GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

TYPE OF TASK:
MARKING GUIDELINE

SUBJECT	:	GEOGRAPHY
GRADE	:	10
TERM	:	2
EXAMINER	:	JHB REGION
MODERATOR	:	JHB REGION
TIME	:	3 HOURS
TOTAL MARKS	:	150
DATE OF IMPLEMENTATION	:	6 JUNE 2023
TERM WEIGHTING	:	60%
SBA WEIGHTING	:	20%

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This question paperconsist of 14 pages

INSTRUCTIONS TO THE MARKER:

1. This Assessment Task is set according to guidelines and assessment options as presented in the Geography CAPS document and the GDE SBA Guidelines.
2. This Assessment Task consists of TWO SECTIONS:
   SECTION A:
   QUESTION 1: Climate and Weather (60)
   QUESTION 2: Geomorphology (60)

   SECTION B:
   QUESTION 3: Geographical Skills and Techniques (30)
   Each question must be totalled.
3. The total time allocated to this task 3 HOURS.
4. All errors must be corrected and completed in pencil on the script by the learner as part of remediation of this task.
5. Use a single tick for the allocation of ONE (1) mark. ✓
6. Use TWO ticks for the allocation of TWO (2) marks. ✓✓
7. Where the maximum mark has been allocated for a particular question, place an over the remainder of the text to indicate the maximum mark has been achieved. M
8. Ticks MUST be placed, on/on top of/at the end of the correct response, in the sentence.
9. A cross (×) MUST be placed at the end of each incorrect/invalid sentence or response.
10. Each sub-question must be totalled:
    Questions in Question 2 have five sub-sections, therefore five sub-totals per question required.
11. Learner responses to this task MUST be completed in BLUE pen.
12. Marking MUST be completed in RED pen.
13. First level Moderation (DH/Senior Teacher) MUST be completed in BLACK pen.
14. Second level Moderation (Cluster/Circuit/District Teacher Moderator) MUST be completed in GREEN pen.
15. Subject Advisor Moderation (District) MUST be completed in PURPLE pen.

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SECTION A: THE ATMOSHERE AND GEOMORPHOLOGY

QUESTION 1: THE ATMOSPHERE

1.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1.1–1.1.7) in the ANSWER BOOK, e.g. 1.1.8 A.

1.1.1 This gas is an example of constant gasses.

A **Nitrogen** **A✓**
B Carbon
C Hydrogen
D Vapour

1.1.2 These lines join places with equal air pressure.

A **Isobars** **A✓**
B Isopleths
C Isotherms
D Contours

1.1.3 These chemical compounds are responsible for the break-down of the ozone layer

A Greenhouse gases **B✓**
B **Chlorofluorocarbons**
C Trace gases
D Methane

1.1.4 .A transfer of heat through the contact of air molecules.

A Convection **C✓**
B Radiation
C **Conduction**
D Insolation

1.1.5 An instrument used to measure rainfall.

A Thermometer **C✓**
B Anemometer
C **Rain gauge**
D Hydrometer

1.1.6 Inland climate which results in a big range in temperature differences between minimum and maximum temperatures.

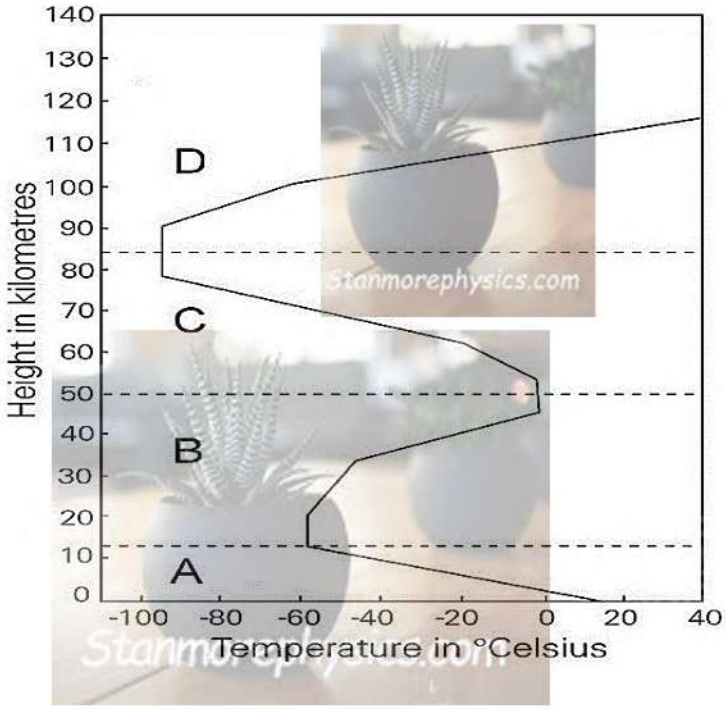
A Maritime climate
B **Continental Climate** **B✓**
C Subtropical climate
D Humid climate

1.1.7 The following are greenhouse gases.

(i) Carbon dioxide **B✓**
(ii) Argon
(iii) Water vapour
(iv) Nitrogen
A (i)and (ii)
B (i)and (iii)
C (ii) and (iii)
D (iii) and (iv)

(7 x 1) (7)

1.2 Study FIGURE 1.2 below shows layers of the atmosphere. Choose the correct letter (A – D) which matches the correct statements below from FIGURE 1.2.



1.2.1 All weather activities take place in this layer. A✓

1.2.2 The densest layer of the atmosphere. A✓

1.2.3 Temperature inversion takes place in layer D and… B✓

1.2.4 This layer is found above tropopause. B✓

1.2.5 This layer is found below thermosphere. C✓

1.2.6 Aeroplanes fly in this layer to avoid turbulence. B✓

1.2.7 This layer has highest amount of water vapour and oxygen. A✓

1.2.8 Temperature decreases in height between A and… C✓

(8x1) (8)

1.3 Read the article below and answer the questions that follow

Climate change is happening, and it's mostly due to human activities that change the composition of the atmosphere, which in turn interferes with the natural flow of energy through the climate system.

Two greenhouse gases contribute most to this problem: carbon dioxide and methane. The result is global heating. The repercussions of rising temperatures include heavier rains, stronger storms, more intense droughts, heatwaves and wildfires.

Methane, which is more potent than carbon dioxide but has a shorter lifespan, reached record levels in the atmosphere last year, at about 2.5 times above those during the pre-industrial era. Reducing methane emissions offers a way to rein in climate change quickly, at least to some extent, and to buy time while the world drastically reduces fossil fuel use.

The COP26 climate summit recognised this when more than 100 nations, representing 70% of the global economy, joined the Global Methane Pledge to cut methane emissions by 30% by 2030.

New Zealand joined, but Australia didn't. Nearly all of the pledges relate to cuts in "fugitive emissions" of methane through leaks in the oil and gas sector, especially from fracking operations during the drilling of new wells and from old, abandoned wells that have not been sealed properly.
Author: David McNew

Source: https://theconversation.com/stemming-methane-leaks-from-oil-fields-pipelines-and-landfills-could-help-us-slow-global-warming-quickly-171839

1.3.1 Define the concept *climate change*. (2)

Change in the pattern of climate across the world. ✓✓ (concept)

1.3.2 According to the article, what is the main contributor to climate change. (2)

Human actities ✓ ✓

1.3.3 Name one gas from the article that causes climate change (1)

Methane ✓ and carbon dioxide. ✓

1.3.4 How countries that attended the COP26 summit show commitment to reduce methane emissions? (2)

By signing (Global Methane) Pledge (accept the answer without Global Methane)/signing pledge ✓✓

1.3.5 Suggest reasons why countries like Australia and other industrialised countries usually object (refuse) to sign pledges such as the one in the article. (4)

They contribute more air pollution because they are more industrialised. ✓✓

They do not want to be held accountable for their carbon footprint. ✓ ✓

Reducing carbon footprint will affect their industrial activities. Reducing industrial activities will impact negatively on their✓ ✓ industrial production. ✓ ✓

It is expensive to reduce carbon footprint. ✓ ✓

Any TWO (Accept other geographically sound answers.)

1.3.6 Discuss strategies that the local municipalities can implement to reduce the heating of the atmosphere and the resultant climate change. (4)

Encourage the use of public transport to reduce air pollution. ✓✓

Enforce carbon footprint bylaws for companies that do not comply. ✓✓

Make strict laws to control air pollution. ✓✓

Encourage people to use green energy by subsidising people when they buy solar panels. ✓✓

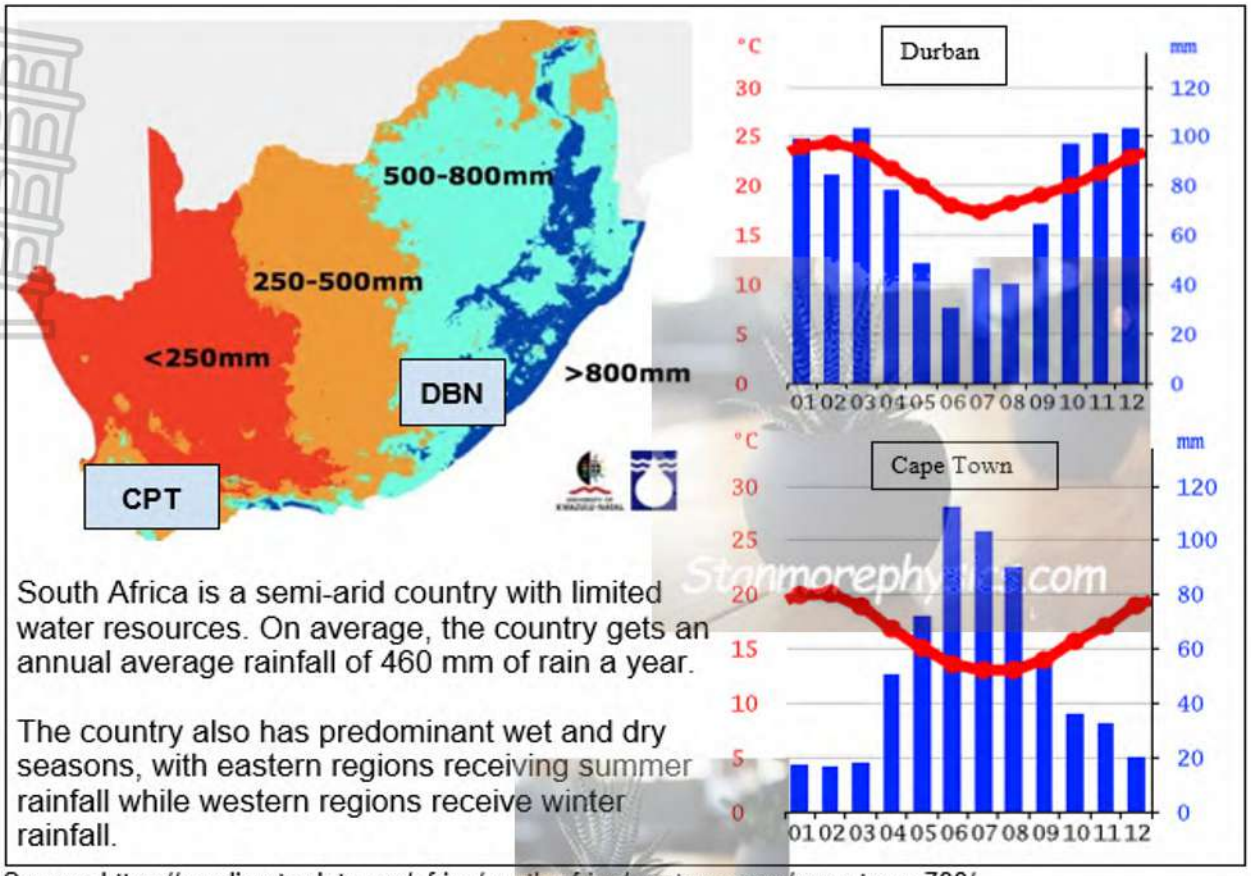
Develop parks that can absorb carbon dioxide with their trees. ✓✓

Encourage the citizens to plant trees or grass in their yards to reduce pollution.

[15]

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1.4 Refer to the infographic below on rainfall in South Africa and answer the questions that follow.



Source: https://en.climate-data.org/africa/south-africa/western-cape/cape-town-788/

1.4.1 Name the type of climate experienced in Durban (1)

Maritime climate✓

1.4.2 Name the ocean currents that blow past Durban and Cape Town respectively. (2)

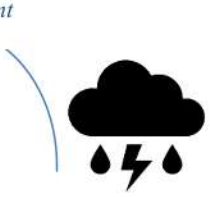
Durban-Warm Mozambique Current✓

Cape Town-Cold Benguela Current✓

1.4.3 Describe the average rainfall variation from the east to the west of the country. (1)

Increases✓

1.4.4 The rainfall graph above shows that rainfall in Cape town increases significantly in winter. With an aid of a well labelled diagram illustrate the type of rainfall experienced in Cape town during winter. (3)





1 mark for cold font✓

1 mark for clouds✓

1 mark for precipitation✓

1.4.5 In a paragraph of approximately 8 lines discuss the economic and social impacts of the rainfall mentioned in QUESTION 1.4.4 (8)

Social

Diseases spread easily because of cold weather. ✓✓

People are displaced because of flooding in their homes✓.✓

People may drown and loose their lives because of flooding. ✓✓

Heavy rains may destroy people 's properties and belongings. ✓✓

People may not be able to do outdoor activities due to inclement weather. ✓✓

Economic

More money spent on medical care as people are sick. ✓✓

People may lose income as they are not able to work outside.

People need more money to rebuild their homes. ✓✓

Government need more money to rebuild infrastructure destroyed due to heavy rains. ✓✓

Insurance companies will spend more money paying out claims. ✓✓

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Money may be made from tourism as people may want to see snow if temperatures are toom low to allow snowfall. ✓✓

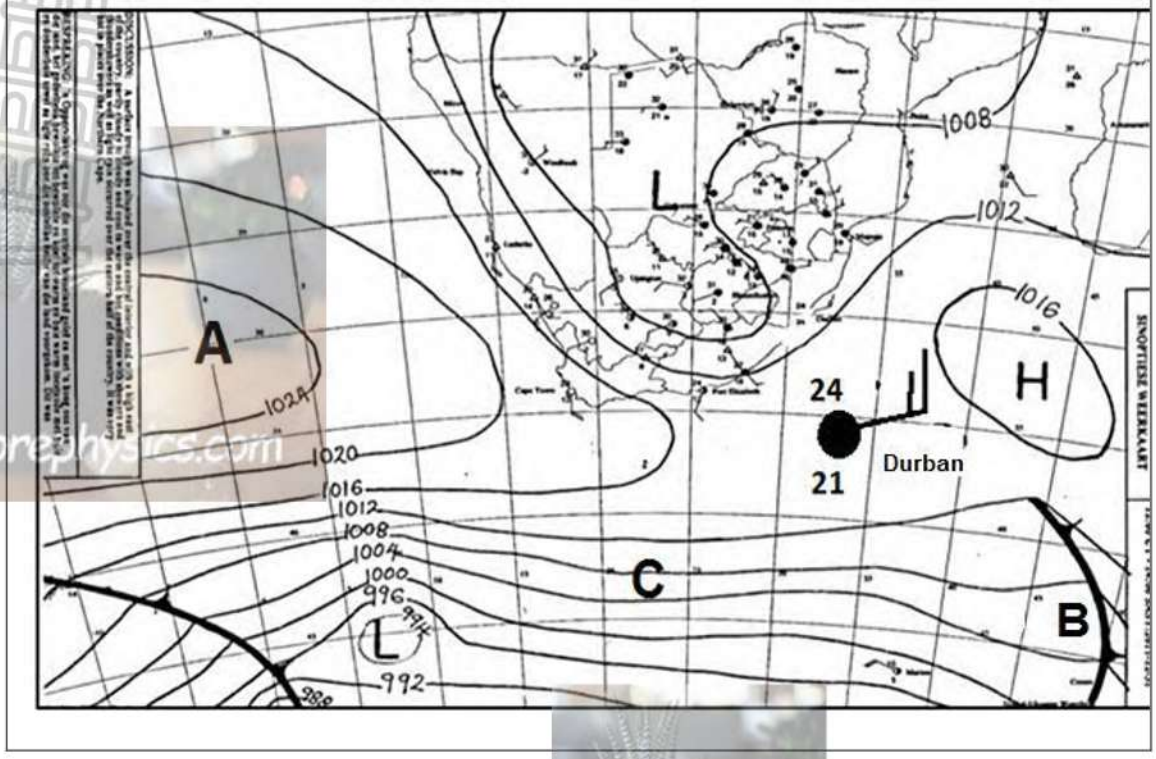
Loss of money from tourism as tourists may not be able to reach the area. ✓✓

Any FOUR(must account for both) accept other logical responses.)

[15]

1.5 Refer to FIGURE 1.5

FIGURE1.5 Refer to the diagram showing the Synoptic weather map of South Africa



1.5.1 What is a synoptic weather map. (2)

Map that shows the summary of a day's weather✓✓

(concept)

1.5.2 Name the season represented by this synoptic weather map (1)

Summer✓

1.5.3 Provide map evidence to support the answer in 1.5.2 (1)

(Thermal) low pressure over the interior. ✓

Cold front further south✓

High pressure cells further south✓

1.5.4 Identify the high-pressure **A** on the map. (1)

South Atlantic High Pressure Cell✓

(It must be a name not just high pressure)

1.5.5 Name the lines marked **C** on the map. (1)

Isobars✓

1.5.6 Describe the weather in Durban by referring to the following:

(a) Air temperature **24°C✓**



(b) Dew point temperature **21°C**✓

(c) Cloud cover **8/8 /Over Cast**✓ (5)

(d) Wind speed **15 Knots/Feathers**✓

(e) Wind direction **E/NE**✓

Must include units of measurement (NO UNITS NO MARK)

1.5.7 Refer to enlarged station model of Durban and explain with reasons that there are high possibilities of rainfall in Durban. (4)

Overcast conditions✓✓

Small difference between due point and air temperature ✓✓

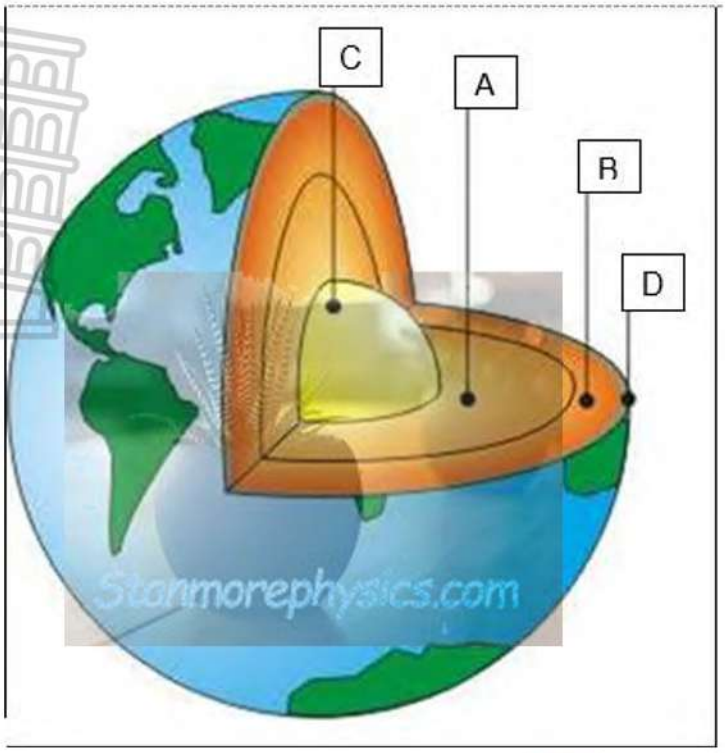
[15]

TOTAL: 60

QUESTION 2: GEOMORPHOLOGY

	COLUMN A	COLUMN B
2.1.1	This rock is formed when magma solidifies.	**Y** Igneous rocks **Z** Sedimentary rocks
2.1.2	Igneous … form when lava flows on the surface.	**Y** intrusions **Z** extrusions✓
2.1.3	These are types of rocks that change the material composition due to immense pressure and temperature.	**Y** Metamorphic rocks✓ **Z** Sedimentary rocks
2.1.4	… is the process whereby rocks breakdown into smaller pieces.	**Y** Deposition **Z** Weathering✓
2.1.5	… are the main minerals found in the oceanic crust.	**Y** Silicon and Aluminium (SIAL) **Z** Silicon and Magnesium (SIMA) ✓
2.1.6	This is a characteristic of a sedimentary rock	**Y** Stratified (layered) ✓ **Z** Crystalised
2.1.7	This type of rock is easily eroded.	**Y** Igneous rock **Z** Sedimentary rock✓

2.2 Study FIGURE 2.2 below shows layers of the earth. Choose the correct letter (A – D) which matches the correct statements below from FIGURE 2.2



2.2.1 This layer is broken into smaller segments, called plates. D✓

2.2.2 This layer has the highest temperatures. C✓

2.2.3 It is thicker beneath the continents but thinner beneath the ocean. D✓

2.2.4 It is in the molten state. B✓

2.2.5 Tectonic plates float on this layer. B✓

2.2.6 This layer is liquid liquid due to high temperature. A✓

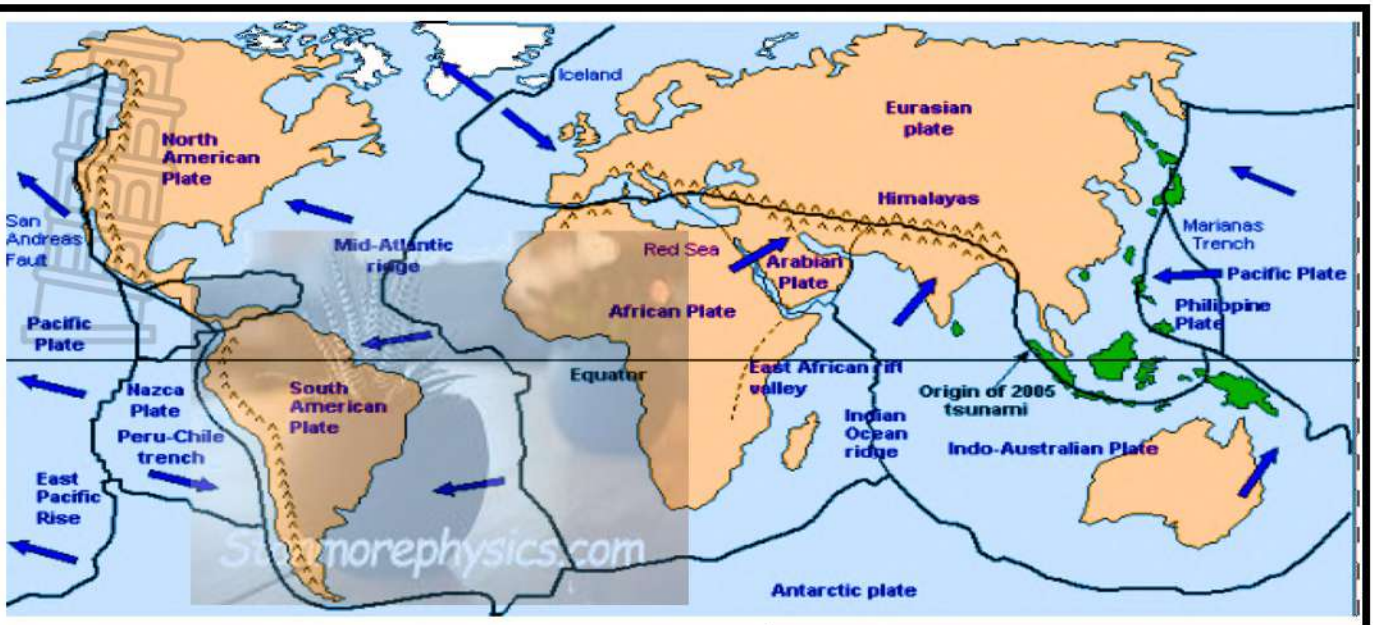
2.2.7 Topsoil is found in this layer. B✓

2.2.8 Separated by moho from the mantle. B✓

(8 x 1) (8)

2.3 Refer to the infographic on Plate Tectonics and the East African Rift in and answer the questions that follow.

Figure 2.3**: Infographic on Plate Tectonics and the East African Rift**





A rift valley refers to a lowland region where tectonic plates rift or move apart. The large crack that recently exposed itself in Kenya is from the East African Rift. In the 3,700 mile- long East African Rift, there are two smaller systems called the Gregory Rift and the Western Rift, and each is speckled with volcanoes.

The rifts are growing larger as two tectonic plates, the Somali plate in the east and the Nubian plate in the west, move away from each other.

(Source: www.geolsoc.org.uk)

2.3.1 Define the concept *plate boundary*. (2)

Point where two tectonic plates come together ✓✓

2.3.2 Give the name of the geophysicist who first theorised the movement of tectonic plates. **Alfred Wegener** ✓✓ (2)

2.3.3 Name the TWO plates responsible for the formation of the rift valley. • (2)

Somali Plate ✓

Nubian Plate ✓

2.3.4 What type of plate boundary is responsible for the East African Rift? (1)

Continental divergent boundary ✓ (ACCEPT: Divergent boundary)

2.3.5 Explain ONE positive and ONE negative effect of the east African Rift Valley for the people of North-east Africa. (4)

POSITIVE:
- More fertile soils will form ✓✓
- Minerals found deep underground will be brought closer to the surface

[ANY ONE]

NEGATIVE:
- Gas emission hazards ✓✓
- Lava flow hazards
- Landslide hazards

[ANY ONE]

2.3.6 Discuss 2 pieces of evidence that support the theory that all continents were once joined as one supercontinent (4)

Evidence of similar rocks occur with same age and structure found on coastal lines in different continents ✓✓

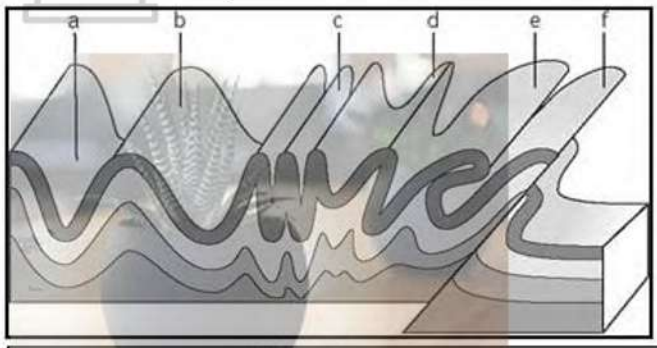
- **Evidence of similar plant and animal fossils found in different continents ✓✓**
- **Evidence of oceanic ridges✓✓**
- **Evidence of young crystals in the ocean bed✓✓**
- **Continents seem to be able to fit like a jigsaw puzzle**
- **Evidence of glaciation in tropical regions, suggest that forests were once covered with ice✓✓**

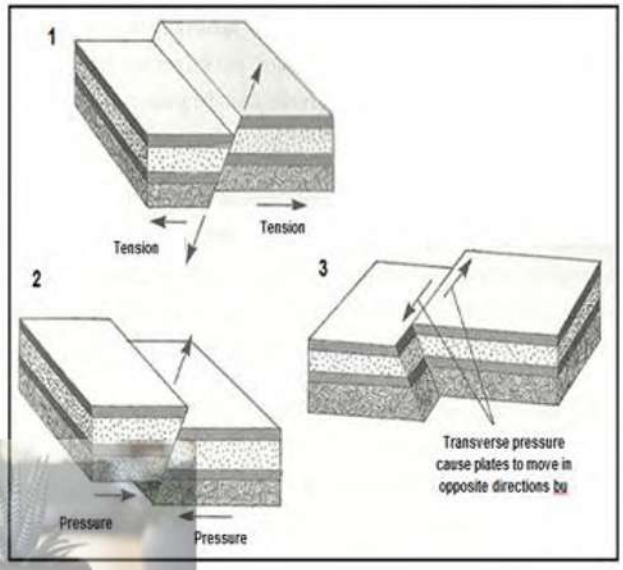
[ANY TWO]

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[15]

2.4 Study FIGURE 2.4 and answer the questions that follow.





The movement of the Earth's plates leads to rocks being compressed into each other, and this in turn leads to the formation of folds and faults.
Folds form when the layers of rock bend around, and faults occur where rock layers actually break, and in some cases slide over each other.

Source: https://www.geoworldtravel.com/Folds-

2.4.1 Identify the fault types labelled 1, 2 and 3. (3)

1 Divergent✓
2 Convergent✓
3 Transforming ✓

2.4.2 Identify part of folding represented at **A** and **B.** (2)

A-Syncline✓
B-Anticline ✓

2.4.3 Name the mountain range in South Africa that developed because of rocks compressed into each other. (2)

Cape Fold Mountains ✓✓

2.4.4 Differentiate between the processes of folding and faulting. (4)

Folding occurs when rocks bend under pressure✓✓
Faulting occurs when rocks snap/or crack under pressure✓✓

2.4.5 Explain why fold C is considered symmetrical fold. (2)
Both sides of the fold are similar. ✓✓

2.4.6 Explain the development of fold f. (2)
They develop when exerted Pressure is extreme✓✓

[15]

2.5 Refer to extract on recent earthquake in Turkey and Syria on 6 February 2023

Earthquake in Turkey and Syria on 06 February 2023

Earthquakes may trigger other natural disasters including volcanic activity, tsunamis and landslides. Earthquakes may sometimes be referred to as tremors, quakes or temblors.

Severe earthquakes may move the ground enough to cause buildings to collapse and kill thousands of people. During the shaking, it is prudent to drop down on the knees and cover the head and neck using hands. This protects against falling objects. Staying away from windows, furniture or any loose structures is prudent.

Earthquakes may also lead to flooding and outbreak of fires due to electrical lines. a Mw 7.8 earthquake struck southern and central Turkey and northern and western Syria. The epicenter was 37 km (23 mi) west–northwest of Gaziantep....

329 KB (29,962 words) - 11:40, 19 May 2023



2.5.1 Define the concept *epicenter*
Point on the earth surface directly above the focus. ✓✓ (2)

2.5.2 State the magnitude of the earthquake on the extract. (1)
Mw 7.8 ✓

2.5.3 List natural disasters that may be triggered by an earthquake
Volcanic activity✓
Tsunami✓
landslide ✓ (2)
flooding✓ Any TWO

2.5.4 Explain how people may protect themselves during the shaking (2)
Drop down on their knees and cover their heads and necks using hands✓✓

Stay away from windows✓✓
Stay away from loose structures✓✓

2.5. In a paragraph of approximately 8 lines discuss the reasons why the impacts of earthquake will be more devastating for developing countries than developed countries. (8)

Developing countries.
Poor infrastructure offers no protection even for small magnitudes. ✓✓
People stay in crowded areas so many people are affected✓✓
Poor medical care, there is little help they get. ✓✓
Poor disaster management plans in place. ✓✓
Lack of advanced technology to respond quicker. ✓✓
Help arrive late after the disaster ✓✓
Poor coordination of EMS personnel. ✓✓
Developed countries
Disaster management plans are available. ✓✓
Speedy response to disaster struck areas due to advanced technology✓✓
Money is available for disaster alleviation. ✓✓
Better coordination of EMS services. ✓✓

Any Four (may account to both or only developing

[15]

[60]

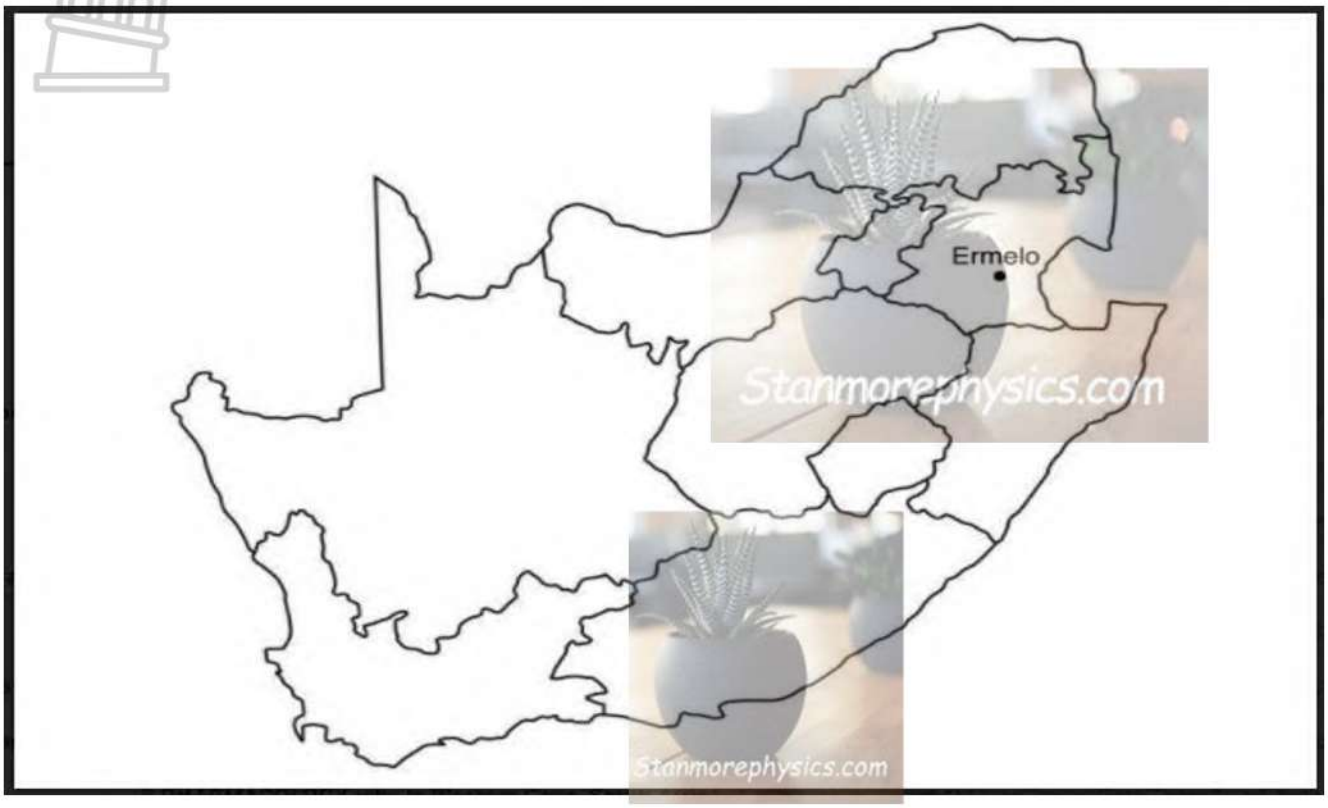
TOTAL FOR SECTION A **[120]**

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SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

BACKGROUND INFORMATION ON



26° 30'S, 29° 55'E
GENERAL INFORMATION ON ERMELO

Ermelo is an educational, industrial, and commercial town in the 7,750 km² Gert Sibande District Municipality in Mpumalanga, South Africa. It is located 120 km east of Johannesburg. It is both a mixed agriculture and mining region. Mixed farming, such maize, and cattle, takes place within the district. Mining is important to the district with anthracite, coal and torbanite being mined.

3.1 MAP SKILLS AND CALCULATIONS

The questions below are based on the 1: 50 000 topographical map (2629DB ERMELO) as well as the orthophoto map of the part of the mapped area.

3.1.1 Ermelo is situated in the … province

A Limpopo
B Gauteng
C Mpumalanga✓
D Kwazulu Natal (1)

3.1.2 A tourist will travel in a/an …direction from Ermelo to Johannesburg

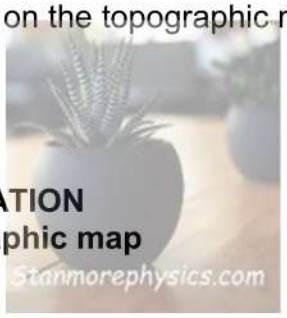
A South Easterly
B **Westerly**✓
C Easterly
D South westerly (1x1) (1)

3.1.3 What is the height indicated by the trig. Station in block D2 on the topographical map? **1763.8M**. ✓ (1)

3.1.4 Calculate the distance in Km, between spot height 1738 in block B1 and the reservoir in block B2 on the topographical map. (2)
3.8cm ✓ **x 0,5 = 1.9km**✓
Variance(3.7cm – 3.9cm) = 1.85km – 1.95km)

3.1.5 Give the exact position of the windpump **at G in block B3** (4)
26°31'47"S✓✓ **;29°57'4"E**✓✓

3.1.6 How many times has reality on the topographic map 2629DB Ermelo been reduced. (1)
50 000 times✓



3.2 **MAP ANALYSIS AND INTERPRETATION**
Refer to the graph and the topographic map

3.2.1 (a) The transport route to Piet Retief in block C5 is……

A Other Railway
B National Route
C National Freeway
D **Arterial Route** ✓ (1)

3.2.2 Give example of farming products produced in Ermelo (1)
Maize✓ **and cattle**✓ **(ANY ONE)**

.

3.2.3 Explain the purpose of the feature marked 6 on the orthophoto. (1x2) (2)
To provide health services ✓✓

3.2.4 Cassim Park in Blocks **E1** and **E2, on the orthophoto** is located on a gentle slope. Provide evidence from the orthophoto map to support this statement (2)
Contour lines are far apart from each other✓✓

3.2.5 Determine the feature that is located at the following grid reference (2)
26˚31'54"S;29˚57'25"E **Prison** ✓✓

3.2.6 Explain why the area of Wesselton appears bigger on the orthophoto map compared to the topographic map (2)
The scale of the orthophoto map is 5 times larger than the topographical map

Refer to block D3 on the topographical map
The general flow of the river in block D3 is northwards. Give the evidence from the map regarding the:

3.2.7 (a) Contour lines **Northwards** (1x1) (1)

(b) Provide evidence from the topographic map to support your answer to question 3.2.7 (a). (1x1) (1)
Position of the dam wall faces northwards
Contour lines bend southwards

3.3 GEOGRAPHIC INFORMATION SYSTEMS (GIS)

3.3.1 *Define the concept geographic information system* (2)
Computer based technology and methods for processing geographic data for wide range of uses.

3.3.2 Give any two components of GIS. (2)
People✓
Software✓
Hardware✓
Data✓
Methods✓



Any TWO

Refer to **block D1** and **Block E1** on topographical map

Give an example of the following
3.3.3 (a) A natural line features (1)
River✓
(b) A human-made polygon.
Cultivated land✓
Excavation ✓ (1x1) (1)

3.3.4 Explain briefly why the orthophoto map can be classified as raster data. (2)
Data is represented in real images. ✓✓
Data is made up of pixels. ✓✓

TOTAL SECTION B: [30]

GRAND TOTAL: 150