Name: Shah Raza Reg no: 18 PWCS E1658 (Q2) (a) solve d28 - 4 d8 + 34 = 6t-8 by Laplace transform y(0)=0, y'(0)=0 volutions y'' - 4y' + 3y = 6t - 8Applying LT on BHS de(y"-4y'+3y) = 2e(6t-8) Le(y") - Le(48') + Le(34) = Le(6t) - Le(8) 524(3)-54(0)-4(0)-4(54(3)-4(0)]+34(3) = 6 - 8 $\left[s^{2}Y(s) - 4sY(s) + 3Y(s) \right] = \frac{6}{12} - \frac{8}{5}$ $(J^2-45+3)Y(5) = \frac{2}{6}(\frac{3}{6}-4)$ $=\frac{2}{\pi}(3-45)$ $\frac{y(s) = \frac{2(3-4s)}{s^2(s^2-4s+3)} = \frac{(6-8s)}{s^2(s^2-4s+3)}$ Y(s) = A B (5=45+3

$Y(S) = AS^2 - 4AS + 3A + BS^2$ $S^2(S^2 - 4S + 3)$

$$A+B=0$$
 $A=-B$

$$-4A=-8$$

$$A=2$$

$$9A = 6$$

$$A = 2$$

$$\frac{2=-B}{1B=-2}$$

$$\frac{y(s) = 2 - 2}{s^{2}} \frac{(s^{2} - 4s + 3)}{(s^{2} - 4s + 3)}$$

$$L^{-1} \left[y(s) \right] = 2^{-1} \left[\frac{2}{s^{2}} \right] - \frac{1}{s^{2} - 4s + 3}$$

$$A + B = \frac{1}{(s - 3)}$$

$$(5-3)$$
 $(5-1)$

$$\frac{(A+B)(5-A-3B)}{(5-3)(5-1)} = \frac{1}{(5-3)(5-1)}$$

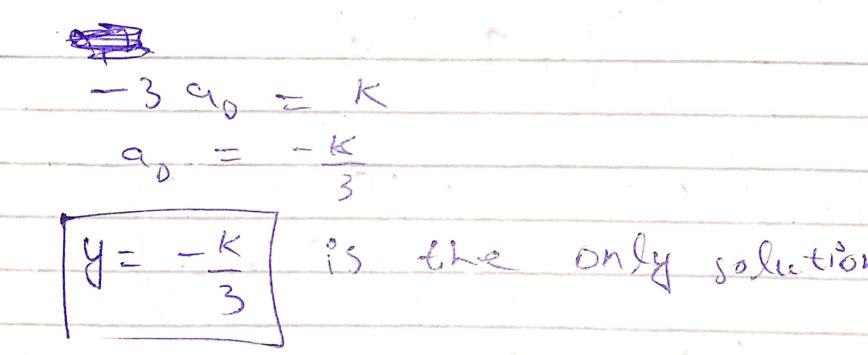
$$A+B=0$$
 $-A-3B=1$
 $A=-B$ $B-3B=1$ $3[B=-\frac{1}{2}]$
 $A=\frac{1}{2}$

$$\frac{2^{-1} \binom{1}{2(5-3)}}{2(5-1)} = \frac{2^{-1} \binom{2}{2}}{5^{2}} = \frac{2^{-1} \binom{2}{5^{2}}}{5^{2}} = \frac{2^{-1} \binom{2}{5^{2}}}{5^{2} - 4^{-1} + 6^{+}}$$

$$= 2t - 2(\frac{e^{3t}}{2} - \frac{e^{t}}{2})$$

$$= 2t - e^{3t} + e^{t}$$

(Q2)(b) solve nd8 - 3 y = K solution? Ny1-34=K Let y = a + a x + a x + a x + a x + Y'= 0+a, =+ 2a2 x+3a2x2+4ayn3+5a3n4... X(a)+9, N+9, N+9, N+9, N+69, N



(Q1)(b) Y"-44'=cosn

solutions

A linear Non homogeneous DDE with constant croefficients has the form of anything to the form of

G.5: 7= 727

 $4h = C_1 + C_2 e^{-2n} + C_3 e^{2n}$ $4p = -\frac{1}{5} \sin(n)$

Y= (1+(2e-24+(3e24 - 1 sin(u)