As Given eq. $(2Q+1)^2 y = 0$

The auxiliary equation is -

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

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

$$2m+1 = 0 \qquad 2m+1 = 0$$

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

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

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

$$C.F. = (c_1 + c_2 x)\, e^{mx}$$

$$\Rightarrow \boxed{C.F = (c_1 + c_2 x)\, e^{-x}}$$

$$P.I = 0$$

So complete solution is -

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

$$= (c_1 + c_2 x)\, e^{-1/2 x} + 0$$

$$\boxed{y = (c_1 + c_2 x)\, e^{-x/2}}$$ Ans