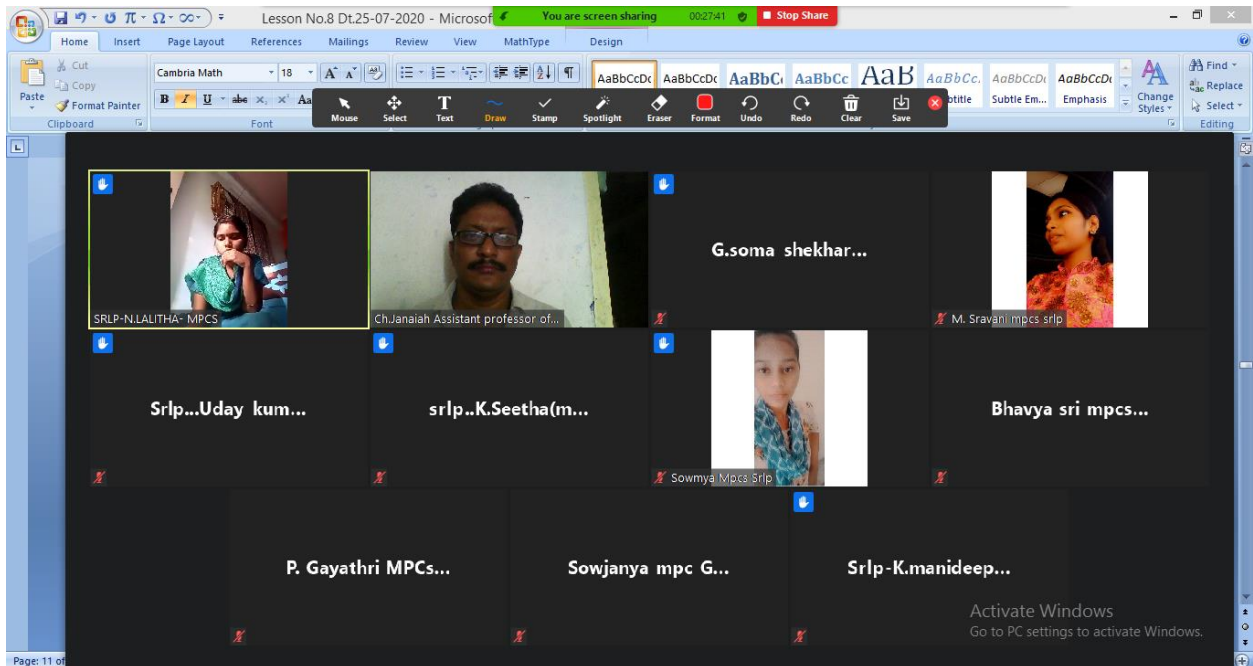


Ms. N.Lalitha B.Sc MPCs I year student Presented a Seminar on Exact Differential Equations on 25-07-2021.



Lesson No.8 Dt.25-07-2021 - Microsoft Word - You are screen sharing 002741 Stop Share

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log_y - xy = c

Problem 5: Solve the differential equation

$$(xy \sin xy + \cos xy)dx + (xy \sin xy - \cos xy)dy = 0$$

Solution: Given differential equation is

$$(xy \sin xy + \cos xy)dx + (xy \sin xy - \cos xy)dy = 0$$

$$\Rightarrow (xy^2 \sin xy + y \cos xy)dx + (x^2y \sin xy - x \cos xy)dy = 0 \rightarrow (1)$$

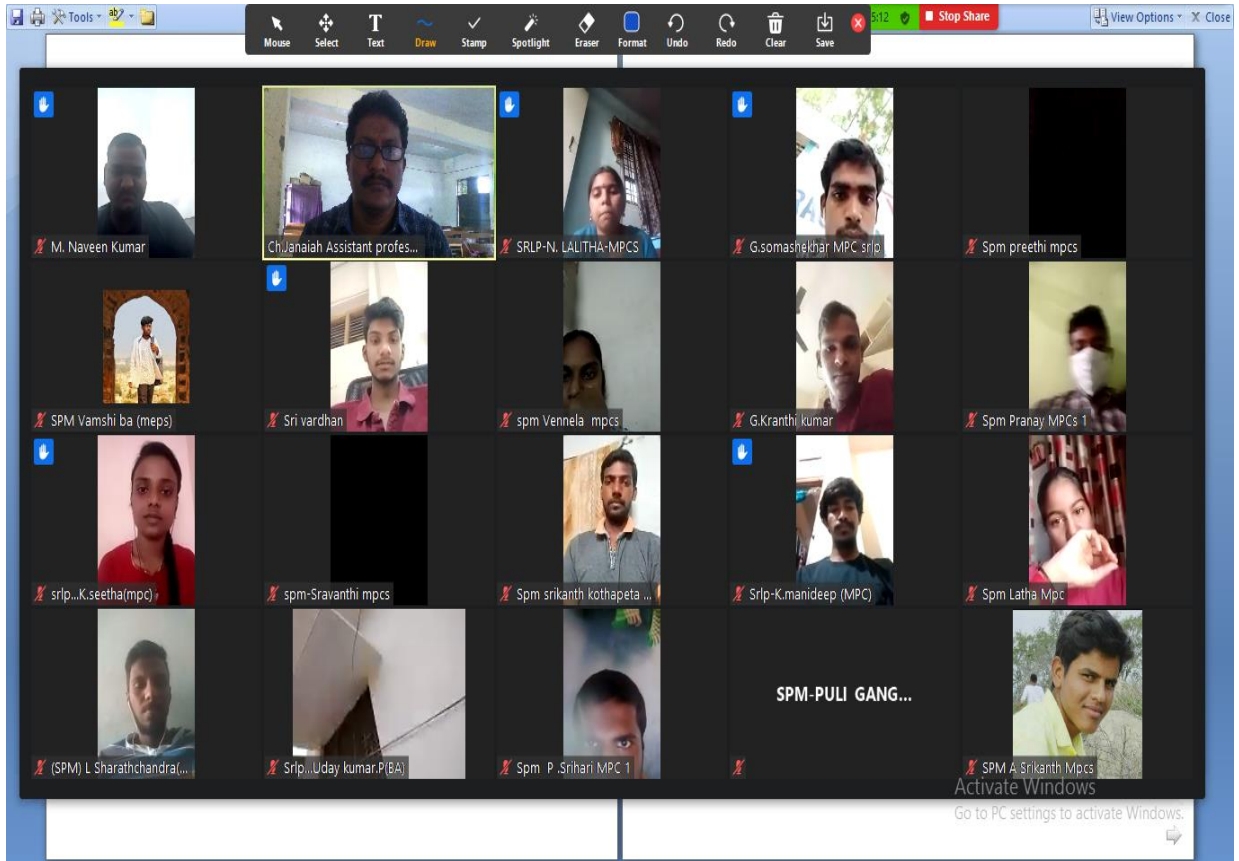
Comparing eq.(1) with $Mdx + Ndy = 0$, we have

$$M = xy^2 \sin xy + y \cos xy \quad N = x^2y \sin xy - x \cos xy$$

Now differentiating 'M' partially w.r.t. 'y', we get

Page: 15 of 18 Words: 1,105 English (United States) 130%

Mr. M. Naveen Kumar , B.Sc MPCs I year student Presented a Seminar on Higher order Differential Equations on 22-07-2021.



A screenshot of a Zoom meeting screen. The main area displays a presentation slide titled "HIGHER ORDER DIFFERENTIAL EQUATIONS:-". The slide contains the following text and formulas:

The linear differential equation with constant coefficients is of the form

$$a_n \frac{d^n y}{dx^n} + a_{n-1} \frac{d^{n-1} y}{dx^{n-1}} + \dots + a_1 \frac{dy}{dx} + a_0 y = Q(x)$$

Let $\frac{d}{dx} = D$

$$\Rightarrow a_n D^n y + a_{n-1} D^{n-1} y + \dots + a_1 D y + a_0 y = Q(x)$$
$$\Rightarrow (a_n D^n + a_{n-1} D^{n-1} + \dots + a_1 D + a_0) y = Q(x)$$

Let $f(D) = a_n D^n + a_{n-1} D^{n-1} + \dots + a_1 D + a_0$

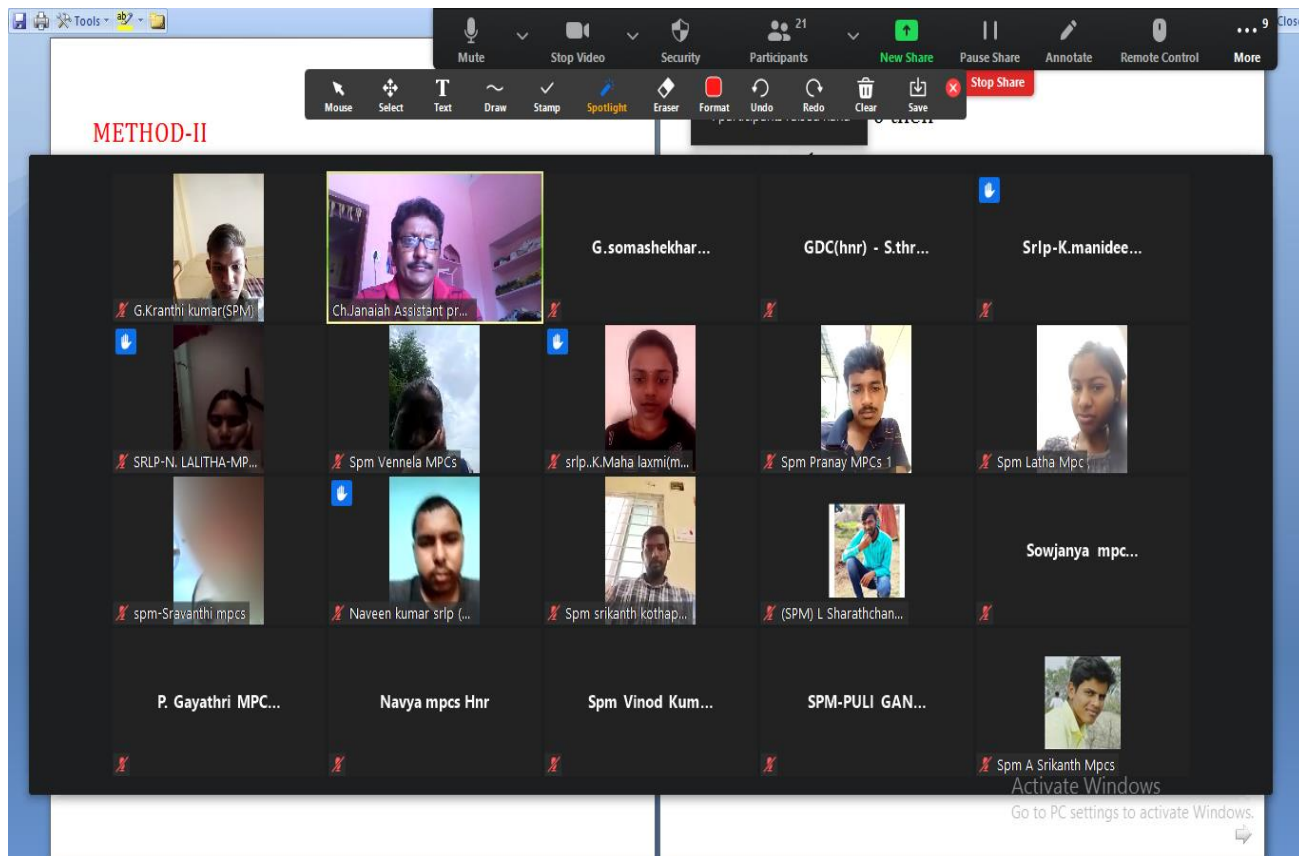
$$\Rightarrow f(D) y = Q(x) \dots \dots \dots (1)$$

Note i) The differential equation $f(D)y = Q(x)$ is called complementary function. The homogenous equation of (2). The differential equation $f(D)y = 0$ is called complementary function.

n of $f(D)y=0$ is $y=C.F.=y_c$
Solution of $f(D)y=Q(x)$ is $y=C.F.+P.I$
Definition:-The auxiliary equation of $f(D)y=0$, where 'm' is parameter. The complementary function (C.F) of $f(D)y=0$ is $y=C.F.=y_c$
 $f(D)y = 0 \dots \dots \dots (1)$
 $(a_n D^n + a_{n-1} D^{n-1} + \dots + a_1 D + a_0) y = 0$
is $f(m)=0$
 $a_n m^n + \dots + a_1 m + a_0 = 0 \dots \dots \dots (2)$
Equation (2) has 'n' roots say $m_1, m_2, m_3, \dots, m_n$
which may be divided into two types (rational or not irrational)

The right side of the screen shows a list of 16 participants in the meeting, including "Ch.Janaiah Assistant profes...", "Srlp-K.mandeep (MPC)", "Sri vardhan", "srlp...K.seetha(mpc)", "G.somashekhar MPC srlp", "M. Naveen Kumar", "SRLP-N. LAUTHA-MPCS", "M. Sravani", "Srlp...Uday kumar.P(BA)", "(SPM) L Sharathchandra(Mpcs)", and "Aluri omkar Reddy".

Ms. K.Seetha Mahalaxmi , B.Sc MPCs I year student Presented a Seminar on Solvable for P on 24-07-2021.



Ms. M.Naveen Kumar , B.Sc MPCs I year student Presented a Seminar on Partial differential equations on 30-07-2021.

