ If U and W are two subspaces of a vector space V, then prove that $U+W$ is a subspace of V and $U+W = [U \cup W]$.

⑥ Let U and W are subspaces of a vector space V. Prove that $U \cup W$ is a subspace of V iff $U \subset W$ or $W \subset U$.

⑦ Let $v_1, v_2, \ldots, v_n$ be n vectors of a vector space V. Prove that ⓐ $[v_1, v_2, \ldots, v_n] = [\alpha_1 v_1, \alpha_2 v_2, \ldots, \alpha_n v_n]$, $\alpha_i \neq 0$ are scalars, $1 \leq i \leq n$.

ⓑ $[v_1, v_2] = [v_1 - v_2, v_1 + v_2]$

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(8) In a vector space V over F, prove that

(i) $\alpha \cdot 0 = 0$, $\forall \alpha \in F$, $0 \in V$.

(ii) $0 \cdot u = 0$, $\forall u \in V$ and

(iii) $\alpha u = 0 \Leftrightarrow \alpha = 0$ or $u = 0$, $\forall \alpha \in F, u \in V$.

(9) Let $S = \{(1,1,0), (0,1,1), (1,0,-1), (1,1,1)\}$.

(i) Show that the ordered set S is linearly dependent.

(ii) Locate one of the vectors that belongs to the span of previous one.

(iii) Find the largest linearly independent subset of S whose span is $[S]$.

(10) If S & T are subsets of a vector space V, then prove that (i) $S \subset T \Rightarrow L(S) \subset L(T)$,

(ii) $L(S) = S \Leftrightarrow S$ is a subspace of V,

(iii) $L(L(S)) = L(S)$

(11) Find the span of a subset $S = \{(1,2,1), (1,1,-1), (4,5,-2)\}$ and prove that $(2,-1,-8) \in [S]$ but $(1,-3,5) \notin [S]$.

(12) Let U & W be two subspaces of vector space V and $Z = U + W$. Then prove that $Z = U \oplus W$ iff $z = u + w$ uniquely for any $z \in Z$ and for some $u \in U$, $w \in W$.

(N.T. Katre)

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Nabisa Mahavidyalaya, Katol

Department of Mathematics

B.Sc. Semester – 6 (Maths – 2)

Assignment – 1

2023 – 24

1. Derive general and simple Galilean transformations considering two inertial frames S & S'. Also, obtain their inverse transformations.

2. Show that $(ds)^2 = (dx)^2 + (dy)^2 + (dz)^2 - (c\,dt)^2$ is invariant under Lorentz transformations.

3. Explain Lorentz-FitzGerald contraction idea. How this idea used to account for the negative result of the Michelson-Morley experiment?

4. Show that the three dimensional volume element $dx\,dy\,dz$ is not Lorentz invariant, but the four dimensional volume element $dx\,dy\,dz\,dt$ is Lorentz invariant.

5. Define an inertial frame of reference. Show that Newton's kinematical equations of motion are invariant under Galilean transformations.

6. Prove that $\nabla^2 - \frac{1}{c^2}\frac{\partial^2}{\partial t^2}$ is invariant under special Lorentz transformation.

7. Show that Lorentz transformation is simply a rotation in the four dimensional space.

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(8) Show that in an inestial frame, a body, not under the influence of any forces, moves in a straight line with constant velocity.

(9) Assume that the Lorentz transformations are linear transformations of the form $x' = Ax + Bt$ and $t' = Dx + Et$, $E > 0$. Consider $x^2 - c^2t^2 = x'^2 - c^2t'^2$ and the motion of the origin of S', deduce the Lorentz transformation.

(10) Show that the wave equation $\nabla^2 f - \frac{1}{c^2}\frac{\partial^2 f}{\partial t^2} = 0$ is not invariant under Galilean transformation.

(11) Describe Michelson-Morley experiment and comment on the importance of the experiment.

(12) Prove that the Lorentz transformations form a group.

(13) (a) State the fundamental postulates of special relativity.

(b) Show that the circle $x'^2 + y'^2 = a^2$ in S' is measured to be an ellipse in S if S' moves with uniform velocity relative to S.

(c) Discuss the outcome of M-M expt regarding fringe shift and stationary ether.

(N.T.Katre)

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Latitude: 21.274648
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