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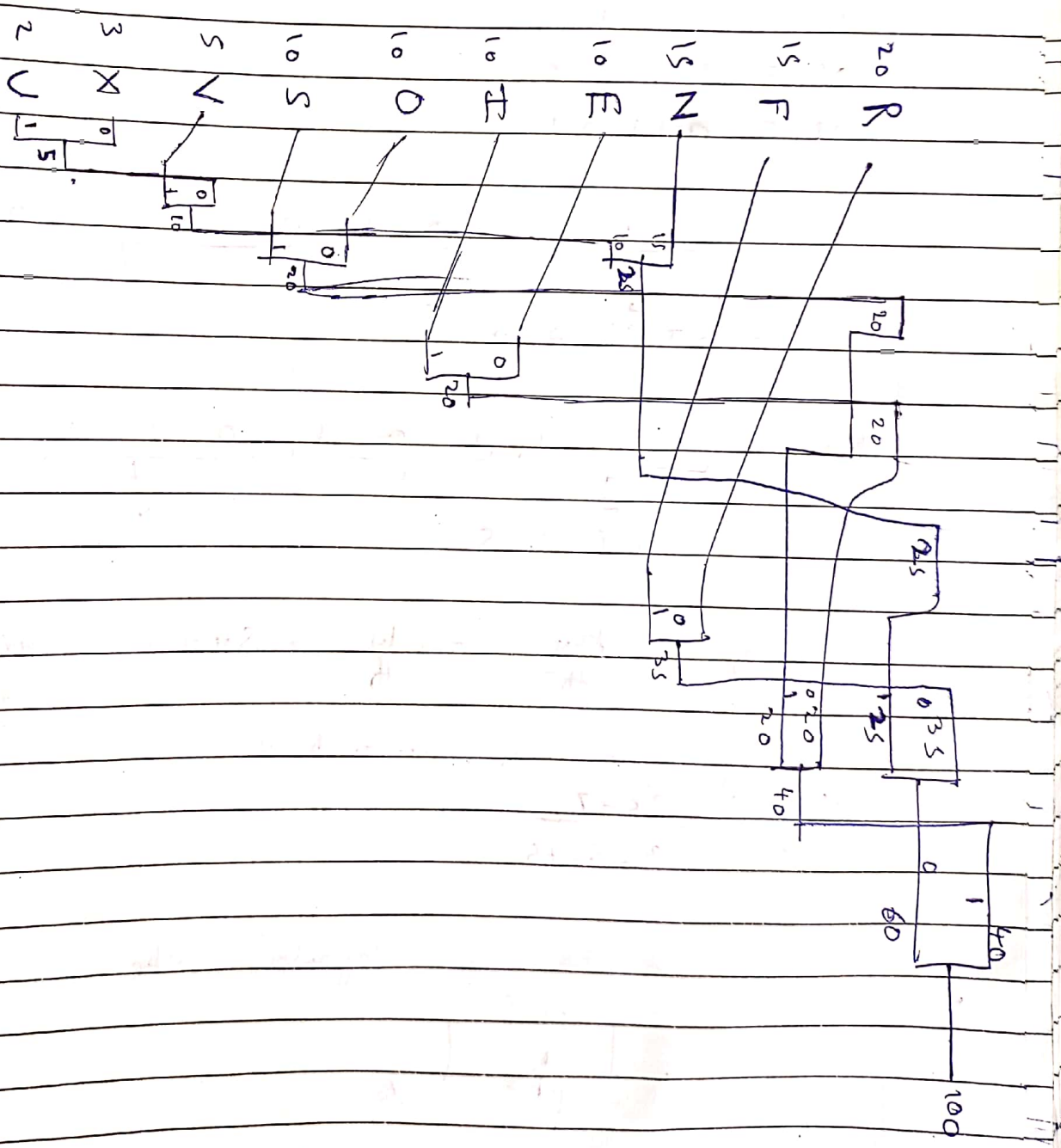
Comment

Team Name - Skyforeskers

Team Members - Pranjan Taneja
Utkarsh Singh

Huffman coding →



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R = 000
f = 001
N = 010
E = 100
I = 101
O = 110
S = 111
V = 0111
X = 01100
U = 01101

K_1 = 111 | 101 | 01100
S I X

= SIX ≅ 6

K_2 = 001 | 101 | 01111 | 100
F I V E

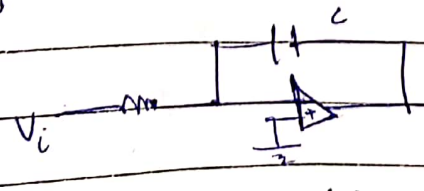
= FIVE ≅ 5

⇒ Eqn → $\frac{d^2y}{dt^2} - 6\frac{dy}{dt} + 5y = 0$, $y(0) = 2$, $y'(0) = 5$

Taking laplace eqn w.r.t y,

$Y(s) = \frac{2s-7}{s^2-6s+5}$

If we consider the integrator like this -



then, $V_o(s) = -\frac{V_i}{sR_i} - \frac{V_c(0^-)}{s}$

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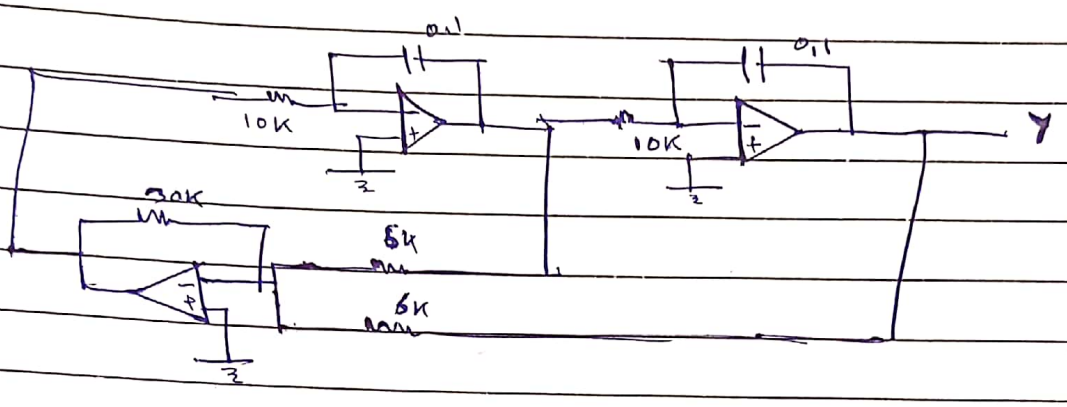
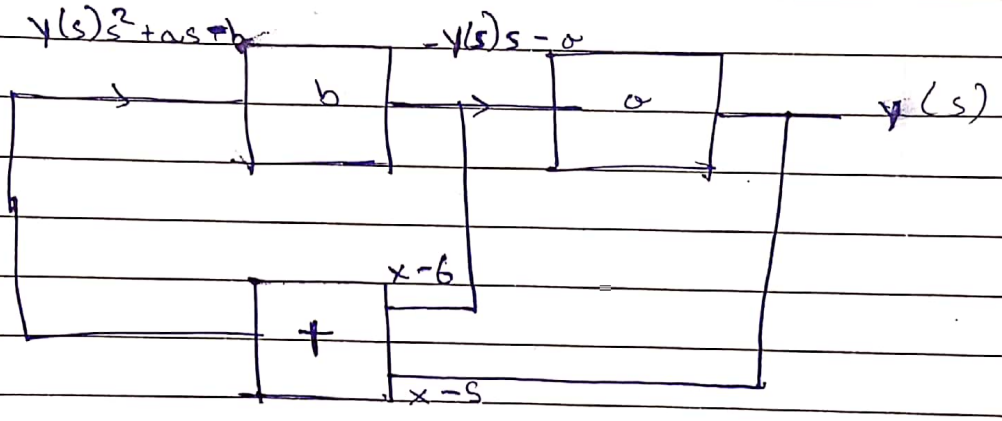
Q. find the initial value of capacitors -



III



$\Rightarrow \quad y(s)\,s^2 + as + b = 6\,(y(s)\,s - a) - 5\,y(s)$

where a & b are initial voltage of the capacitors

solving this eqn, we get

$b = -5, \quad a = 2$

$\therefore$ initial voltages around capacitors will be

(0 & -5) & (0 & 2)