BERGVLIET HIGH SCHOOL

GEOGRAPHY PAPER 1

GRADE 10 FINAL EXAMINATION

9 NOVEMBER 2024

MARKS: 150	TIME: 3 HOURS
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MARKING GUIDELINES

QUESTION 1: THE ATMOSPHERE

1.1.1 Winter ✓
1.1.2 Pressure ✓
1.1.3 1008 hPa ✓
1.1.4 High ✓
1.1.5 Cold ✓
1.1.6 Cloudy ✓
1.1.7 17°C ✓
1.1.8 Below ✓ (8 x 1) (8)

1.2.1 **B** ✓ Insolation
1.2.2 **B** ✓ conduction.
1.2.3 **D** ✓ troposphere.
1.2.4 **B** ✓ stratosphere.
1.2.5 **D** ✓ chlorofluorocarbons.
1.2.6 **C** ✓ Precipitation
1.2.7 **C** ✓ (ii) and (iii) (7 x 1) (7)

1.3.1 The layer of air surrounding the earth. ✓✓
[Concept] (1 x 2) (2)
1.3.2 a) Oxygen ✓
b) Nitrogen ✓ (2 x 1) (2)
1.3.3 Argon ✓
Helium
Neon (1 x 1) (1)
1.3.4 Absorbs harmful UV rays from the sun. ✓✓
Ozone is a greenhouse gas which helps keep the atmosphere warm. ✓✓
Ozone can remove unwanted pollutants from the atmosphere.
Ozone protects ecosystems (terrestrial and marine).
Protects humans from skin cancer and eye cataracts.
1.3.5 Atmosphere contains oxygen (and other essential gases for life). ✓✓
All weather occurs in the atmosphere. ✓✓
Atmosphere burns up meteorites. ✓✓
Absorbs harmful UV radiation from sun.
Atmosphere regulates the daytime and night time temps needed for life. (3 x 2) (6)

1.4.1 Greenhouse Effect ✓ (1 x 1) (1)

1.4.2 Insolation from the sun enters the atmosphere. ✓✓

Greenhouse gases in the atmosphere absorb the insolation. ✓✓

Greenhouse gases help to keep the atmosphere warm enough for life.

[**NB**: Accept examples of greenhouse gasses like carbon dioxide] (2 x 2) (4)

1.4.3 The **extra greenhouse gasses present** are **absorbing extra heat** from the sun causing global warming.

[**NB**: Part-marking: Fact (extra greenhouse gases) + Qualifier (extra heat)] (1 x 2) (2)

1.4.4 Reduce the burning of fossil fuels (carbon emissions). ✓✓

Introduce energy-saving measures – accept examples. ✓✓

Introduce a carbon tax (electricity generation; industry). ✓✓

Encourage/improve public transportation. ✓✓

Form lift clubs and carpools.

Encourage people to walk/run to destination where possible.

Planting of trees (gardens; parks; recreational areas).

Complete environmental assessments before transport/infrastructure development.

Reduce the use of nitrogen-based fertilisers.

Reduce the release of methane into atmosphere caused by farming.

Reduce the use and production of CFC's. (4 x 2) (8)

1.5.1 Increasing ✓ (1 x 1) (1)

1.5.2 a) 25-50 mm ✓

b) 0-10 mm ✓ (2 x 1) (2)

1.5.3 a) Frontal (cyclonic) ✓

b) Convectional ✓

c) Relief (orographic) ✓ (3 x 1) (3)

1.5.4 Cumulonimbus ✓ (1 x 1) (1)

1.5.5 Warm and cold air meet at a front. ✓✓

The warm air rises up and over the cold air. ✓✓

The rising warm air cools down (to dew point temperature). ✓✓

Cooling air results in condensation (cloud formation and rain). (3 x 2) (6)

1.5.6 Rain provides water for crops. ✓✓

Rain fills up storage dams (for use of water in dry season).

Rain infiltrates making borehole water available (for irrigation). (1 x 2) (2)

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QUESTION 2: GEOMORPHOLOGY

2.1.1 Crust ✓

2.1.2 Magma ✓

2.1.3 Ash ✓

2.1.4 Lava ✓

2.1.5 Vents ✓

2.1.6 Sill ✓

2.1.7 Dyke ✓ (7 x 1) (7)

2.2.1 **Y** ✓ Continental Drift

2.2.2 **Z** ✓ Pangaea

2.2.3 **Z** ✓ Laurasia

2.2.4 **Z** ✓ South America

2.2.5 **Y** ✓ Lystrosaurus

2.2.6 **Y** ✓ Brazil

2.2.7 **Y** ✓ Liquid (8 x 1) (8)

2.3.1

	A	B
Type of Plate Margin	Constructive ✓ Divergent	Destructive ✓ Convergent
Crust Created **or** Crust Destroyed	Created ✓	Destroyed ✓
Location: Edge of Continents **or** Middle of Oceans	Middle ✓	Edge ✓

(6 x 1) (6)

2.3.2 **B** ✓ (1 x 1) (1)

2.3.3 <u>Volcanic Island Arcs</u>

Subduction of plate causes the crust to melt. ✓✓

Melting crust creates additional magma. ✓✓

Magma moves through vents to create volcanic islands.

<u>Earthquakes</u>

Subduction of plates is forceful/violent. ✓✓

Subduction causes the build-up of stress (which is released as earthquake). ✓✓

Subduction causes plates to rub up /grind against each other. (4 x 2) (8)

2.4.1 A fault is (complete) crack/fracture in Earth's crust. ✓✓

Rift valleys (graben) occur between two faults. ✓✓
The middle section of crust is pushed down/dropped. ✓✓ (3 x 2) (6)

2.4.2 Volcano (at Mt Kilimanjaro) ✓
Lakes (Lake Tanganyika) ✓
Block mountain (horst)
Rift valley (graben)
Fault scarps (2 x 1) (2)

2.4.3 Income received from tourist spend. – MUST mention income/money. ✓✓
Job creation in the tourism (and other) sectors.
Access to water from lakes.
Fertile soil from volcanic activity that promotes agriculture. (1 x 2) (2)

2.4.4 Africa Plate ✓ (1 x 1) (1)

2.4.5 East Africa will completely detach from the rest of Africa. ✓✓
Large cracks have started to develop in the crust. ✓✓
Disruption of animal seasonal migrations.
Reduced biodiversity on the respective sections/plates.
Increased volcanism (which could potentially be negative).

[**NB**: Accept other relevant suggestions within context of question]. (2 x 2) (4)

2.5.1 Tsunami are large ocean waves ✓ caused by strong earthquakes**.** ✓ (2 x 1) (2)

2.5.2 168 000 (Indonesia) ✓ and 2 (Bangladesh) ✓ (2 x 1) (2)

2.5.3 Indonesia was closer to the epicentre of the earthquake (larger waves). ✓✓
Smaller waves reached Bangladesh (which was further away). ✓✓ (2 x 2) (4)

2.5.4 Thailand ✓ (1 x 1) (1)

2.5.5 Loss of life (deaths). ✓✓
Possessions/homes are destroyed. ✓✓
Settlements are cut-off from other areas.
Displacement of people.
Families become separated.
Increase in illness/disease/injury. (2 x 2) (4)

2.5.6 Monitoring of earthquakes/tsunami. ✓✓

Early warning systems.

Evacuation plans.

Have emergency personnel on stand-by.

Creating awareness amongst population in how to respond.

Move (retreat) to higher ground to avoid the water.

Identify areas if high risk.

Build strong breakwaters along coastal regions.

Issue a tsunami warning in coastal regions after an earthquake.

Watch the sea to monitor if it is pulling back.

Be aware that strange behaviour in animals may be cause for concern. (1 x 2) (2)

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QUESTION 3 GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1 **MAP SKILLS AND CALCULATIONS**

3.1.1 **C** ✓ Ruin (1 x 1) (1)

3.1.2 **B** ✓ 10 (1 x 1) (1)

3.1.3 **D** ✓ 1 (1 x 1) (1)

3.1.4 VI = 1567 – **1420** ✓ = **147 m** ✓

Gradient = $\frac{\mathbf{147}}{\mathbf{950}}$ ✓ = **1 : 6.46** ✓ (4 x 1) (4)

3.1.5 Length = 0.9 cm x 500 = **450 m** ✓

Breadth = 0.7 cm x 500 = **350 m** ✓

Area = 450 x 350 = **157 500** m² ✓

[**NB**: Penalise ONCE for missing m in either length or breadth] (3 x 1) (3)

3.2 **MAP INTERPRETATION**

3.2.1 **D** ✓ (ii) and (iv) (1 x 1) (1)

3.2.2 a) Mean = $\frac{74.2}{12}$ = **6.18°C** ✓ (1 x 1) (1)

b) July ✓ (1 x 1) (1)

3.2.3 South-westerly ✓ (1 x 1) (1)

3.2.4 River is flowing from high (in north-east) to low in southwest. ✓✓
Contour lines are pointing upslope (towards northeast).
On topographic map the tributaries join at acute angles (pointing southwest). (1 x 2) (2)

3.2.5 Dam ✓ (1 x 1) (1)

3.2.6 Dam is used for watering of crops (irrigation). ✓✓ (1 x 2) (2)

3.2.7 **C5** ✓ (1 x 1) (1)

3.2.8 Contours are spaced further apart in C5 than in C2. ✓✓
C5 also has fewer contours than C2 indicating it's less mountainous.
(1 x 2) (2)

3.3 **GEOGRAPHICAL INFORMATION SYSTEMS (GIS)**

3.3.1 31° ✓ (1 x 1) (1)

3.3.2 Vertical ✓ (1 x 1) (1)

3.3.3 Pixels ✓ (1 x 1) (1)

3.3.4 Windpump ✓ [Accept: windmill] (1 x 1) (1)

3.3.5 Point ✓ [Accept: node] (1 x 1) (1)

3.3.6 Reservoir ✓
Building
Tree [Do NOT accept trees/row of trees. MUST be singular] (1 x 1) (1)

3.3.7 GIS can be used to problem-solve relatively quickly as challenges arise. ✓✓

GIS can be used to find appropriate solutions in a relatively short period of time.

Latest technological software development takes place to deal with a rapidly changing world.

GIS can update maps as geographical features and landscapes change. (1 x 2) (2)

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TOTAL: 150