

A LEVEL GEOLOGY PAPER 2 2017 MEETLEARN.COM

*Advanced Level
Geology Paper 2*

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SECTION A

1. (a) with reference to Mesozoic Era, describe the stratigraphical occurrence of the fossils within this Era. (13 marks)

(b) Evaluate the usefulness of these fossils for dating. (12 marks)

2. (a) discuss the main evolution changes that occurred in *Micraster* during the history of this organism. (13 rks)

(b) outline the significance of these changes. (12 marks)

(Total = 25 marks)

3. (a) Define the following stratigraphic terms.

- Epoch; (2 marks)
- Eon; (2 marks)
- (2 marks)

(b) Explain how the geologic time scale has been divided into subunits. (13 marks)

(c) What are the main problems associated in the investigation of Precambrian rocks? (6 marks) (Total = 25 marks)

SECTION B

4. (a) distinguish igneous and metamorphic rocks based on:

- Mineralogy (6 marks)
- Textures (6 marks)
- structures (6 marks)

(i) what are the qualities of gabbro, basalt, and gneiss as roadstones? (7

marks) (Total = 25 marks)

5. (a) define the following as used in crystallography:

- Interfacial angle; (3 marks)
- Crystallographic axes; (3 marks)
- Pyramids; (3 marks)
- Prisms; (3 marks)
- (3 marks)

(c) Compare and contrast the symmetry and the forms present in the beryl and calcite classes. (10 marks)

(Total = 25 marks)

6. (a) what do you understand by the following?

- Polyphase metamorphism; (2 marks)
- Prograde metamorphism; (2 marks)
- Isocheimal metamorphism; (2 marks)

(b) Discuss the origin and effect of pressure on regional and dynamic metamorphism (19

marks) (Total = 25 marks)

SECTION C

7. Describe the composition, formation, and sedimentary environments of each of the following

- Dolomitic limestone; (9 marks)
- Calc-tufa; (9 marks)
- Clastic limestones. (7 marks)

(Total = 25 marks)

8. (a) What are the resources of the following economic materials?

- Halite;
- Gypsum;
- Phosphate rock;
- Sand;
- Clays; (10 marks)

3. Describe the use of these materials (15

marks) (Total = 25 marks)

9. (a) Distinguish between:

- Brittle and ductile deformation; (4 marks)
- Fracture and crenulation cleavage; (4 marks)
- Boudinage and tension gashes. (4 marks)

(b) compare the movement of rocks along normal, reverse and strike-slip faults. (6 marks)

(c) How would you recognize faults in the field? (7 marks)

(Total = 25 marks)

SECTION D

(a) Define twinning (3 marks)

(b) Name the types of twinning shown by the following minerals:

(b) Orthoclase;

(i) Rutile;

(ii) Gypsum;

(iv) Fluorite (4 marks)

- Distinguish between:
- Polymorphic and pseudomorph; (4 marks)
- Primary and secondary minerals (4 marks)
- Describe with the aid of labelled diagrams, the structure of the following silicates and a mineral example of each:

- *Inosilicates; (5 marks)*
- *(5 marks)*

(Total = 25 marks)

a Outline the major external and internal geological process and demonstrate how these process effect isostatic equilibrium (Total = 25 marks)

b With the aid of labelled diagrams, discuss with reasons, the variation in seismic wave velocities from the Crust to the Core of the Earth. (Total = 25 marks)

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