ZIMBABWE SCHOOL EXAMINATIONS COUNCIL
General Certificate of Education Advanced Level

GEOGRAPHY
PAPER 1

9156/1

Wednesday   **19 NOVEMBER 2003**   Morning   3 hours

1 : 50 000 Survey map is enclosed with this question paper

Additional materials:
  Answer paper

X

TIME 3 hours

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces provided on the answer paper/answer booklet.

Answer **four** questions.

Answer **one** question from Section A, **two** questions from Section B and **one** question from Section C.

Write your answers on the separate answer paper provided.

If you use more than one sheet of paper, fasten the sheets together.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [ ] at the end of each question or part question.

Sketch maps and diagrams should be drawn wherever they serve to illustrate an answer.

You are advised to spend no longer than 45 minutes on Section A.

You are reminded of the need for good English and clear presentation in your answers.

This question paper consists of 6 printed pages and 2 blank pages

Section A (Practicals)

Answer **one** question from this section. Do not spend more than 45 minutes on this section.

1   Study the map provided (1 : 50 000 Rusape, Zimbabwe).

    (a)   Draw a large sketch map to show the main features of relief and drainage of the area bound by vertical grid lines 95 and 12 and horizontal grid lines 27 and 40.

                [12]

    (b)   Describe and suggest reasons for the relationship between the relief and drainage features of the area outlined above.

                 [13]

2   Table 1 shows data obtained by a field survey of five slope profiles (equally spaced in a down-valley direction) in two valleys, one in limestone (A) and the other in clay (B).

Table 1

	Profile	Slope height (m)	Max. Slope angle (°)	Percentage of profile convex	Percentage of profile rectilinear	Percentage of profile concave
A Limestone	1	15	17	100	0	0
	2	24	25	80	20	0
	3	57	32	58	42	0
	4	87	31	52	48	0
	5	120	32	48	52	0
B Clay	1	8	2	32	0	68
	2	20	3	28	0	72
	3	30	5	26	0	74
	4	44	7	24	0	76
	5	55	9	20	0	80

    (a)   Briefly describe how the data was collected.

                [10]

    (b)   Describe how you would construct slope frequency graphs (histograms) to compare maximum slope angles of the two areas.

                [7]

    (c)   Describe and suggest reasons why the slopes in the two areas are different. [8]

Section B (Physical Core)

Answer **two** questions from this section.

(a) Briefly explain the causes of condensation of water vapour in the atmosphere. [6]

(b) Fig. 1 shows, in simplified form, temperature-energy exchanges and stores in the ground in a temperate region.
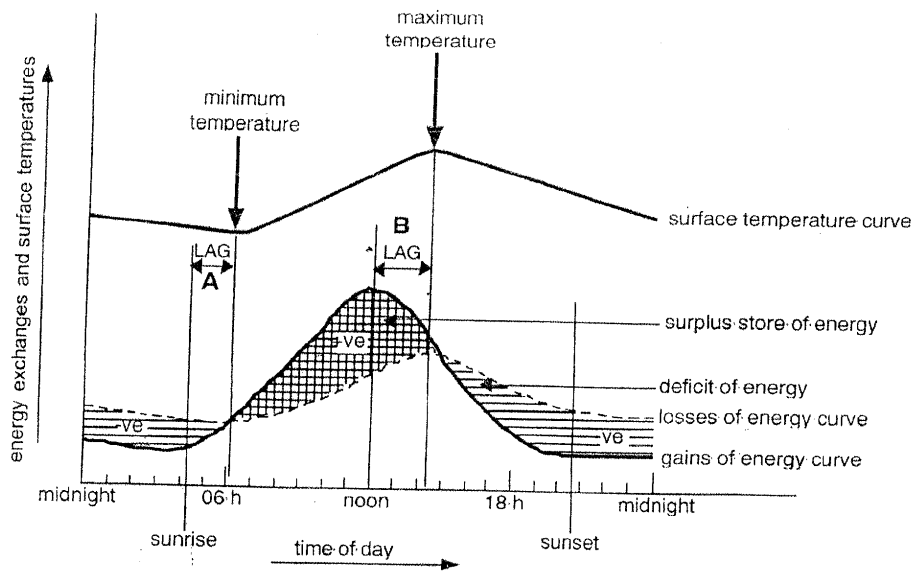

Fig. 1

(i) Describe and explain lag times A and B shown. [6]

(ii) How would the variations depicted in Fig. 1 be used to explain possible changes in the weather between sunrise and sunset? [6]

(c) To what extent should the possible effects of global warming be of serious concern? [7]

[Turn over

4 Table 2 shows data on rock type, annual precipitation and drainage density in six selected areas A to F.

Table 2

Area	Rock type	Annual precipitation (mm)	Drainage density (km/km²)
A	Clay	450	2.2
B	Sandstone	900	2.5
C	Limestone	900	1.5
D	Clay	1000	4.0
E	Granite	1300	6.0
F	Granite	2000	15.0

(a) Distinguish between *drainage pattern* and *drainage density*. [6]

(b) Describe and explain the variations in drainage density shown in Table 2. [12]

(c) What other factors influence drainage density? [7]

5 (a) Briefly explain the terms *ephemeral*, *intermittent* and *perennial* as used in the study of rivers. [6]

(b) Explain why the discharges of rivers vary markedly even in areas with similar rainfall patterns. [12]

(c) To what extent do human activities contribute to the occurrence of drought? [7]

6 **(a)** Briefly describe the weathering processes of *hydrolysis* and *chelation*. [6]

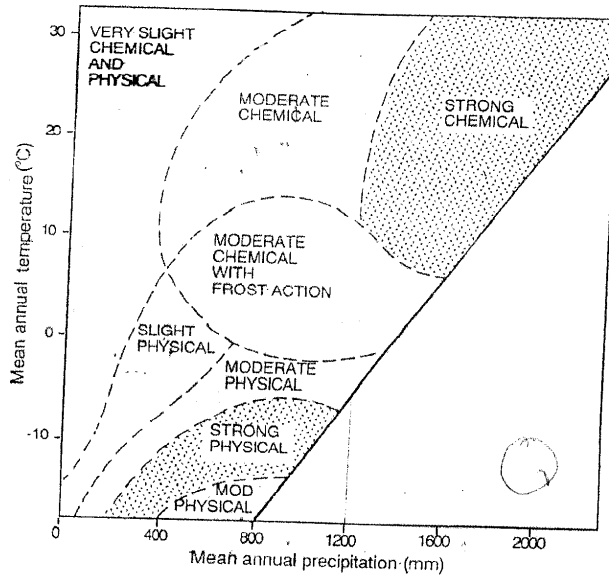**(b)** Fig. 2 shows the relationship between climate and weathering rates.

Fig. 2

Describe and explain the variations in weathering rates shown. [12]

(c) What factors, other than climate, influence weathering at a local scale? [7]

7 **(a)** Distinguish between a *xerosere* and a *hydrosere*. [6]

(b) Describe and explain the sequence of vegetation changes which would occur in a tropical rainforest area which has been disturbed by volcanic eruption. [12]

(c) With reference to specific examples, evaluate attempts being made to preserve rainforests. [7]

8 **(a)** Distinguish between zonal, azonal and intrazonal soils. [6]

(b) Explain how and why soil profiles vary along a hillslope. [12]

(c) With reference to a specific area you have studied, evaluate attempts being made to curb soil erosion. [7]

[Turn over

Section C (Physical Options)

Answer **one** question from this section.

9   (a)   With the aid of diagrams, explain the different types of faults. [9]

       (b)   With reference to examples, explain why major fault zones are hazardous environments. [16]

10   (a)   Which areas of the world are most at risk from natural hazards? Give reasons for your answer. [9]

       (b)   With reference to any **three** natural hazardous events, explain to what extent these may be predicted and / or prevented. [16]

11   (a)   Using a diagram, describe the main features of the desert piedmont zone. [9]

       (b)   Discuss **two** theories which have been proposed to explain the formation of rock pediments in arid and semi-arid environments. [16]

12   (a)   With the aid of diagrams , describe the formation of coastal spits and bars. [9]

       (b)   With reference to specific examples, describe and explain how changes in sea level are likely to affect coastlines. [16]

13   (a)   Explain how the various types of glacial moraines are formed. [9]

       (b)   With reference to examples, explain how ice sheets and glaciers modify drainage features. [16]