

**COMPRESSION OF UCT AND REBOUND HAMMER IN  
DETERMINATION OF UCS ON ROCK MATERIAL**

By

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## **DECLARATION BY CANDIDATE**

I Siti Aishah Binti Noh , UiTM no 2004335481 confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

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## ABSTRACT

Uniaxial Compression Test (UCT) and Rebound Hammer Test are accepted rock mechanics testing procedure used to determine rock strength in geotechnical practice. Intact Limestones were collected at Pusat Geosains and Mineral Ipoh, Perak. The samples were used to determine the physical properties of intact limestone rock and also Uniaxial Compressive Strength (UCS) using Uniaxial Compression Test (UCT) and Rebound Hammer Test. Two groups of samples were prepared for Uniaxial Compression Test (UCT) and Rebound Hammer Test which were eighteen samples for group one and sixteen samples for group two. The dimension of group one was 55 mm x 110 mm while for group two 50 mm x 100 mm. For physical properties test, ten lumps of intact limestone rock were used to determine specific gravity, porosity, density and moisture content.

From experimental the mean value of Uniaxial Compressive Strength (UCS) for group one and group two by using Uniaxial Compression Test (UCT) were 71.89 MPa. While the average result of Uniaxial Compressive Strength (UCS) by using rebound hammer were 60.66 MPa. The average result of moisture content test for intact limestone rock for group one and group two was 0.15 %. In density test, the average result showed for both group is 2.5 g/ cm<sup>3</sup>. For specific gravity test, the laboratory performance shows that mean value for intact limestone is 2.18 g/ cm<sup>3</sup> and for porosity test the results give 8.09%.

In the relation between Rebound Hammer Test and UCT Test for group one, the graph give the positive equation where results for y is  $0.0218x + 67.983$ . This explained that the UCT Test is higher in strength about  $0.0218x + 67.983$  compared to rebound hammer test. In the relation between Rebound Hammer Test and UCT Test for group two, the graph give the negative equation where results for y is  $-0.0624x + 63.691$ . This explained that the Rebound Hammer Test is higher in strength about  $-0.0624x + 63.691$  compared to UCT Test. The obtained results give a low degree of positive correlation between UCT Test and Rebound Hammer Test for both groups. However the relationship between Uniaxial Compression Test (UCT) and rebound Hammer test can be correlate if there will increase the number of samples is tested.

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