Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 10

NOVEMBER 2020

GEOGRAPHY P1 (EXEMPLAR)

MARKS: **150**

TIME: **3 hours**

This question paper consists of 10 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions.

2. Answer ALL the questions in this question paper.

3 Answer QUESTION 3 (MAPWORK) on the spaces provided in this question paper.
Detach QUESTION 3 from the question paper and attach it to your ANSWER BOOK.

4 Use the following material:
An extract from the topographical map 3424BB HUMANSDORP.
Orthophoto map 3424 BB 1 HUMANSDORP.

5. All diagrams are included in the ADDENDUM.

6. Leave a line between subsections of questions answered.

7. Start EACH question on a NEW page.

8. Number the answers correctly according to the numbering system used in this question paper.

9. Number the answers in the centre of the line.

10. Do NOT write in the margins of the ANSWER BOOK.

11. Draw fully labelled diagrams when instructed to do so.

12. Answer in FULL SENTENCES, except where you have to state, name, identify or list.

13. Write neatly and legibly.

SECTION A: THE ATMOSPHERE

QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A–D) next to the question numbers (1.1.1–1.1.8) in the ANSWER BOOK, for example 1.1.9 D.

1.1.1 A process whereby areas become more arid and drier like a desert, is …

A drought.
B desertification.
C climate change.
D ozone depletion.

1.1.2 The transfer of heat by vertical movement is …

A convection.
B conduction.
C coriolis force.
D latent heat.

1.1.3 Gases in the atmosphere that absorb long-wave radiation and contribute to global warming are known as the …

A radiation gases.
B thermosphere.
C greenhouse effect.
D greenhouse gases.

1.1.4 The layer of atmosphere closest to the earth's surface is the …

A mesosphere.
B tropopause.
C stratosphere.
D troposphere.

1.1.5 Chemicals used in some aerosol sprays, refrigerants, air conditioners and industrial cleaning materials are known as …

A oxygen atoms.
B chlorine carbons.
C pollutants.
D chlorofluorocarbons.

1.1.6 Moisture which falls from the atmosphere onto the earth's surface is …

A thunderstorm.
B fog.
C precipitation.
D rainfall.

1.1.7 Ice which collects on plants and the ground surface is …

A frost.
B dew.
C cirrus.
D stratus.

1.1.8 A map showing a summary of the weather conditions of a place is ...

A meteorology.
B weather forecast.
C a synoptic weather map.
D climatology. (8 x 1) (8)

1.2 Match the terms in COLUMN B with the descriptions in COLUMN A. Write only the correct letter (A–I) next to the corresponding question numbers (1.2.1–1.2.7) in your ANSWER BOOK, for example 1.2.8 K.

COLUMN A		COLUMN B	
1.2.1	Large, dense, towering clouds that cause thunderstorms	A	insolation
1.2.2	The permanent gas that makes up 21% of the atmosphere and is necessary for respiration	B	terrestrial radiation
1.2.3	A molecule of three oxygen atoms which absorb ultraviolet rays	C	tropopause
1.2.4	Incoming solar radiation	D	cumulonimbus clouds
1.2.5	The heat energy that the earth radiates	E	scattering
1.2.6	The upper layer of the troposphere	F	ozone
1.2.7	Radiation bounces off particles of dust in the atmosphere	G	reflection
		H	oxygen

(7 x 1) (7)

1.3 Refer to FIGURE 1.3 showing the effects of global warming.

1.3.1 Define the term *global warming.* (1 x 1) (1)

1.3.2 Identify TWO effects of global warming in FIGURE 1.3. (2 x 1) (2)

1.3.3 List any TWO gases that contribute to global warming (2 x 1) (2)

1.3.4 Explain TWO factors that caused the effects identified in QUESTION 1.3.2. (2 x 2) (4)

1.3.5 Discuss THREE sustainable strategies (ways) to reduce global warming. (3 x 2) (6)

1.4 Refer to FIGURE 1.4 showing convectional rainfall and answer the following questions.

1.4.1 Convectional rainfall is common in (summer/winter). (1 x 1) (1)

1.4.2 This type of rainfall is common in the (Western Cape/ Gauteng) province of South Africa. (1 x 1) (1)

1.4.3 (a) Name the type of cloud labelled **A**. (1 x 1) (1)

(b) Describe TWO weather conditions associated with the type of cloud mentioned in QUESTION 1.4.3 (a). (2 x 1) (2)

1.4.4 Mention TWO benefits of convectional rainfall to livestock farmers. (2 x 1) (2)

1.4.5 In a paragraph of approximately EIGHT lines, discuss the negative impacts of thunderstorms on people and the environment. (4 x 2) (8)

1.5 Refer to FIGURE 1.5 showing a synoptic weather map and answer the questions that follow.

1.5.1 Lines drawn on synoptic weather maps showing places of equal pressure are (isobars/isohyets). (1 x 1) (1)

1.5.2 Identify the following types of pressure at:

(a) **A** (1 x 1) (1)

(b) **B** (1 x 1) (1)

1.5.3 What is the pressure reading in Cape Town? (1 x 2) (2)

1.5.4 (a) Is this weather map representative of summer or winter? (1 x 1) (1)

(b) Give a reason for your answer in QUESTION 1.5.4 (a). (1 x 2) (2)

1.5.5 Describe the weather of Port Elizabeth by copying and completing the table below:

Air temperature	
Wind direction	
Wind speed	
Precipitation	
Cloud cover	

(5 x 1) (5)

1.5.6 Draw the symbol of thunderstorm represented on a synoptic weather map. (1 x 2) (2)

[60]

QUESTION 2: GEOMORPHOLOGY

2.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A–D) next to the question numbers (2.1.1–2.1.8) in the ANSWER BOOK, for example 2.1.9 D.

2.1.1 The study of the earth's physical features and the processes that formed them is …

A meteorology.
B climatology.
C geomorphology.
D demography.

2.1.2 A mushroom–shaped structure which forms when magma forces the overlying areas upwards is a …

A laccolith.
B batholith.
C mesa.
D butte.

2.1.3 The theory that the continents were once one landmass but they drifted apart over time, is called ...

A maritime drift.
B continental geomorphology.
C maritime continental.
D continental drift.

2.1.4 The single landmass that existed over millions of years ago is …

A Australia.
B Pangaea.
C Laurasia
D Africa.

2.1.5 The outer layer of the earth that consists of solid rocks is/are the …

A crust.
B magma.
C crystals.
D inner core.

2.1.6 … is the largest of all igneous intrusions.

A Dyke
B Sill
C Batholith
D Laccolith

2.1.7 Which of the following are landforms associated with extrusive igneous rocks?

A Mesa, butte and conical hill
B Batholith and laccolith
C Dyke and mesa
D Sill and conical hill

2.1.8 The cycle of rock formation, erosion of rocks, deposition of sediments and formation of new rocks is known as the …

A metamorphic cycle.
B hydrological cycle.
C geological cycle.
D rock cycle. (8 x 1) (8)

2.2 Refer to FIGURE 2.2 which shows the structure of an earthquake.

2.2.1 The vibration of the earth's crust is called (earthquake/folding). (1 x 1) (1)

2.2.2 Label the igneous intrusions indicated by letters **A**, **B, C** and **D** as focus, epicentre, seismic waves and fault line. (4 x 1) (4)

2.2.3 An earthquake of over 8,0 magnitude on the Richter Scale indicates (less destruction/more destruction). (1 x 1) (1)

2.2.4 A (seismograph/barometer) is an instrument that measures the magnitude of seismic waves. (1 x 1) (1)

2.3 Refer to FIGURE 2.3 showing types of folds and faults.

2.3.1 Differentiate between *folding* and *faulting.* (2 x 1) (2)

2.3.2 Write down the correct term for each of the following types of folds.

(a) An upfold (1 x 1) (1)

(b) A downfold (1 x 1) (1)

2.3.3 Name the types of faults in the following labels.

(a) **X** (1 x 1) (1)

(b) **Y** (1 x 1) (1)

2.3.4 The type of force that resulted in landform **X** is (compressional/ tensional) force. (1 x 1) (1)

2.3.5 Faulting resulted in the formation of lakes such as Lake Victoria and the formation of Mount Kilimanjaro. In a paragraph of approximately EIGHT lines, discuss the importance of Lake Victoria and Mount Kilimanjaro to the people of East Africa. (4 x 2) (8)

2.4 Refer to FIGURE 2.4 detailing different collections of igneous rocks and answer the questions that follow.

2.4.1 Define the term *igneous rock.* (1 x 1) (1)

2.4.2 Name any THREE types of igneous rocks from FIGURE 2.4. (3 x 1) (3)

2.4.3 Igneous rocks form from magma. What is *magma*? (1 x 1) (1)

2.4.4 Explain how igneous rocks are formed. (2 x 2) (4)

2.4.5 Discuss THREE uses of igneous rocks. (3 x 2) (6)

2.5 Study the extract in FIGURE 2.5 about tsunamis and answer the questions that follow.

2.5.1 State the percentages of the population that lost their lives in:

(a) 2004 (1 x 1) (1)

(b) 2011 (1 x 1) (1)

2.5.2 List ONE early warning system Japan set up to minimise the impact of tsunamis. (1 x 1) (1)

2.5.3 Discuss the impact of tsunamis on the people living along the coast of Indian Ocean. (3 x 2) (6)

2.5.4 How would you advise coastal communities to prepare in advance so that they cope during and after a tsunami? (3 x 2) (6)

[60]

TOTAL SECTION A: 60

SECTION B: MAPWORK

The following questions are based on the 1 : 50 000 topographical map 3424 BB HUMANSDORP as well as the orthophoto map 3424 BB 1 HUMANSDORP of a part of the mapped area.

QUESTION 3

3.1 MAPWORK CALCULATIONS AND TECHNIQUES

3.1.1 Choose the correct word/phrase between brackets.

(a) The contour interval of the orthophoto map is (20 metres/5 metres). (1 x 1) (1)

(b) The 1: 50 000 scale of the topographic map is 5 times (larger/smaller) than the 1: 10 000 scale of the orthophoto map. (1 x 1) (1)

(c) The feature found at grid location 34°04′55″S/24°45′ 57″E is a (dam/trigonometrical beacon). (1 x 1) (1)

3.1.2 Refer to the feature numbered **1** on the orthophoto map.

Calculate in km^2, the area of the feature numbered **1** on the orthophoto map. Show ALL calculations. Marks will be awarded according to your calculations. (4 x 1) (4)

3.1.3 Refer to block **A5** on the topographic map.

(a) Calculate the difference in height between spot height 209 and trigonometrical beacon number 139. (2 x 1) (2)

(b) Is the slope steep or gentle between the two points named in QUESTION 3.1.3 (a)? (1 x 1) (1)

3.2 MAP AND PHOTO APPLICATION AND INTERPRETATION

3.2.1 Refer to both the topographical and orthophoto map.

(a) Identify the human-made feature found between points marked **3** and **4**. (1 x 1) (1)

(b) Name the river that joins the ocean in block **I6**. (1 x 1) (1)

(c) What is the source of the water found in block **B2?** (1 x 1) (1)

3.2.2 Study the temperature graph of Jeffreys Bay, FIGURE 3.2.2 together with block **C/D11** on the topographic map.

(a) State the month with the minimum temperature. (1 x 1) (1)

(b) In which month was the lowest monthly temperature range recorded? (1 x 2) (2)

3.2.3 Describe how excavation in block **B6** can be harmful to the environment and human activity (2 x 2) (4)

3.2.3 Suggest ONE reason why the people of KwaNomzamo settlement would consider the dams in block **C3** as a threat to their lives during flooding. (1 x 2) (2)

3.3 **GIS**

3.3.1 Write the acronym GIS in full. (1 x 1) **(1)**

3.3.2 Is the orthophoto map an example of a vertical or an oblique photograph? (1 x 1) (1)

3.3.3 Refer to block **C3** on the topographic map. Classify the following features under **node** (point), **linear** (line) and **polygon** (area).

Draw the table below in your ANSWER BOOK and mark with an **X** in the space that corresponds with the feature in block **C3**.

FEATURE	NODE	LINEAR	POLYGON
Cultivated land			
Reservoir			
Main road			

(3 x 1) (3)

3.3.4 Study the diagram in FIGURE 3.3.3 that shows data layers together with block **D2**.

(a) In GIS data layers are called ... (1 x 1) (1)

(b) Explain the importance of using GIS in today's fast-changing world. (1 x 2) (2)

[30]

TOTAL SECTION B: 30
GRAND TOTAL: 150