

# AI1110 Assignment 1

AI21BTECH11001

ICSE Grade 10 2014 paper

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**Question 3:**

(a) Without using trigonometric tables,  
evaluate  $\sin^2 34^\circ + \sin^2 56^\circ + 2 \tan 18^\circ \tan 72^\circ -$   
 $\cot^2 30^\circ$  [3]

**Solution:**

$$\sin^2 34^\circ + \sin^2 56^\circ + 2 \tan 18^\circ \tan 72^\circ - \cot^2 30^\circ$$

$$\sin^2 34^\circ + \sin^2 (90^\circ - 34^\circ) + 2 \tan 18^\circ \tan (90^\circ - 18^\circ) \\ - \cot^2 30^\circ$$

$$\sin^2 34^\circ + \cos^2 34^\circ + 2 \tan 18^\circ \cot 18^\circ - \cot^2 30^\circ$$

$$1 + 2 \tan 18^\circ \frac{1}{\tan 18^\circ} - (\sqrt{3})^2$$

$$1 + 2 - 3$$

$$0$$