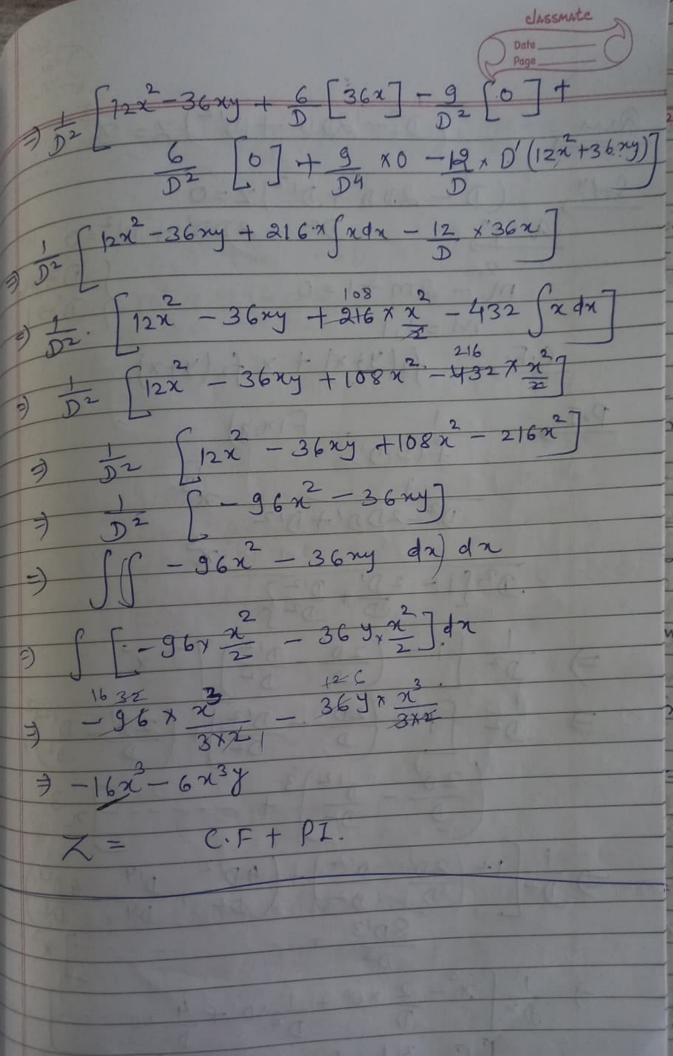
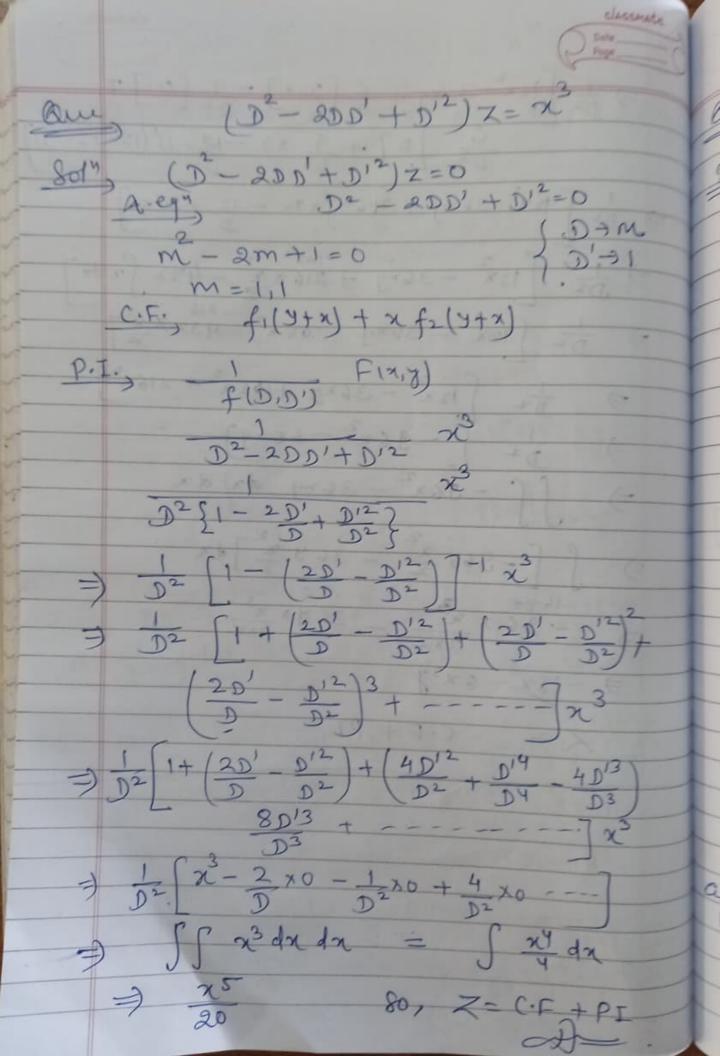
Case-III / F(xiy) = x Date Page  $(D^2 - 6DD' + 9D'^2)Z = 12x^2 + 36xy$ (D2-6DD+9D'2) Z=0 Soly  $D^{2} - 6DD + 9D^{2} = 0$   $m^{2} - 6m + 9 = 0$  pD + m m = 3.3  $D^{2} + 9D^{2} = 0$ A.eg fi(y+3x)+xf2(y+3x) D2-6DD'+9D'2 12x+36xy  $\frac{1}{2}$   $\frac{1}$  $\Rightarrow \frac{1}{D^2} \left\{ 1 - \left( 6D' - 9D'^2 \right) \right\} = 12x^2 + 36xy$  $\frac{1}{D^{2}} \left[ 1 + \left( \frac{6D'}{D} - \frac{9D'^{2}}{D^{2}} \right) + \left( \frac{6D'}{D} - \frac{9D'^{2}}{D^{2}} \right) + - - \frac{1}{D^{2}} \right] + \frac{1}{D^{2}} \left[ \frac{1}{D^{2}} + \frac{1}{D^{2$ \*\*  $(1+x)^{n} = 1+nx+n(n-1)x^{2}+n(n-1)(n-2)x^{3}+\infty$  $\rightarrow$   $D^2$  [12x + 36xy) +  $(6D' - 9D'^2)$   $(12x^2 + 36xy) + <math>(D^2 - D^2)$  $\frac{(60'-95'^2)^2}{(12x^2+36xy)+--}$  $\frac{1}{D^2} \left[ \frac{1(2x^2 + 36xy) + 6 \times D'(12x^2 + 36xy) - 9 \times D'(\frac{12x^2}{36xy})}{D^2} \right] = \frac{1}{36xy}$ + 6xD'(12x2+36xy) + 9 xD'4 (12x+36x)  $2\left(\frac{6D}{D} - \frac{9D^{12}}{D^{2}}\right)\left(12x^{2} + 36xy\right)$ 





 $\frac{3^{2}}{3x^{2}} + \frac{3^{2}}{3x^{3}y} - \frac{63^{2}}{3y^{2}} - \frac{3}{2}\cos x$   $\frac{3^{2}}{3x^{2}} + \frac{3^{2}}{3x^{3}y} - \frac{63^{2}}{3y^{2}} - \frac{3}{2}\cos x$  $D^2 + DD - 6D^2 = 0$ +0 M = -3.2C.F., fi (y-3x) + f f2(y+2x) D2+DD'-6D'2; }(01x By Using General method (which is also known as faluite case).
By 1st factor (D+3D')

[et, y-3n=c]

Then y=(+3x) then y=(+3x F (2, C+32) dx y cosn dn (C+3n) Cosxdn (C+3x) 8inx + 3 COIX again (y-3x+3/1) Sinx+3 cosx put, C=y-3x= y Sinn + 3 COIN by 2nd factor; (D-20') F(x13) dgc y+2x=c then y = c-22 (f(x, c-2x) dx

By 69 0 (yrinn + 3 cosn) dr =) (C-2x) Sinn + 3 Cosn dn =) [(C-2x) (-cosn) - (-2) (-8inx) +38inx = (y+2x-2x) (-cosn) - 28inx + 38inn] = [-y cosn + 28inn] So, Z = C.f. + P.I.  $Z = f_1(y-3x) + f_2(y+2x) + [8inx-ycosn]$ Que (D3-D2)+DD12-D13)Z=ex C0124  $Sd^{\frac{1}{2}} D^{3} - D^{2}D' + DD'^{2} - D'^{3} = 0$  $m^{3}-m^{2}+m-1=0$  m=-1,-1,1 $D^{3}$   $D^{3}$   $D^{2}$   $D^{1}$   $D^{12}$   $D^{13}$   $D^{2}$   $D^{13}$   $D^{2}$ By Using General method.
By Taking 1st factor (D+D')

let, Put C= y-x =) y=c+x F(x,y) dx ((x,ctx) dx =) | excossy dx Je cosz(c+x) dx => [ ex { cos 2(+x) + 2 sin2(+x)}] = { cos 2(c+x) + 28/n2(c+x)} 7 en (032 (y-x+x) + 28/n 2(y-x+x)] =) ex (cos2y + 28in2y] --again by and factor, (D+D') き (ド(パリソ) かん = { cosay + 264243 ] dr = (c+x) + 25/12 (C+x)} dx = = [ e cos 2 (c+x) dx + [ ex 6"n2 (c+x) dx = \frac{e^{x} \int \cos2(\cos2 ) = [ ex { cosp(c+x) + 2 sin (c+x)} + ex { sin2(c+x)} ]

1 [ -2 cos(c+x)] ] 25 (2 (cos 2 (y-x+x) + 28 in (y-x+x)) 7 Sagain Put,

