

ASSIGNMENT - 3

$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4$$

$$2T_1 - T_2 + T_3 + 2T_4 + T_5 - 3T_6 = 20$$

$$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15$$

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$$

$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + T_6 = 16$$

$$4T_1 + 3T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27$$

Pivot:

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3 \quad (1)$$

$$4T_1 + 3T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27 \quad (2)$$

$$2T_1 - T_2 + T_3 + 2T_4 + T_5 - 3T_6 = 20 \quad (3)$$

$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4 \quad (4)$$

$$-T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15 \quad (5)$$

$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16 \quad (6)$$

$$\text{Eqn (1)} \times \frac{4}{5} : \frac{4}{5}T_1 + \frac{8}{5}T_2 - \frac{4}{5}T_3 + \frac{8}{5}T_5 + \frac{4}{5}T_6 = \frac{-12}{5} \quad (7)$$

$$\text{Eqn (1)} \times \frac{2}{5} : \frac{2}{5}T_1 + \frac{4}{5}T_2 - \frac{2}{5}T_3 + \frac{4}{5}T_5 + \frac{2}{5}T_6 = \frac{-6}{5} \quad (8)$$

$$\text{Eqn (1)} \times \frac{1}{5} : \frac{1}{5}T_1 + \frac{2}{5}T_2 - \frac{1}{5}T_3 + \frac{2}{5}T_4 + \frac{2}{5}T_5 + \frac{1}{5}T_6 = \frac{-3}{5} \quad (9)$$

$$\text{Eqn (1)} \times \frac{1}{5} : \frac{1}{5}T_1 + \frac{2}{5}T_2 - \frac{1}{5}T_3 - \frac{1}{5}T_4 + \frac{2}{5}T_5 + \frac{1}{5}T_6 = \frac{-3}{5} \quad (10)$$

$$\text{Eqn (1)} \times \frac{-3}{5} : -\frac{3}{5}T_1 - \frac{6}{5}T_2 + \frac{3}{5}T_3 + \frac{3}{5}T_4 - \frac{6}{5}T_5 - \frac{3}{5}T_6 = \frac{-9}{5} \quad (11)$$

$$\text{Eqn (2)} - \text{Eqn (7)} : 0 + \frac{7T_2}{5} + \frac{9T_3}{5} - \frac{26T_4}{5} - \frac{23T_5}{5} - \frac{14T_6}{5} = \frac{-123}{5} \quad (12)$$

$$\text{Eqn (3)} - \text{Eqn (8)} : 0 + \frac{9T_2}{5} + \frac{7T_3}{5} + \frac{12T_4}{5} + \frac{1T_5}{5} - \frac{17T_6}{5} = \frac{94}{5} \quad (13)$$

$$\text{Eqn (4)} - \text{Eqn (9)} : 0 + \frac{3T_2}{5} - \frac{9T_3}{5} + \frac{6T_4}{5} + \frac{13T_5}{5} - \frac{6T_6}{5} = \frac{29}{5} \quad (14)$$

$$\text{Eqn (5)} - \text{Eqn (10)} : 0 + \frac{13T_2}{5} - \frac{14T_3}{5} - \frac{4T_4}{5} + \frac{8T_5}{5} + \frac{4T_6}{6} = \frac{-72}{5} \quad (15)$$

$$\text{Eqn (6)} - \text{Eqn (11)} : 0 + \frac{T_2}{5} + \frac{7T_3}{5} + \frac{12T_4}{5} + \frac{11T_5}{5} + \frac{18T_6}{5} = \frac{89}{5} \quad (16)$$

$$\text{Eqn (12)} \times -9 : \frac{-9T_2}{7} - \frac{81T_3}{35} + \frac{234T_4}{35} + \frac{207T_5}{35} + \frac{18T_6}{5} = \frac{1107}{35} \quad (17)$$

$$\text{Eqn (13)} \times 3 : \frac{3T_2}{5} + \frac{27T_3}{35} - \frac{78T_4}{35} - \frac{69T_5}{35} - \frac{6T_6}{5} = \frac{369}{35} \quad (18)$$

$$\text{Eqn (15)} \times 1 : \frac{1T_2}{5} + \frac{9T_3}{35} - \frac{26T_4}{35} - \frac{23T_5}{35} - \frac{2T_6}{5} = \frac{-123}{35} \quad (19)$$

Equation

$$\text{Eqn (13)} - \text{Eqn (19)} : 0 + \frac{26T_3}{7} - \frac{30T_4}{7} - \frac{40T_5}{7} - \frac{1T_6}{5} = \frac{449}{35} \quad (20)$$

$$\text{Eqn (14)} - \text{Eqn (18)} : 0 - \frac{18T_3}{7} + \frac{24T_4}{7} + \frac{32T_5}{7} + 0 = \frac{106}{7} \quad (21)$$

$$\text{Eqn (15)} - \text{Eqn (19)} : 0 - \frac{43T_3}{7} + \frac{62T_4}{7} + \frac{71T_5}{7} + 6T_6 = \frac{419}{7} \quad (22)$$

$$\text{Eqn (16)} - \text{Eqn (20)} : 0 + \frac{8T_3}{7} + \frac{22T_4}{7} + \frac{20T_5}{7} + 4T_6 = \frac{740}{35} \quad (23)$$

$$\text{Eqn (21)} \times -9 : \frac{-18T_3}{13} + \frac{270T_4}{91} + \frac{360T_5}{91} + \frac{9T_6}{65} = \frac{4041}{455} \quad (24)$$

$$\text{Eqn (22)} \times -43 : \frac{-43T_3}{26} + \frac{645T_4}{91} + \frac{860T_5}{91} + \frac{43T_6}{130} = \frac{19307}{910} \quad (25)$$

$$\text{Eqn (22)} - \text{Eqn (25)} : 0 + \frac{6}{13} T_4 + \frac{3}{13} T_5 - \frac{9}{65} T_6 = \frac{407}{65} \quad - (28)$$

$$\text{Eqn (23)} - \text{Eqn (26)} : 0 + \frac{23}{13} T_4 + \frac{9}{13} T_5 + \frac{737}{130} T_6 = \frac{1309}{130} \quad - (29)$$

$$\text{Eqn (24)} - \text{Eqn (27)} : 0 + \frac{58}{13} T_4 + \frac{60}{15} T_5 + \frac{204}{65} T_6 = \frac{1642}{65} \quad - (30)$$

$$\text{Eqn (28)} \times \frac{23}{6} : \frac{23}{13} T_4 + \frac{92}{39} T_5 - \frac{69}{130} T_6 = \frac{9361}{390} \quad - (31)$$

$$\text{Eqn (29)} \times \frac{29}{3} : \frac{58}{13} T_4 + \frac{232}{39} T_5 - \frac{87}{65} T_6 = \frac{11803}{195} \quad - (32)$$

$$\text{Eqn (30)} - \text{Eqn (31)} : 0 - \frac{5}{3} T_5 + \frac{31}{5} T_6 = \frac{-209}{15} \quad - (33)$$

$$\text{Eqn (30)} - \text{Eqn (32)} : 0 - \frac{4}{3} T_5 + \frac{27}{5} T_6 = \frac{-529}{15} \quad - (34)$$

$$\text{Eqn (33)} \times \frac{4}{5} : -\frac{4}{5} T_5 + \frac{124}{25} T_6 = \frac{-830}{75} \quad - (35)$$

$$\text{Eqn (34)} - \text{Eqn (35)} : 0 + \frac{11}{25} T_6 = \frac{-603}{25}$$

$$2. \quad 5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$$

$$\frac{7}{5} T_2 + \frac{9}{5} T_3 - \frac{26}{5} T_4 - \frac{23}{5} T_5 - \frac{14}{5} T_6 = \frac{-123}{5}$$

$$\frac{26}{7} T_3 - \frac{30}{7} T_4 - \frac{40}{7} T_5 - \frac{1}{5} T_6 = \frac{-449}{35}$$

$$\frac{6}{13} T_4 + \frac{8}{13} T_5 - \frac{9}{65} T_6 = \frac{407}{65}$$

$$\frac{-5}{3} T_5 + \frac{31}{5} T_6 = \frac{-209}{15}$$

$$\frac{11}{25} T_6 = \frac{-603}{25}$$

$$\therefore T_6 = \frac{-603}{25} \times 25$$

$$T_6 = \frac{-603}{1} \quad T_6 = -54.82$$

$$\frac{-5}{3} T_5 + \frac{31}{5} T_6 = \frac{-209}{13}$$

$$\frac{-5}{3} T_5 = \frac{-209}{15} - \frac{31}{5} (-54.82)$$

$$\frac{-5}{3} T_5 = 325.951 \quad ; \quad T_5 = -195.5704$$

$$\frac{6}{13} T_4 + \frac{8}{13} T_5 - \frac{9}{65} T_6 = \frac{407}{65}$$

$$\frac{6}{13} T_4 + \frac{8}{13} (-195.5704) - \frac{9}{65} (-54.82) = \frac{407}{65}$$

$$\frac{6}{13} T_4 - 120.3510 + 7.5905 = \frac{407}{65}$$

$$\frac{6}{13} T_4 = 119.0220 \quad ; \quad T_4 = 257.8811$$

$$\frac{26}{7} T_3 - \frac{30}{7} T_4 - \frac{40}{7} T_5 - \frac{1}{5} T_6 = \frac{-449}{35}$$

$$\frac{26}{7} T_3 - \frac{30}{7} (257.8811) - \frac{40}{7} (-195.5704) - \frac{1}{5} (-54.82) = \frac{-449}{35}$$

$$\frac{26}{7} T_3 - 1105.204714 + 1117.545143 + 10.964 = \frac{-449}{35}$$

$$\frac{26}{7} T_3 = -36.133 \quad ; \quad T_3 = -9.7281$$

$$\frac{7}{5} T_2 + \frac{9}{5} T_3 - \frac{26}{5} T_4 - \frac{23}{5} T_5 - \frac{14}{5} T_6 = \frac{-123}{5}$$

$$\frac{7T_2}{5} = -\frac{123}{5} - \frac{9}{5}(-9.7291) + \frac{26}{5}(259.8711) + \frac{23}{5}(-195.5704) + \frac{14}{5}(-5482)$$

$$\frac{7}{5}T_2 = 250.77246$$

$$T_2 = 200.5518$$

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$$

$$5T_1 = -3 - 2(200.5518) + (-9.7291) + (259.8711) - 2(-195.5704) - (-5482)$$

$$5T_1 = 290.0802$$

$$T_1 = 58.00204$$