Shreering Mhatre Rollno - 29, Batch-A2 Tutorial 100 11 Date 10/11/22 (31) Find inverse Laplace Transform of the using property
L-1[f(s+a)] = e-a* (+) $\begin{array}{c|c}
-1 & c & - Sinat \\
\hline
 & S^2 + a^2 & a
\end{array}$ = e-2sint Use convolution property, f(s) = 1 g(s) = 1 g(s) = 1 g(s) = 1F(t) = [-1] g(t) = [-1] Gt3

 $F(t)=t \qquad g(t)=e^{-3t}$ $F(u)=u \qquad g(t-u)=e^{-3}(t-u)$: L-1 [1 = + (40-3(+4))d4 = e-3+ (4.034d4 3 9 g c) LT 252+155+7 use partial fraction Form $\frac{26^2 + 158 + 7}{(5+1)^2(5-2)} = \frac{A}{5+1} + \frac{B}{(5+1)^2} + \frac{C}{5-2}$ $25^2 + 155 + 7 = A(5+1)(5-2) + B(5-2) + C(5+1)^2$ Putting S=-1 putting 6=2 ac=45 C = 5

putting
$$s=0$$
 $7=-2A-4+5$
 $A=-3$

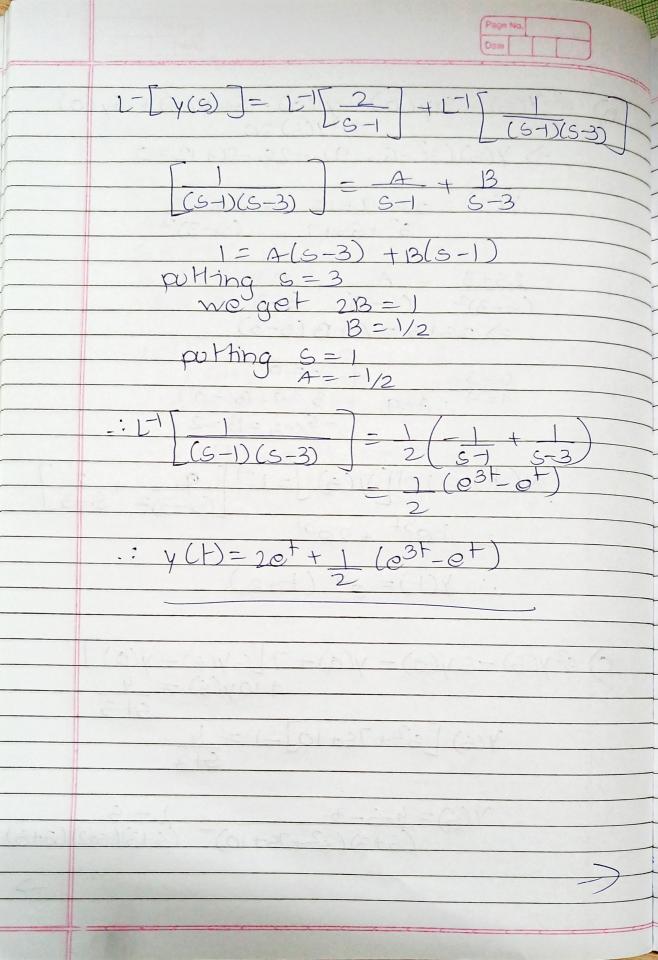
L-[-1]

 $(6+1)$ ($(6+1)^2$ ($(6-2)$)

 $=-0$ t $(6-2)$ t $(6-2)$
 $=-0$ t $(6-3)$ $(6-3)$

The putting $(6-3)$ $(6-3)$

The putting



$$\frac{5^{2}7(5) - 5y(0) - y'(0) - 65y(5) + 6y(0)}{+9y(5) = 0}$$

$$\frac{5}{2}7(5) - 5y(0) - y'(0) - 65y(5) + 6y(0)$$

$$\rightarrow$$
 $\gamma(5)(5^{2}-65+9)-25-9+12=0$

$$Y(S) = \frac{59+12}{6^2+65+9} = \frac{25+3}{(5-3)^2}$$

$$\frac{25+3}{(6-3)^2} - \frac{A}{(5-3)^2} + \frac{B}{(5-3)}$$

$$= 25+3 = A+B(5-3)$$

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

= $1 + e^{3t} + 2e^{3t}$

0)
$$s^{2}y(s) - sy(0) - y(0) + 7[sy(s) - y(0)] + 10y(s) = 4$$
 $s+3$

$$Y(s)[s^{2}+7s+10]-1 = 4$$
 $s+3$

$$\frac{7(5)=9-5-3}{(5+3)(s^2+75+10)} = \frac{1-5}{(5+3)(s+2)(3+5)}$$

