

### Practice Problem Set 3: Engineering Mechanics (NMEC101)

#### Answers

1. The magnitude of the forces in the truss members are given below:

**AB** = 12 kN (Compression), **CD** = 30 kN (Compression), **EF** = 0, **AC** = 5 kN (Compression), **BD** = 0, **CE** = 17.5 kN (Compression), **DF** = 5 kN (Tension), **AD** = 13 kN (Tension), **CF** = 32.5 kN (Tension).

2. The magnitude of the forces in the truss members are given below:

**AB** = 17.5 kN (Compression), **AC** = 15.05 kN (Tension), **BC** = 2.24 kN (Compression), **CD** = 9.22 kN (Tension), **BD** = 15.82 kN (Compression), **CF** = 7.12 kN (Tension), **GE** = 17.5 kN (Compression), **GF** = 15.05 kN (Tension), **EF** = 2.24 kN (Compression), **DF** = 9.22 kN (Tension), **DE** = 15.82 kN (Compression),

3. By inspection of joint *A*: **AF** = 0

By inspection of joint *C*: **CH** = 0

By inspection of joint *E*: **DE** = **EJ** = 0

By inspection of joint *L*: **GL** = 0

By inspection of joint *N*: **IN** = 0

4. (a) The forces in the members CE, DE and DF are given below:

**CE** = 14.35 kN (Tension), **DE** = 11.15 kN (Tension), **DF** = -25.35 kN (Compression)

5. The forces in the members CE, DE and EF are given below:

**CE** = 10 kN (Compression), **DE** = 4 kN (Compression), **EF** = 3 kN (Tension)