



The Open University of Sri Lanka
 BSc Degree Programme (Level – 05)
PHU5306 – Applied Geology
Final Examination 2023/24

Date: 31st March 2024

Time Allowed: 2 hours (9.30-11.30)

Answer **Four (04)** questions. Answers should be illustrated with sketch maps and diagrams where appropriate. Each question carries equal marks.

- 1 (i) Briefly explain the major geological subdivisions of Sri Lanka (10 marks)
- (ii) What are the sedimentary rocks found in Sri Lanka's crust and where do they occur? (10 marks)
- (iii) What do you mean by the Pan-African event? (5 marks)

2. (i) Explain the process of formation of coal deposits citing the periods in the geological time scale? (10 marks)
- (ii) Explain the different grades of coal with corresponding carbon percentages. (10 marks)
- (iii) Write a statement on the possibility of formation of coal deposits in Sri Lanka (5 marks)

- 3 (i) What is a topographic map? (5 marks)
- (ii) How do geologists use strike and dip measurements of geological structures while in the field? (5 marks)
- (iii) How do geologists determine the age of rocks? (5 marks)
- (iv) What are the marker beds you identified when you mapped the Randenigala area? (5 marks)
- (v) Explain the intrusive rocks found in Randenigala area and describe its mode of formation? (5 marks)

4. (i) What is an aquifer? Define the different types of aquifers? (10 marks)
- (ii) What is the difference between an artesian well and a normal water well? (10 marks)
- (iii) State Darcy's law. Draw a labelled diagram of a Darcy tube, and label the variables used in Darcy's law. (5 marks)



5. (i) What is the cause of 'asterism' (star effect) in corundum? (5 marks)
(ii) Explain the theories behind the polariscope. (10 marks)
(iii) List the technique (s) used to distinguish between:
(a) red garnet and red glass
(b) colorless diamond and colorless zircon (10 marks)
6. (i) Are all gems minerals? Explain your answer with examples (5 marks)
i) Discuss the three main parts in faceted gemstones. (5 marks)
(ii) Discuss main gemstone enhancing methods with reference to topaz and sapphires (10 marks)
(iii) What gives gems their beautiful coloring? (5 marks)

