

I.

1.

S,

2.

1 2 3:

$$= \frac{\partial U}{\partial S} = \int_{L_1} \frac{M_{y1}}{EI_{y1}} \frac{\partial M_{y1}}{\partial S} dx + \int_{L_2} \frac{M_{y2}}{EI_{y2}} \frac{\partial M_{y2}}{\partial S} dx + \int_{L_3} \frac{N_3}{EA_3} \frac{\partial N_3}{\partial S} dx = \Delta. \quad (1)$$

3.

S.

4.

(S)

S.

5.

(1);

(1)

S

6.

S.

7.

II.

1.

S,

2.

L^T.

1 2 3:

$$= \frac{\partial U}{\partial S} = \int_{L_1} \frac{M_{y1}}{EI_{y1}} \frac{\partial M_{y1}}{\partial S} dx + \int_{L_2} \frac{M_{y2}}{EI_{y2}} \frac{\partial M_{y2}}{\partial S} dx + \int_{L_3} \frac{N_3}{EA_3} \frac{\partial N_3}{\partial S} dx = \Delta L^T = L \Delta T. \quad (2)$$

3.

S.

4.

(S)

S.

5.

(2);

(2)

S

6.

S.

7.