Write your answers to this section in the answer book

1: Write short notes on **four** of the following topics:
   (a.) Drakensberg Group  
   (b.) Rooiberg Group  
   (c.) Dwyka Group  
   (d.) Pretoria Group  
   (e.) Table Mountain Group  
   (f.) Waterberg Group

   (16 marks)

2: Draw a sketch cross-section through the Bushveld Complex indicating the relative position of the major rock units (including the floor and roof rocks). Your cross-section should also show what lithologies (rock-types) are characteristic of each section of the Bushveld, and should show where you would expect to find what economic minerals or rock types.

   (17 marks)

3. Compile a list of important palaeo-environmental conditions which encouraged the growth of stromalites in the Late Archaean and Proterozoic.

   (5 marks)
4. Examine the following geological map of South Africa, which has had its legend/stratigraphic column deleted. Complete the following table of stratigraphic, lithologic and structural units from the South African rock record to link the numbers on the map to the appropriate unit. Alongside each unit, give a number from 1 to 11 to indicate the relative age (1 being the oldest).

<table>
<thead>
<tr>
<th>Unit</th>
<th>No. on map</th>
<th>Relative age</th>
<th>Unit</th>
<th>No. on map</th>
<th>Relative age</th>
<th>Unit</th>
<th>No. on map</th>
<th>Relative age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natal Group</td>
<td></td>
<td></td>
<td>Waterberg Group</td>
<td></td>
<td></td>
<td>Lebowa Granite Suite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barberton Greenstone Belt</td>
<td></td>
<td></td>
<td>Transvaal Basin</td>
<td></td>
<td></td>
<td>Limpopo Belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stormberg Group</td>
<td></td>
<td></td>
<td>Vredefort Dome</td>
<td></td>
<td></td>
<td>Ventersdorp Supergroup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Namaqua-Natal Belt</td>
<td></td>
<td></td>
<td>Cape Fold Belt</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

(22 marks)
Section B: Long answers:

Read the following instructions carefully! *Either* write a short text on *ONE* of the following essay topics, *or* complete a cross-section based on the accompanying geological map. Note that for the essay questions, the correct use of written English is considered important!

**EITHER**

5. **Essay topic 1**: Write an illustrated essay which discusses the following statement: “The rocks and fossils preserved in the Karoo Supergroup elegantly illustrate the effect of active tectonics and climate change on sedimentation and life in Gondwana between the Carboniferous and Early Jurassic periods.”

   (40 marks)

6. **Essay topic 2**: Write an essay discussing the following statement: “The principal of Uniformitarianism can be applied universally throughout the South African geological record, illustrating that the present really is the key to the past.”

   (40 marks)

**OR**

7. Construct a scaled cross-section from point Y to point Z on the following geologic map. The section should be plotted on the grid provided below. Your completed section should show topography, the geology beneath the surface, and also indicate the geology removed by erosion. Add a stratigraphic column to the side of the cross-section indicating the relative age of each of the rock types, and indicate on the column the timing of important structural events, relative to the ages of the strata.

   (40 marks)

**TOTAL: 100 marks**