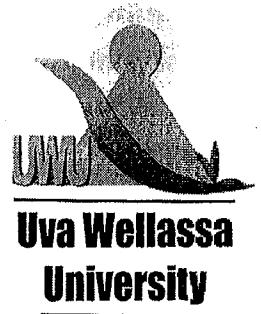


Uva Wellassa University, Sri Lanka  
End Semester Examination – February/ March 2012  
Mineralogy and Petrology II  
MRT 213-2/ MRT 312-2



Time: Two (02) Hours

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Total 04 Questions

Answer all questions

Draw sketch diagrams where necessary

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- 01) (i) Define retardation and explain its relation to,
- (a) Phase difference and interference colour (05 marks)
  - (b) Thickness (length of optical path) (05 marks)
  - (c) Refractive indices. (05 marks)
- (ii) What is the retardation for isotropic minerals? (05 marks)
- (iii) (a) Explain pleochroism. (10 marks)
- (b) Define birefringence. (10 marks)
- (c) How would you use the color chart to estimate birefringence of a mineral in a typical thin section? (15 marks)
- (d) Define extinction and provide drawings to explain this phenomenon. (15 marks)
- (iv) List the crystallographic classes corresponding to isotropic, uniaxial, and biaxial materials. Give at least two mineral examples for each. (30 marks)
- (100 marks)

- 02) (i) What is diagenesis? (10 marks)
- (ii) What are the sedimentary stages of the rock cycle? (30 marks)
- (iii) Write short notes on the following:
- (a) Sorting
  - (b) Graded bedding
  - (c) Unconformity (10x3 marks)
- (iv) Compare and Contrast the following:
- (a) Sandstone and Limestone
  - (b) Augen Gneiss and Mylonite (15 x 2 marks)
- (100 marks)
- 03) (i) Write brief descriptions on the following:
- (a) Pegmatites
  - (b) Vesicular igneous rocks (15 x 2 marks)
- (ii) If an igneous rock has porphyritic texture, what origin can be presumed for the rock? (15 marks)
- (iii) What are the factors that determine the size of the crystals in igneous rocks? (10 marks)
- (iv) Summarize Bowen's reaction series. (15 marks)
- (v) Describe the procedure you would follow to classify igneous rocks. (30 marks)
- (100 marks)
- 04) (i) (a) What is prograde metamorphism? (10 marks)
- (b) What are the differences between regional and contact metamorphism? (15 marks)
  - (c) How is foliation produced in metamorphic rocks? (15 marks)

(ii) Write short notes on the following:

- (a) Relict texture
- (b) Schistosity
- (c) Lineation
- (d) Metamorphic rocks of Sri Lanka

(15 x 4 marks)

(100 marks)