Mid-year examination 2: Augrabies

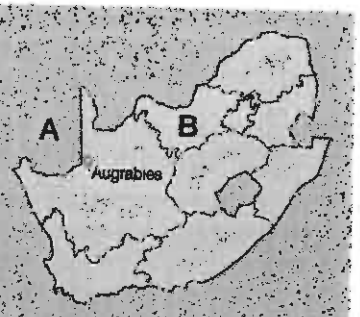
MARKS: 75 **TIME: 1½ hours**

Resource material

- An extract from the topographic map, 2820 CB Augrabies
- An extract from orthophoto map 2820 CB 7

General information on Augrabies Falls

Coordinates: 28°34′S, 20°15′E



The town of **Augrabies** is located near the Augrabies Falls on the Orange River in the Northern Cape, about 100 km downstream from Upington. The 56 m-high waterfall is gets its name from the Khoikhoi word 'Ankoerebis', meaning 'place of great noise'. When in flood, as much as 7 800 cubic metres of water per second have been recorded at the falls, greater than the Niagara Falls' record high. After the falls, the river flows down an impressive 18 km gorge. The town of Augrabies is surrounded by lush vineyards, producing grapes that are dried to make sultanas and raisins. The town is mostly populated by workers from these vineyards.

Question 1: Multiple choice questions

The questions below are based on the 1:50 000 topographic map, 2820 CB Augrabies. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) on your answer sheet.

1.1 The neighbouring country labelled (A) on the locator map above is .....
A Angola. **B** Botswana. **C** Lesotho. **D** Namibia. (1 × 1)

1.2 The province labelled (B) on the locator map above is .....
A Western Cape. **B** Northern Cape.
C North West. **D** Free State. (1 × 1)

1.3 The longitude reference of the Augrabies Falls, in block B6, is .....
A 20°20′25″S. **B** 28°35′25″S. **C** 20°20′25″E. **D** 28°35′25″E. (1 × 1)

1.4 The length of the landing strip, in block E4, is .....
A 65 m. **B** 650 m. **C** 130 m. **D** 1 300 m. (1 × 1)

1.5 The regional weather system most affecting this area is the/a .....
A tropical cyclone. **B** mid-latitude cyclone.
C South Atlantic high-pressure system. **D** Kalahari high-pressure system. (1 × 1)

1.6 The approximate bearing from spot height .658 (B5) to spot height .726 (A3) is .....
A 54°. **B** 306°. **C** 126°. **D** 354°. (1 × 1)

1.7 The map to the north of the map, 2820 CB Augrabies, is .....

A 2820 DA. **B** 2820 BC. **C** 2820 CA. **D** 2820 AD. (1 × 1)

1.8 The direction of Moon Rock, in block B5, from the Augrabies Falls, in block B6, is .....

A west-southwest. **B** east-northeast. **C** southwest. **D** northeast. (1 × 1)

1.9 The approximate distance that a hiker would walk along the hiking trail from the windmill, in block B1, to the road, in block B3, is .....

A 7 km. **B** 3,5 km. **C** 350 m. **D** 1 000 m. (1 × 1)

1.10 The angle at which the tributaries meet the main stream, in block C4, indicates that the general flow direction of this stream is .....

A westwards. **B** eastwards. **C** northwards. **D** southwards. (1 × 1)

1.11 The contour interval on the topographic map is .....

A 5 m. **B** 10 m. **C** 15 m. **D** 20 m. (1 × 1)

1.12 The approximate depth of the eastern side of the Orange River gorge, in block A4, is .....

A 240 m. **B** 100 m. **C** 140 m. **D** 200 m. (1 × 1)

1.13 The drainage pattern in block A6 is .....

A trellis. **B** parallel. **C** dendritic. **D** radial. (1 × 1)

1.14 The landing strip, in block E4, was built to accommodate winds from the .....

A southwest/northeast. **B** southeast/northwest.
C east/west. **D** north/south. (1 × 1)

1.15 The approximate area of the field labelled (1), in bocks E5–F5 is .....

1 hectare = 10 000 m

A 60 hectares. **B** 210 hectares. **C** 21 hectares. **D** 12 hectares. (1 × 1)

[15]

Question 2: Map calculations and techniques

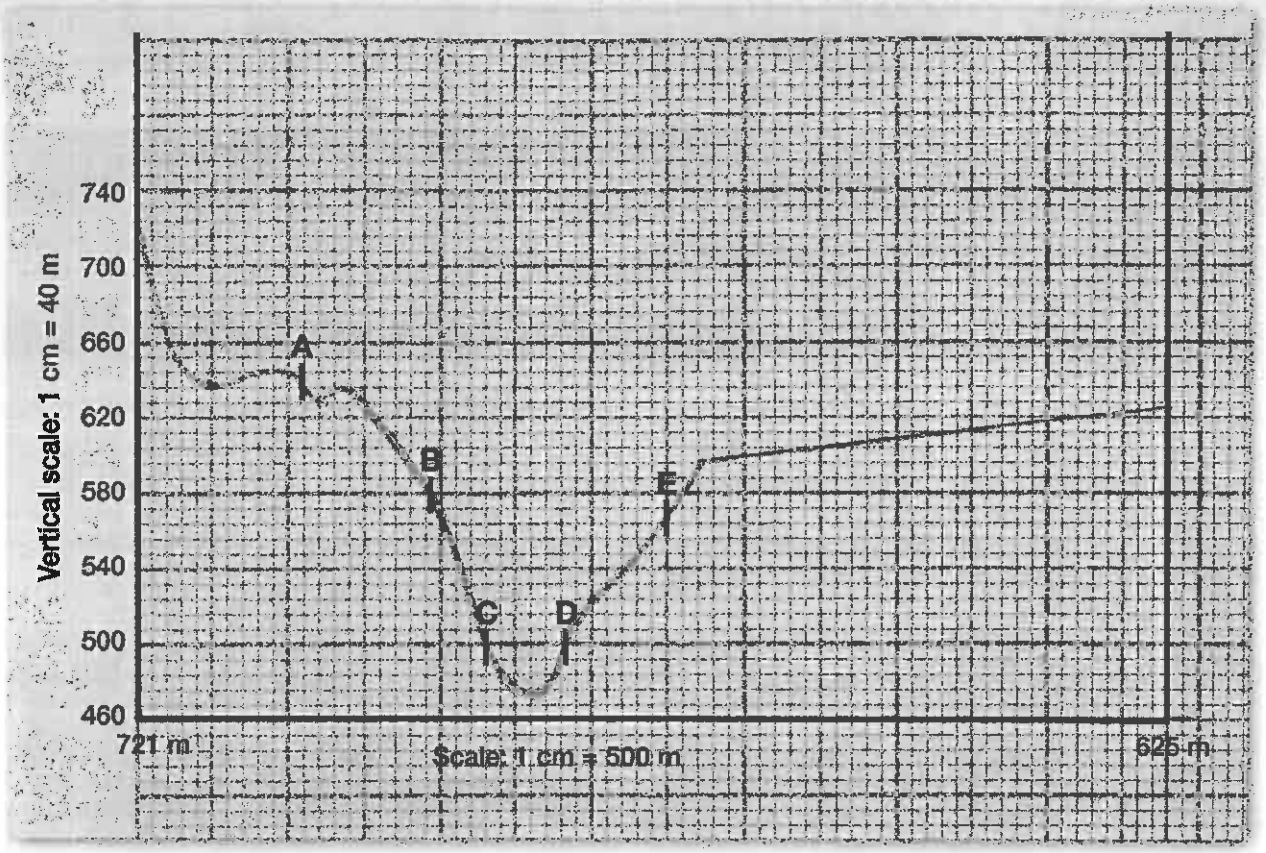
2.1 The cross-section on page 73 was drawn from spot height .721, in block A2, to spot height .625 in block A5.

Horizontal scale: 1 cm = 500 m Vertical scale: 1 cm = 40 m

2.1.1 Various points on the cross-section have been labelled A, B, C, D, and E. From the following list, choose the appropriate labels for points A, B, C, D. and E: (5 × 1)

steep slope; Orange River; non-perennial river; hill; hiking trail; other road.

2.1.2 Calculate the vertical exaggeration of the cross-section on page 73. (2 × 1)



2.2 Calculate the average gradient from spot height .741, in block G4, to spot height .677 in block G5. (4 × 1)

$$\text{Gradient} = \frac{\text{Vertical interval (VI)}}{\text{Horizontal equivalent (HE)}}$$

2.3 Give the coordinates of the wind pump, in block C2, on the topographic map. (2 × 1)

2.4 Refer to the topographic map.

2.4.1 Is spot height .625, in block A5, intervisible with spot height .624 in block A4? (1 × 1)

2.4.2 Explain your answer to question 2.4.1. (1 × 1)

2.5 In which general direction will a hiker along the Klipspriger Hiking Trail (A2) be walking if he/she starts the trail in block A3? (1 × 1)

2.6 Refer to the topographic map.

2.6.1 Calculate the true bearing from Augrabies Falls, in block B6, to Moon Rock (.658) in block B5. (1 × 1)

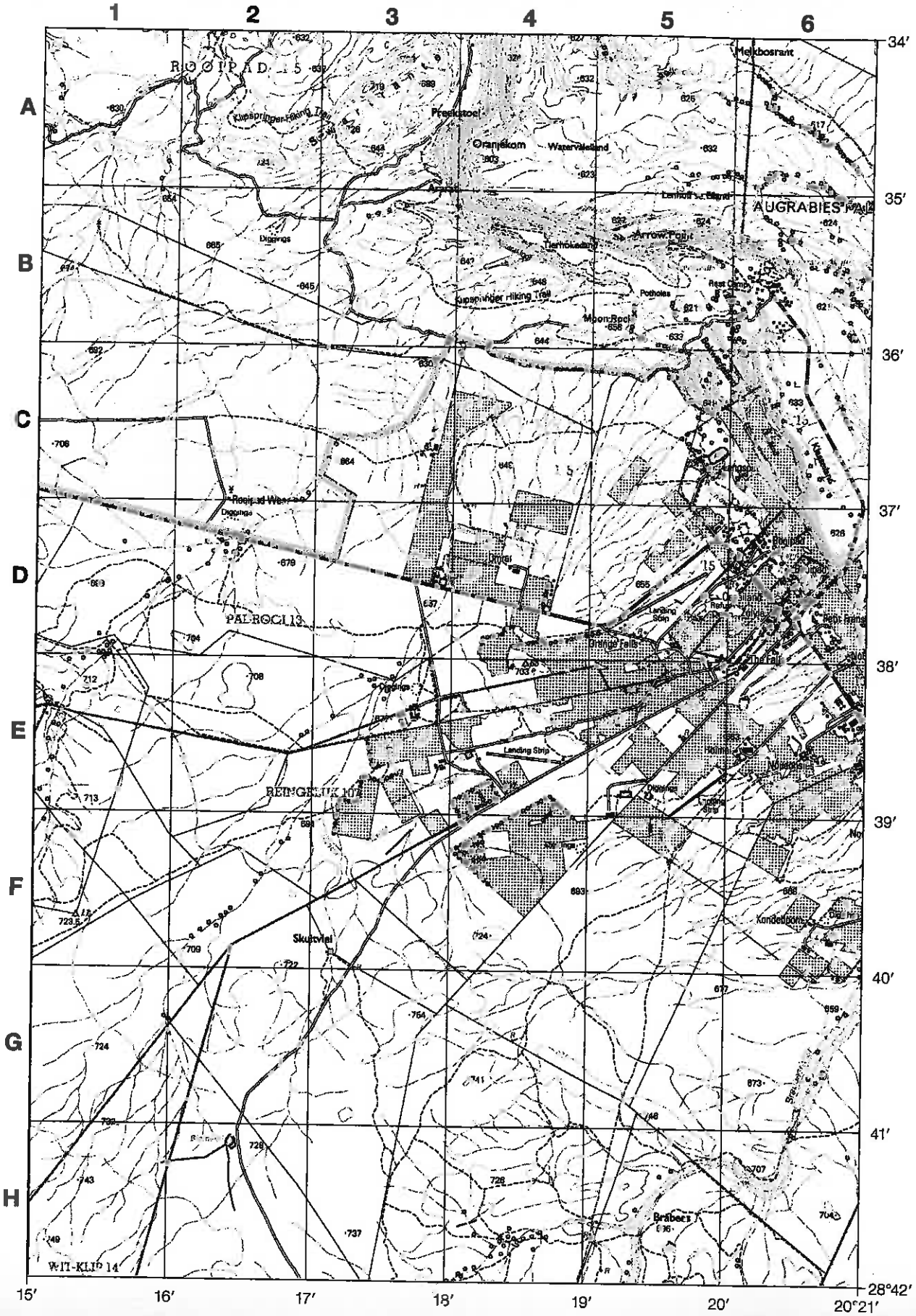
2.6.2 The mean magnetic declination for the topographic map extract, 2820 CB Augrabies, in 2017 is 19°24'W of true north. Give the magnetic bearing from Augrabies Falls to Moon Rock in 2017. (1 × 1)

2.7 State the difference in height between spot height .724, in block F4, and the field labelled (1) in blocks E5–F5. (1 × 1)

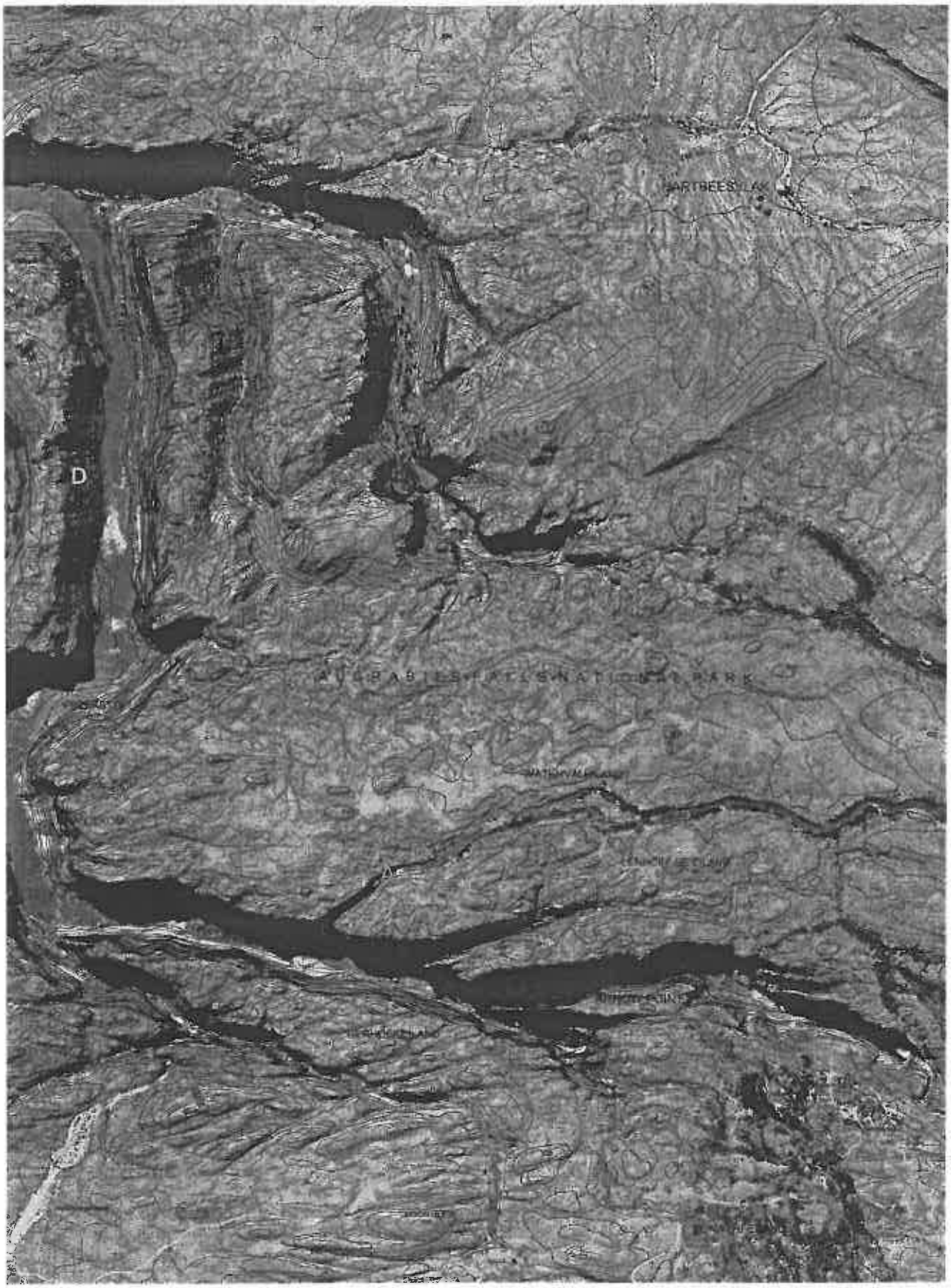
2.8 Identify the type of road in block C6. (1 × 1)

[20]

Topographic map – Augrabies



Orthophoto map – Augrabies



Question 3: Application and interpretation

3.1 Use the topographic map extract, 2820 CB Augrabies, to answer the following questions. Choose the geographical term that will complete the following sentences.

3.1.1 The Swartrante in blocks A2–A3 can be described as a **mesa/ridge**.

3.1.2 The crop being grown in block C6 is **grapes/wheat**.

3.1.3 The farming along the Orange River is **commercial farming/subsistence farming**.

3.1.4 The valley of the Orange River below the Augrabies Falls is best described as a gorge/flood plain.

3.1.5 The climate in the Augrabies area **favours/does not favour** the production of raisins and sultanas. (5 × 1)

3.2 Study the photograph on page 75 and the topographic map, 2820 CB Augrabies. This photograph covers the approximate area A4, B4, B5, and B6 on the topographic map.

3.2.1 Various features have been labelled on the photograph. Use the topographic map to help you to identify the features A, B, C, and D. Choose the correct answers from the following list: (4 × 1)

Augrabies Falls; Gorge; Misval; Arrow Point; Lenhoff se Eiland; Potholes

3.3 Refer to the topographic map and photograph.

3.3.1 Identify ONE positive factor in the Augrabies area that will assist farmers. (1 × 1)

3.3.2 Outline TWO negative factors that will make commercial farming in the Augrabies area difficult. (2 × 1)

3.4 From the list alongside, choose THREE terms that are relevant to the farm called Omrai, in block D4, and write down only the corresponding letters. (3 × 1)

A	Isolated farmstead
B	Maize
C	Subsistence
D	Grapes
E	Nucleated settlement
F	Commercial

3.5 Locate the farm in block F4.

3.5.1 Using evidence in block F4, state the direction of the prevailing wind. (1 × 1)

3.5.2 Give ONE piece of evidence that supports your answer in question 3.5.1. (1 × 1)

3.6 Explain TWO methods that the farmer in block E5 uses to manage the water resources on his farm. (2 × 1)

3.7 The geology of Augrabies consists of ancient granite rocks. **Moon Rock**, a large granite dome, is a prominent feature. Its moonlike, round surface was once magma that solidified deep below the surface of the Earth. After the rocks above were eroded away it was exposed as a dome. Choose the correct words to complete the following statements:

Moon Rock

3.7.1 The granite rocks of the Augrabies Falls area are an exposed **lopolith/batholith**. (1 × 1)

3.7.2 **Exfoliation/soil creep** is an important weathering agent on the slopes of Moon Rock. (1 × 1)

3.7.3 Moon Rock will eventually weather into a **tor/butte**. (1 × 1)

3.7.4 The slopes on Moon Rock are **concave/convex**. (1 × 1)

3.7.5 The most common form of mass movement on Moon Rock is **landslides/rock falls**. (1 × 1)

3.7.6 Tourists **drive/walk** to view the Augrabies Falls. (1 × 1)

[25]