ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Advanced Level

GEOGRAPHY 6037/1

PAPER 1 : PHYSICAL COMPONENT

NOVEMBER 2022 SESSION 3 hours

Additional materials:
Answer paper

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 any **four** questions in this paper.

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

This question paper consists of 5 printed pages and 3 blank pages.

[Turn over

*Answer any **four** questions.*

1 (a) Briefly explain the terms *environmental lapse rate (ELR)*, and *adiabatic lapse rate (ALR)*. [6]

(b) With the aid of temperature height graphs explain atmospheric stability and instability. [12]

(c) To what extent is the greenhouse effect a result of human activities? [7]

2 (a) What is meant by the following terms:

(i) absolute humidity,

(ii) relative humidity,

(iii) specific humidity. [6]

(b) With the aid of labelled diagrams, describe the formation of different types of rainfall. [12]

(c) Examine the effects of acid rain on people and the environment. [7]

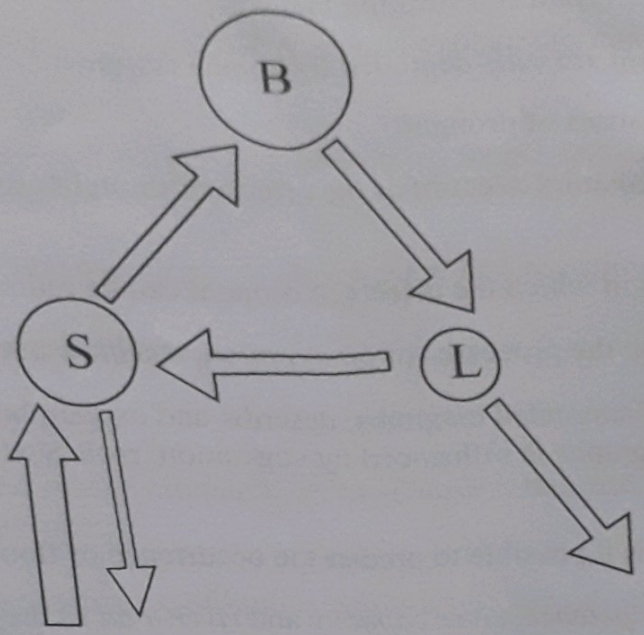
3 (a) Define the following terms as they are used in biogeography:

(i) litter,

(ii) soil profile,

(iii) soil texture. [6]

(b) **Figure 3.1** is a nutrient cycle in an area of tropical rainforest that has been cleared through shifting cultivation.



B Biomass

S Soil

L Litter

Fig. 3.1

Describe the nutrient cycle shown in the diagram and explain the extent to which this differs from the nutrient cycle found in an undisturbed rainforest ecosystem. [12]

(c) Evaluate measures taken to reduce the impact of soil erosion in the savanna biome. [7]

4 (a) Briefly explain the following terms as they apply in biogeography.

(i) plagioclimax

(ii) xerophytic [6]

(b) With reference to the savanna biome, explain how nutrient cycling occurs and how human activities impact on soil fertility. [12]

(c) Evaluate measures for sustainable management of the savanna biome. [7]

5 (a) Briefly explain the terms *humification* and *salinisation* as used in the study of soils. [6]

(b) Identify and explain soil forming factors. [12]

(c) To what extent are soils degraded by human activities? [7]

6 (a) Explain the causes of drought. [6]

(b) Write an explanatory account of the effects of drought on the environment and people. [12]

(c) Evaluate ways in which the effects of drought can be reduced. [7]

7 (a) Briefly describe the processes of *interception*, *stemflow* and *through fall*. [6]

(b) With the aid of annotated diagrams, describe and explain how the shape of storm hydrographs is influenced by vegetation, rock type and drainage basin shape. [12]

(c) To what extent is it possible to predict the occurrence of floods? [7]

8 (a) Define *river competence*, *river capacity* and *river load* as they are used in fluvial processes. [6]

(b) Study **Figure 8.1** below showing the relationship between river velocity and particle size.

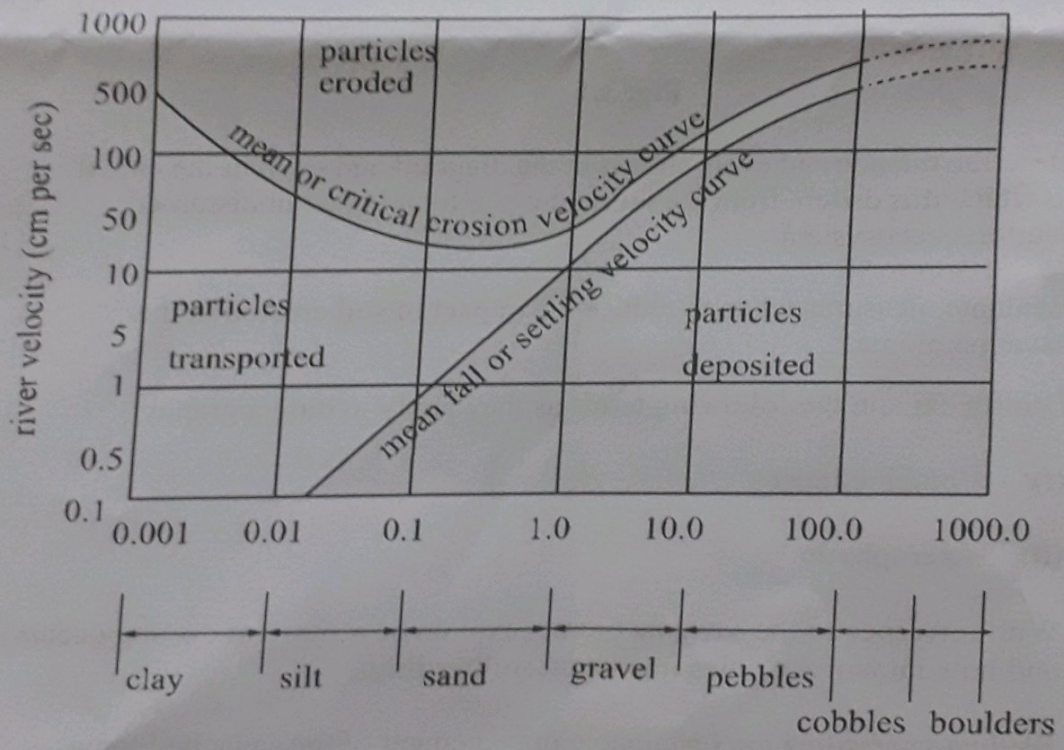


Fig. 8.1

Explain the relationship between particle size and river velocity as shown in **Fig. 8.1** above. [12]

(c) To what extent may human activities contribute to river siltation? [7]

9 (a) Briefly explain the natural causes of slope failure. [6]

(b) With the aid of clearly labelled diagrams explain theories of slope evolution. [12]

(c) Discuss the role of humans in destabilising slopes and suggest measures to stabilise slopes. [7]

10 (a) Define the following terms as they are applied in geomorphology:

(i) pressure release,

(ii) hydrolysis. [6]

(b) Explain the role of climate in influencing the rate and type of weathering at a global scale. [12]

(c) Assess the influence of human activities on the rate and type of weathering. [7]