GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

JUNE 2025 **ADVANCED LEVEL**

Subject Title	**Geology**
Paper No.	**Paper 2**
Subject Code No.	**0755**

Duration: Three Hours

Answer FOUR questions.
ALL QUESTIONS CARRY EQUAL MARKS.

You are reminded of the value of clear sketches, even when not specifically demanded by the wording of the question, and of the necessity for good English and orderly presentation in your answers.

1. (a) Briefly explain the origin of the universe. **(4 marks)**

(b) Give the significance of each of the following discontinuities:

(i) Conrad discontinuity; **(3 marks)**

(ii) Moho discontinuity; **(3 marks)**

(iii) Gutenberg discontinuity. **(3 marks)**

(c) Differentiate between the following pairs:

(i) Earthquake focus and earthquake epicentre; **(2 marks)**

(ii) Body wave and surface wave; **(2 marks)**

(iii) Seismograph and seismogram. **(2 marks)**

(d) What do you understand by the following geological concepts?

(i) Sea-floor spreading; **(3 marks)**

(ii) Plate tectonics. **(3 marks)**

(Total = 25 marks)

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2. (a) (i) Outline the symmetry elements of the holosymmetric classes of the cubic and orthorhombic systems. **(7 marks)**

(ii) State the law of constancy of interfacial angles. **(3 marks)**

(b) Discuss the diagnostic physical properties, distribution in rocks and uses of the following minerals:

(i) Orthoclase feldspar;

(ii) Galena. **(12 marks)**

(c). Outline the factors that control the specific gravity of minerals. **(3 marks)**

(Total = 25 marks)

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3. (a) Describe the different types of rocks that result from the progressive regional Metamorphism of shale. **(12 marks)**

(b) Outline a classification of faults based on dip values and the apparent relative movement of the faulted blocks. **(8 marks)**

(c) Describe and explain the formation of the following features:

(i) Inlier;

(ii) Dome.

(5 marks)

(Total = 25 marks)

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4. (a) Peridotite, dolerite and rhyolite are common igneous rocks. Discuss each of them under the following headings:

(i) Composition;

(ii) Texture;

(iii) Rate of cooling;

(iv) Field occurrence. **(12 marks)**

(b) Using examples, briefly describe the following:

(i) Placer deposits;

(ii) Supergene enrichment deposits. **(8 marks)**

(c) Outline the methods that can be used to prevent landslides. **(5 marks)**

(Total = 25 marks)

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5. (a) Explain how the following features are formed:
   (i) Zeugen;
   (ii) Ox-bow lake;
   (iii) Sea stack. **(6 marks)**

   (b) Describe and account for the origin of **three** sedimentary structures that can be used to deduce palaeo environments. **(9 marks)**

   (c) (i) Outline the qualities of basalt that can make it useful for construction. **(4 marks)**
   (ii) Discuss **two** types of springs. **(6 marks)**

(Total = 25 marks)

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6. (a) Briefly discuss Graptolites under the following headings:
   (i) Mode of fossilisation;
   (ii) Evolutionary changes. **(12 marks)**

   (b) With the aid of diagrams, describe the following types of unconformities:
   (i) Parallel unconformity;
   (ii) Heterolithic unconformity;
   (iii) Angular unconformity. **(9 marks)**

   (c) List and explain two factors that control the viscosity of magma. **(4 marks)**

(Total = 25 marks)
