

UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE

Level III Semester II- December 2016/ January 2017

OCG 3212- Earth Materials and Structure

Answer Four (4) questions

Time: 2 hours

Section A - Answer all questions

01. What is the definition of a mineral and how are minerals classified? Describe in detail the silicate class of minerals. (20 Marks)
02. Write short notes on any four (4) of the following; (20 Marks)
- The Theory of Uniformitarianism and its importance
 - The different types of physical properties used to identify minerals in hand specimens
 - The different types of crystal systems
 - The types and classification of geological structures
 - A brief outline of the geology of Sri Lanka

Section B - Answer any two (2) of the following

- 03.
- Describe in detail the olivine and plagioclase series. (10 Marks)
 - Explain why quartz and olivine do not usually coexist in igneous rocks. (10 Marks)
 - If an intrusive igneous rock is composed chiefly of olivine and calcium (Ca) rich plagioclase what is your impression about the temperature of the magma the rock has been formed from. (10 Marks)
- 04.
- What is a rock? (02 Marks)
 - Illustrate the Rock Cycle. (08 Marks)
 - Shale in a sedimentary terrain has been gradually buried over the last 200 million years to a present day depth of 16km, where the temperature and pressure are approximately 800°C and 4.5 kilobars, respectively. Describe the mineralogical and textural changes the shale has undergone during this time. (20 Marks)
05. The figure given below shows the cross-section of a certain area. Develop a plausible evolutionary model for the geological history of the area with proper justifications. In your model be sure to include types of unconformable contacts developed. (30 Marks)

Use the following illustration when answering the question No. 05.

