INSTRUCTIONS AND INFORMATION TO CANDIDATES

• Write your answers and working in the separate answer book provided.
• Write your Centre Number, Candidate Number and Name on all the work you hand in.
• Write in dark blue or black pen.
• You may use a soft pencil for any diagrams or graphs.
• Do not use staples, highlighters or correction fluid.

• Answer all questions

• The Insert contains Fig. 1 for Question 1 (a) (i), Fig. 3 for Question 3 (b), Fig. 4 (data sheet) for Question 3 (c) (ii) & (v) and Fig. 5 for Question 3 (c) (v).
• The number of marks is given in brackets [ ] at the end of each question or part question.
• All working must be clearly shown.

This document consists of 6 printed pages, 2 blank pages and 1 Insert.

Republic of Namibia
MINISTRY OF EDUCATION

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Fig. 1 (Insert) shows villages around Town A.

Twenty people were questioned in each village shown in Fig. 1 and asked whether or not they normally used Town A for 15 different services. The answers were then averaged out for each village.

A number of methods may be used to define the sphere of influence of a town.

Fig. 1 (Insert) shows the results of a questionnaire used to define the sphere of influence of Town A.

(a) An isoline for the value of 9 has been drawn on Fig. 1 (Insert).

Complete the diagram by adding isolines to show the values 3, 5 and 8.

(b) Four of the services listed in the questionnaire were a clothing store, a general store, a library and a bank.

Suggest three other services that might have been included in the questionnaire to help determine the sphere of influence of Town A.

(c) What factors might influence the shape and size of the sphere of influence of a town such as Town A?
Fig. 2 shows an area of land with two rock types, A and B. The map is covered with a grid, numbered from 0 - 100. Three different types of sampling methods were used to sample land use in the farming area composed of the two rock types A and B.

An area of land with two rock types A and B.

Fig. 2

Twenty sample points were chosen.

Sampling type I, II and III show three different types of sampling methods.

sampling type I
sampling type II

This sampling type include young and old farmers as well as large and small farms.

(a) Identify each of the sampling methods indicated as I, II and III. [3]

(b) Explain briefly how each sampling method shown can be used to survey the land use of an area. [3]

(c) Give one advantage and one disadvantage for each of these three sampling methods. [6] [12]
A group of geography students collected data at a number of locations along part of a small stream and parts of the surrounding area.

The students measured the gradient of a slope adjacent to the river and recorded the data. The data is shown in Table 1 below.

<table>
<thead>
<tr>
<th>Slope Section</th>
<th>Length of slope measured (m)</th>
<th>Angle of slope (°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>6</td>
</tr>
</tbody>
</table>

(a) How would you measure the gradient of the area presented by the data shown in Table 1?

(b) On the space provided in Fig. 3 (Insert), use the scale suggested and the data provided in Table 1 to accurately draw (reconstruct) the profile of the slope.

(c) The data sheet (field sheet) Fig. 4 (Insert) shows the different data the students collected and recorded during a field study.

(i) Describe the equipment required to measure depth and velocity.

(ii) Describe how the stream depth would be measured.

(iii) Describe how stream velocity would be measured.

(iv) Using the data given in Section 1 (data sheet, Fig. 4, Insert), calculate the average velocity of the stream.

(v) Explain briefly why the average time is multiplied by 0.85.

(vi) Use the data in Fig. 4 (Insert) to calculate
   A: the cross-sectional area of the stream.
   B: the discharge of the stream.

(vii) On the graph outline given in Fig. 5 (Insert), use the scale suggested and the data provided in Section 2 (data sheet, Fig. 4, Insert), to accurately draw the cross-section.
(d) Fig. 6 shows river cross-sections, showing isovels (isolines of stream velocity).

![Cross-profile showing isovels](image)

Fig. 6

Describe and explain the similarities and differences in the velocity shown. [4]

(e) Information was also obtained by fieldwork on pebbles found in a dry valley.

What observations could be made of these deposits to determine the nature of the rivers’ load and the size of the rivers when in flood? [3]

(f) Describe and explain the differences in size and shape of river material between the upper course and lower course of a perennial river. [3]