Roll No:.....

National Institute of Technology Delhi

Name of the Examination: Mid-Sem. B. Tech. (March 2019)

Branch: ECE/EEE
Title of the Course: Engineering Mechanics

Semester: II
Course Code: MEL102

Time: 2 Hours
Note: Use of calculator is permitted

Maximum Marks: 25

Q. 1. Write short note on condition of equilibrium. (2)

Q. 2. Write the difference between engineering mechanics and mechanics of solids. (2)

Q. 3. With the help of neat sketch, derive the equation for Lami's theorem. (3)

Q. 4. The two forces **P** and **Q** act on bolt *A* as shown in Fig. (a). Determine their resultant. (3)

Q. 5. A force of 800 N acts on a bracket as shown in Fig. (b). Determine the moment of the force about *B*. (5)

Q. 6. Four forces act on bolt *A* as shown in Fig. (c) Determine the resultant of the forces on the bolt. (5)

Q. 7. The frame shown in Fig. (d) supports part of the roof of a small building. Knowing that the tension in the cable is 150 kN, determine the reaction at the fixed end *E*. (5)

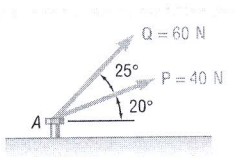

Fig. (a)

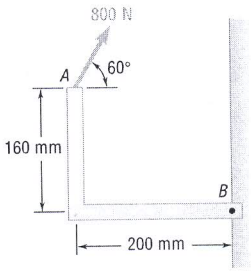

Fig. (b)

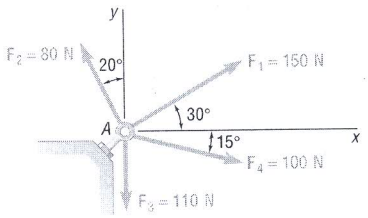

Fig. (c)

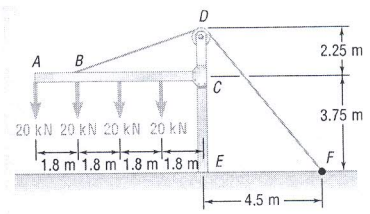

Fig. (d)