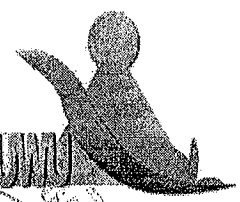


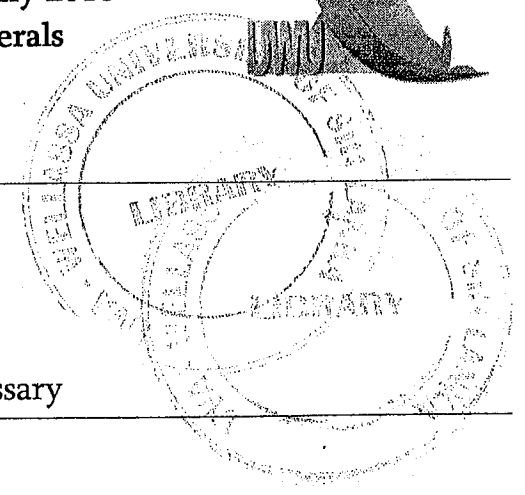
07

10 - 2010 - 11KT 212 - 1

**Uva Wellassa University, Sri Lanka**  
**End Semester Examination - July 2010**  
**MRT 212-1 Industrial Minerals**



**Time: One (01) hour**



Total 04 questions

Answer Three (03) questions

Part A – Compulsory

Part B – Answer any two (02) questions

Illustrate your answer with sketch diagrams where necessary

**Part A**  
**Compulsory**

Calcite is used as raw material in fertilizer and cement industry. Suppose that you have given the task to identify a suitable location to extract calcite for cement industry. Location, physiography, mineralogy and textural characteristics of two potential calcite deposits are summarized in following table.

Deposit A	Deposit B
<ul style="list-style-type: none"> <li>• Located close to B-grade road 10 km away from highly urbanized area</li> <li>• Deposit is a small ridge parallel to strike</li> <li>• Covered by 1 m thick soil cover</li> <li>• Highly fractured rock</li> </ul> <p><u>Mineralogy and Texture</u></p> <ul style="list-style-type: none"> <li>• Calcite (90%) :- Coarse to medium-grained, white coloured, euhedral to subhedral crystals</li> <li>• Fine to medium-grained olivine (5%), diopside (4%) and graphite (1%) are distributed throughout the rock</li> </ul>	<ul style="list-style-type: none"> <li>• Located in Dry zone forest 25 km away from minor road</li> <li>• Deposit is a small ridge parallel to strike</li> <li>• Covered by thick forest cover and 2 m thick soil cover</li> <li>• Massive rock</li> </ul> <p><u>Mineralogy and Texture</u></p> <ul style="list-style-type: none"> <li>• Calcite (80%) :- Medium to fine-grained, white coloured, anhedral crystals</li> <li>• Fine to medium-grained olivine (10%), diopside (7%) and graphite (3%) present as 5-10 cm distinct thick layers. These layers occur intermittently throughout the rock</li> </ul>

01) Answer the following questions based on above details

- i. What is an industrial mineral? (10 Marks)
- ii. List the factors you are going to consider when evaluating the potential of the mineral deposit. (20 Marks)
- iii. Which deposit (A or B) is most suitable for extraction of calcite? Briefly discuss your answer using above factors. (70 Marks)

Part B

Answer Two Questions

- 02) i. What is hydrothermal solution? (10 Marks)
- ii. Describe how hydrothermal solutions form and transport within rocks. (20 Marks)
- iii. Giving examples briefly discuss formation of hydrothermal deposits in the context of plate tectonics. (70 Marks)

03) Write short notes on following.

- i. Pegmatites (50 Marks)
- ii. Secondary Mineral Deposits (50 Marks)

04) 'Marine environment is the potential source of minerals in future.'

Discuss the above statement.

(100 Marks)