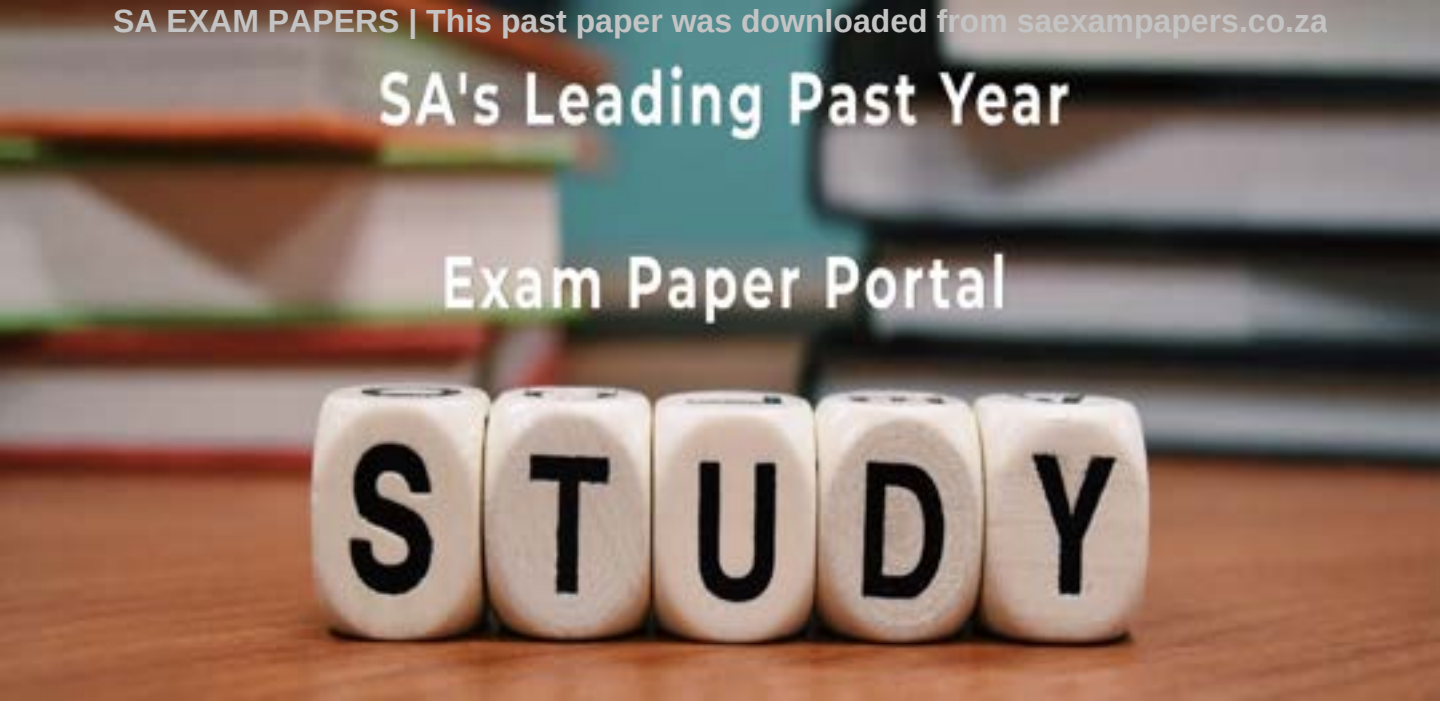

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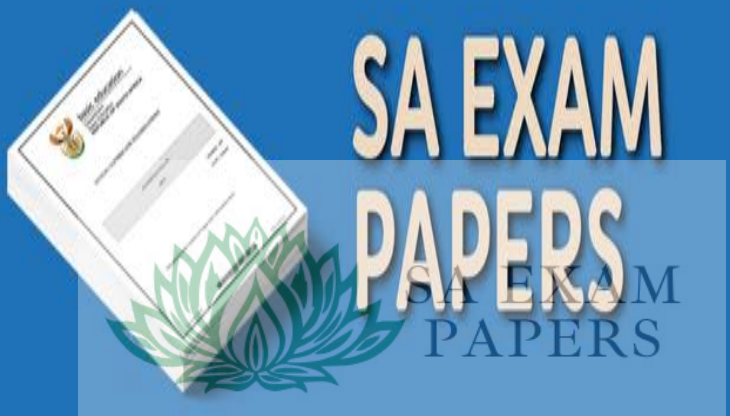


LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

VHEMBE WEST DISTRICT

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY MAPWORK TEST

12 MARCH 2024

MARKS: 60
DURATION: 1, 5 HRS

N.B This question paper is consisted of EIGHT pages.

RESOURCE MATERIAL

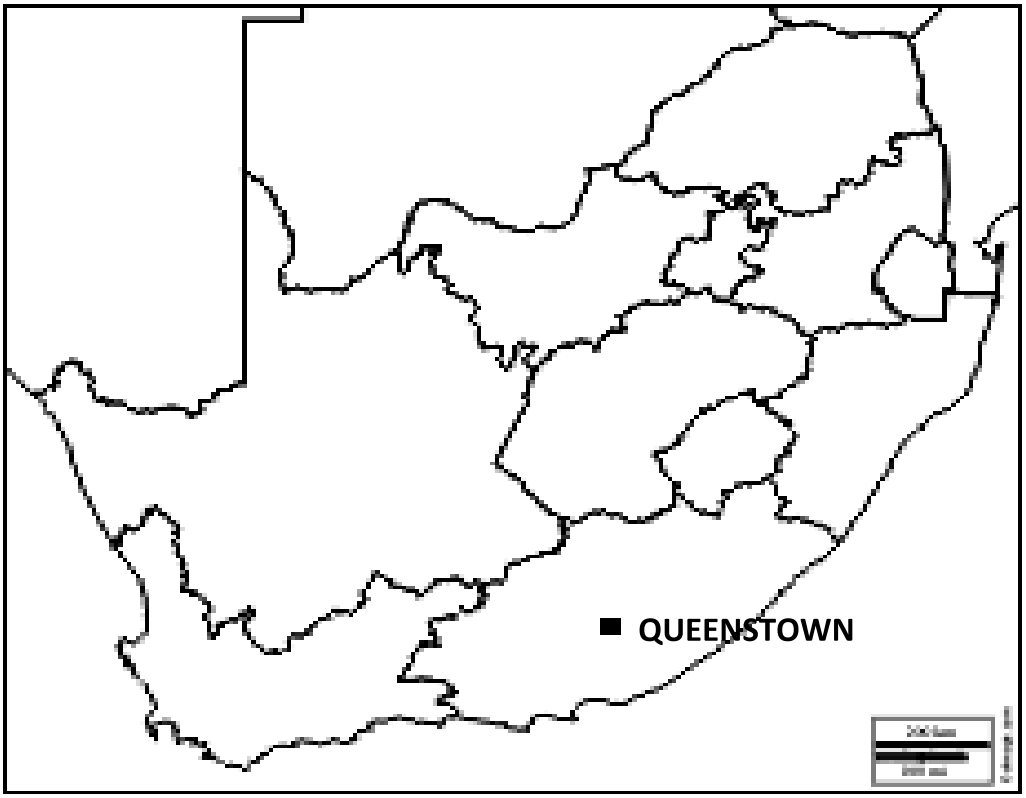
1. An extract from topographic map 3126DD QUEENSTOWN.
2. Orthophoto map 3126DD 1 NOOITGEDACHT
3. NOTE: The resource material must be collected by schools for their own use.

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions in the spaces provided in this question paper.
2. You are provided with a 1: 50 000 topographic map (3126DD QUEENSTOWN) and an orthophoto map (3126DD 1 NOOITGEDACHT) of a part of the mapped area.
3. You must hand the topographic map and the orthophoto map to the invigilator at the end of this examination session.
4. You may use the blank page at the back of this question paper for all rough work and calculations. Do NOT detach this page from the question paper.
5. Show ALL calculations and formulae, where applicable. Marks will be allocated for these.
6. Indicate the unit of measurement in the final answer of calculations.
7. You may use a non-programmable calculator.
8. The area demarcated in RED on the topographic map represents the area covered by the orthophoto map.
9. The following English terms and the Afrikaans translations are shown on the topographic map:

ENGLISH	**AFRIKAANS**
Aerodrome	Vliegveld
Diggings	Uitgrawings
Furrow	Voor
Golf Course	Gholfbaan
Rifle Range	Skietbaan
River	Rivier
Sewarage Works	Rioolwerke

GENERAL INFORMATION ON QUEENSTOWN



Coordinates: 31°54'S 26°53'E

Queenstown is a town in the Eastern Cape in South Africa. It lies on the Komani River, which forms part of the Great Kei system of rivers. Queenstown has a refreshing climate and plentiful water supply from the surrounding rugged mountains. The water is collected in the Bonkolo Dam (the name has been changed from Bongolo Dam recently), set in the hills. This dam is used extensively for recreation and water sports. Close to Queenstown is a nature reserve (Lawrence de Lange Nature Reserve) with numerous antelope, white rhinoceros and spectacular flowering plants, together with panoramic views from the mountain summit. Queenstown has rich sandstone layers deposited by meandering rivers on the flood plain. Queenstown's layout reflects its original objective as a defensive stronghold for the frontier area and has a most unusual design. There is a central hexagonal area where canon or rifle fire could be directed down six thoroughfares radiating from the centre.

[Adapted from https://en.wikipedia.org/wiki/Queenstown].

QUESTION 1: MAP SKILLS AND CALCULATIONS

1.1 The questions below are based on the 1:50 000 topographical map 3126DD QUEENSTOWN, as well as the orthophoto map of a part of the mapped area. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) in your answer book.

1.1.1 Queenstown is situated in the … province

A Western Cape
B Eastern Cape
C Northern Cape
D Free State

1.1.2 The numbers **3126** in the map index refers to …

A 31' latitude and 26' longitude
B 26' latitude and 31' longitude
C 26° latitude and 31° longitude
D 31° latitude and 26° longitude

1.1.3 The direction of trigonometrical station 270 in block **B2** from spot height 1250 in block **A1** on the topographical map is …

A north -west
B east-northeast
C north
D south east

1.1.4 The difference in height between trigonometrical station number 270 in block B 2 and trigonometrical station number 173 in block E 3 is …..

A 412.1

B 133

C 315

D 411.1

1.1.5 What feature indicates that groundwater is found in A1?....

A Dam

B Reservoir

C Windpump

D Non-perennial river.

1.1.6 Which human-made feature is found at grid reference $31^0$49'41''S; $26^0$45'35'' on the topographical map?

A Ruin

B Sport height

C Building

D Trees

1.1.7 The orthophoto map scale is…. than that of the topographical map

A 5 times smaller

B 5 times larger

C 10 times larger

D 10 times smaller

1.1.8 Shadows of trees at 11 on the orthophoto map are found in the south-east, indicating that the photograph was taken at…..

A 08: 00

B 16:00

C 10:00

D 14:00

1.1.9 The type of slope which is found between 8 in block D4 and 9 in block D2 on the orthophoto map is……..

A Pass

B Saddle

C Concave

D Convex

1.1.10 The contour interval on the orthophoto map is … metres

A 5

B 15

C 20

D 10 [10]

1.2 Calculate the average gradient from spot height 1313 at block D2 and spot height 1345 at D3 on the topographical map. Use the following information:

Horizontal equivalent (HE) is 1350m

Formula: $\frac{VI}{HE}$ (3x1) (3)

1.3 Calculate the current magnetic declination of the map. Show all your calculations. (4x1) (4)

1.4 Explain why it is important to correct the magnetic declination when using a topographic map and magnetic compass on a hike. (3x1) (3)

/10/

[20]

QUESTION 2: MAP INTEPRETATION

2.1 Find Bombani in the south section of the Topographical map in Block D3 .
The topographic map clearly shows a difference in vegetation density.

2.1.1 State and define the microclimatology phenomenon responceble for the difference in vegetation density on either side of Bombani. (1+2) (3)

2.1.2. Explain how this microclimatology phenomenon in Question 2.1.1 is responceble for the differences in vegetation density on either side of Bombani. (1x2) (2)

2.2 Queenstown had to experience extremely high rainfall over a short period of time, long hill will increases the chances of flooding .

2.2.1. Explain how long hill will increases the chances of flooding on the North East section of queenstown. (1x2) (2)

2.2.2.With references to Queenstown's location in a valley, give reasons why it regulaly experiences Frost during the night in winter. (1x2) (2)

2.3. Refer to the Orthophoto map

2.3.1. What is the contour interval of the orthophoto map (1x1) (1)

2.3.2. Name the landform marked number 7 on the orthophoto map. (1x1) (1)

2.3.3. Name the feature indicated by no. 11 on the orthophoto map. (1x1) (1)

2.4. Refer to the topographic map

2.4.1. Explain the importance of the Dam found in block D4. (1x2) (2)

2.4.2. State any two reasons why Bombani is suitable for farming? (2x1) (2)

2.4.3. Area marked H in Block B5 is not suitable for farming. Give reason why? (1x2) (2)

2.4.4. Do you think Queenstown is receiving annual or seasonal rainfall? Give reason to support your answer (1+2) (3)

2.4.5. Identify the drainage pattern in Block C5 and give evidence from the map to support your answer. (1+2) (3)

/24/

QUESTION 3: GEOGRAPHICAL INFORMATION SYSTEM

3.1 The environmental issue labelled **I** in block A2 is represented as a …..

Feature on the topographical map

A. point
B. polygon
C. node
D. line (1x1) (1)

3.2 Remote sensing is defined as taking images of the earth's surface from a distance.

Explain how remote sensing can be used to effectively monitor the environmental issue mentioned in QUESTION 3.1. (1x2) (2)

3.3 The dam in block D4 is an example of (raster/vector) data (1x1) (1)

3.4 Give a reason for your answer in QUESTION 3.2 (1x2) (2)

3.5 The municipality provides GIS specialist with the topographical map and the orthophoto map to check the availability of water at dam J (topographical map) and 11 (orthophoto map)

(a) Define the concept raster data (1x2) (2)
(b) A (topographical map/ orthophoto map) is a representation of raster data. (1x1) (1)
(c) Why is the information on the orthophoto map more realistic when determining the availability of water in the dam at a specific time. (1x2) (2)

3.6 Mention TWO ways in which primary data can be collected to evaluate the influence of soil erosion in blocks C1 and B1. (2x1) (2)

3.7 Mention TWO data layers that a GIS specialist could study in order to develop a plan to stop soil erosion in blocks C1 and B1. (2x1) (2)

3.8 Identify the line feature in block B1 that may limit the negative impact of erosion. (1x1) (1)

/16/

TOTAL MARKS: 60