工程力學

Exam. #3 (11/19/2019)

- 1. (30pts) The truss shown in **Fig. 1** is one of several supporting an advertising panel. Determine the force in each member of the truss for a wind load equivalent to the two forces shown. State whether each member is in tension or compression.
- 2. (10pts) Determine the force in members GJ and IK of the truss shown in Fig. 2.
- 3. (20pts) Members ABC and CDE are pin-connected at C and supported by the four links AE, BG, DG, and EH shown in Fig. 3. For the loading shown, determine the force in each link.
- 4. (15pts) In using the bolt cutter shown in Fig. 4, a worker applies two 300-N forces to the handles. Determine the magnitude of the forces exerted by the cutter on the bolt.
- 5. (25pts) The motion of the backhoe bucket shown in **Fig. 5** is controlled by the hydraulic cylinders AD, CG, and EF. As a result of an attempt to dislodge a portion of a slab, a 10 kN force P is exerted on the bucket teeth at J. Knowing that $\theta = 45^{\circ}$, determine the force exerted by each cylinder.

