Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

JUNE 2018

GEOGRAPHY P2

MARKS: 75

TIME: 1½ hours

NAME: _____

		MARKS	HOD	CLUSTER	PROVINCIAL
Q1	15				
Q2	20				
Q3	25				
Q4	15				

TOTAL MARKS	MOD.
75	75

* J G E O G E 2 *

This question paper consists of 13 pages, including 1 page for rough work and calculations.

RESOURCE MATERIAL

1. An extract from topographic map 2930AC HOWICK

2. Orthophoto map 2930AC 25 HOWICK

3. **NOTE:** The resource material must be collected by the schools for their own use.

INSTRUCTIONS AND INFORMATION

1. Write your NAME in the space provided on the cover page.

2. Answer ALL the questions in the spaces provided on this question paper.

3. You are provided with a 1 : 50 000 topographic map (2930AC HOWICK) and an orthophoto map (2930AC 25 HOWICK) of a part of the mapped area.

4. You must hand in the topographic map and the orthophoto map to the invigilator at the end of this examination session.

5. You may use the blank page at the back of this paper for all rough work. DO NOT detach this page from the question paper.

6. Show ALL calculations and formulae, where applicable. Marks will be awarded for these.

7. Indicate the unit of measurement in the final answer of calculations. No marks will be allocated for answers with incorrect units.

8. You may use a non-programmable calculator and a magnifying glass.

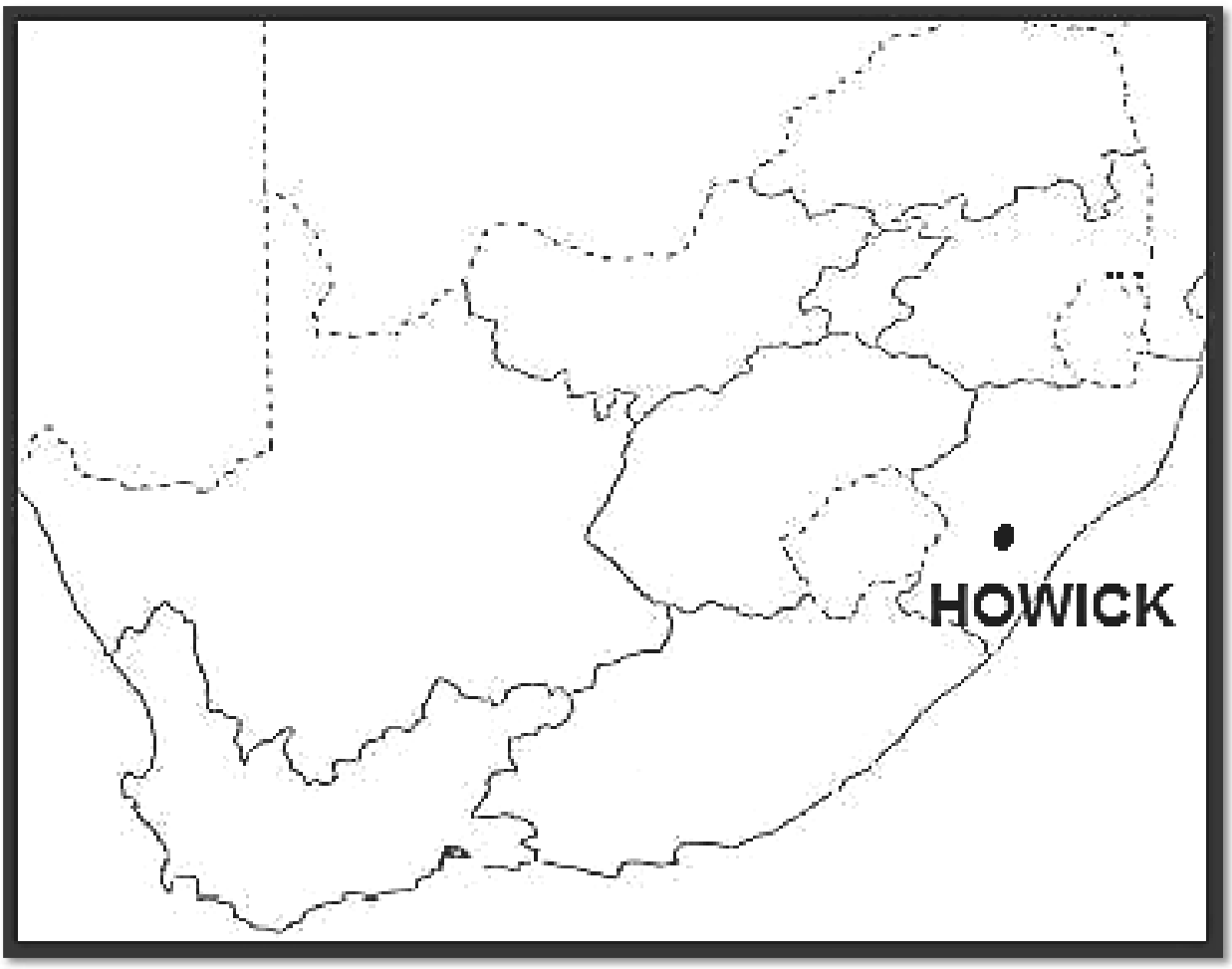
9. The area demarcated in RED on the topographic map represents the area covered by the orthophoto map.

10. A glossary of some of the English and Afrikaans words which appear on the topographic map and their translations appears below.

ENGLISH	AFRIKAANS
Landing strip	Vliegveld
Furrow	Voor
Caravan Park	Karavaanpark
Canal	Kanaal
Sewerage works	Rioolwerke
Golf Course	Gholfbaan
Excavation	Uitgrawing
Nature reserve	Natuurreservaat
Rifle Range	Skietbaan
Aerodrome	Vliegveld
Ravine	Kloof

GENERAL INFORMATION ON HOWICK

Howick is a town located in the KwaZulu-Natal province, South Africa. The town is 1 050 meters above sea level and about 88 kilometres from the city of Durban. It enjoys warm summers and cool dry winters. A snappy chill descends upon Howick when snow falls on the nearby Drakensberg. The town is located on the N3 freeway, connecting it with the rest of South Africa.



Coordinates: 29° 28'00"S 30°14'00"E / 29°28'S 30°14'E.

[Source: *https://en.m.wikipedia.org*]

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1 : 50 000 topographic map (2930AC HOWICK) 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 the block next to each question.

1.1 The map reference of the orthophoto map south west of Howick is …

A 2930AC 25.
B 2930CA 4.
C 2930AC 24.
D 2930CB 1.

1.2 The highest altitude between numbers **1** and **2** on the orthophoto is ... metres.

A 987
B 985
C 970
D 982

1.3 The area covered by the orthophoto map on the topographic map is approximately … km^2.

A 34,25
B 35,00
C 35,20
D 36,88

1.4 The settlement pattern **C** in block **K6** on the topographic map is …

A clustered.
B dispersed.
C linear.
D circular.

1.5 The type of road, **D** in block **H11** on the topographic map is a/an …

A main road.
B arterial road.
C other road.
D national freeway.

1.6 The channel pattern of the Mgeni River at the area labelled **3** on the orthophoto map is a … stream.

A deposition
B braided
C laminar
D delta

1.7 The approximate time the orthophoto was taken would be …

A 08:00–10:00.
B 10:00–12:00.
C 12:00–14:00.
D 15:00–17:00.

1.8 Kwa Mevana labelled **9** on the orthophoto map is located in/on a …

A spur.
B saddle.
C ridge.
D valley.

1.9 The province in which Howick town is located is …

A KwaZulu-Natal.
B Free State.
C Mpumalanga.
D Gauteng.

1.10 The true bearing of trigonometrical station ***270*** in block **J13** from the letter **E** in block **J13** on the topographic map is …

A 156˚.
B 241˚.
C 120˚.
D 102˚.

1.11 The location (coordinates) of the spot height 1495 in block **J4** is …

A 29°28'36"E 30°02'42"S / 29°28.6'E 30°02.7'S.
B 29°29'36"S 30°03'42"E / 29°28.6'S 30°03.7'E.
C 30°02'42"E 29°28'36"S / 30°02.6’E 29°28.36’S.
D 29°28'36"S 30°02'42"E / 29°28.6'S 30°02.6'E.

1.12 The natural feature at **4** on the orthophoto map is a …

A lake.
B waterfall.
C forest.
D dry pan.

1.13 The distance between **F** (block A4) and **G** (block A4) on the topographic map is … metres.

A 3,5
B 3 500
C 1,75
D 1 750

1.14 The feature at **5** on the orthophoto is a/an …

A electric fence.
B hiking trail.
C pipe line.
D power line.

1.15 The contour interval on the orthophoto map is … metres.

A 2
B 5
C 10
D 20

(15 x 1) **[15]**

QUESTION 2: MAPWORK CALCULATIONS AND TECHNIQUES

2.1 The scale of the topographic map is 1 : 50 000. Write down as a word scale.

(1 x 1) (1)

2.2 Locate Tabankulu settlement (block **E12**) and spot height **1199** (block **E14)** on the topographic map.

2.2.1 What was the magnetic bearing of Tabankulu (block **E12**) from spot height **1199** (block **E14**) in 2016? Show ALL your calculations. Marks will be awarded for calculations.

Formula: $\boldsymbol{Magnetic\ bearing = True\ Bearing + Magnetic\ Declination}$

True bearing =

Difference in years:

Mean annual change:

Total change:

Magnetic declination for 2016:

Therefore: MB =

(5 x 1 + 2) (7)

2.3 Locate points **A** (block **I9**) and **B** (block **I10**) on the topographic map.

2.3.1 Calculate the average gradient of the road between **A** and **B** on the topographic map.
Show ALL calculations. Marks will be awarded for calculations.

Formula: $\text{Gradient} = \frac{\boldsymbol{Vertical\ Interval\ (V.I)}}{\boldsymbol{Horizontal\ Equivalence\ (H.E)}}$

(5 x 1) (5)

2.3.2 With reference to the answer to QUESTION 2.3.1, is the gradient a true reflection of the actual landscape on which the road is built? Give a reason for your answer.

Yes or No: _____

Reason: _____

_____

(2 x 1) (2)

2.3.3 Gradient is very important in planning road and railway construction. Is the gradient calculated in QUESTION 2.3.1 suitable for railway construction? Justify your answer.

Yes or No: _____

Answer: _____

_____

(2 x 1) (2)

2.4 Locate points **6** and **7** on the orthophoto map.

2.4.1 Draw a free-hand cross-section between points **6** and **7** on the orthophoto map.

(2 x 1) (2)

2.4.2 Why is it important to draw a cross-section? Give ONE reason.

_____

(1 x 1) (1)

[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the area enclosed by the letter **H** (blocks **E9/10**) on the topographic map.

3.1.1 Identify the drainage pattern found in the area **H** (blocks **E9/10**) on the topographic map.

_____

(1 x 1) (1)

3.1.2 Provide THREE map evidences to support the answer to QUESTION 3.1.1.

_____

_____

_____

(3 x 1) (3)

3.1.3 Determine the stream order of the stream enclosed within area **H** (blocks **E9/10**) on the topographic map.

_____

(1 x 2) (2)

3.1.4 Does the stream within area **H** (blocks **E9**/**10**) flow in a northerly or southerly direction? Give TWO map evidences visible within blocks **E9/10** and **F10,** to support your answer.

Direction: _____

Reasons: _____

_____

_____

(1 + 2 x 2) (5)

3.2 Refer to the both topographic map and the orthophoto map.

3.2.1 Identify land-use at **8** on the orthophoto map.

_____

(1 x 1) (1)

3.2.2 Was the orthophoto taken in early summer or middle summer? Use the tone of land-use **8** to motivate your answer.

Season: _____

Motivation: _____

_____

_____

(1 x 3) (3)

3.3 Refer to the Lions River (block **H2**).

3.3.1 Is the Lions River a graded or ungraded stream?

_____

_____

(1 x 1) (1)

3.3.2 Give ONE piece of evidence from the topographic map to justify your answer to QUESTION 3.3.1.

_____

_____

_____

(1 x 2) (2)

3.4 Locate residential area **9** on the orthophoto map.

3.4.1 Is the residential area labelled **9** on the orthophoto map a high-income or low-income residential area?

_____

(1 x 1) (1)

3.4.2 Give TWO pieces of evidence from the orthophoto map to support the answer to QUESTION 3.4.1.

_____

_____

_____

(2 x 2) (4)

3.5 Locate the dams in block **A9** on the topographic map.

3.5.1 What do these dams tell you about rainfall in the area?

_____

_____

(1 x 2) (2)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS).

4.1 Spatial data is stored in two different formats, namely *vector* and *raster* data.

4.1.1 Distinguish between *vector* and *raster* data.

Vector: _____

_____

Raster: _____

_____

(2 x 1) (2)

4.1.2 Is the topographic map of Howick in a *vector* or *raster* data format?

_____

(1 x 1) (1)

4.1.3 Provide ONE reason for your answer to QUESTION 4.1.2.

_____

_____

(1 x 1) (1)

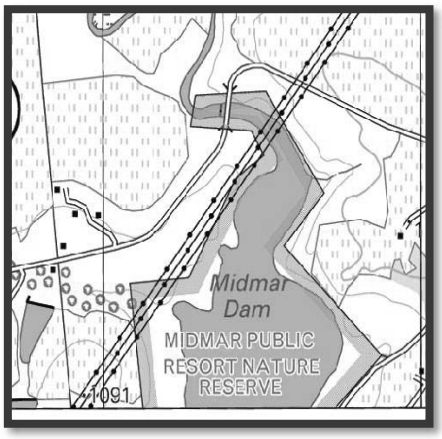
4.2 Find the railway line in block **I7** on the topographic map. Give ONE attribute of the railway line.

_____

_____

(1 x 1) (1)

4.3 The topographic map extract below shows a buffer zone that is in block **K10**.



[Source*:* topographic map extract]

4.3.1 What is a *buffer zone*?

_____

(1 x 1) (1)

4.3.2 With reference to the map extract, explain why this specific buffer zone was created.

_____

_____

(2 x 2) (4)

4.4 A local businessman wants to open a food outlet in Kwa Mevana (block **K14**).

4.4.1 Mention TWO possible sets of data/information that the local businessman needs to retrieve(obtain) from the database to determine whether it would be profitable to set up his food outlet at Kwa Mevana.

_____

_____

_____

(2 x 2) (4)

4.4.2 Why is it important that the local businessman queries the data retrieved from the database?

_____

_____

(1 x 1) (1)
[15]

TOTAL: 75

ROUGH WORK AND CALCULATIONS

NOTE: DO NOT remove this page from the question paper.