PA2 – Report

Analysis of Space Truss:

This given Space Frame Structure has 25 elements.

GIVEN:

Circular Cross-sections with Diameter 2 inches

At Nodes 1 and 2 a constant force 60000 pounds is applied in y-direction.

4 Nodes are fixed on the ground.

Youngs Modulus E = 3E7 psi, Poisson's ratio = 0.3

Yield Stress = 37000 psi, and mass density = 7.3E-4

Displacement At Nodes

Node	U	**V**	**W**
1	0	0.2376	0
2	0	0.2376	0
3	-0.0017	0.0156	-0.0507
4	0.0017	0.0156	-0.0507
5	-0.0017	0.0156	0.0507
6	0.0017	0.0156	0.0507
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0

The Stresses in the elements are computed and Tabulated in the below Table.

Element No.	Stress Induced
1	0
2	-1.78E4
3	-1.145E4
4	1.145E4
5	1.782E4
6	-1.145E4
7	-1.782E4
8	1.782E4
9	1.145E4
10	2.88E3
11	0
12	-2.1588E4
13	-1.10E4
14	-5.765E3
15	0
16	-1.106E4
17	-2.1588E4
18	-5.765E3
19	-2.88E3
20	5.765E3
21	2.1588E4
22	1.106E4
23	5.765E3
24	1.106E4
25	-2.1588E4

The Deformation Plot is Shown in the Fig Below