



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

CARTOGRAPHY, CIVIL, SURVEYOR AND IRRIGATION

SUBJECT: Geology

PAPER NO: 313/18/S06

DURATION: 3 Hours

MARCH/APRIL 2023 EXAMINATION

REQUIREMENTS

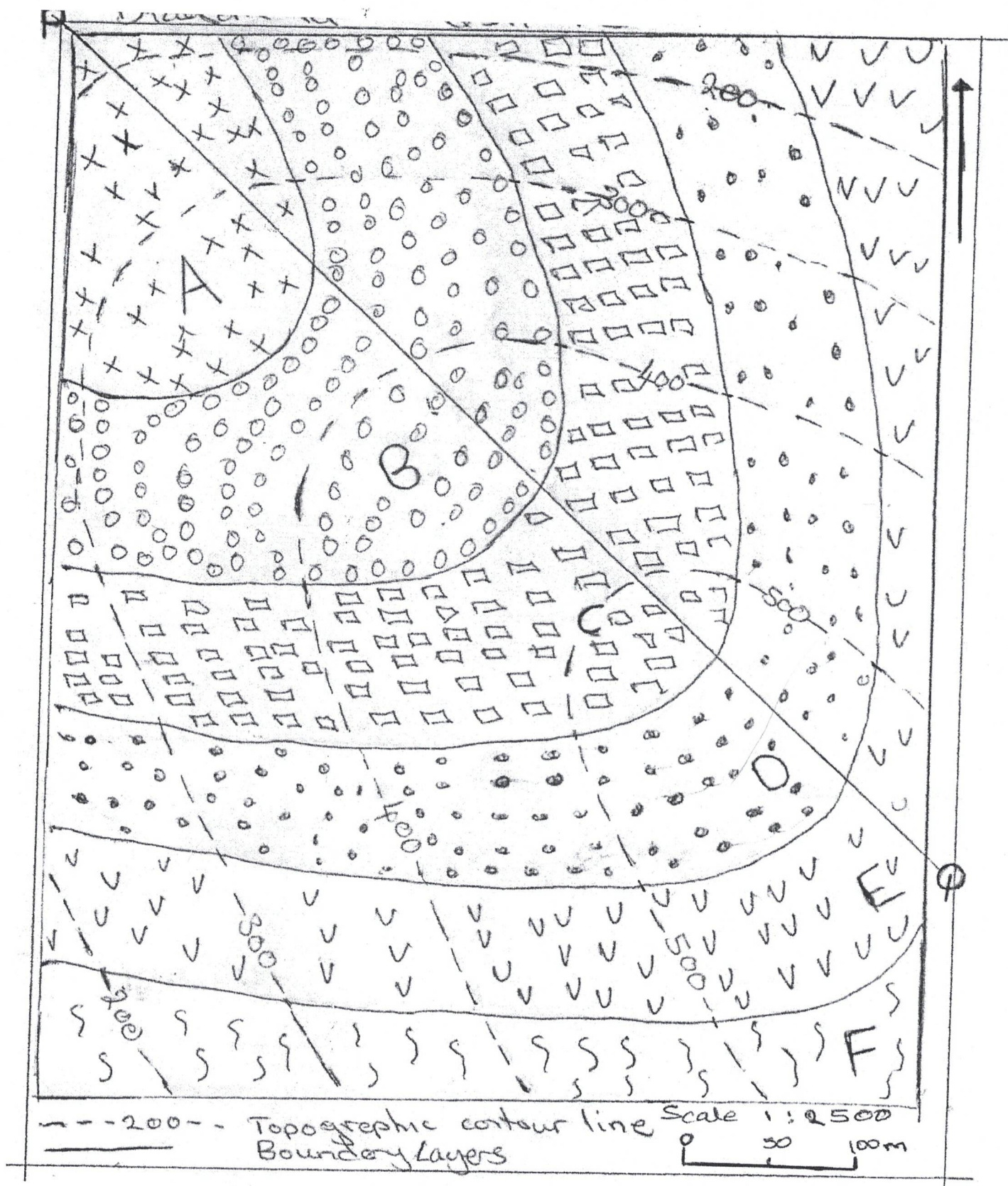
Protractor, pencil, ruler, scientific calculator.

INSTRUCTIONS TO CANDIDATE

- 1. Answer question one (1) and three (3) questions.**
- 2. All question carry equal marks.**

This paper consists of 4 printed pages.

QUESTION 1



- (a) Given below is a geological map of sedimented layers.
- (i) Find the strike direction, True Dip and Dip direction. (15 marks)
 - (ii) Outline the uses of a geological map. (4 marks)
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- (b) Briefly explain the gaseous tidal hypothesis. (6 marks)

QUESTION 2

- (a) Describe and explain the Moh's Scale of hardness. (15 marks)
- (b) All silicate minerals passes the silicate oxyanion. Briefly describe the meaning of this statement . neat diagrams attracts more marks. (6 marks)
- (c) Differentiate between the following pair
Saturated zone and unsaturated zone. (4 marks)

QUESTION 3

- (a) In what way does the following branches of geology influence engineering applications
- (i) Pathology geology (5 marks)
 - (ii) Engineering geology (5 marks)
 - (iii) Mineralogy geology (5 marks)
- (b) Articulate your understanding of the following types of rocks
- (i) Metamorphic (3 marks)
 - (ii) Igneous (4 marks)
 - (iii) Sedimentary (3 marks)

QUESTION 4

- (a) Outline the factors to consider when carrying out construction of a residential flat in an area characterised by high rainfall, limestone and dolomite rock. (10 marks)
- (b) Describe the physical properties of a mineral. (15 marks)

QUESTION 5

- (a) Give your understanding on the following geological processes.
- (i) Spheroidal weathering (5 marks)
 - (ii) Pressure release (5 marks)
 - (iii) Salt crystal growth (5 marks)
- (b) Describe the following rock structures
- (i) Amygdaloidal structure (5 marks)
 - (ii) Vesicular structure (5 marks)

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