ESO 202A/204: Mechanics of Solids (2016-17 II Semester)
Assignment No. – 6

6.1 -6.4 Draw shear force and bending moment diagrams for slender members shown in Figs. 6.1-6.4.

6.5 Draw shear force and bending moment diagrams for the beam shown in Fig 6.5. Find the overhang distance ‘a’ such that (i) there is no positive moment in the beam, (ii) the maximum positive bending moment is equal to maximum negative bending moment in magnitude.

6.6 A radio antenna protrudes 540 mm above the fuselage of an airplane (Fig. 6.6). A guy wire is attached to the end of the antenna to strengthen it against drag force. Assuming that the drag force is uniformly distributed and has a total resultant D, find the force the guy wire must exert in order the to minimize the maximum value of the bending moment in the antenna.

6.7 Draw the shear force and bending moment diagrams for the beam shown in Fig.6.7. Identify the points of zero and maximum/minimum bending moments in the beam. It is known that the bending moment at B is equal to -400 KN-m.

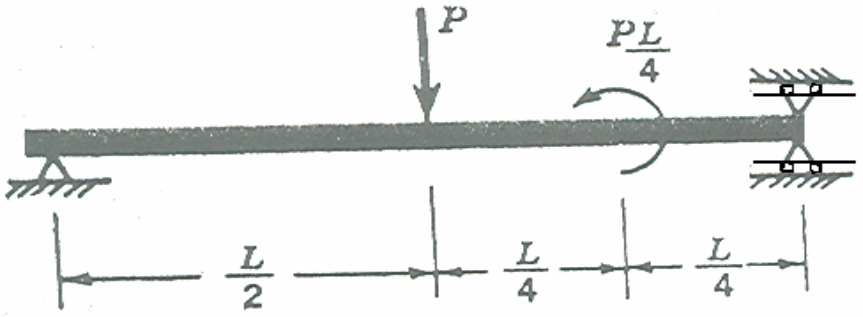

Fig 6.1

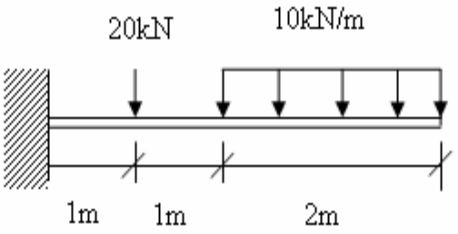

Fig. 6.2

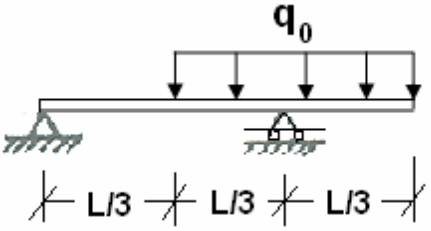

Fig. 6.3

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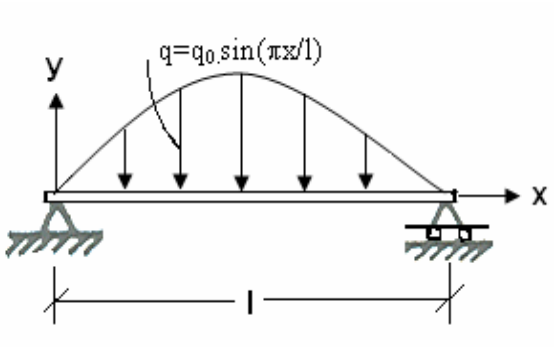

Fig. 6.4

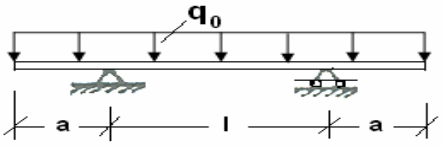

Fig. 6.5

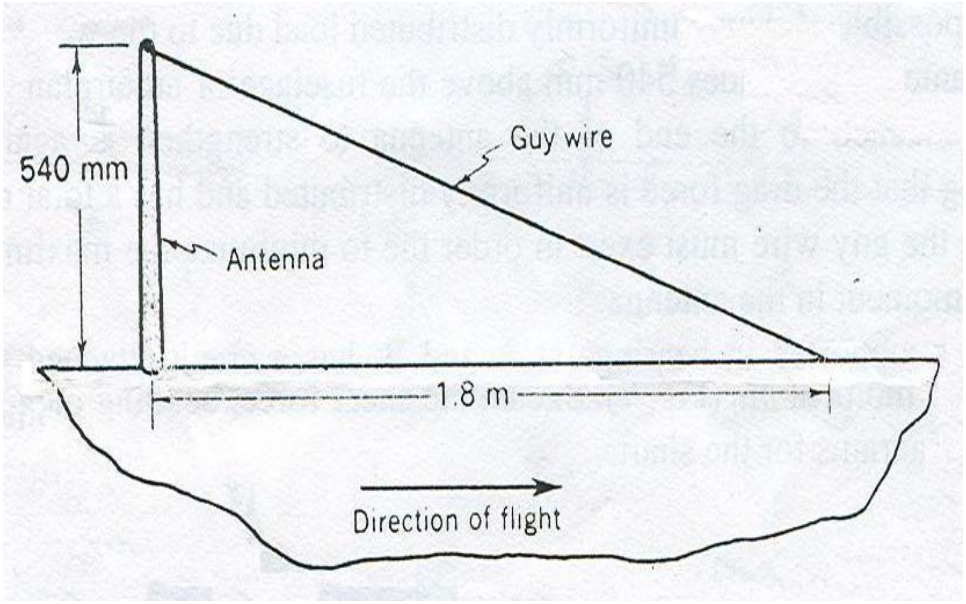

Fig. 6.6

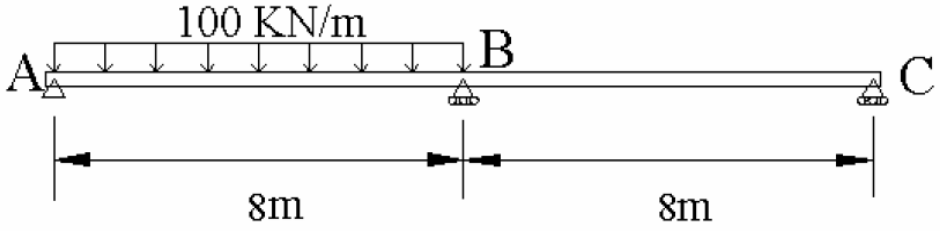

Fig. 6.7