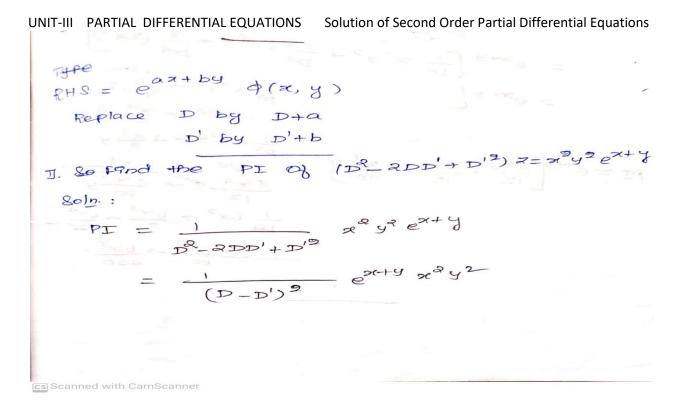


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UNIT-III PARTIAL DIFFERENTIAL EQUATIONS Solution of Second Order Partial Differential Equations exty 1 2 2 9 -(D+1-(D'+1))<sup>2</sup> ra= DH  $\frac{1}{(D-D')^2} x^2 y^2$  $= e^{x+y} \underline{1} \qquad x^2 y^2$   $\int D^2 a D D^1 + D^{12}$  $= e^{\chi + y} - \frac{1}{D^2 \left[ 1 - \frac{2D'}{D} + \frac{D'^2}{D^2} \right]}$  $= e^{\chi + y} \frac{1}{D^2} \left[ 1 - \left( \frac{2D}{D} - \frac{D^2}{D^2} \right) \right]^{-1} \chi^2 y^2$  $= e^{\chi + y} \frac{1}{D^2} \left[ 1 + \frac{2D'}{D} - \frac{D'^2}{D^2} + \frac{4D''}{D^2} \right] \chi^2 y^2$  $= e^{x+y} \frac{1}{D^2} \left[ x^2 y^2 + \frac{2D'}{D} x^2 y^2 + \frac{3D'^2}{D^2} x^2 y^2 \right]$  $= e^{\chi + y} \left[ \frac{1}{D^2} \chi^2 y^2 + \frac{2}{D^3} \partial \chi^2 y + \frac{3}{D^4} (2\chi^2) \right]$  $\frac{1}{D^2} x^2 y^2 \rightarrow \frac{x^3}{3} y^2$ ex+ 4  $2^{nd} \rightarrow \frac{24}{12} y^2$  $p_{T} = e^{x+y} \frac{x^{4}y^{2}}{12} +$  $\frac{1}{D4} \xrightarrow{6\pi^2} \xrightarrow{6\pi^3} \xrightarrow{6\pi^4} \xrightarrow{12}$  $7\frac{6x^5}{60} \rightarrow \frac{6x^7}{420}$