



Uva Wellassa University, Sri Lanka
Faculty of Science and Technology
Mineral Resources and Technology Degree Programme
2nd Semester Examination – September/October 2013



MRT 435-2 Mining Methods

Number of questions : Four (04)

Answer all questions

Time allocation : Two (02) hours

Marks allocation : 400, each question carries hundred (100) marks

Illustrate your answers with sketches/diagrams where necessary

1.

- a. What is understood by the Overall Stripping Ratio? Illustrate and explain. (20 marks)
- b. Of what significance is the cut-off-stripping ratio in open-pit mine planning?
(20 marks)
- c. Having determined the final pit limits and overall stripping ratio, the mining plan can be executed in a number of ways. Illustrate and explain the three methods with their advantages and disadvantages. (60 marks)

2.

- a. Having determined the final pit limits and overall stripping ratio, the mining plan can be executed in a number of ways. One of such methods is Declining Stripping Ratio Method. Briefly explain the same with a clear illustration. (30 marks)
- b. The cut-off stripping ratio is the one for which the costs of mining the ore and waste are matched by the revenue from the block of ore. Present this in the form of an equation. If the Stripping Ratio assumes a value less than one, what would be the management decision with regard to the extraction of the block? (40 marks)
- c. What favorable points of the Bucket Wheel Excavator must be considered in selecting a continuous excavator? (30 marks)

3.

- a. What are the two types of dredges? Briefly explain their function with illustrations. (30 marks)
- b. Why can bench slopes usually have a steeper pit slope? (10 marks)
- c. What are the main environmental aspects related to multiple bench mining? (30 marks)
- d. Illustrate the basic parts of a dragline and briefly describe its function in overcasting overburden. (30 marks)

4. Explain the technical aspects of below mentioned mining activities.

- a. Kahatagaha and Bogala graphite mines
- b. Aruwakkalu limestone quarry
- c. Sand mining at Pulmodai mineral sand belt
- d. Gem mining at Kiriella area (25×4=100 marks)