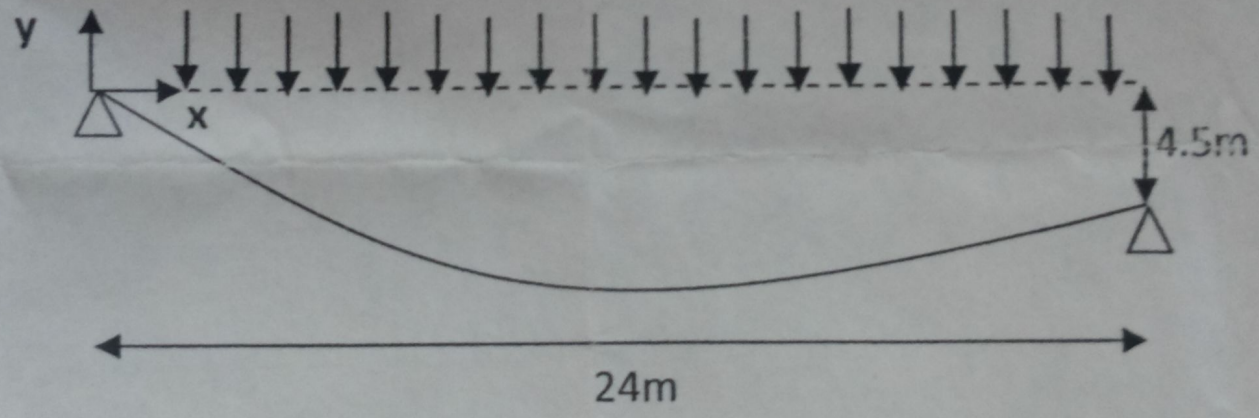
Major Exam, CEL 231, 2013-14

Dept. of Civil Engineering, IIT Delhi

Paper A

1.



Derive the equations governing the statics of a cable subjected to a u.d.l. Using the relationships derived, calculate the following quantities for the cable shown in the above figure: a) Length of the cable; b) the position and magnitude of the maximum tension in the cable. The maximum sag of the cable is 6m. Clearly state any basic assumptions involved in the derivation. (7.5+7.5=15 marks)

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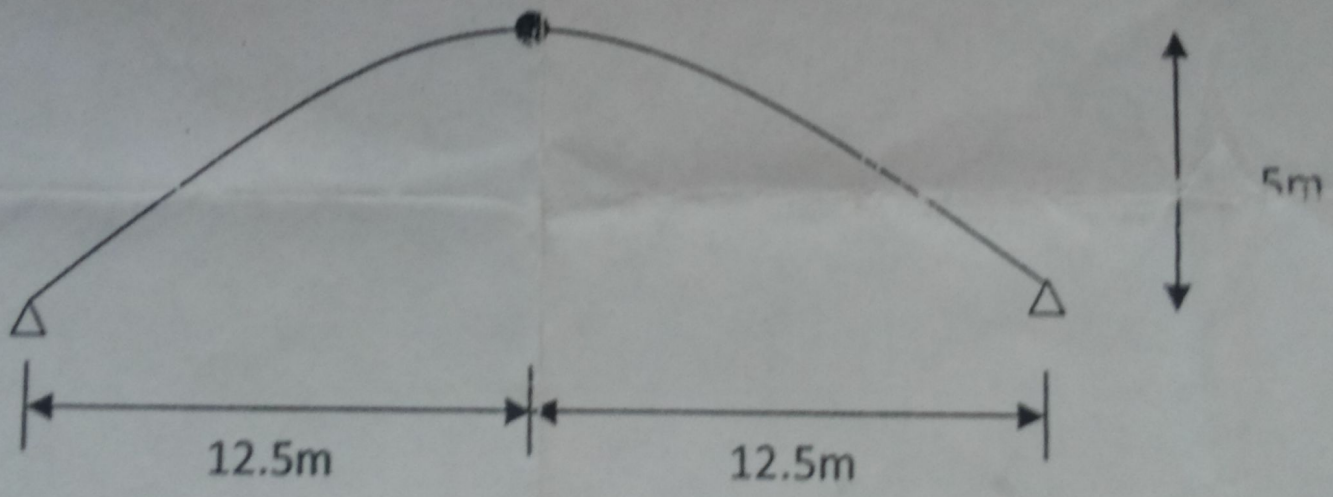
2.



Derive expressions and draw the influence line diagram for the shear and the normal thrust for the parabolic arch with the given span and rise at a distance of 8m from the left support.

(15 marks)