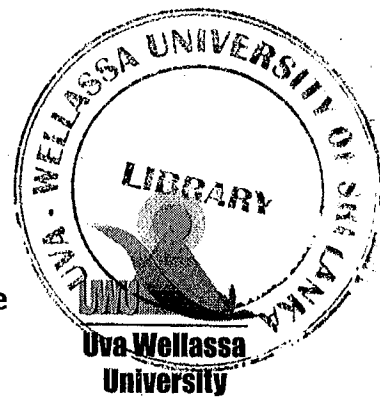


Uva Wellassa University, Sri Lanka
Faculty of Science and Technology
Mineral Resources and Technology Degree Programme
1st Semester Examination – March/April 2013



MRT 213-2/312-2 Mineralogy and Petrology II

Instructions to candidates

Total 04 (four) questions.

Answer all questions.

Time allocation: Two (02) hours

Draw sketch diagrams where necessary

Each question carries 100 marks

1.

a. How would you distinguish between the following minerals using their optical properties?

- i. Augite and Hornblende
- ii. Garnet and Quartz
- iii. Plagioclase and Calcite
- iv. Biotite and Olivine

(10 x 4 marks)

b. Write short notes on the following optical properties.

- i. Extinction
- ii. Relief
- iii. Birefringence
- iv. Interference colors

(10 x 4 marks)

c. How would you determine the optic sign of a uniaxial mineral? Give at least two examples for uniaxial positive and biaxial negative minerals.

(20 marks)

2.

- a. i. What is a diagenesis? (10 marks)
- ii. List all the criteria you might use to identify sedimentary rocks. (15 marks)

- b. Write short notes on the following.
- i. Wentworth classification
 - ii. Quartz, Feldspar and Lithic fragment compositional classification
 - iii. Formation of coal (15 x 3 marks)
- c. Compare and contrast the following.
- i. Sandstone and Siltstone
 - ii. Conglomerate and Breccia (15 x 2 marks)
3. a. Write brief descriptions on the following.
- i. Factors controlling the viscosity of magmas
 - ii. Pyroclastic rocks
 - iii. Magma differentiation (10 x 3 marks)
- b. If an igneous rock has aphanitic texture, what origin can be presumed for the rock? (10 marks)
- c. Compare the following.
- i. Diorite and Andesite
 - ii. Granite and Rhyolite
 - iii. Gabbro and Basalt (20 x 3 marks)
4. a.
- i. What is metamorphism? (10 marks)
 - ii. Explain the formation of metamorphic foliation (15 marks)
 - iii. How would you classify the foliated rocks? (15 marks)
- b. Write short notes on the following.
- i. Charnockites
 - ii. Migmatites
 - iii. Stretching lineation
 - iv. Non-foliated metamorphic rocks (15 x 4 marks)