



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

75

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

GEOGRAPHY P2

COMMON TEST

JUNE 2020

MARKS: 75

TIME: 1½ hours

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

NAME: _____

DIVISION: _____

RESOURCE MATERIAL

1. An extract from topographical map 2731BC PONGOLA.
2. Orthophoto map 2731 BC 13 PONGOLA.
3. **NOTE:** The resource material must be collected by schools for their own use.

INSTRUCTIONS AND INFORMATION

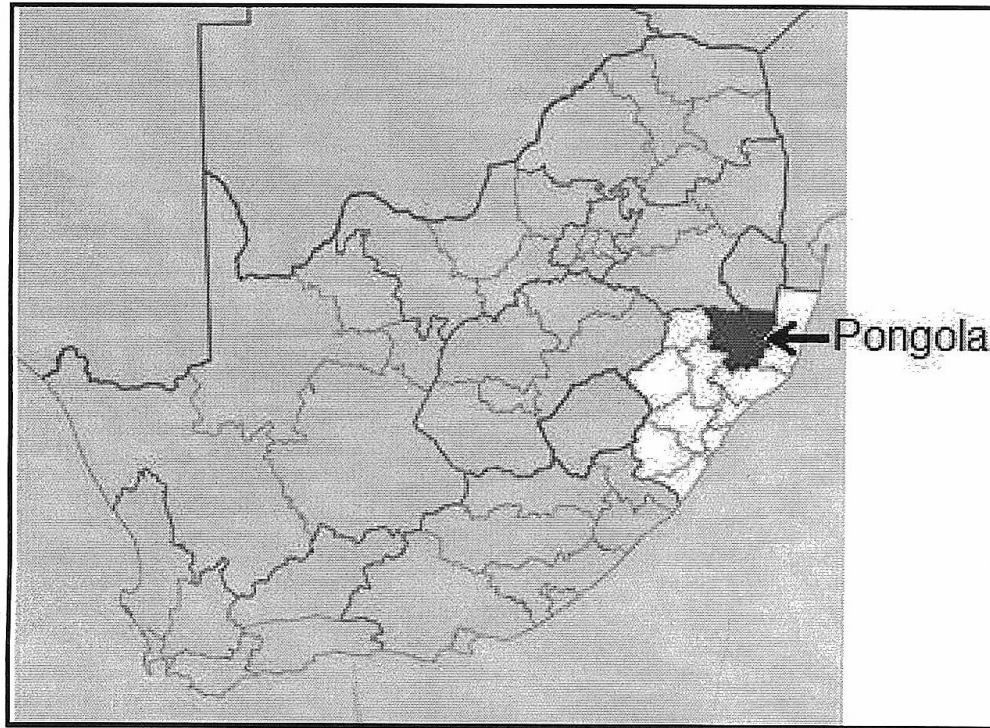
1. Write your NAME and DIVISION in the spaces on the cover page.
2. Answer ALL the questions in the spaces provided in this question paper.
3. You are provided with a 1 : 50 000 topographical map (2731BC PONGOLA) and an orthophoto map (2731 BC 13 PONGOLA) of a part of the mapped area.
4. You must hand the topographical 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 question paper for all rough work and calculations. Do NOT detach this page from the question paper.
6. Show ALL calculations and formulae, where applicable. Marks will be allocated for these.
7. Indicate the unit of measurement in the final answer of calculations, eg. 10 km, 21 cm
8. You may use a non-programmable calculator.
9. You may use a magnifying glass.
10. The area demarcated in BLACK AND RED on the topographical map represents the area covered by the orthophoto map.
11. The following English terms and their Afrikaans translations are shown on the topographical map:

ENGLISH

Aerodome
Caravan Park
Canal
Diggings
Golf Course
Hospital
River
Sewage Works
Sugar Mill
Waterfall

AFRIKAANS

Vliegveld
Karavaanpark
Kanaal
Uitgrawings
Gholfbaan
Hospitaal
Rivier
Rioolwerke
Suikermeile
Waterval

GENERAL INFORMATION ON PONGOLA

Pongola (also known in IsiZulu as uPhongolo) is a small town located in northern KwaZulu-Natal, only 10 km from the Swaziland border. Pongola is surrounded by 50 km² of sugar cane and subtropical fruit plantations. The town thrived as a result of the irrigation (canal) system and a sugar mill. Pongola is situated in a tranquil subtropical environment and normally received about 519 mm of rain per year, with most rainfall in summer.

[Source: <http://en.wikipedia.org/wiki/pongola>]

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1:50 000 topographical map 2731BC PONGOLA, as well as the orthophoto map 2731 BC 13 as part of the mapped area. Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A – D) in the block next to each question.

1.1 The Onverwacht Boarder Post separates ... from KwaZulu-Natal.

- A Swaziland.
- B Mpumalanga.
- C Free State.
- D Lesotho.

1.2 The topographical map of Pongola was drawn using the ... projection

- A Lambert
- B Gauss conform
- C Mercator
- D Transverse

1.3 ... aerial photos are used to create the orthophoto map.

- A Horizontal
- B Vertical
- C Satellite
- D Oblique

1.4 The size of the Aerodrome in block **D 7** on the topographical is different from its size on the orthophoto map because the scale of topographical map is ... than the scale of the orthophoto map.

- A 5 times larger
- B 5 times smaller
- C 20 times larger
- D 20 times larger

1.5 31 in the index number 2731 BC refers to ...

- A 31° north of the Equator.
- B 31° south of the Equator.
- C 31° west of Greenwich Meridian.
- D 31° east of Greenwich Meridian.

1.6 The index sheet east on the orthophoto map 2731 BC 13 Pongola is ...

- A 2731 BC 14.
- B 2731 BC 12.
- C 2731 BC 17.
- D 2731 BC 19.

1.7 The co-ordinates of the confluence **K** in block **F 3** is ...

- A $27^{\circ}23'36''\text{E}$ and $31^{\circ}32'52''\text{S}$ / $27^{\circ}23, 5'\text{E}$ and $31^{\circ}32, 7'\text{S}$
- B $27^{\circ}23'36''\text{S}$ and $31^{\circ}32'52''\text{E}$ / $27^{\circ}23, 5'\text{S}$ and $31^{\circ}32, 7'\text{E}$
- C $31^{\circ}32'52''\text{S}$ and $27^{\circ}23'36''\text{E}$ / $31^{\circ}32, 7'\text{S}$ and $27^{\circ}23, 5'\text{E}$
- D $31^{\circ}32'52''\text{E}$ and $27^{\circ}23'36''\text{S}$ / $31^{\circ}32, 7'\text{E}$ and $27^{\circ}23, 5'\text{S}$

1.8 The stream order at **K** in block **F 3** is ...

- A 4.
- B 3.
- C 2.
- D 1.

1.9 The Sigungu River demarcated **P** on the topographical map shows characteristics typical of a ... river.

- A exotic
- B perennial
- C seasonal
- D episodic

1.10 The fluvial feature marked **L** in block **B 4**, on the topographical map, forms mainly in the ... course/s of the river.

- A middle and lower
- B lower
- C middle
- D upper

1.11 The landform that restricts farming in block **F 7** on the topographical map is a ...

- A plateau.
- B conical hill.
- C mesa.
- D mountain.

1.12 The type of road that links Pongola to Golela on the orthophoto map is a ...

- A secondary road.
- B main road.
- C national freeway.
- D arterial route.

1.13 The man-made feature responsible for the linear-shaped settlement pattern in block **J 7** on the topographical map is the ...

- A road.
- B fence.
- C boundary.
- D river.

1.14 The silo in block **F 10** is used as

- A residence for workers.
- B storage for machines.
- C storage for water.
- D storage for agricultural products.

1.15 The source of water available for farming in block **J 2** on the topographical map is a ...

- A furrow.
- B canal
- C dam.
- D windpump.

(15 x 1) [15]

QUESTION 2: MAPWORK TECHNIQUES AND CALCULATIONS

2.1

2.1.1 Calculate the area, in km², of the aerodrome marked **9** on the orthophoto map. Show ALL calculations. Marks will be awarded for calculations.

Formula : Area = length x breadth

(4 x 1) (4)

2.2 Refer to spot heights **5** and **6** on the orthophoto map

2.2.1 Calculate the average gradient between the two spot heights. Show ALL calculations. Marks will be awarded for calculations.

Formula : Average gradient = $\frac{\text{Vertical Interval}}{\text{Horizontal Equivalent}}$

(5 x 1) (5)

2.2.2 Explain your answer to QUESTION 2.2.1.

(1 x 2) (2)

2.3 Update the magnetic declination for the current year (2020).
Marks will be awarded for calculations.

Difference in years = _____

Annual change = _____

Total annual change = _____

Magnetic declination 2020 = _____

_____ (5 x 1) (5)

2.4 Determine the magnetic bearing for 2020 of trigonometrical beacon **81** in block **H 7** from spot height **421** in block **G 5** on the topographical map.

Formula: **Magnetic bearing = True bearing + Magnetic declination**

_____ (3 x 1) (3)

2.5 State the importance of calculating the magnetic declination for the present year.

_____ (1 x 1) (1)

[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the Sipandlule River in block **F 2** on the topographical map.

3.1.1 Identify the predominant drainage pattern formed by the Sipandlule river and its tributaries.

_____ (1 x 1) (1)

3.1.2 Give a reason for your answer to QUESTION 3.1.1.

_____ (1 x 2) (2)

3.1.3 Describe the underlying rock structure associated with the drainage pattern mentioned in QUESTION 3.1.1.

_____ (1 x 2) (2)

3.2 Refer to blocks **H 1** on the topographical map.

3.2.1 Identify the fluvial structure that controls water of the Phongolo river.

_____ (1 x 1) (1)

3.2.2 Assess the impact of this fluvial structure mentioned in QUESTION 3.2.1 on:

river discharge: _____

bio-diversity: _____

_____ (2 x 2) (4)

3.3 Refer to the Khozi farm in block **I 8**.

3.3.1 Provide TWO pieces of evidence, visible on the topographical map, in which Khozi farm has prepared for drought conditions often experienced in South Africa.

(2 x 1) (2)

3.3.2 Discuss TWO factors that favoured the location of Khozi farm.

(2 x 2) (4)

3.4 Refer to the settlement in block **J 2** on the topographical map.

3.4.1 Name the settlement pattern.

(1 x 1) (1)

3.4.2 Discuss ONE advantage and ONE disadvantage of the settlement pattern mentioned in QUESTION 3.4.1

Advantage: _____

(1 x 2) (2)

Disadvantage: _____

(1 x 2) (2)

3.5 Pongola serves as a central place town for the surrounding rural areas.

3.5.1 Give ONE piece of evidence on the topographical map that indicates that Pongola is a central place town.

_____ (1 x 1) (1)

3.5.2 How will the roads passing through Pongola impact on the sphere of influence of the town?

_____ (1 x 1) (1)

3.5.3 Explain your answer to QUESTION 3.5.2.

_____ (1 x 2) (2)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 The COVID -19 pandemic resulted in a national lockdown. The National Coronavirus Command Council (NCCC) required road blocks to monitor the movement of people. Subsequently, law enforcement required data of roads to determine where to locate these roadblocks.

4.1.1 Define the term *data layering*.

(1 x 1) (1)

4.1.2 Suggest ONE type of data layer that could have been used to locate prospective roadblocks in the area.

(1 x 1) (1)

4.1.3 The topographical map was used to identify possible points where roadblocks could be located.

(a) Is the topographical map an example of Raster or Vector Data?

(1 x 1) (1)

(b) Give a reason for your answer to QUESTION 4.1.3 (a).

(1 x 1) (1)

(c) Give TWO reasons why the topographical map was chosen over the orthophoto map.

(2 x 2) (4)

4.2 Frontline workers from Pongola Hospital were deployed to the surrounding communities to conduct mass COVID-19 screening. Information obtained was stored in a database.

4.2.1 Define the term *database*.

(1 x 1) (1)

4.2.2 Some patients were tested positive during the screening process. This required patient contact tracing.

(a) Is contact tracing a primary or secondary source of data?
_____ (1 x 1) (1)

(b) Give a reason for your answer to QUESTION 4.2.2 (a).
_____ (1 x 1) (1)

(c) Explain how the process of data security assisted frontline workers in ensuring that information obtained during the screening process was protected.

_____ (2 x 2) (4)

[15]

TOTAL MARKS: 75

ROUGH WORK (Do not detach this page)