

Question Answer No-01

Given as -  $(2\theta+1)^2 y = 0$

The auxiliary equation is -

$$(2m+1)^2 = 0$$

$$(2m+1)(2m+1) = 0$$

$$2m+1 = 0$$

$$2m+1 = 0$$

$$2m = -1$$

$$2m = -1$$

$$\boxed{m = -\frac{1}{2}}$$

$$\boxed{m = -\frac{1}{2}}$$

$$\boxed{m = -\frac{1}{2}, -\frac{1}{2}}$$

We know that when the roots of auxiliary equation is real and same then

$$C.F. = (C_1 + C_2 x) e^{mx}$$

$$\Rightarrow \boxed{C.F. = (C_1 + C_2 x) e^{-\frac{1}{2}x}}$$

$$\boxed{P.I. = 0}$$

So complete solution is -

$$y = C.F. + P.I.$$

$$= (C_1 + C_2 x) e^{-\frac{1}{2}x} + 0$$

$$\boxed{y = (C_1 + C_2 x) e^{-\frac{x}{2}}}$$

