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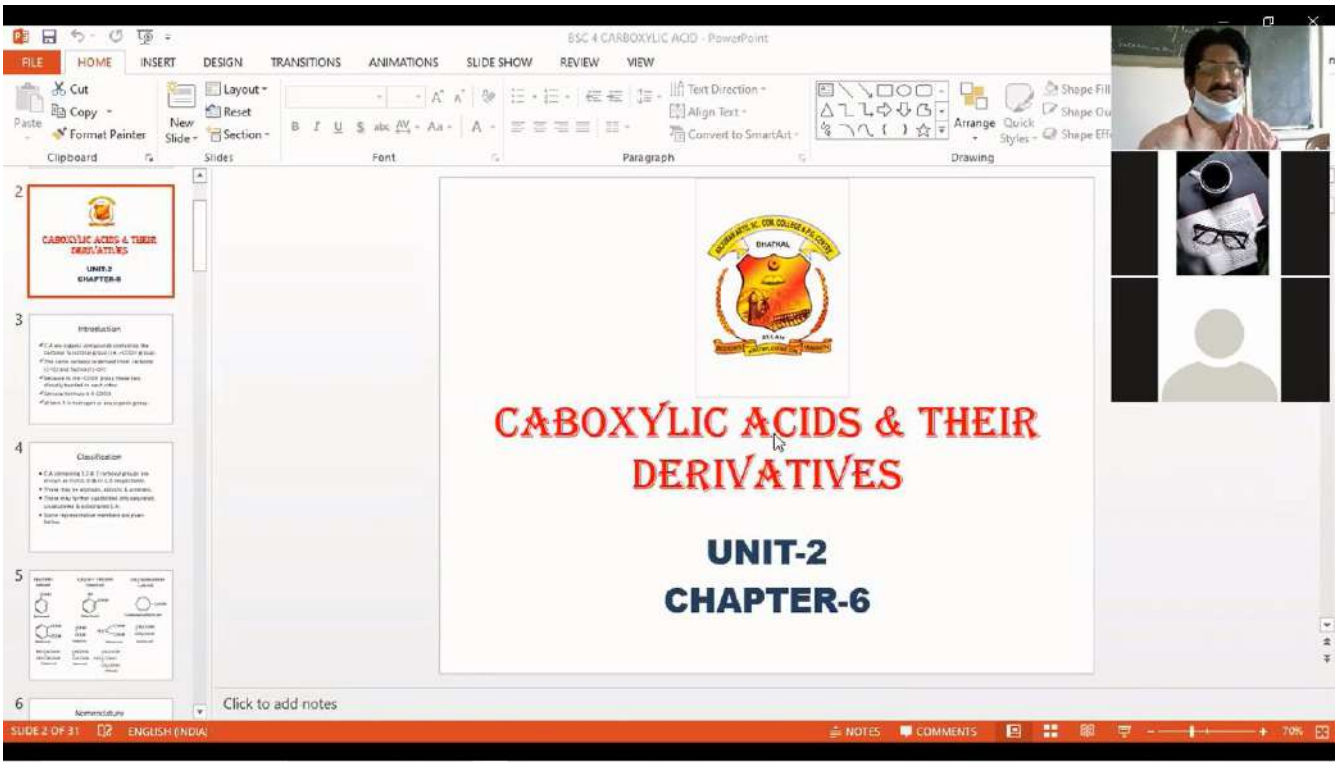
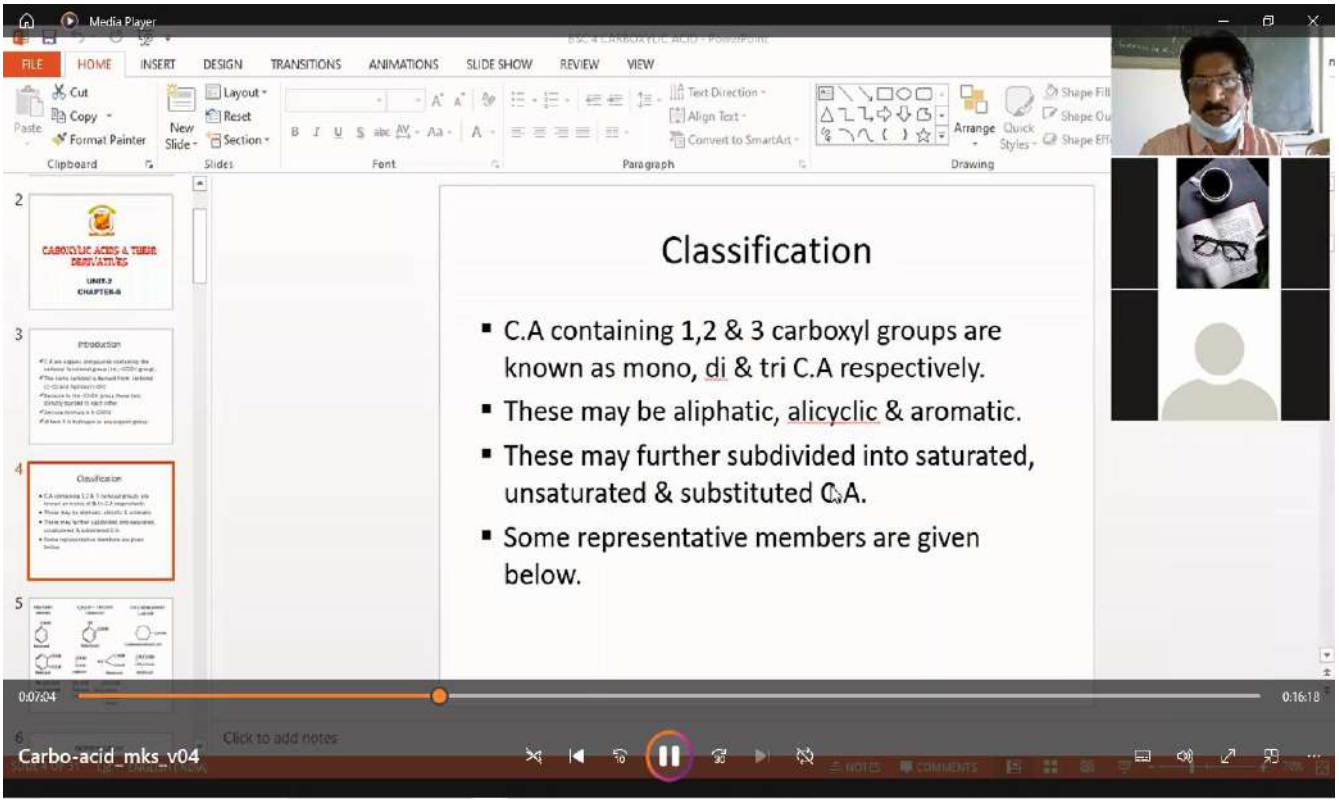
Carboxylic Acids and Their Derivatives





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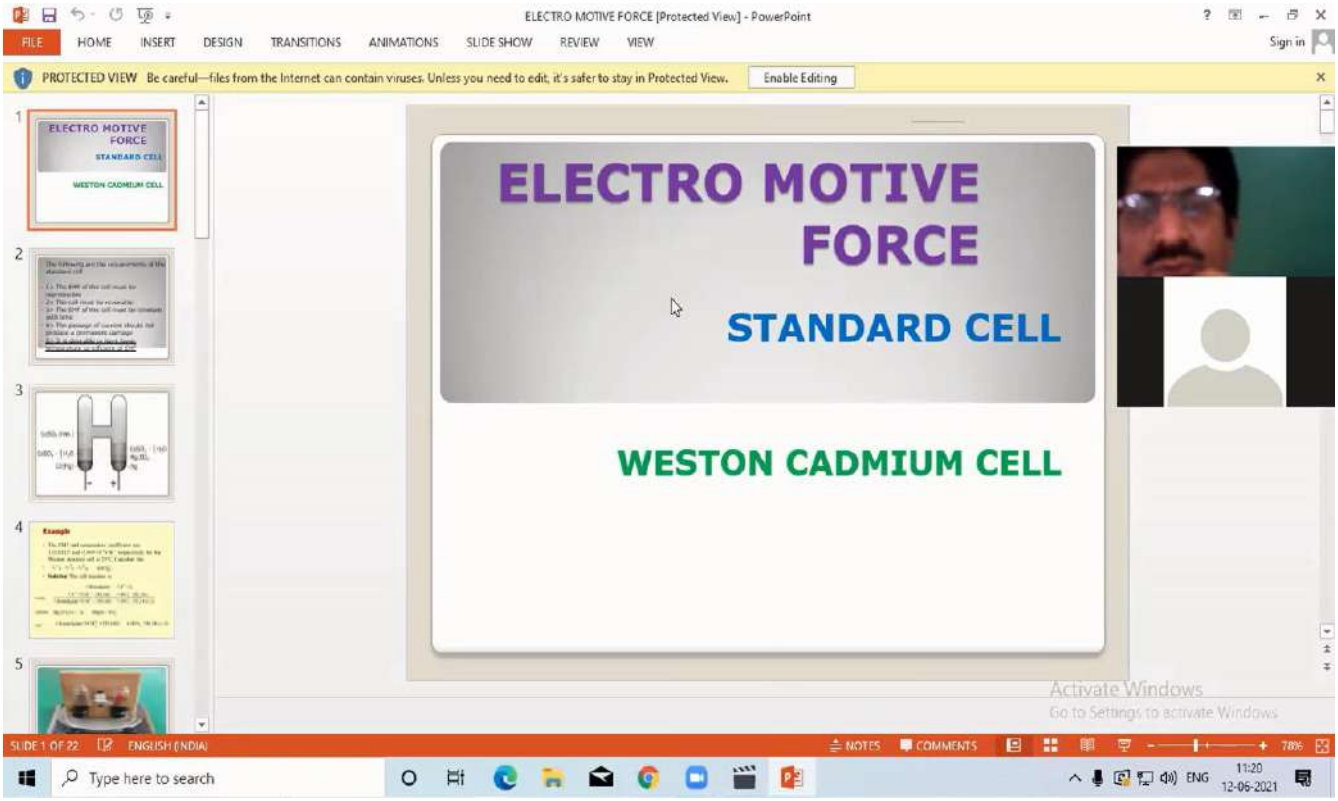
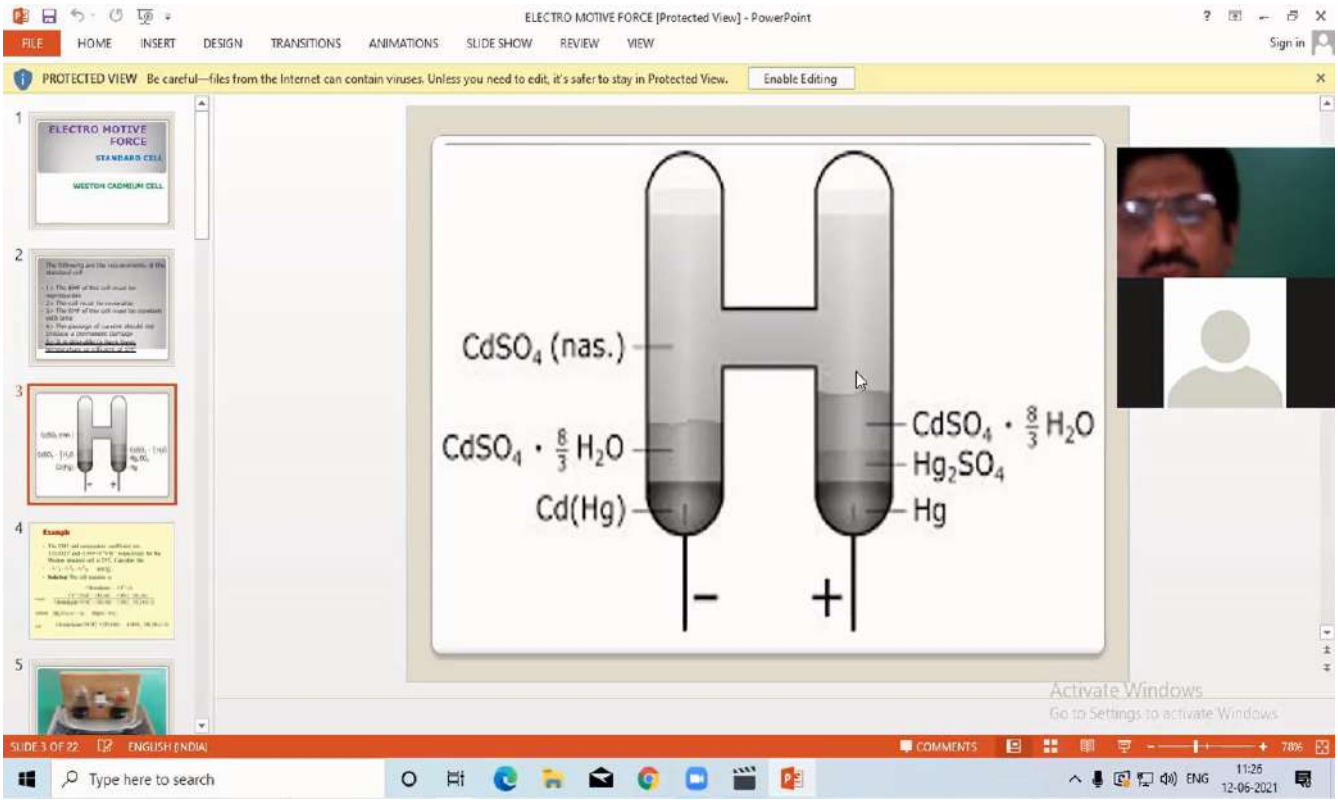
Electro Motive Force





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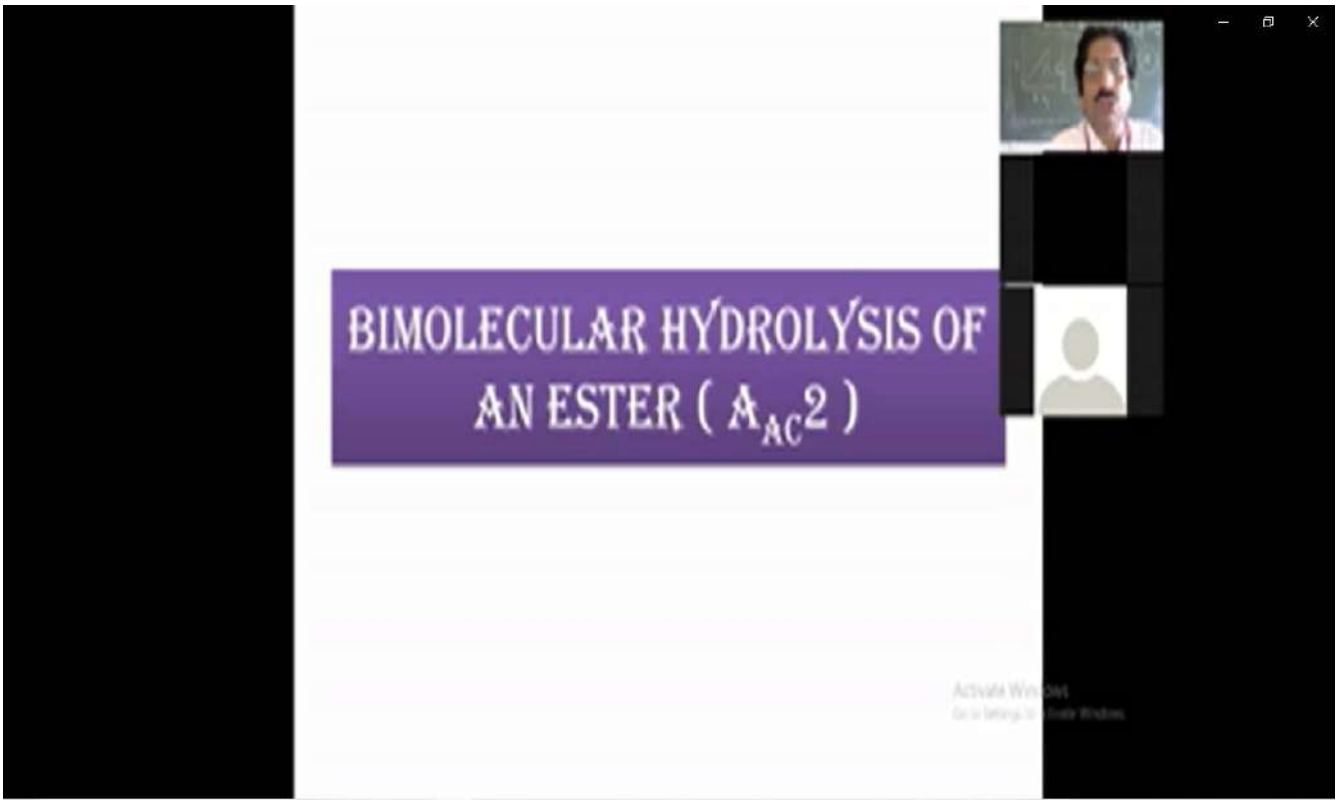
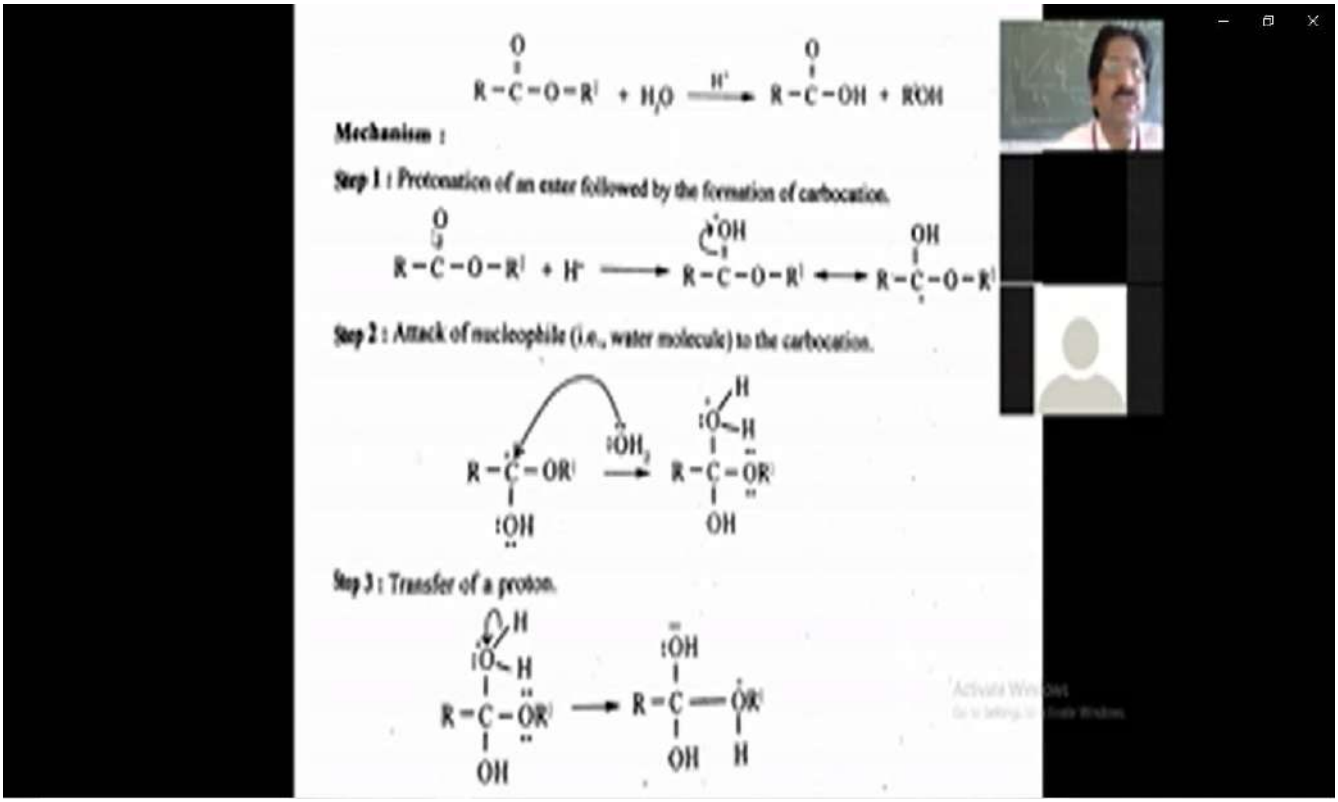
Bimolecular Hydrolysis of an Ester ($A_{AC}2$)





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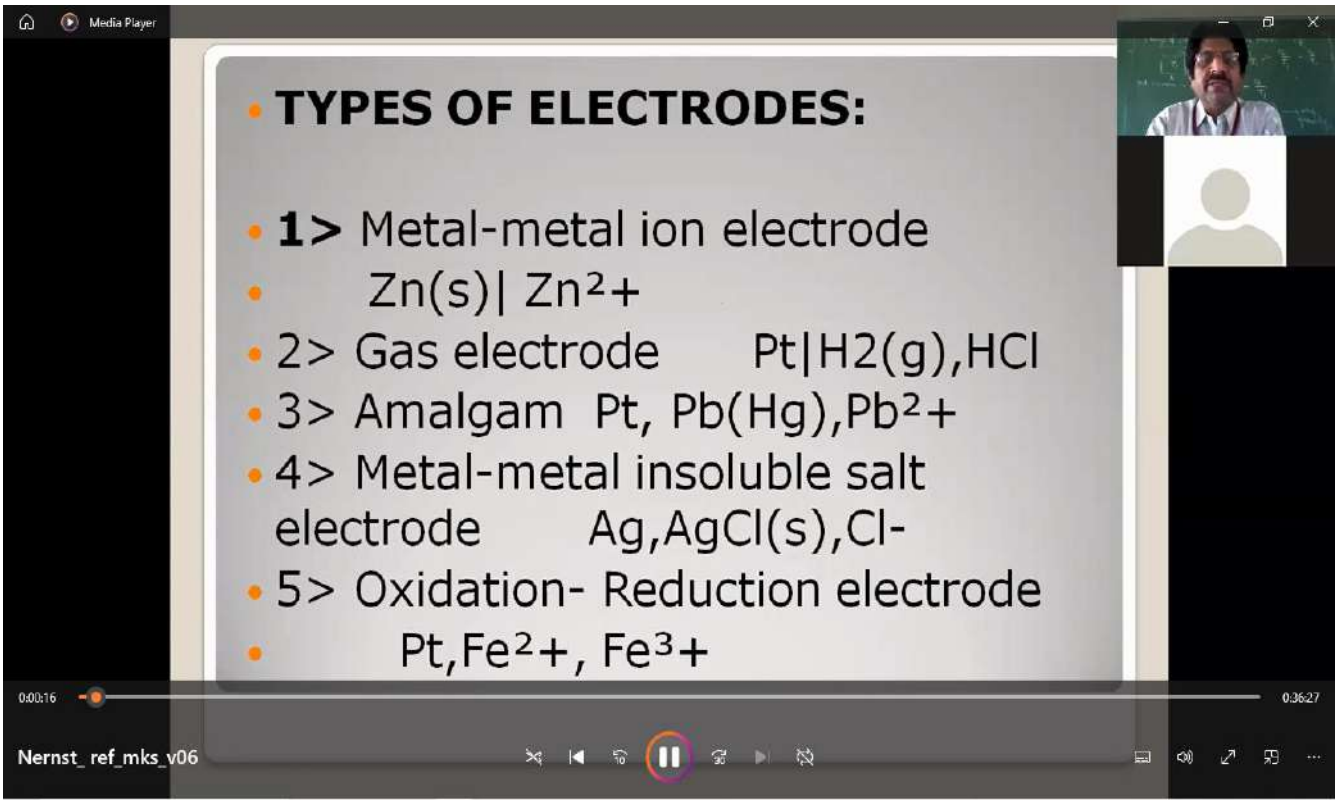
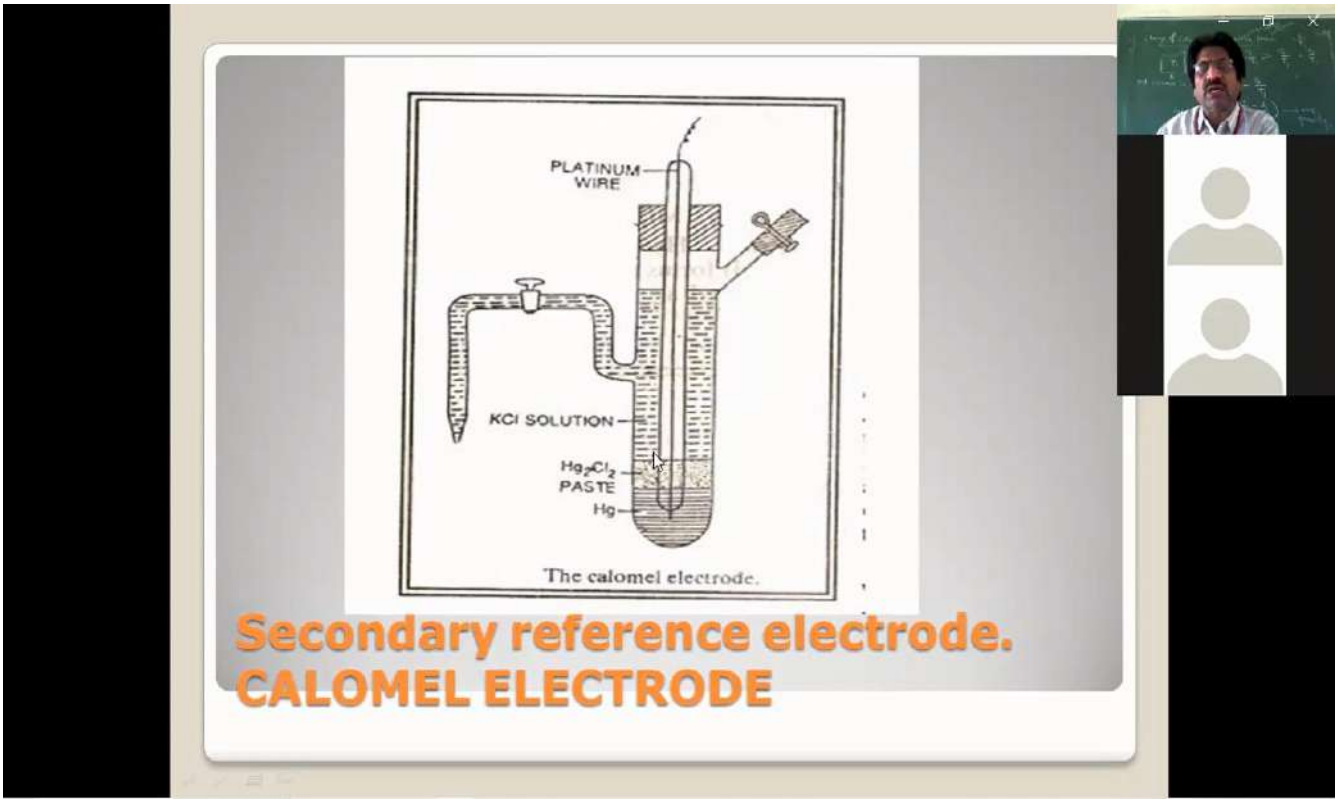
Types of Electrodes





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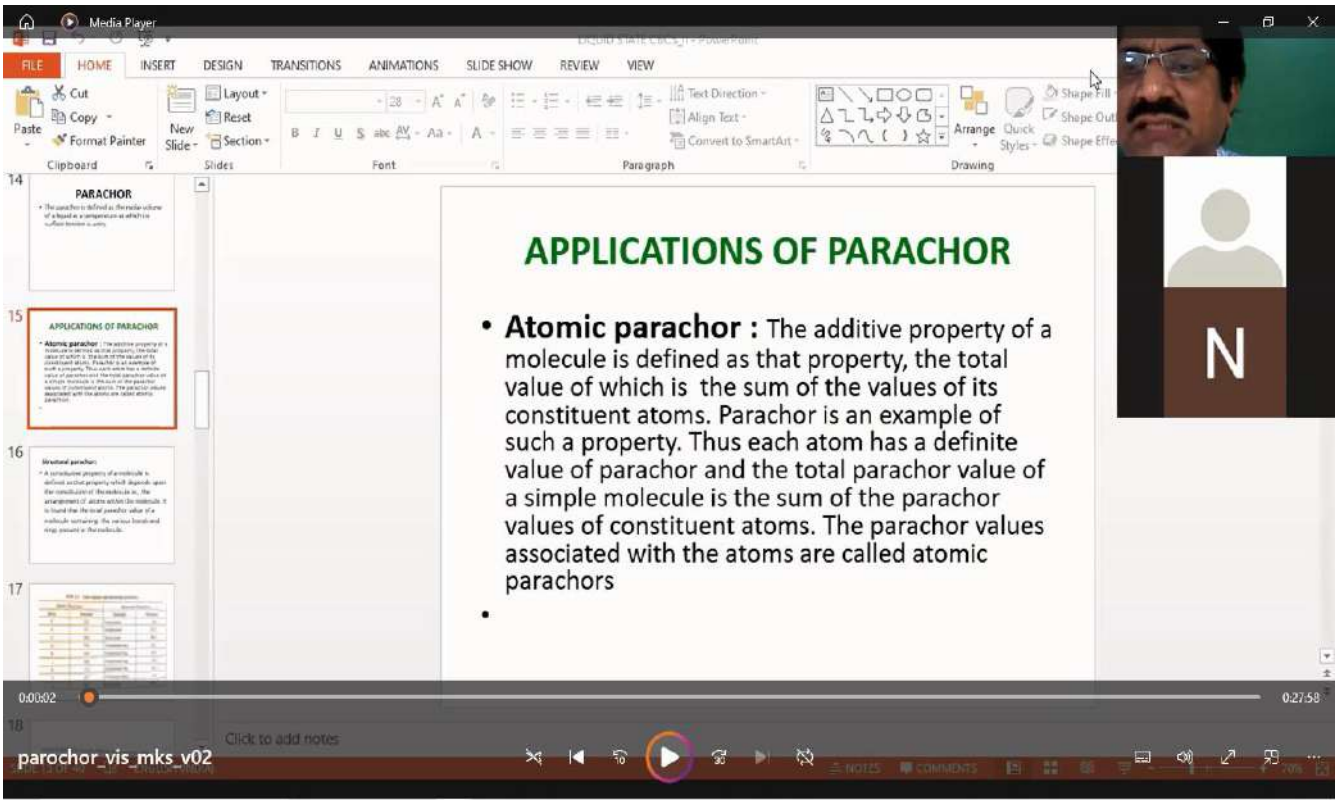
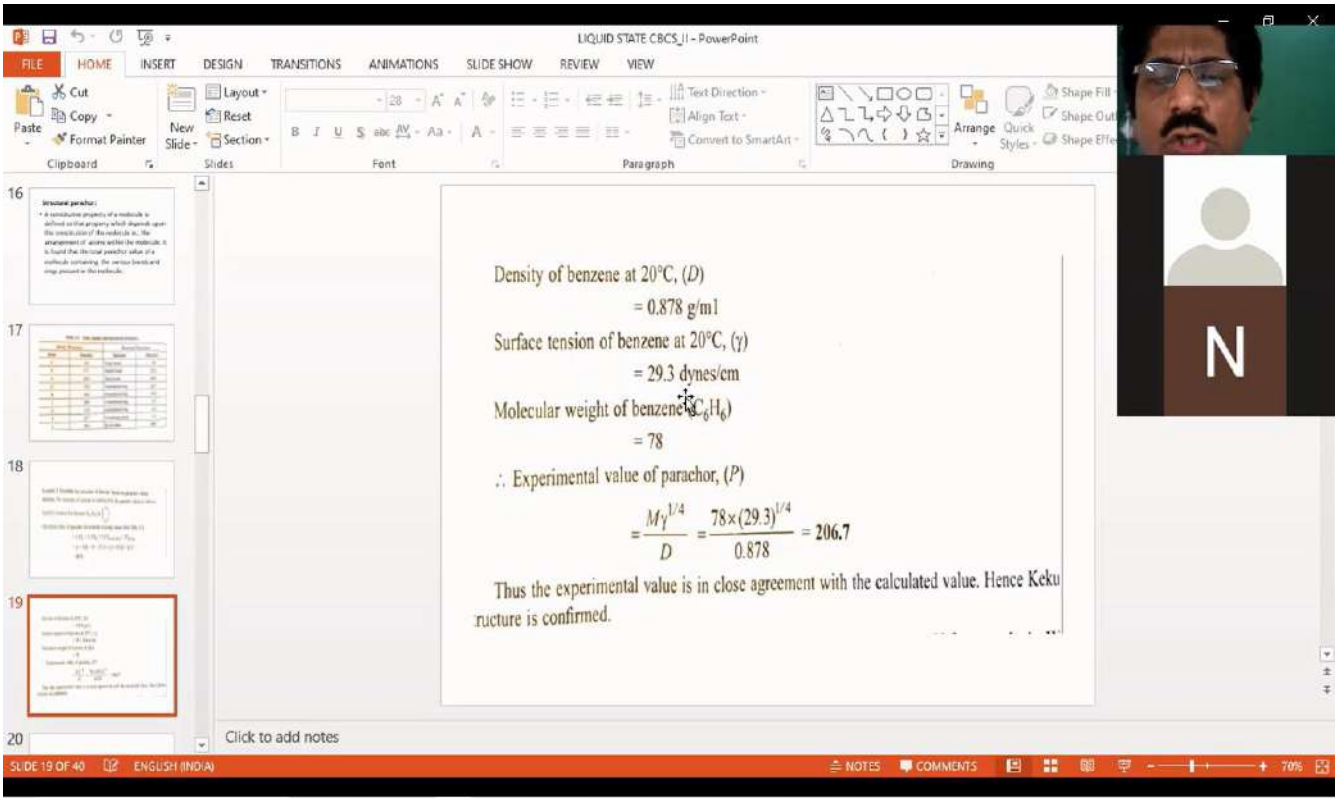
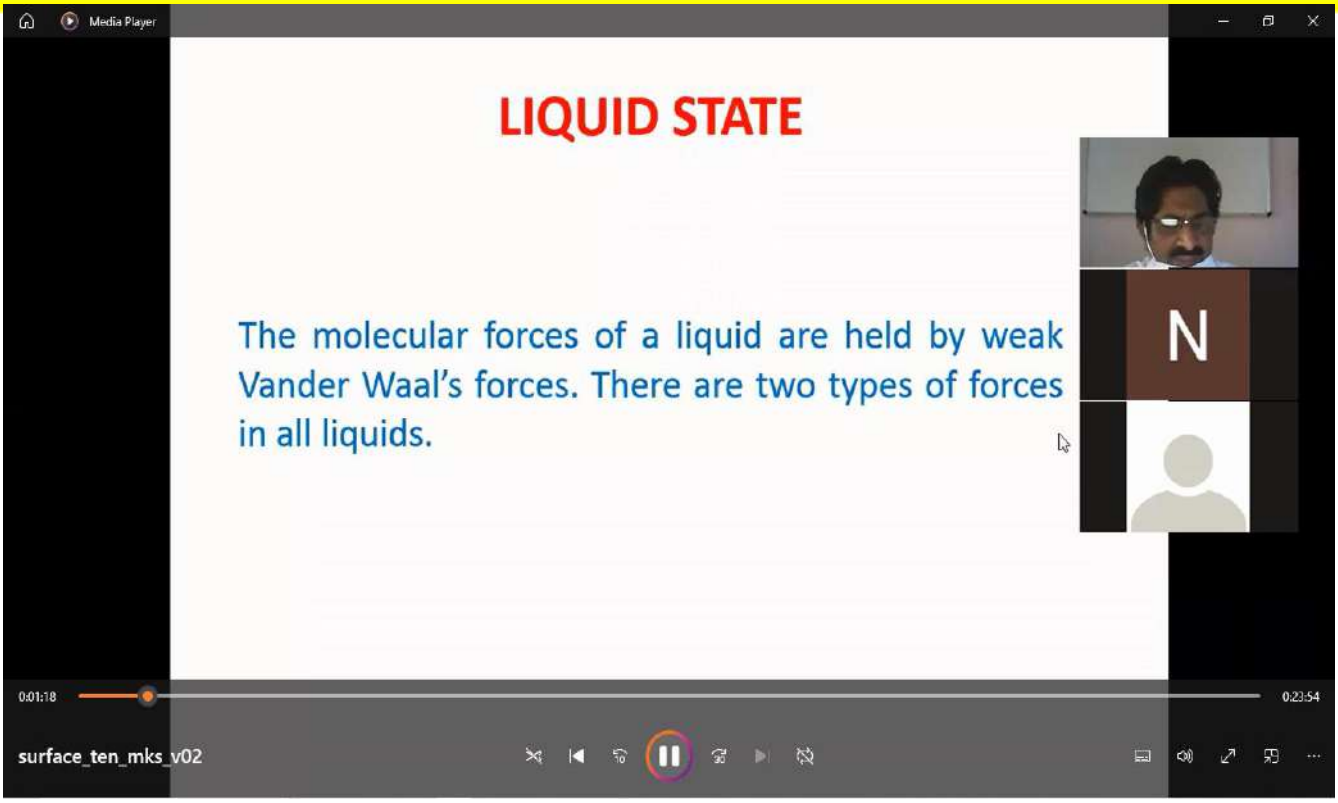
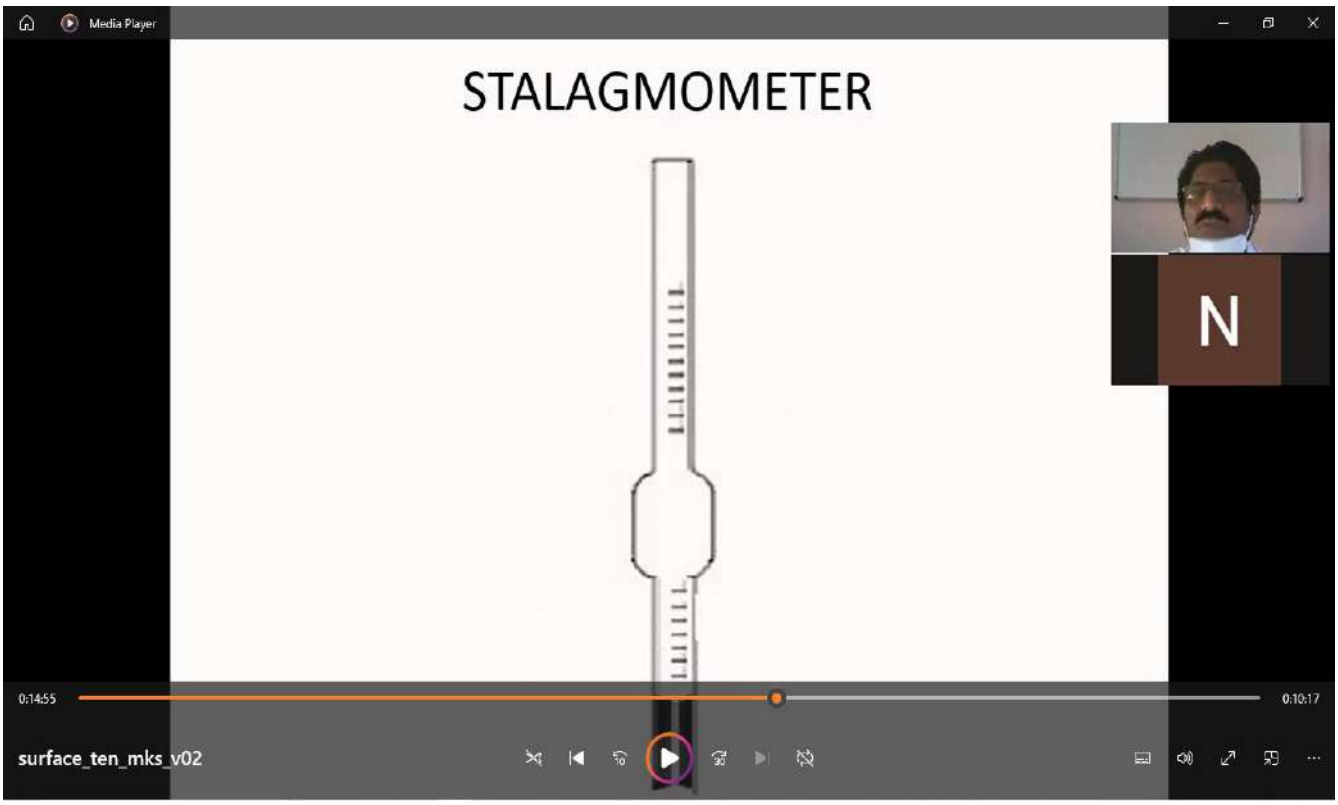
Parachor



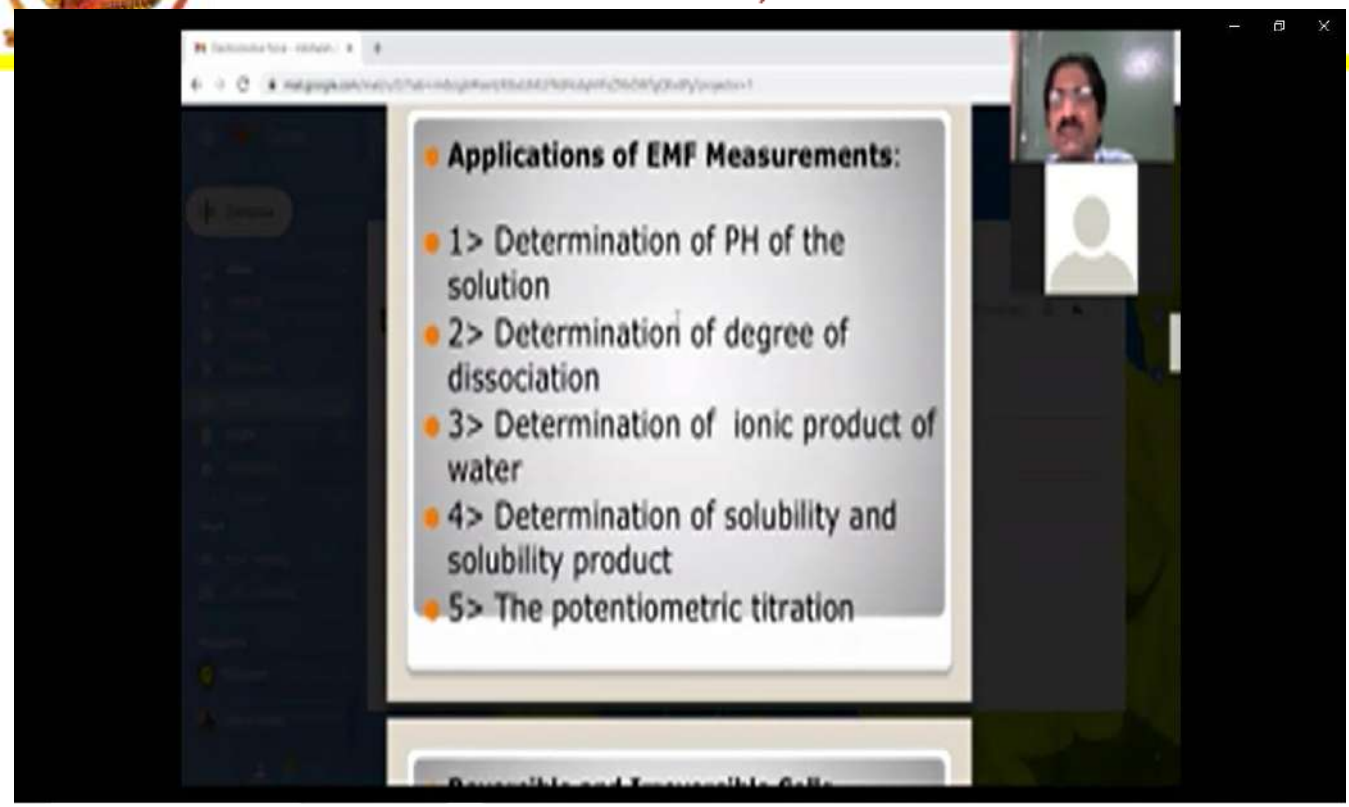


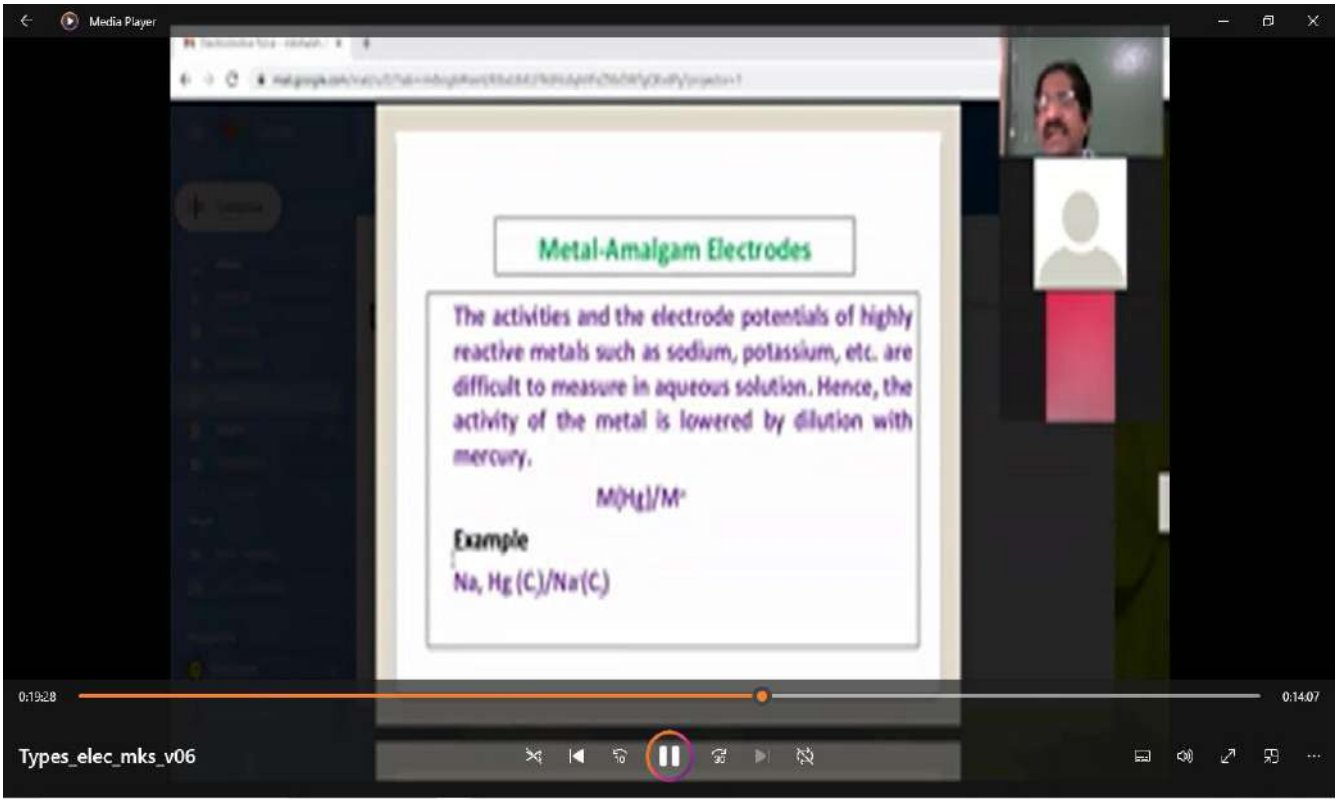
Liquid State



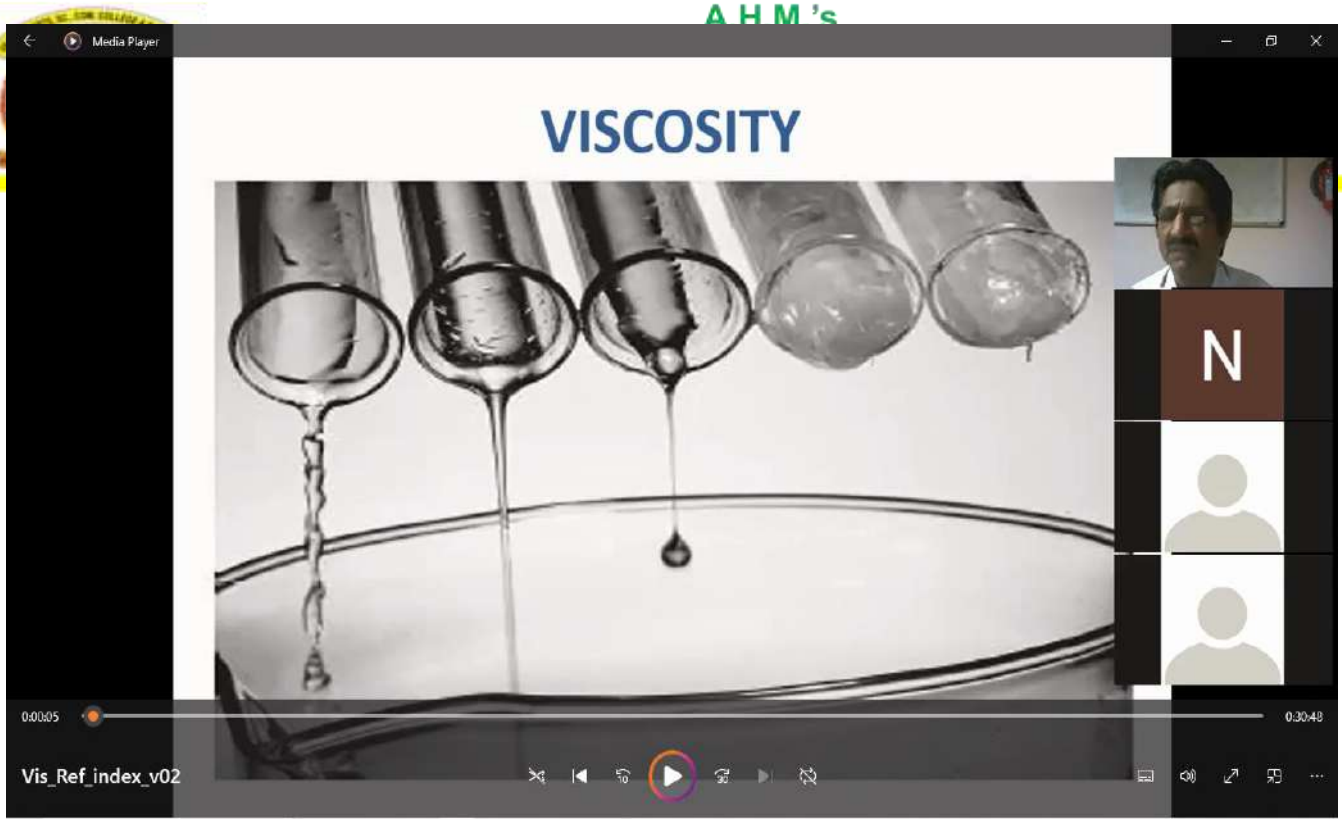


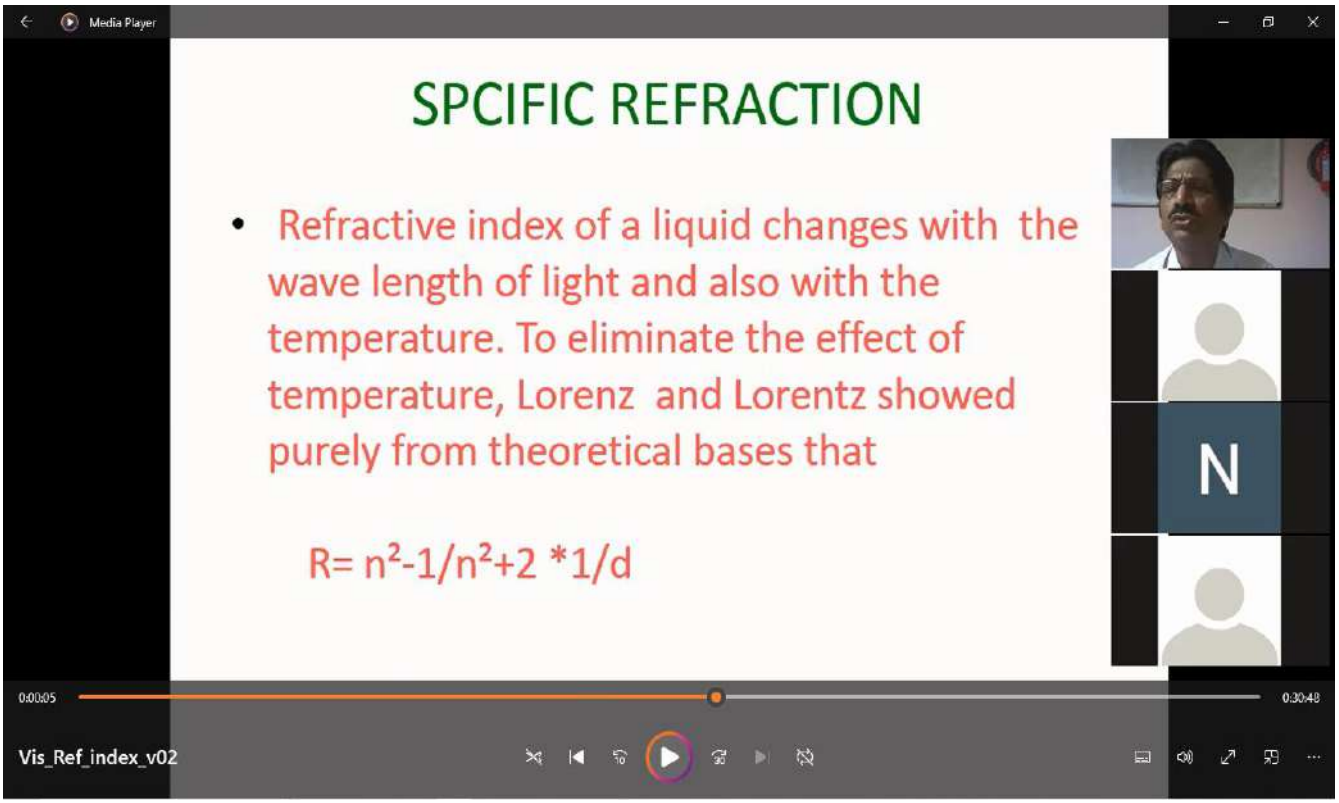
EMF Measurements



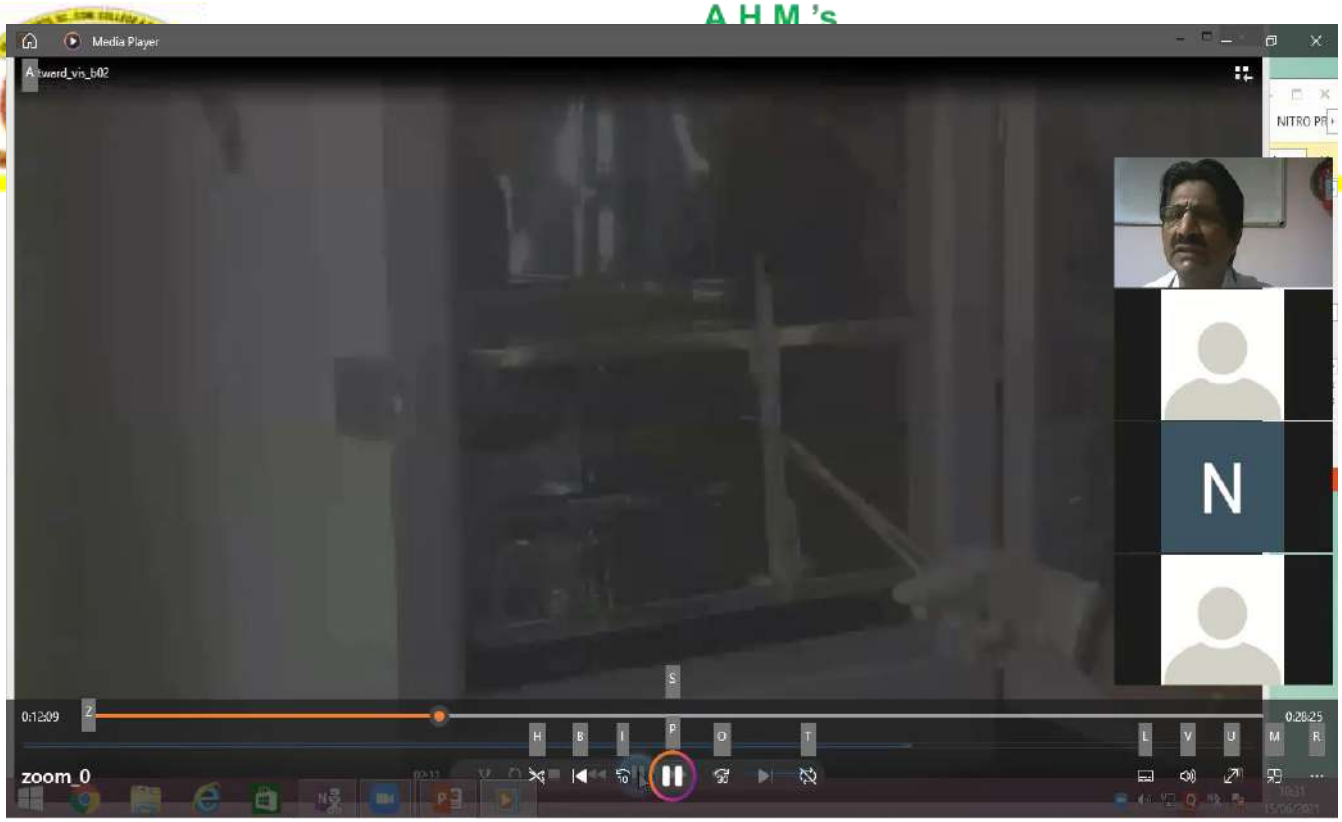


Viscosity





Viscosity cont.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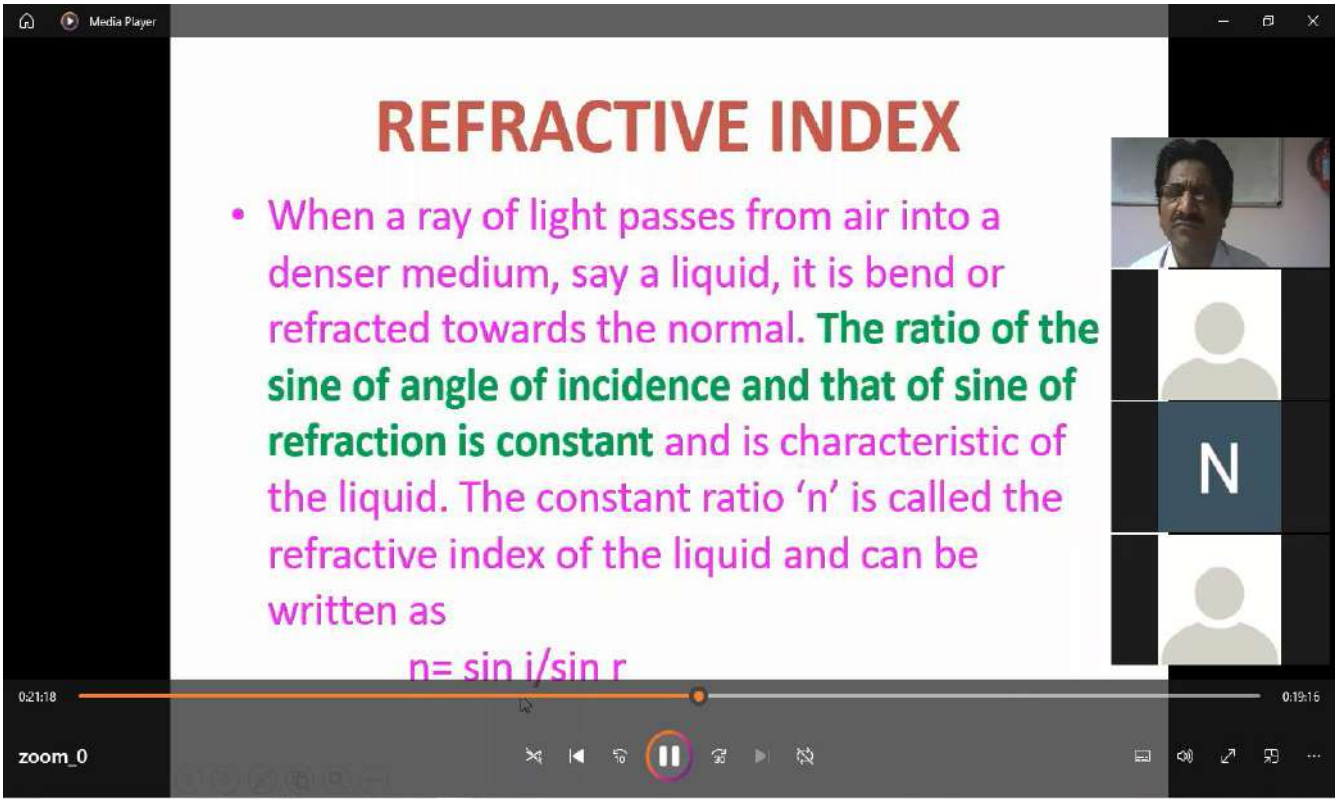
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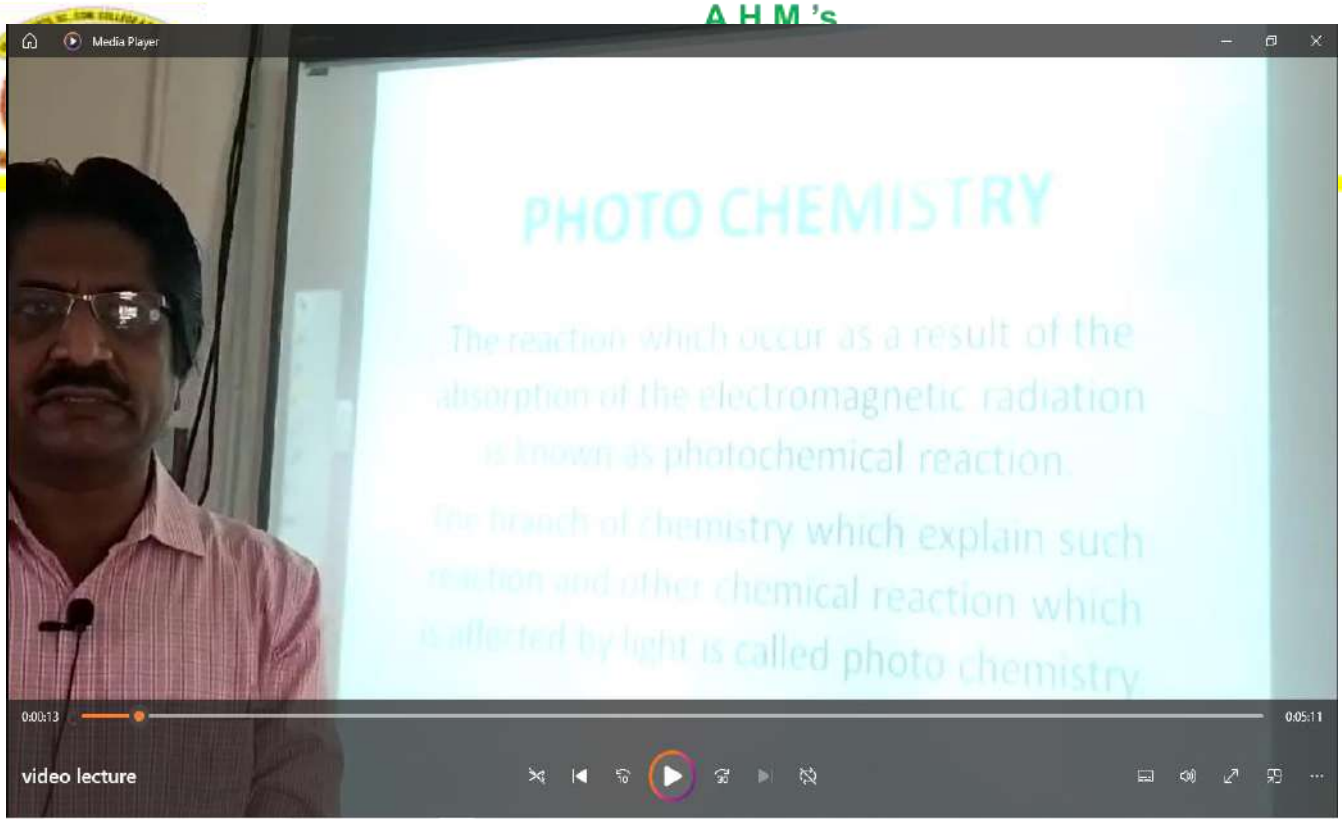
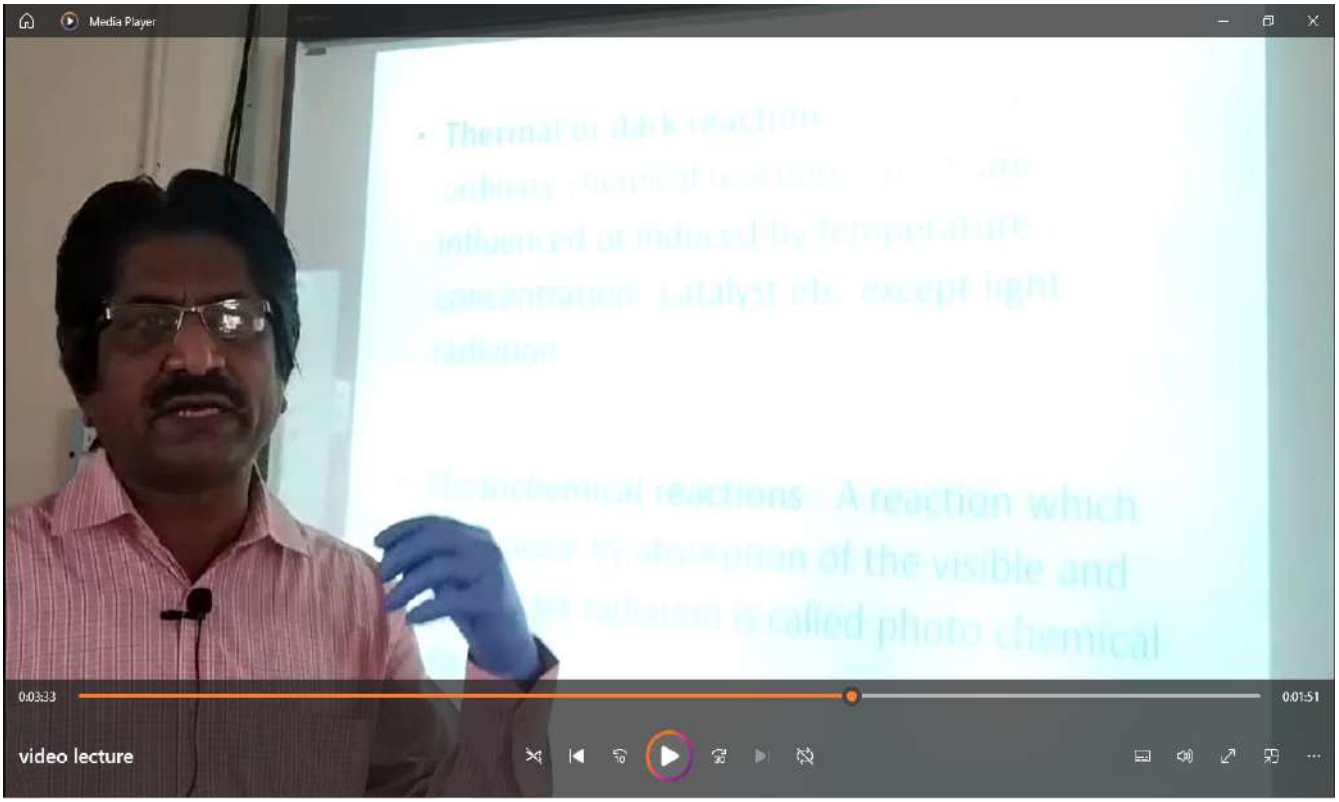
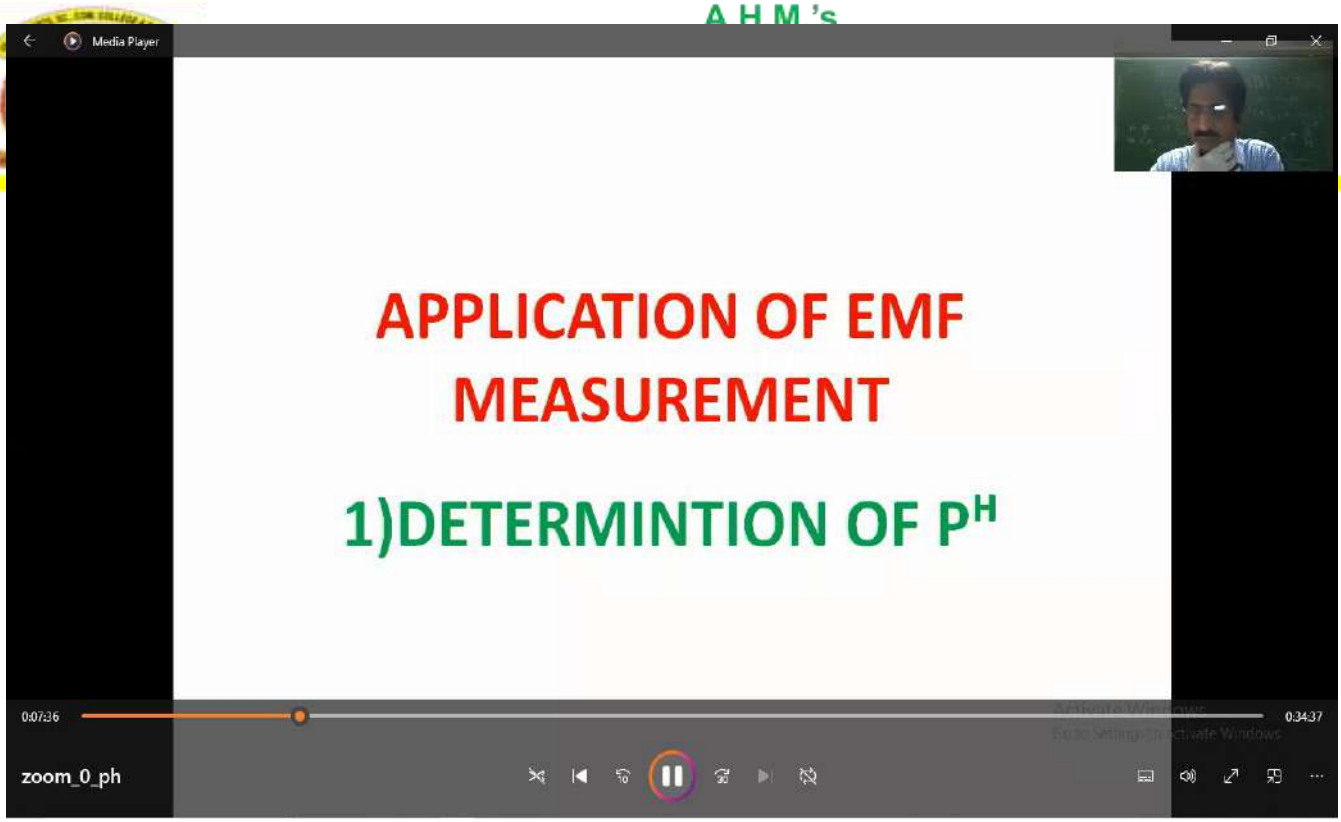
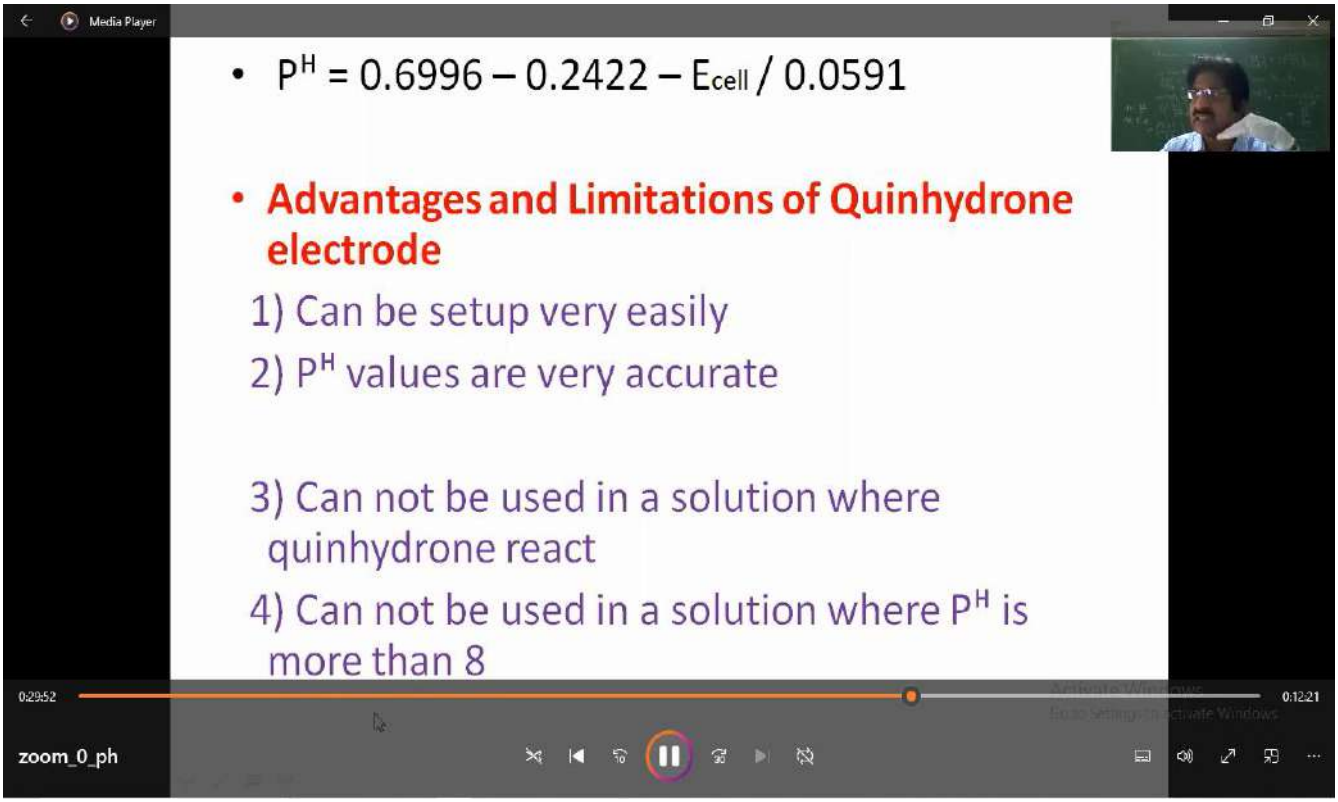
REFRACTIVE INDEX
• When a ray of light passes from air into a denser medium, say a liquid, it is bend or refracted towards the normal. The ratio of the sine of angle of incidence and that of sine of refraction is constant and is characteristic of the liquid. The constant ratio 'n' is called the refractive index of the liquid and can be written as
n= sin i/sin r
zoom_0



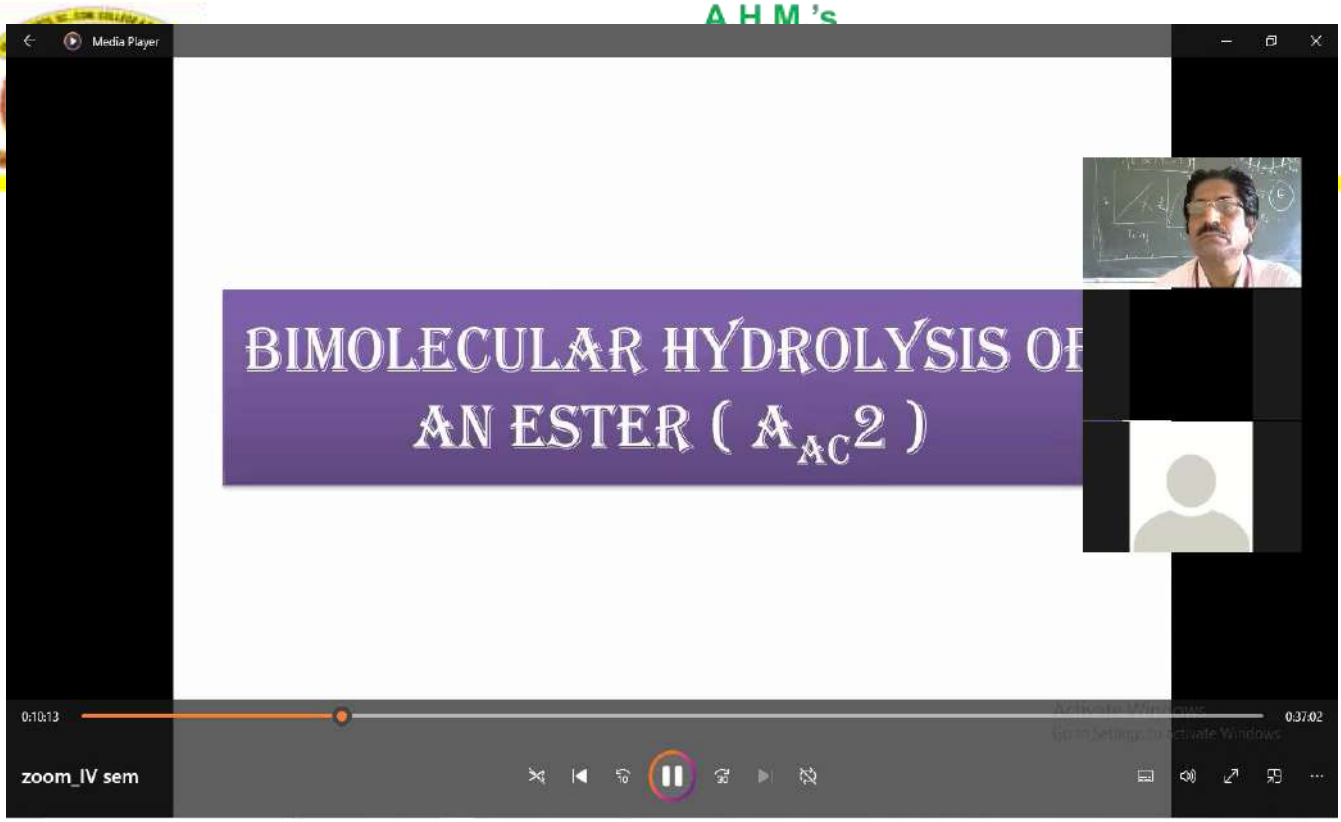


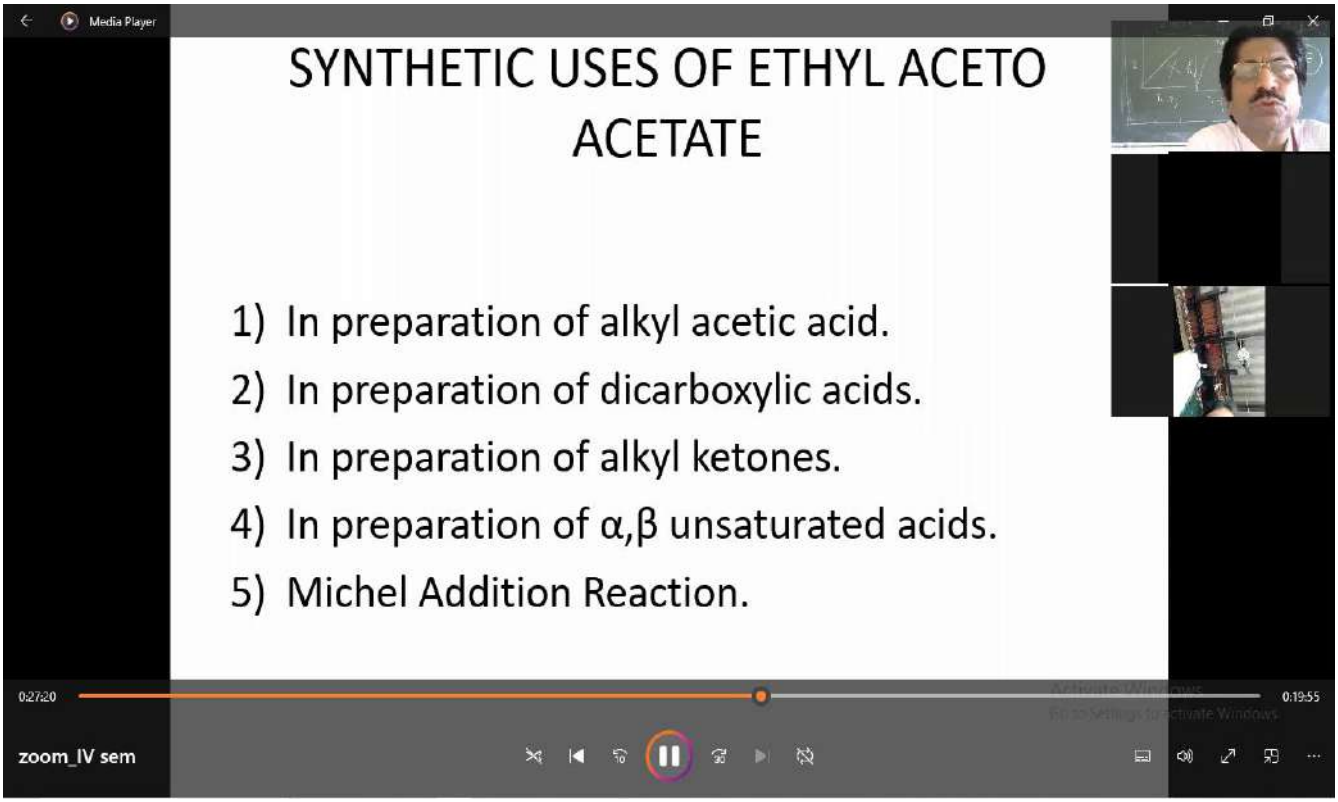
Application of EMF Measurement



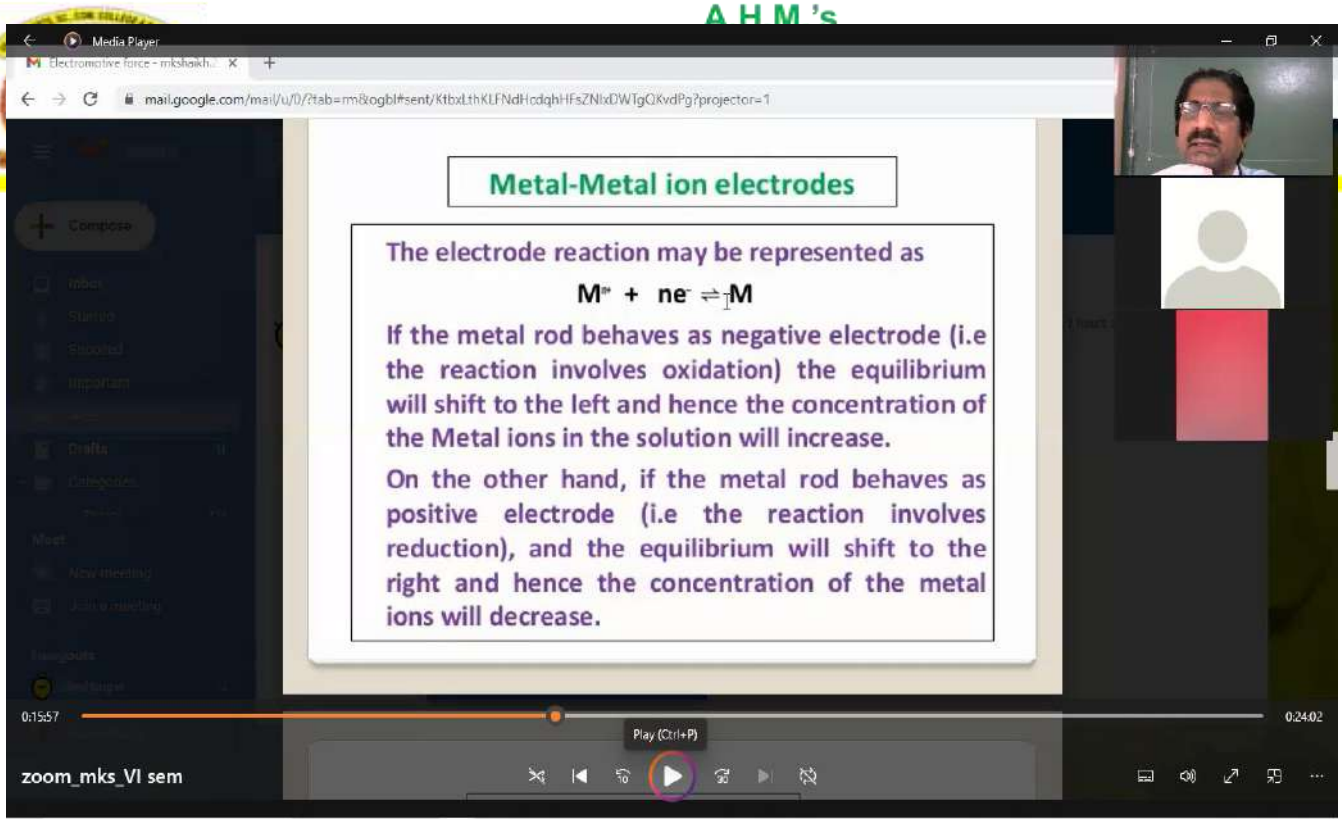


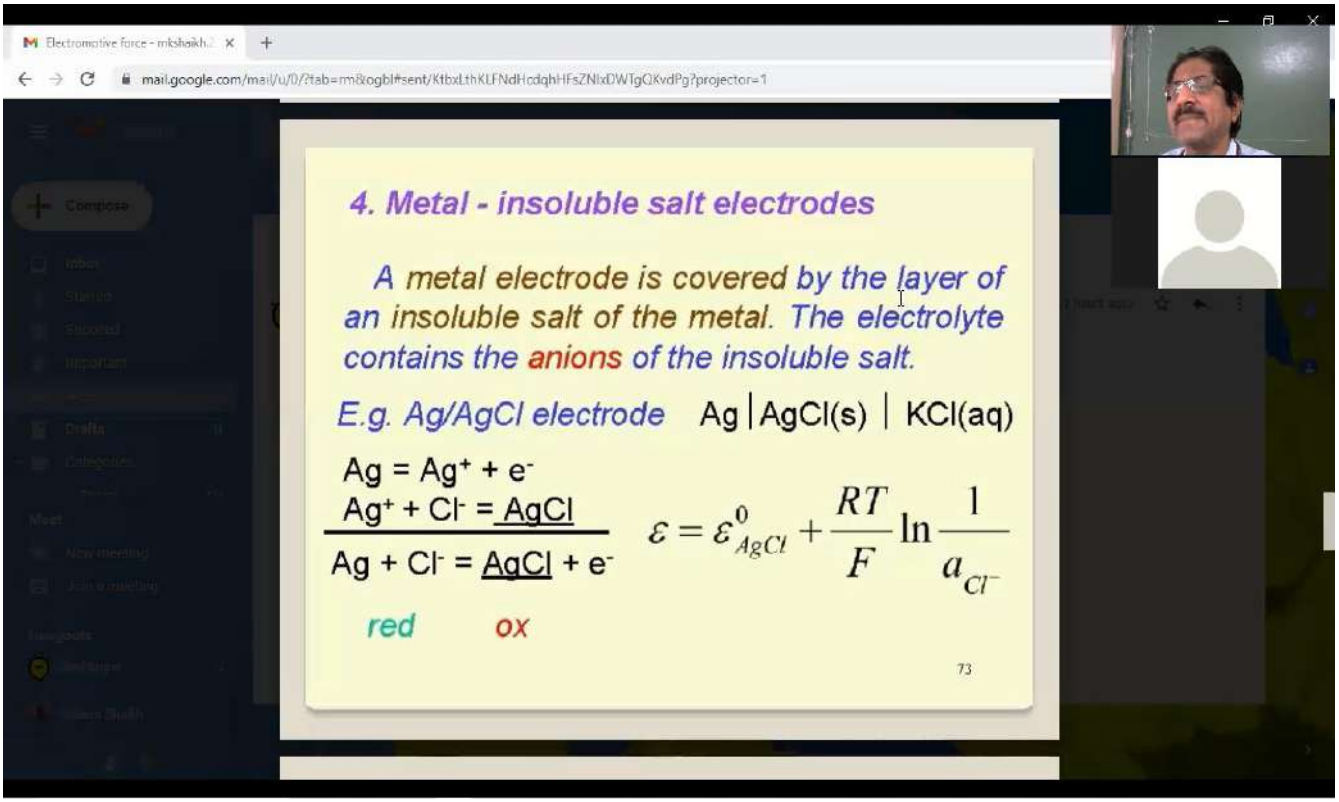
Bimolecular Hydrolysis of an Ester



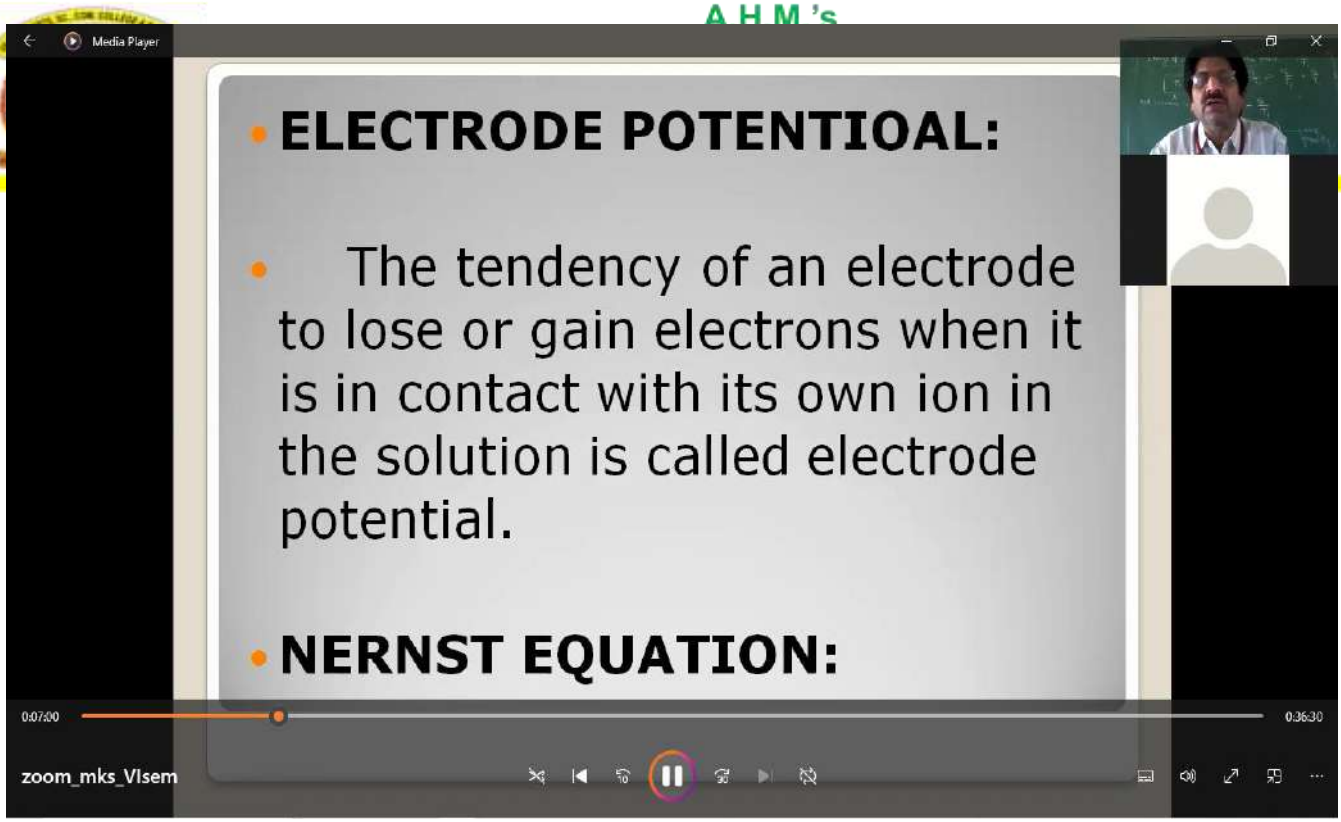


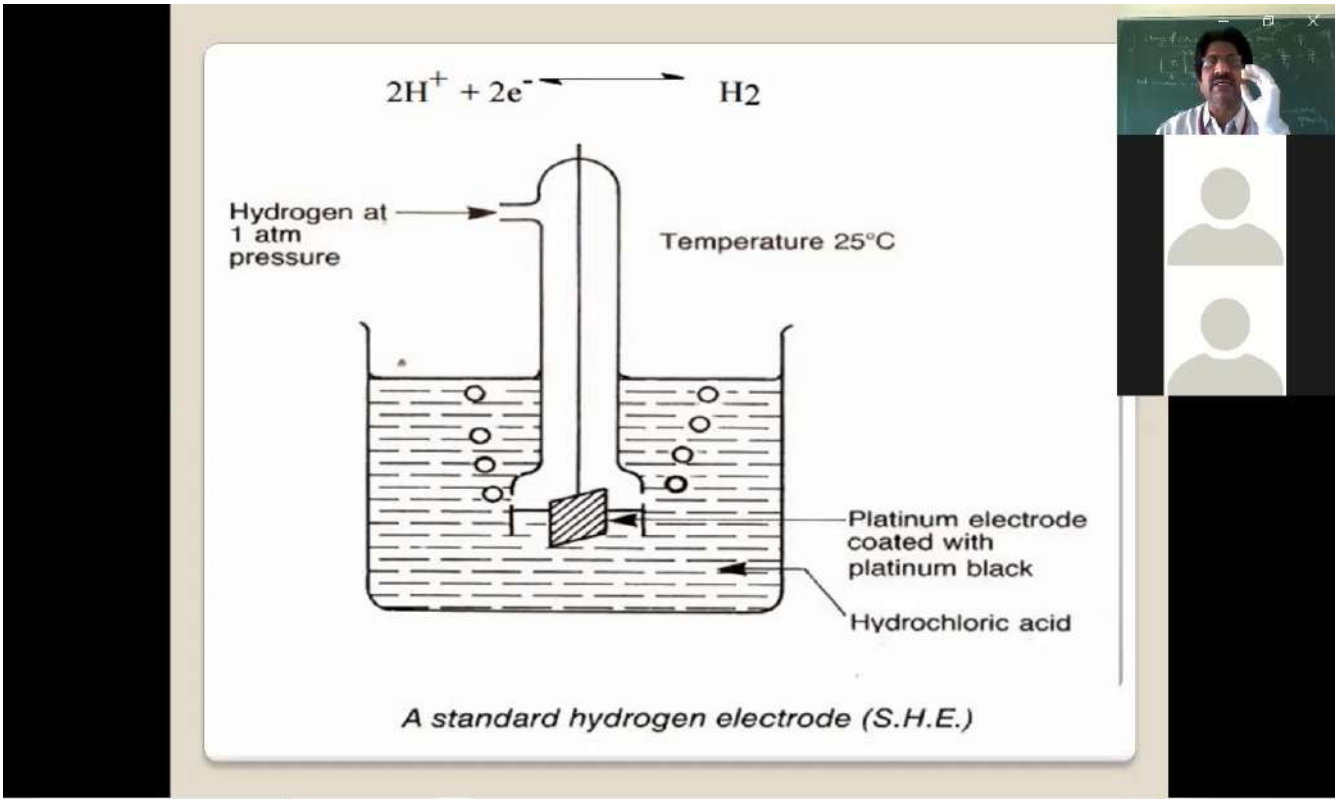
Metal ion Electrodes



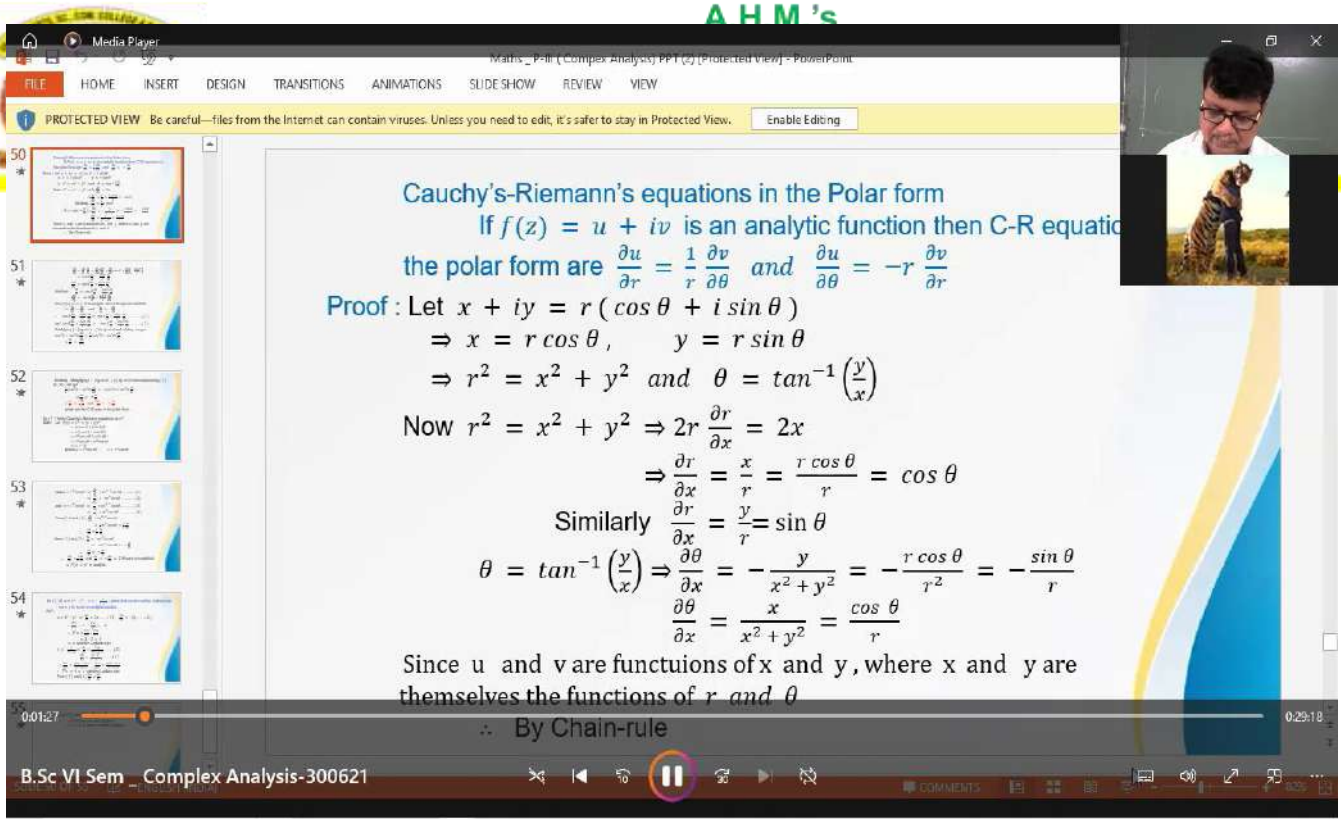


Electrode potentioal





Cauchy's-Riemann's equation in the Polar form


Media Player
Maths _P-III (Complex Analysis) PPT (2) [Protected View] - PowerPoint
FILE HOME INSERT DESIGN TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW
PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View.
Enable Editing
Cauchy's-Riemann's equations in the Polar form
If $f(z) = u + iv$ is an analytic function then C-R equatio
the polar form are $\frac{\partial u}{\partial r} = \frac{1}{r}\frac{\partial v}{\partial \theta}$ and $\frac{\partial u}{\partial \theta} = -r\frac{\partial v}{\partial r}$
Proof : Let $x + iy = r(\cos\theta + i\sin\theta)$
$\Rightarrow x = r\cos\theta, \quad y = r\sin\theta$
$\Rightarrow r^2 = x^2 + y^2$ and $\theta = tan^{-1}\left(\frac{y}{x}\right)$
Now $r^2 = x^2 + y^2 \Rightarrow 2r\frac{\partial r}{\partial x} = 2x$
$\Rightarrow \frac{\partial r}{\partial x} = \frac{x}{r} = \frac{r\cos\theta}{r} = \cos\theta$
Similarly $\frac{\partial r}{\partial x} = \frac{y}{r} = \sin\theta$
$\theta = tan^{-1}\left(\frac{y}{x}\right) \Rightarrow \frac{\partial \theta}{\partial x} = -\frac{y}{x^2+y^2} = -\frac{r\cos\theta}{r^2} = -\frac{\sin\theta}{r}$
$\frac{\partial \theta}{\partial x} = \frac{x}{x^2+y^2} = \frac{\cos\theta}{r}$
Since u and v are functuions of x and y, where x and y are themselves the functions of r and θ
$\therefore$ By Chain-rule
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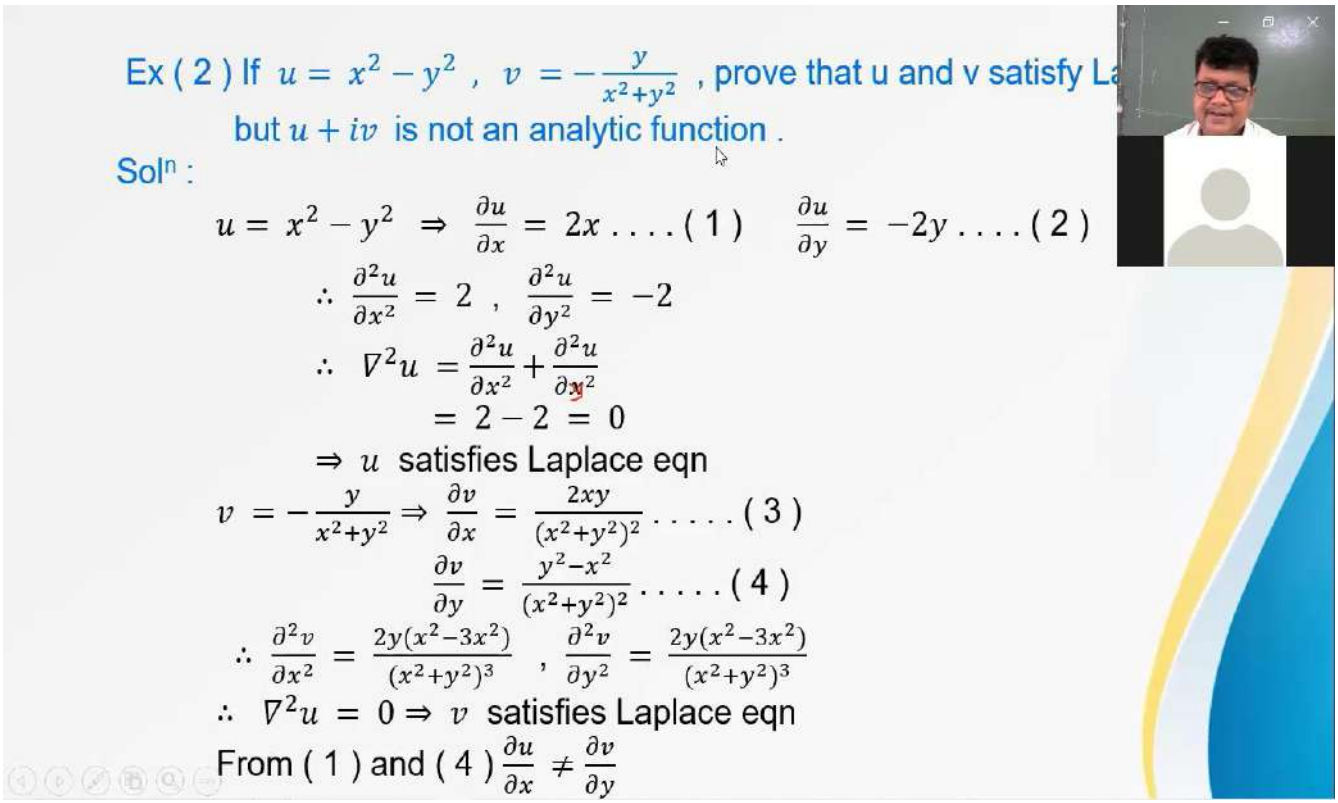
0:29:18
B.Sc VI Sem _ Complex Analysis-300621


Ex (2) If $u = x^2 - y^2$, $v = -\frac{y}{x^2+y^2}$, prove that u and v satisfy La
but $u + iv$ is not an analytic function .
Soln :
$u = x^2 - y^2 \Rightarrow \frac{\partial u}{\partial x} = 2x \ldots (1) \quad \frac{\partial u}{\partial y} = -2y \ldots (2)$
$\therefore \frac{\partial^2 u}{\partial x^2} = 2 , \quad \frac{\partial^2 u}{\partial y^2} = -2$
$\therefore \nabla^2 u = \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2}$
$= 2 - 2 = 0$
$\Rightarrow u$ satisfies Laplace eqn
$v = -\frac{y}{x^2+y^2} \Rightarrow \frac{\partial v}{\partial x} = \frac{2xy}{(x^2+y^2)^2} \ldots (3)$
$\frac{\partial v}{\partial y} = \frac{y^2-x^2}{(x^2+y^2)^2} \ldots (4)$
$\therefore \frac{\partial^2 v}{\partial x^2} = \frac{2y(x^2-3x^2)}{(x^2+y^2)^3} , \quad \frac{\partial^2 v}{\partial y^2} = \frac{2y(x^2-3x^2)}{(x^2+y^2)^3}$
$\therefore \nabla^2 u = 0 \Rightarrow v$ satisfies Laplace eqn
From (1) and (4) $\frac{\partial u}{\partial x} \neq \frac{\partial v}{\partial y}$

Ex : If $f(z)$ is a regular function of z such that $f'(z) \neq 0$, then prove tha

$$\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right) \log |f'(z)| = 0$$

Proof : We know that $\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} = 4 \frac{\partial^2}{\partial z . \partial \bar{z}}$

$$\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right) \log |f'(z)| = 4 \frac{\partial^2}{\partial z . \partial \bar{z}} \{\log |f'(z)|\}$$

$$= 2 \frac{\partial^2}{\partial z . \partial \bar{z}} \left\{\log |f'(z)|^2\right\}$$

$$= 2 \frac{\partial^2}{\partial z . \partial \bar{z}} \{\log f'(z) \overline{f'(z)}\} \qquad \because |z| = z\bar{z}$$

$$= 2 \frac{\partial^2}{\partial z . \partial \bar{z}} \{\log f'(z) f'(\bar{z})\} \qquad \because \overline{f'(z)} = f'(\bar{z})$$

$$= 2 \frac{\partial^2}{\partial z . \partial \bar{z}} \{\log f'(z) + \log f'(\bar{z})\}$$

$$\therefore \left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right) \log |f'(z)| = 0$$

Ex : If $\emptyset$ *and* φ are functions of x and y satisfy Laplace equations. S

$u + iv$ *is analytic where* $u = \frac{\partial \emptyset}{\partial y} - \frac{\partial \varphi}{\partial x}$ and $v = \frac{\partial \emptyset}{\partial x} + \frac{\partial \varphi}{\partial y}$

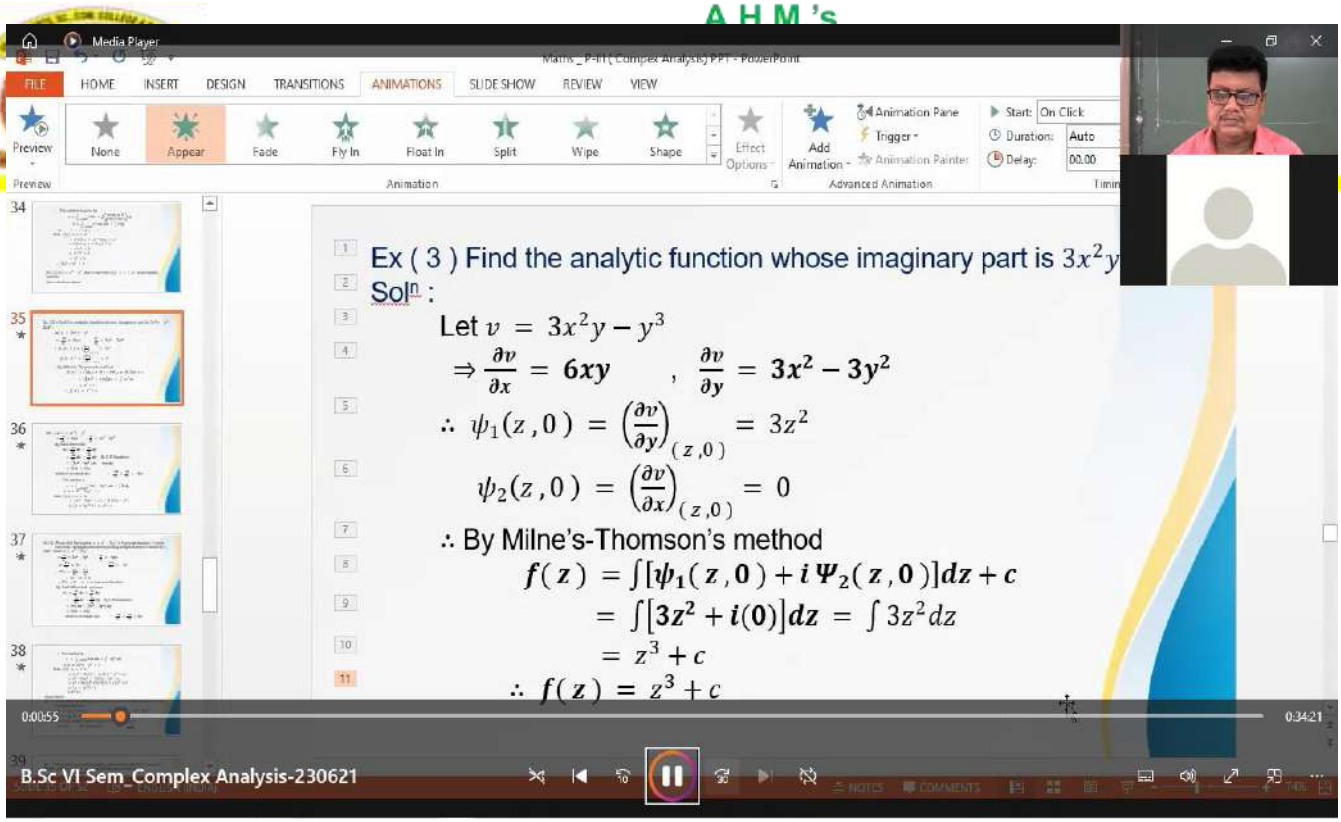
Sol^n : Since $\emptyset$ *and* φ satisfy Laplace equations

$$\therefore \quad \frac{\partial^2 \emptyset}{\partial x^2} + \frac{\partial^2 \emptyset}{\partial y^2} = 0 \ldots\ldots (1)$$

and $\frac{\partial^2 \varphi}{\partial x^2} + \frac{\partial^2 \varphi}{\partial y^2} = 0 \ldots\ldots (1)$

Let $f(z) = u + iv$, where $u = \frac{\partial \emptyset}{\partial y} - \frac{\partial \varphi}{\partial x}$ and $v = \frac{\partial \emptyset}{\partial x} + \frac{\partial \varphi}{\partial y}$

$$\therefore \quad \frac{\partial u}{\partial x} = \frac{\partial}{\partial x}\left(\frac{\partial \emptyset}{\partial y} - \frac{\partial \varphi}{\partial x}\right) = \frac{\partial^2 \emptyset}{\partial x \partial y} - \frac{\partial^2 \varphi}{\partial x^2} \ldots\ldots\ldots (3)$$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Ex (3) Find the analytic function whose imaginary part is $3x^2y$
Soln :
Let $v = 3x^2y - y^3$
$\Rightarrow \frac{\partial v}{\partial x} = 6xy \quad , \quad \frac{\partial v}{\partial y} = 3x^2 - 3y^2$
$\therefore \psi_1(z,0) = \left(\frac{\partial v}{\partial y}\right)_{(z,0)} = 3z^2$
$\psi_2(z,0) = \left(\frac{\partial v}{\partial x}\right)_{(z,0)} = 0$
$\therefore$ By Milne's-Thomson's method
$f(z) = \int [\psi_1(z,0) + i\Psi_2(z,0)]dz + c$
$= \int [3z^2 + i(0)]dz = \int 3z^2 dz$
$= z^3 + c$
$\therefore f(z) = z^3 + c$
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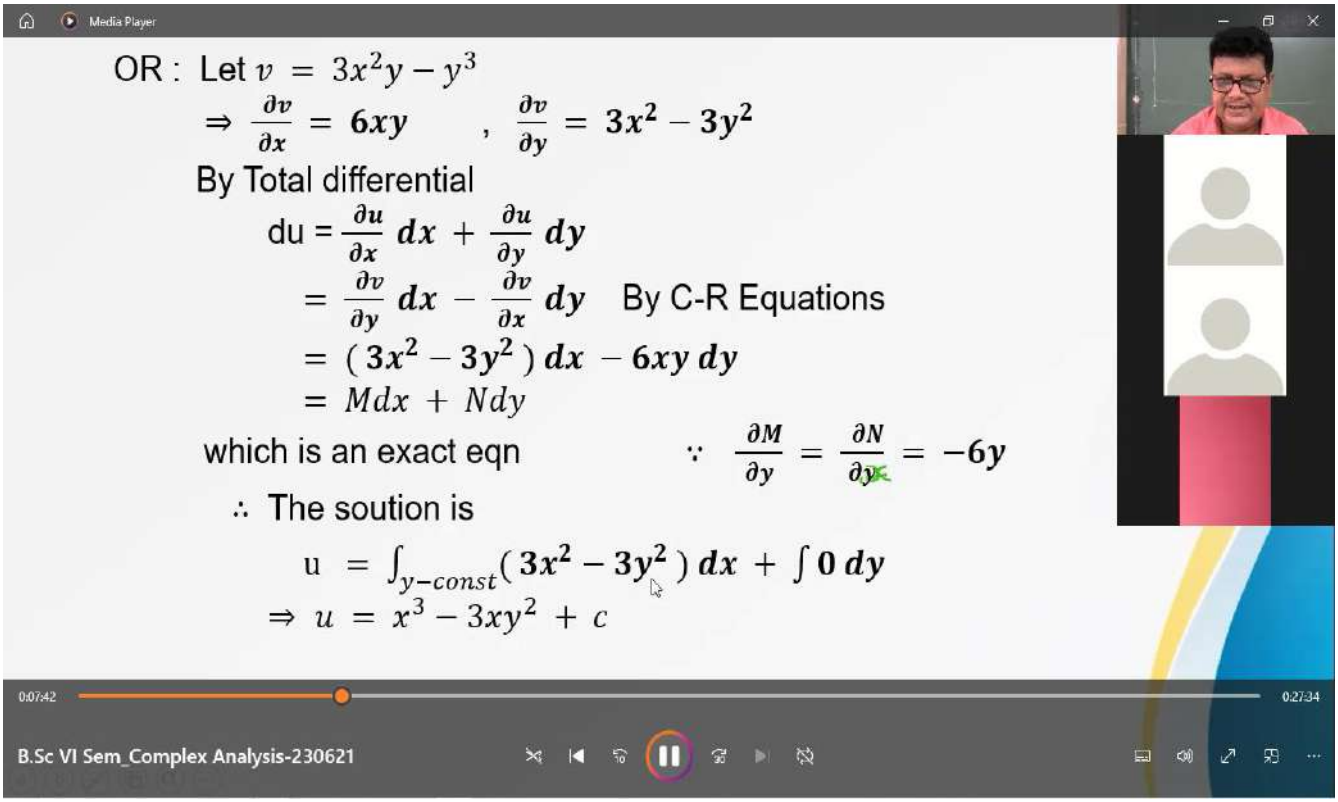
B.Sc VI Sem_Complex Analysis-230621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OR : Let $v = 3x^2y - y^3$
$\Rightarrow \frac{\partial v}{\partial x} = 6xy \quad , \quad \frac{\partial v}{\partial y} = 3x^2 - 3y^2$
By Total differential
$du = \frac{\partial u}{\partial x}dx + \frac{\partial u}{\partial y}dy$
$= \frac{\partial v}{\partial y}dx - \frac{\partial v}{\partial x}dy$ By C-R Equations
$= (3x^2 - 3y^2)dx - 6xy\,dy$
$= Mdx + Ndy$
which is an exact eqn $\because \frac{\partial M}{\partial y} = \frac{\partial N}{\partial x} = -6y$
$\therefore$ The soution is
$u = \int_{y-const} (3x^2 - 3y^2)dx + \int 0\,dy$
$\Rightarrow u = x^3 - 3xy^2 + c$
0:07:42
0:27:34
B.Sc VI Sem_Complex Analysis-230621

Note : If $f(z) = u + iv$ is an analytic function then C-R Equations a satisfied

u v

Ex (2) Show that e^z *is an analytic function and find its derivative .*

Sol^n: Let $f(z) = e^z$

$= e^{x+iy}$

$= e^x e^{iy}$

$= e^x(cosy + isiny)$

$= e^x cosy + i\ e^x siny$ $= u+iv$

$\therefore \quad u = e^x cosy \quad , \qquad v = e^x siny$

$\Rightarrow \frac{\partial u}{\partial x} = e^x cosy \ldots\ldots (1) \qquad \frac{\partial v}{\partial x} = e^x siny \ldots\ldots\ldots (3)$

$\frac{\partial u}{\partial y} = -e^x siny \ldots . (2) \qquad \frac{\partial v}{\partial y} = e^x cosy \ldots\ldots\ldots (4)$

$\therefore$ From (1) and (4) $\frac{\partial u}{\partial x} = \frac{\partial v}{\partial y}$

From (2) and (3) $\frac{\partial u}{\partial y} = -\frac{\partial v}{\partial x}$

$\Rightarrow$ C-Req

$\Rightarrow f(z) = e^z$ is analyic function

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Note : If $f(z) = u + iv$ is an analytic function then C-R Equations a satisfied

i.e $\frac{\partial u}{\partial x} = \frac{\partial v}{\partial y}$ and $\frac{\partial u}{\partial y} = -\frac{\partial v}{\partial x}$

$\therefore \frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 v}{\partial x \partial y}$ and $\frac{\partial^2 u}{\partial y^2} = -\frac{\partial^2 v}{\partial y \partial x}$

$\Rightarrow \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = \frac{\partial^2 v}{\partial x \partial y} - \frac{\partial^2 v}{\partial y \partial x} = 0$

$\Rightarrow \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$ i.e $\nabla^2 u = 0$

This equation $\nabla^2 = 0$ i.e $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$ is known as Laplace equation or Potential equation

0:07:07 0:30:04

VI Sem_M-III_Com;lex Analysis_190621

Construction of Analytic function

Method - I : milne's-Thomson's method

We have $z = x + iy$ and $\bar{z} = x - iy$ so that

$x = \frac{z+\bar{z}}{2}$ and $y = \frac{z-\bar{z}}{2i}$

$\therefore f(z) = u(x, y) + iv(x, y)$

$= u\left(\frac{z+\bar{z}}{2}, \frac{z-\bar{z}}{2i}\right) + iv\left(\frac{z+\bar{z}}{2}, \frac{z-\bar{z}}{2i}\right)$

which is a function of two independet variables z and $\bar{z}$

By taking $x = z$ and $y = 0$ so that $z = \bar{z}$, we get

$f(z) = u(z, 0) + iv(z, 0)$

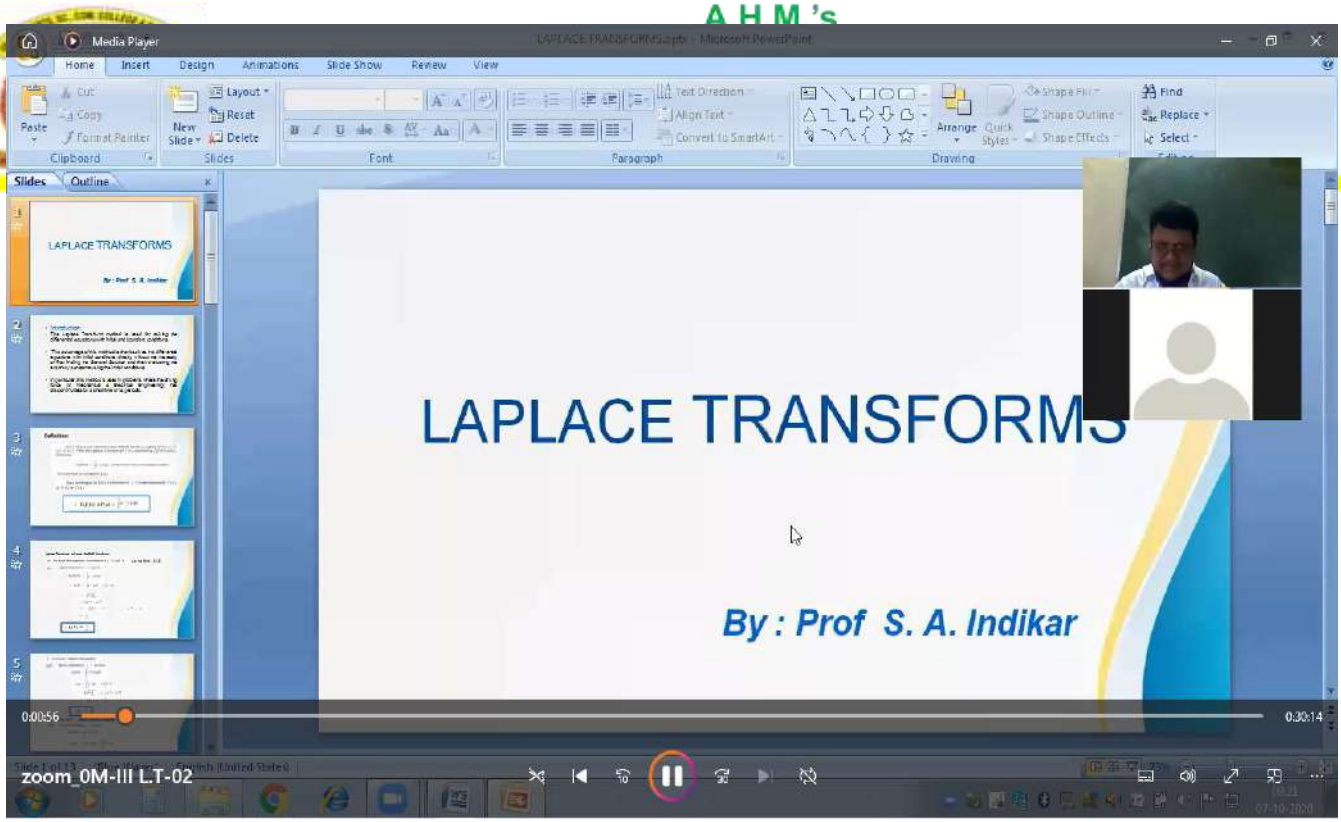
We know that

$f'(z) = \frac{\partial u}{\partial x} + i\frac{\partial v}{\partial x}$

$= \frac{\partial u}{\partial x} - i\frac{\partial u}{\partial y}$ By C-R Eq^{ns}

Taking $\frac{\partial u}{\partial x} = \emptyset_1(x, y) = \emptyset_1(z, 0)$

and $\frac{\partial u}{\partial y} = \emptyset_2(x, y) = \emptyset_2(z, 0)$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LAPLACE TRANSFORMS
By : Prof S. A. Indikar
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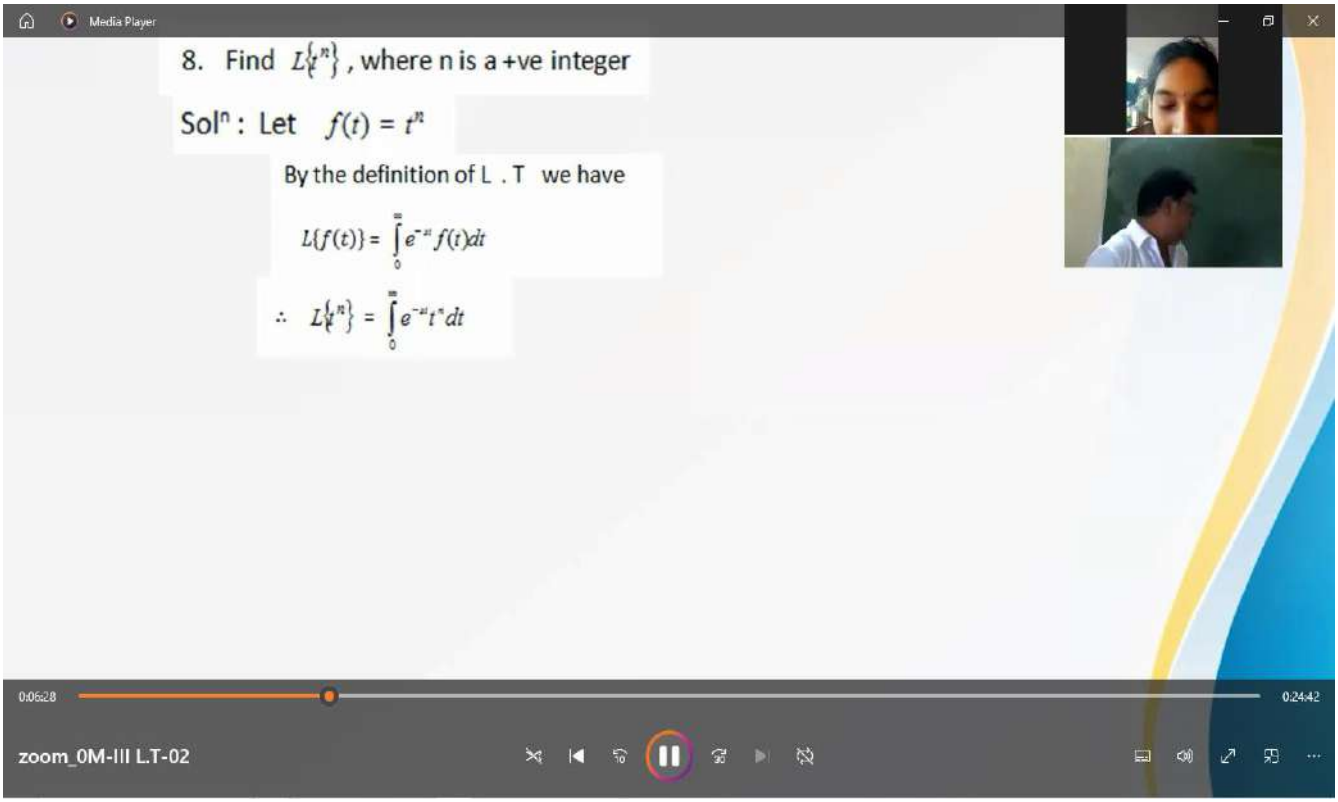
zoom_0M-III L.T-02


Media Player
8. Find $L\{t^n\}$, where n is a +ve integer
Sol^n : Let $f(t) = t^n$
By the definition of L . T we have
$L\{f(t)\} = \int_0^\infty e^{-st} f(t)dt$
$\therefore L\{t^n\} = \int_0^\infty e^{-st} t^n dt$
0:06:28
0:24:42
zoom_0M-III L.T-02

8. Find $L\{t^n\}$, where n is a +ve integer

Sol^n : Let $f(t) = t^n$

By the definition of L . T we have

$$L\{f(t)\} = \int_0^\infty e^{-st} f(t)dt$$

$$\therefore \quad L\{t^n\} = \int_0^\infty e^{-st} t^n dt$$

Definition:

Let f (t) be a real valued function defined for all +ve values of t [i.e $0 \leq t \leq \infty$]. Then the Laplace Transform of f (t) denoted by $L\{f(t)\}$ and is defined by

$$L\{f(t)\} = \int_0^\infty e^{-st} f(t)dt \text{ , where s is a real or complex number}$$

Provided that the integral is exist.

Since the integral on R.H.S is a function of s , it is also denoted by F (s) or f (s) or $\overline{f}(s)$

$$\therefore \quad \boldsymbol{L\{f(t)\} = F(s) = \int_0^\infty e^{-st} f(t)dt}$$

2. To find $L\{k\}$, where k is any constant

Sol^n: By the definition of L . T we have

$$L\{f(t)\} = \int_0^\infty e^{-st} f(t)dt$$

$$\therefore \quad L\{k\} = \int_0^\infty e^{-st}.k\,dt \quad = k\int_0^\infty e^{-st}dt$$

$$= k\left[\frac{e^{-st}}{-s}\right]_0^\infty \quad = -\frac{k}{s}[e^{-\infty} - e^{-0}]$$

$$= -\frac{k}{s}[0 - 1] \quad = \frac{k}{s}$$

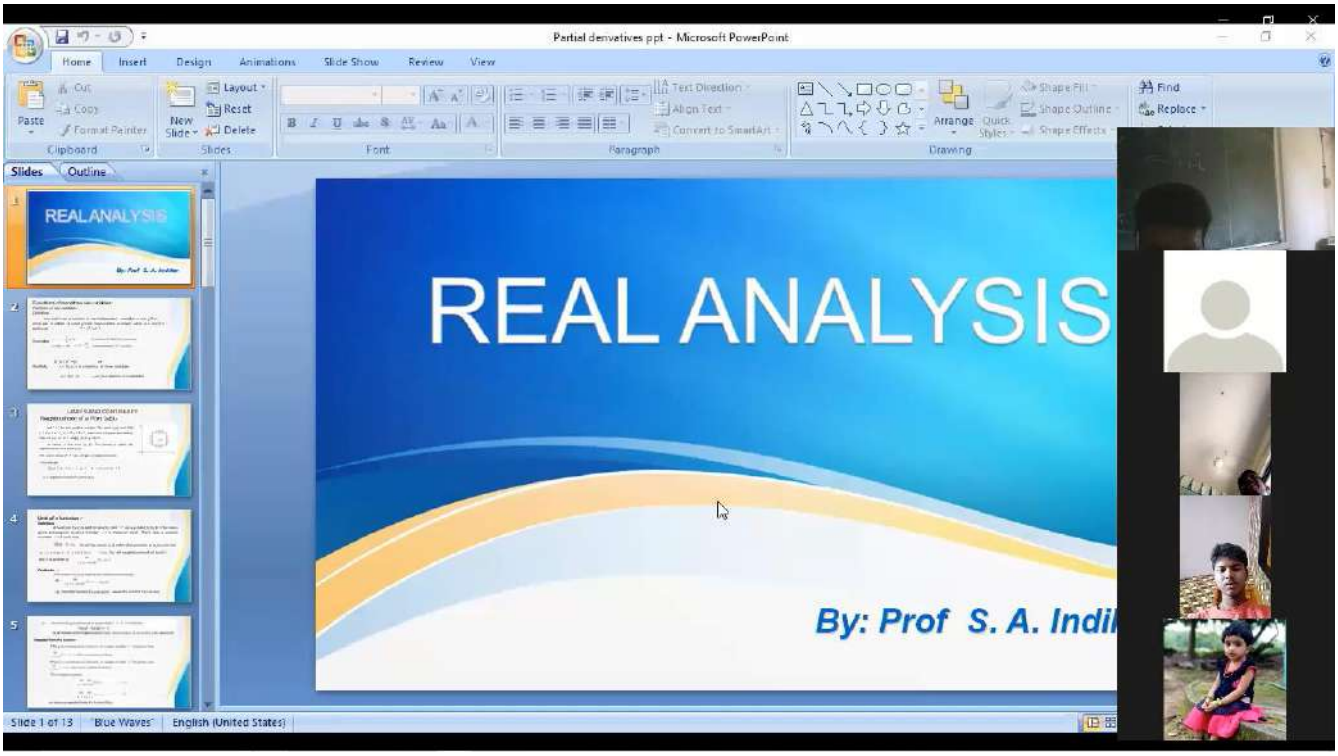
$$\therefore L\{k\} = \frac{k}{s}$$

3. To find $L\{e^{at}\}$, where a is any constant

Sol^n: By the definition of L . T we have

$$L\{f(t)\} = \int_0^\infty e^{-st} f(t)dt$$

$$\therefore L\{e^{at}\} = \int_0^\infty e^{-st}e^{at}dt\,dt = \int_0^\infty e^{-(s-a)t}dt$$

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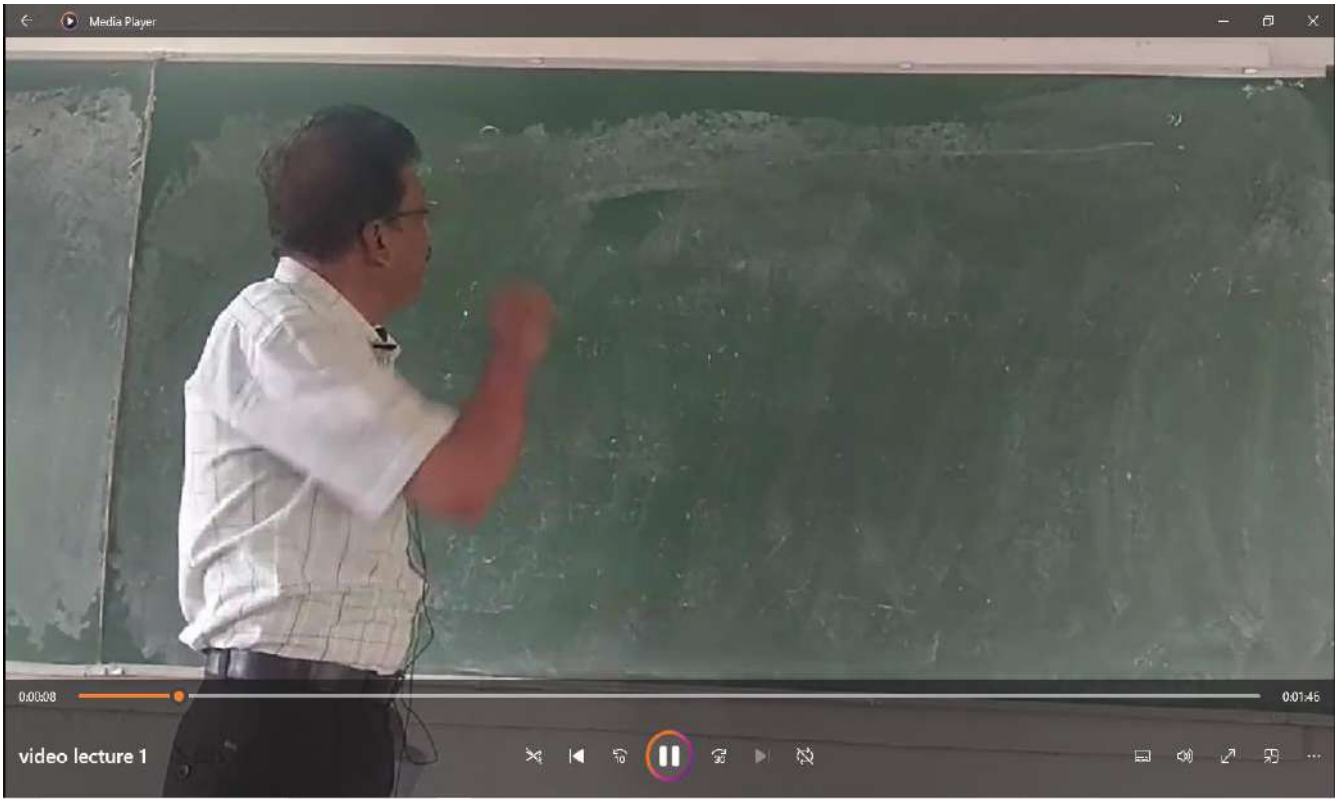
video lecture 1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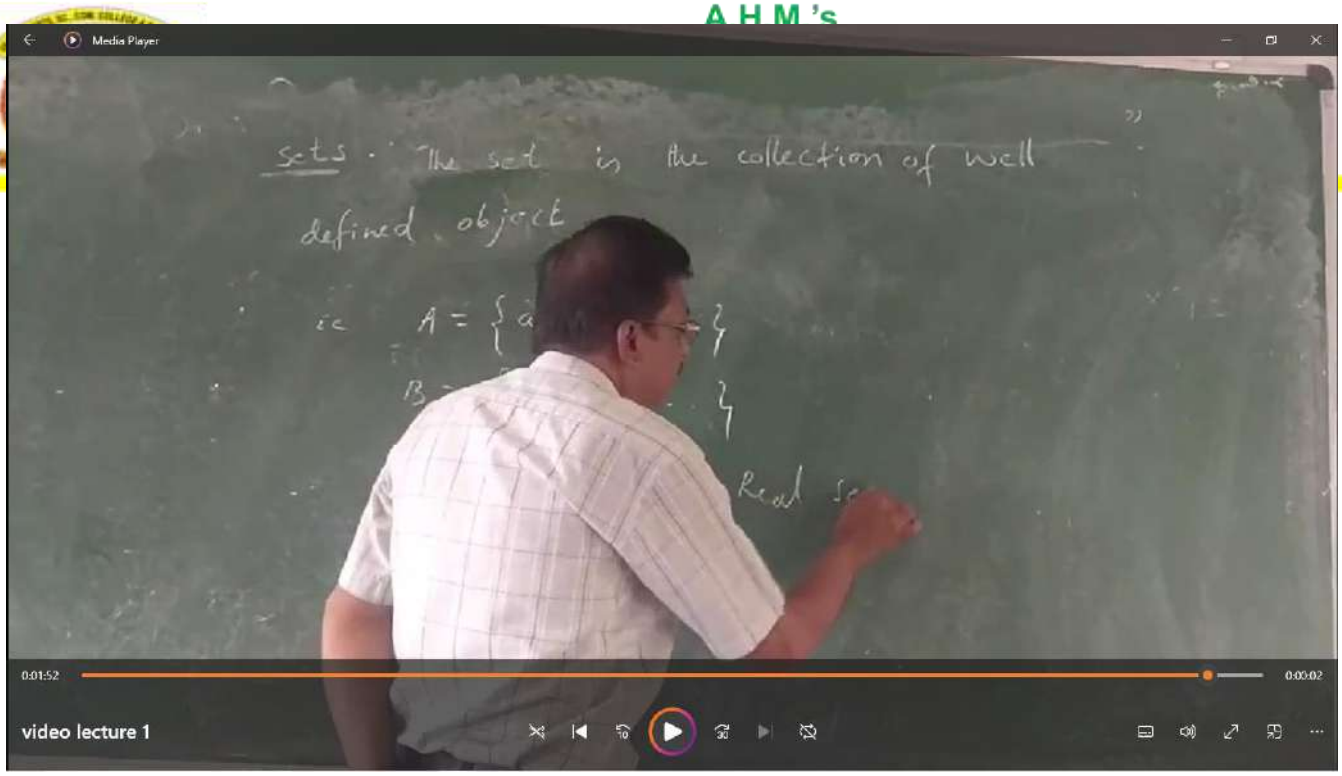
video lecture 1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Sets : The set is the collection of well
defined object
ie A = { a
B
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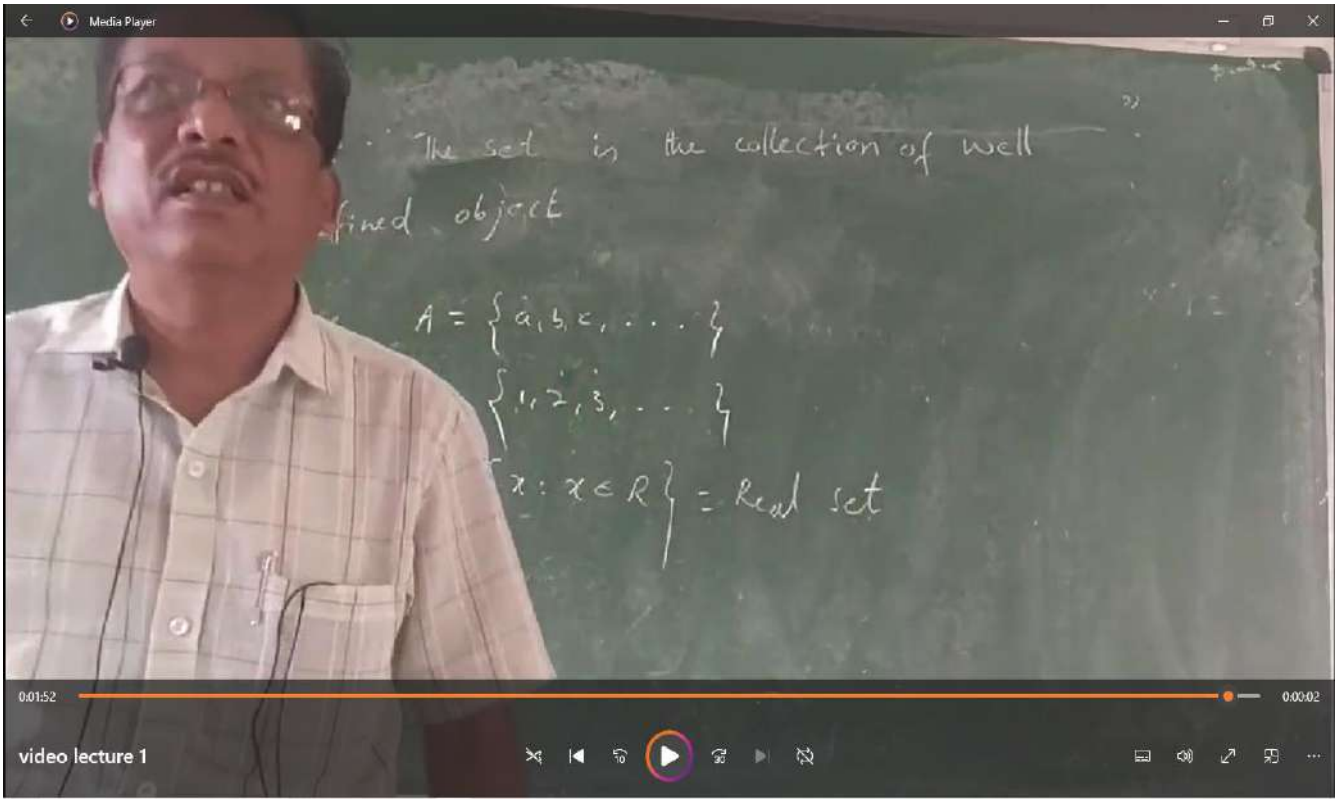
video lecture 1


Media Player
The set is the collection of well
fined object
A = { a, b, c, . . . }
{ 1, 2, 3, . . . }
x : x ∈ R } = Real set
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video lecture 1


10:13 AM
ADC M.Com 3 & 4 se...
Bushra, Devidas, Hibban, M, Mu...
22 June 2024
Umesh Mesta
ANJUMAN ARTS, SCIENCE, COMMERCE COLLEGE &
P.G.CENTRE, BHATKAL
M.COM IV SEMESTER
SEMINAR COMPLETION REPORT- 2023-24
SEMINAR TOPICS-2023-24.pdf
1 page • 373 kB • PDF
SEMINAR TOPICS-2023-24.pdf
11:28 am
Umesh Mesta
Unit 4: Error detection, correction in wire wireless communication:
Unit 4 Error detection correction in wire wireless ...
22 pages • 1.1 MB • PDF
3:21 pm
Umesh Mesta
Unit 5: Network management technology:
Network Security
Unit 5 Network management technology (...
26 pages • 885 kB • PDF
3:21 pm
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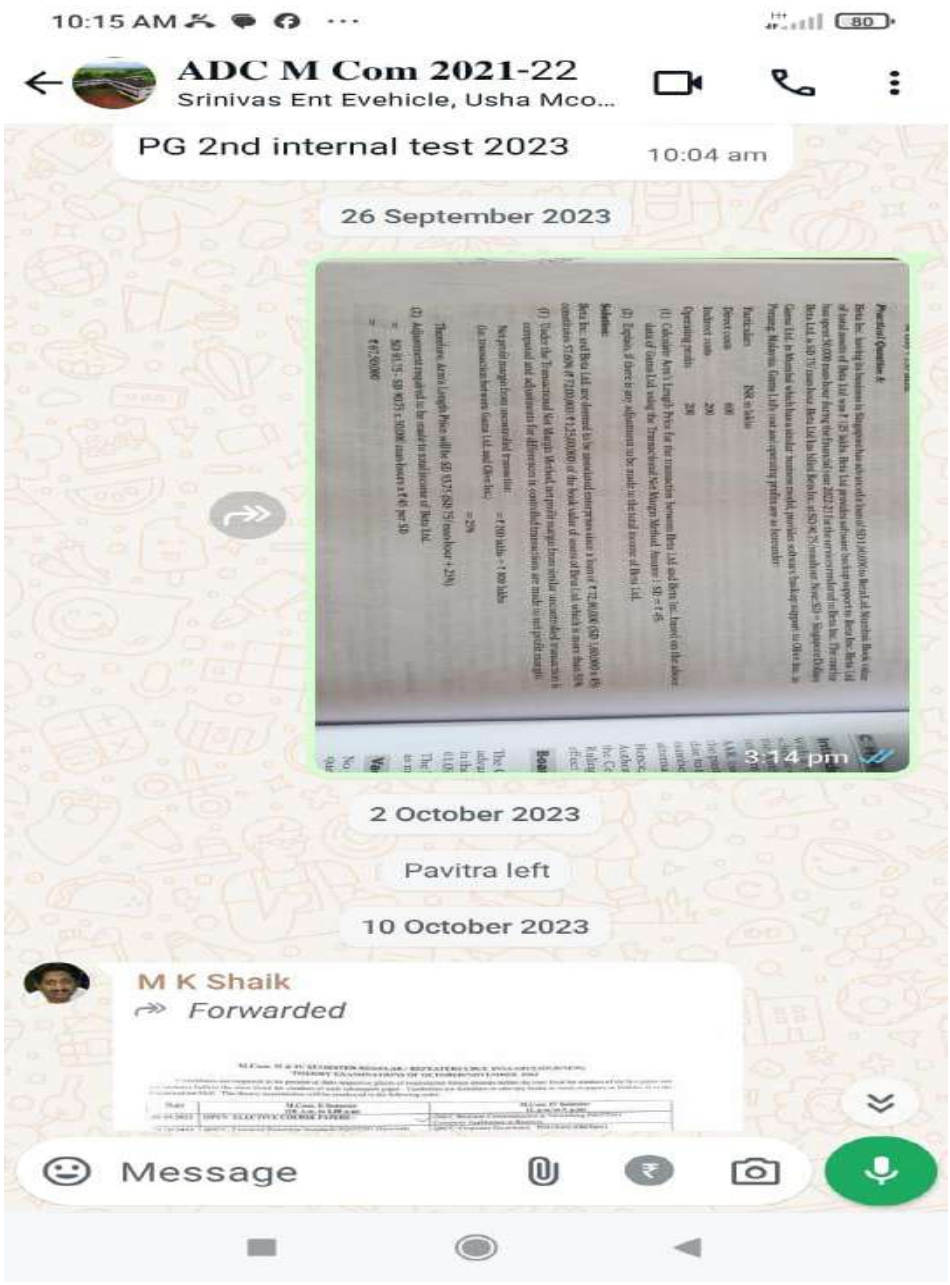
10:15 AM
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Srinivas Ent Evehicle, Usha Mco...
PG 2nd internal test 2023
10:04 am
26 September 2023
3:14 pm
2 October 2023
Pavitra left
10 October 2023
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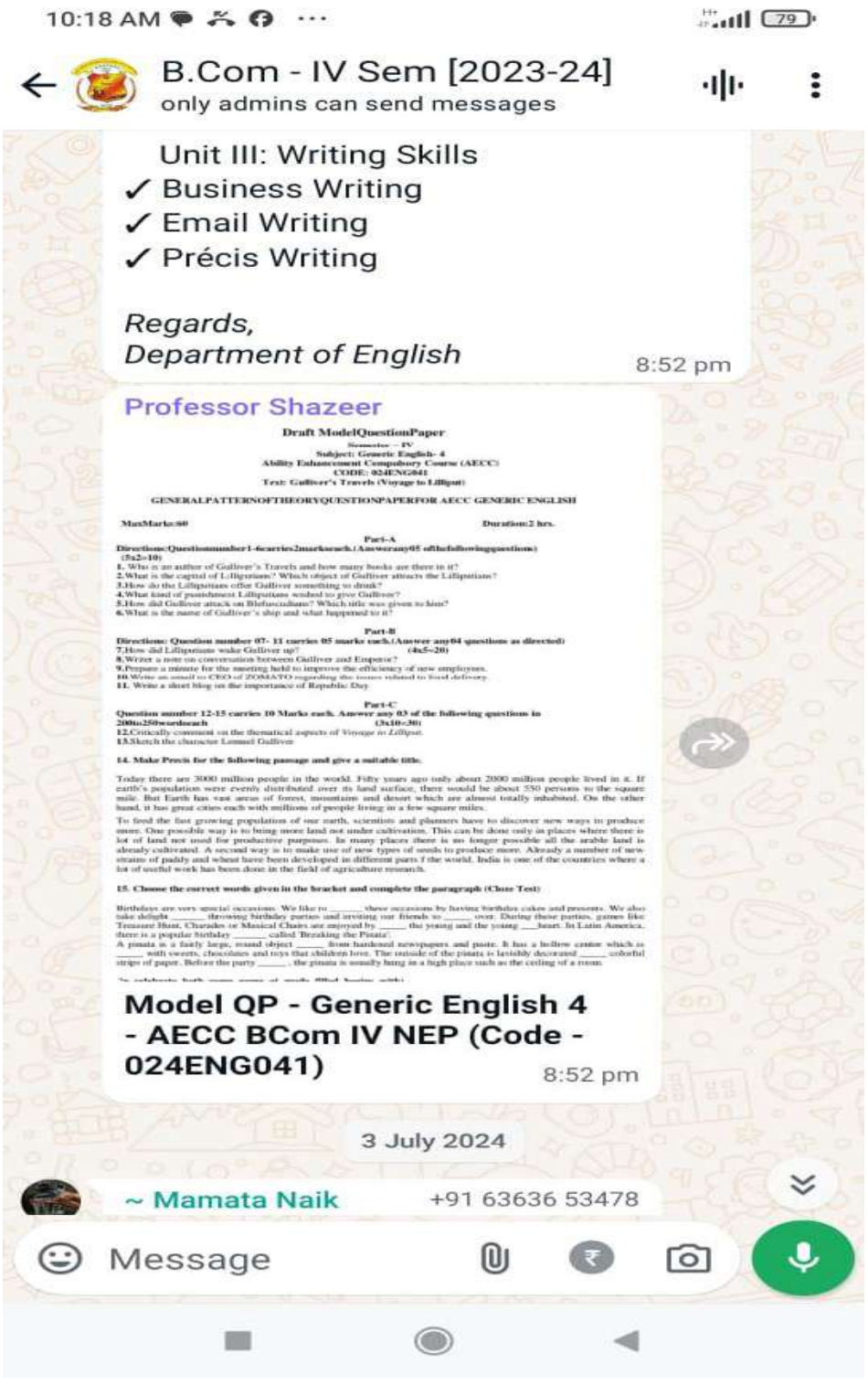
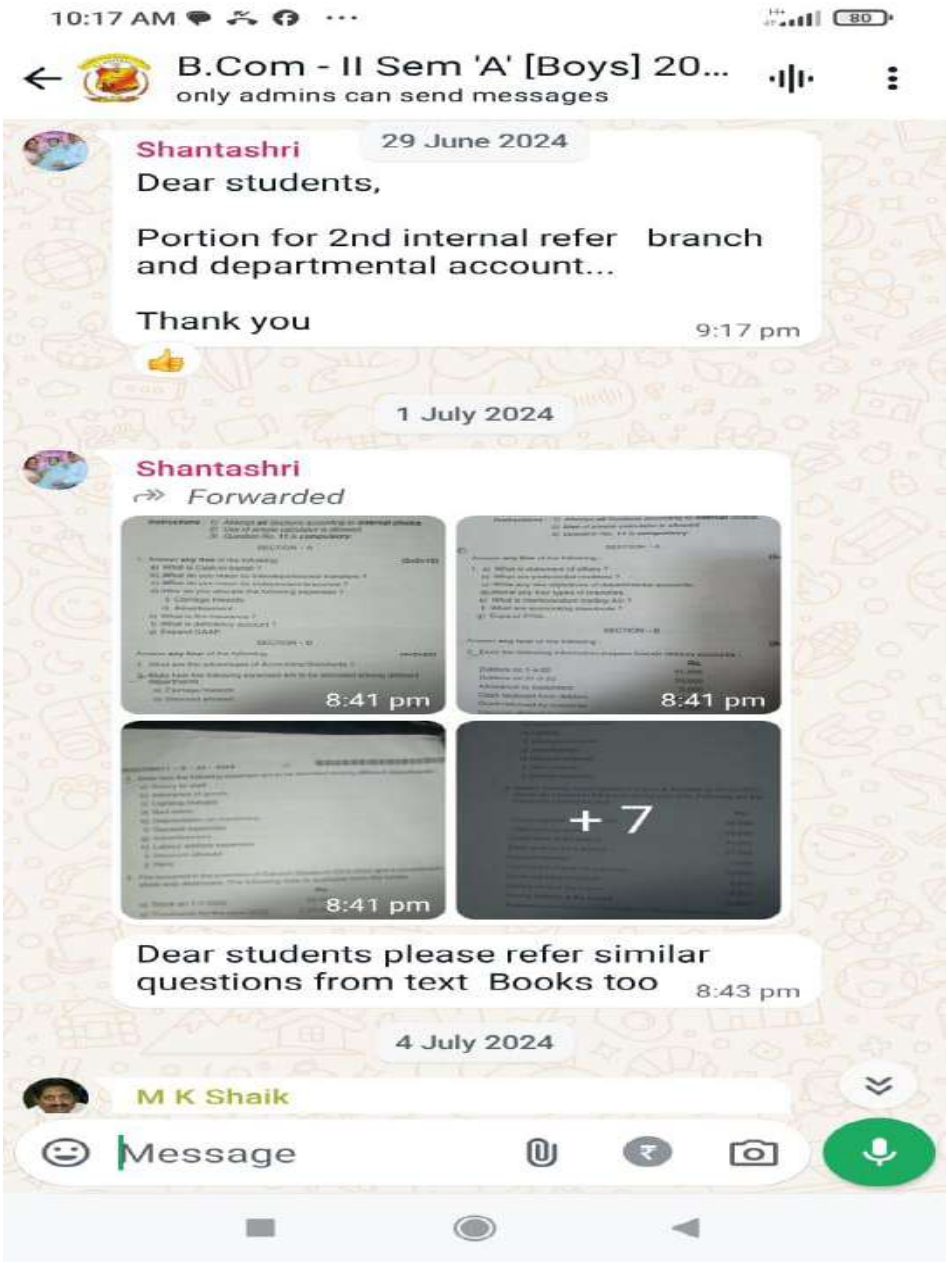

10:18 AM
B.Com - IV Sem [2023-24]
only admins can send messages
Unit III: Writing Skills
✓ Business Writing
✓ Email Writing
✓ Précis Writing
Regards,
Department of English
8:52 pm
Professor Shazeer
Draft ModelQuestionPaper
Semester – IV
Subject: Generic English- 4
Ability Enhancement Compulsory Course (AECC)
CODE: 024ENG041
Text: Gulliver's Travels (Voyage to Lilliput)
GENERALPATTERNOFTHEORYQUESTIONPAPERFOR AECC GENERIC ENGLISH
MaxMarks:60
Duration:2 hrs.
Part-A
Directions:Questionnumber1-6carries2marks each.(Answeranyo5 ofthefollowingquestions)
(5x2=10)
1. Who is an author of Gulliver's Travels and how many books are there in it?
2.What is the capital of Lilliputians? Which object of Gulliver attracts the Lilliputians?
3.How do the Lilliputians offer Gulliver something to drink?
4.What kind of punishment Lilliputians wished to give Gulliver?
5.How did Gulliver attack on Blefuscudians? Which title was given to him?
6.What is the name of Gulliver's ship and what happened to it?
Part-B
Directions: Question number 07- 11 carries 05 marks each.(Answer any04 questions as directed)
(4x5=20)
7.How did Lilliputians wake Gulliver up?
8.Writer a note on conversation between Gulliver and Emperor?
9.Prepare a minute for the meeting held to improve the efficiency of new employees.
10.Write an email to CEO of ZOMATO regarding the issues related to food delivery.
11. Write a short blog on the importance of Republic Day.
Part-C
Question number 12-15 carries 10 Marks each. Answer any 03 of the following questions in
200to250wordseach
(3x10=30)
12.Critically comment on the thematical aspects of Voyage to Lilliput.
13.Sketch the character Lemuel Gulliver
14. Make Precis for the following passage and give a suitable title.
Today there are 3000 million people in the world. Fifty years ago only about 2000 million people lived in it. If earth's population were evenly distributed over its land surface, there would be about 550 persons to the square mile. But Earth has vast areas of forest, mountains and desert which are almost totally inhabited. On the other hand, it has great cities each with millions of people living in a few square miles.
To feed the fast growing population of our earth, scientists and planners have to discover new ways to produce more. One possible way is to bring more land not under cultivation. This can be done only in places where there is lot of land not used for productive purposes. In many places there is no longer possible all the arable land is already cultivated. A second way is to make use of new types of seeds to produce more. Already a number of new strains of paddy and wheat have been developed in different parts f the world. India is one of the countries where a lot of useful work has been done in the field of agriculture research.
15. Choose the correct words given in the bracket and complete the paragraph (Cloze Test)
Birthdays are very special occasions. We like to _____ these occasions by having birthday cakes and presents. We also take delight _____ throwing birthday parties and inviting our friends to _____ over. During these parties, games like Treasure Hunt, Charades or Musical Chairs are enjoyed by _____ the young and the young ___heart. In Latin America, there is a popular birthday _____ called 'Breaking the Pinata'.
A pinata is a fairly large, round object _____ from hardened newspapers and paste. It has a hollow centre which is _____ with sweets, chocolates and toys that children love. The outside of the pinata is lavishly decorated _____ colorful strips of paper. Before the party _____ , the pinata is usually hung in a high place such as the ceiling of a room.
Model QP - Generic English 4 - AECC BCom IV NEP (Code - 024ENG041)
8:52 pm
3 July 2024
~ Mamata Naik
+91 63636 53478
Message


10:17 AM
B.Com - II Sem 'A' [Boys] 20...
only admins can send messages
Shantashri
29 June 2024
Dear students,
Portion for 2nd internal refer branch and departmental account...
Thank you
9:17 pm
1 July 2024
Shantashri
Forwarded
8:41 pm
8:41 pm
8:41 pm
+ 7
Dear students please refer similar questions from text Books too
8:43 pm
4 July 2024
M K Shaik
Message