Assignment III

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16/ENG05/1003.

$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4$$
$$2T_1 - T_2 + T_3 + 2T_4 + T_5 - 3T_6 = 20$$
$$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15$$
$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$$
$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16$$
$$4T_1 + 3T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27$$

Pivoting.

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = 3 \quad -①$$
$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4 \quad -②$$
$$2T_1 - T_2 + T_3 + 2T_4 + T_5 - 3T_6 = 20 \quad -③$$
$$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15 \quad -④$$
$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16 \quad -⑤$$
$$4T_1 + 3T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27 \quad -⑥$$

$\frac{1}{5} \times ① = T_1 + 0.4T_2 - 0.2T_3 - 0.2T_4 + 0.4T_5 + 0.2T_6 = -0.6$ ⓐ

$\frac{3}{5} \times ② = 2T_1 + 0.8T_2 - 0.4T_3 - 0.4T_4 + 0.8T_5 + 0.4T_6 = -1.2$ ⓑ

$\frac{1}{5} \times ① = T_1 + 0.4T_2 - 0.2T_3 - 0.2T_4 + 0.4T_5 + 0.2T_6 = -0.6$ ⓒ

$-\frac{3}{5} \times ① = -3T_1 - 1.2T_2 + 0.6T_3 + 0.6T_4 - 1.2T_5 - 0.6T_6 = 1.8$ ⓓ

$\frac{4}{5} \times ① = -4T_1 + 1.6T_2 - 0.8T_3 - 0.8T_4 + 1.6T_5 + 0.8T_6 = 2.4$ ⓔ

do (2-a) (3-b) (4-c) (5-d) (6-e)

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3 \quad ①$$
$$0 + 0.6T_2 - 1.8T_3 + 1.2T_4 + 2.6T_5 - 3.2T_6 = 4.6 \quad ②$$
$$0 - 1.8T_2 + 1.4T_3 + 2.4T_4 + 0.2T_5 - 3.4T_6 = 21.2 \quad ③$$
$$0 + 2.6T_2 - 2.8T_3 - 0.8T_4 + 1.6T_5 + 0.8T_6 = 14.4 \quad ④$$
$$0 + 0.2T_2 + 1.4T_3 + 2.4T_4 + 2.2T_5 + 3.6T_6 = 14.2 \quad ⑤$$
$$0 + 1.4T_2 + 1.8T_3 - 5.2T_4 - 4.6T_5 - 2.8T_6 = -24.6 \quad ⑥$$

$-\frac{1.8}{0.6} \times ② = 0 - 1.8T_2 + 5.4T_3 - 3.6T_4 - 7.8T_5 + 3.6T_6 = -13.8$ ⓐ

$\frac{2.6}{0.6} \times ② = 0 + 2.6T_2 - 7.8T_3 + 5.2T_4 + \frac{164}{15}T_5 - 5.2T_6 = \frac{299}{15}$ ⓑ

$\frac{0.2}{0.6} \times ② = 0 + 0.2T_2 - 0.6T_3 + 0.4T_4 + \frac{13}{15}T_5 - 0.4T_6 = \frac{23}{15}$ ⓒ

$\frac{1.4}{0.6} \times ② = 0 + 1.4T_2 - 4.2T_3 + 2.8T_4 + \frac{91}{15}T_5 - 2.8T_6 = \frac{161}{15}$ ⓓ

V

do (3-a) (4-b) (5-c) (6-d)

$5\bar{T}_1 + 2\bar{T}_2 - \bar{T}_3 - \bar{T}_4 + 2\bar{T}_5 + \bar{T}_6 = -3$ --- ①

$0 + 0.6\bar{T}_2 - 1.8\bar{T}_3 + 1.2\bar{T}_4 + 2.6\bar{T}_5 - 1.2\bar{T}_6 = 4.6$ --- ②

$0 + 0 - 4\bar{T}_3 + 6\bar{T}_4 + 8\bar{T}_5 - 7\bar{T}_6 = 35$ --- ③

$0 + 0 + 5\bar{T}_3 - 6\bar{T}_4 - \frac{24}{5}\bar{T}_5 + 6\bar{T}_6 = -\frac{103}{3}$ --- ④ ✓

$0 + 0 + 2\bar{T}_3 + 2\bar{T}_4 + \frac{4}{3}\bar{T}_5 + 4\bar{T}_6 = \frac{38}{3}$ --- ⑤ *

$0 + 0 + 6\bar{T}_3 - 8\bar{T}_4 - \frac{32}{3}\bar{T}_5 + 0\bar{T}_6 = -\frac{208}{15}$ --- ⑥ *

$\frac{5}{-4} \times ③ = 0 + 0 + 5\bar{T}_3 - 7.5\bar{T}_4 - 10\bar{T}_5 + 8.75\bar{T}_6 = -43.75$ --- ⓐ ✓

$\frac{3}{-4} \times ③ = 0 + 0 + 2\bar{T}_3 - 3\bar{T}_4 - 4\bar{T}_5 + 3.5\bar{T}_6 = -17.5$ --- ⓑ *

$\frac{6}{-4} \times ③ = 0 + 0 + 6\bar{T}_3 - 9\bar{T}_4 - 12\bar{T}_5 + 10.5\bar{T}_6 = -52.5$ --- ⓒ

do (4-a) (5-b) (6-c)

$0 + 0 + 0 + 1.5\bar{T}_4 + \frac{1}{3}\bar{T}_5 - 2.75\bar{T}_6 = \frac{113}{12}$ ✓

$0 + 0 + 0 + 5\bar{T}_4 + \frac{16}{3}\bar{T}_5 + 0.5\bar{T}_6 = \frac{181}{6}$ *

$0 + 0 + 0 + \bar{T}_4 + \frac{4}{3}\bar{T}_5 - 10.5\bar{T}_6 = \frac{1159}{30}$ *

$5\bar{T}_1 + 2\bar{T}_2 - \bar{T}_3 - \bar{T}_4 + 2\bar{T}_5 + \bar{T}_6 = -3$ --- ①

$0 + 0.6\bar{T}_2 - 1.8\bar{T}_3 + 1.2\bar{T}_4 + 2.6\bar{T}_5 - 1.2\bar{T}_6 = 4.6$ --- ②

$0 + 0 - 4\bar{T}_3 + 6\bar{T}_4 + 8\bar{T}_5 - 7\bar{T}_6 = 35$ --- ③

$0 + 0 + 0 + 1.5\bar{T}_4 + \frac{1}{3}\bar{T}_5 - 2.75\bar{T}_6 = \frac{113}{12}$ --- ④ ✓

$0 + 0 + 0 + 5\bar{T}_4 + \frac{16}{3}\bar{T}_5 + 0.5\bar{T}_6 = \frac{181}{6}$ --- ⑤ X

$0 + 0 + 0 + \bar{T}_4 + \frac{4}{3}\bar{T}_5 - 10.5\bar{T}_6 = \frac{1159}{30}$ --- ⑥ *

$\frac{5}{1.5} \times ④ = 0 + 0 + 0 + 5\bar{T}_4 + \frac{10}{9}\bar{T}_5 - \frac{55}{6}\bar{T}_6 = \frac{565}{18}$ --- ⓐ

$\frac{1}{1.5} \times ④ = 0 + 0 + 0 + \bar{T}_4 + \frac{2}{9}\bar{T}_5 - \frac{11}{6}\bar{T}_6 = \frac{113}{18}$ --- ⓑ

do (5-a) (6-b)

$5\bar{T}_1 + 2\bar{T}_2 - \bar{T}_3 - \bar{T}_4 + 2\bar{T}_5 + \bar{T}_6 = -3$ --- ①

$0 + 0.6\bar{T}_2 - 1.8\bar{T}_3 + 1.2\bar{T}_4 + 2.6\bar{T}_5 - 1.2\bar{T}_6 = 4.6$ --- ②

$0 + 0 - 4\bar{T}_3 + 6\bar{T}_4 + 8\bar{T}_5 - 7\bar{T}_6 = 35$ --- ③

$0 + 0 + 0 + 1.5\bar{T}_4 + \frac{1}{3}\bar{T}_5 - 2.75\bar{T}_6 = \frac{113}{12}$ --- ④

$0 + 0 + 0 + 0 + \frac{38}{9}\bar{T}_5 + \frac{29}{3}\bar{T}_6 = -\frac{11}{9}$ --- ⑤

$0 + 0 + 0 + 0 + \frac{10}{9}\bar{T}_5 - \frac{26}{3} = \frac{1406}{45}$ --- ⑥

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

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

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

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

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

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PIVOTING

$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$ -- ①

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

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

$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15$ -- ④

$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16$ -- ⑤

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

$\frac{1}{5} \times ① = T_1 + 0.4T_2 - 0.2T_3 - 0.2T_4 + 0.4T_5 + 0.2T_6 = -0.6$ -- ⓐ

$\frac{2}{5} \times ① = 2T_1 + 0.8T_2 - 0.4T_3 - 0.4T_4 + 0.8T_5 + 0.4T_6 = -1.2$ -- ⓑ

$\frac{1}{5} \times ① = T_1 + 0.4T_2 - 0.2T_3 - 0.2T_4 + 0.4T_5 + 0.2T_6 = -0.6$ -- ⓒ

$\frac{-3}{5} \times ① = -3T_1 - 1.2T_2 + 0.6T_3 + 0.6T_4 - 1.2T_5 - 0.6T_6 = 1.8$ -- ⓓ

$\frac{4}{5} \times ① = 4T_1 + 1.6T_2 - 0.8T_3 - 0.8T_4 + 1.6T_5 + 0.8T_6 = -2.4$ -- ⓔ

do (1-a) (3-b) (4-c) (5-d) (6-e)

$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$ --- ①

$0 + 0.6T_2 - 1.8T_3 + 1.2T_4 + 2.6T_5 - 1.2T_6 = 4.6$ --- ②

$0 - 1.8T_2 + 1.4T_3 + 2.4T_4 + 0.2T_5 - 3.4T_6 = 21.2$ --- ③

$0 + 2.6T_2 - 2.8T_3 - 0.8T_4 + 1.6T_5 + 0.8T_6 = -14.4$ --- ④

$0 + 0.2T_2 + 1.4T_3 + 2.4T_4 + 2.2T_5 + 3.6T_6 = 14.2$ --- ⑤

$0 + 1.4T_2 + 1.8T_3 - 5.2T_4 - 4.6T_5 - 2.8T_6 = -24.6$ ---

$\frac{-1.8}{0.6} \times ② = 0 - 1.8T_2 + 5.4T_3 - 3.6T_4 - 7.8T_5 + 3.6T_6 = -13.8$ --

$\frac{2.6}{0.6} \times ② = 0 + 2.6T_2 - 7.8T_3 + 5.2T_4 + \frac{169}{15}T_5 - 5.2T_6 = \frac{299}{15}$ --

$\frac{0.2}{0.6} \times ② = 0 + 0.2T_2 - 0.6T_3 + 0.4T_4 + \frac{13}{15}T_5 - 0.4T_6 = \frac{23}{15}$ --

$\frac{1.4}{0.6} \times ② = 0 + 1.4T_2 - 4.2T_3 + 2.8T_4 + \frac{91}{15}T_5 - 2.8T_6 = \frac{161}{15}$ --