BERGVLIET HIGH SCHOOL

GEOGRAPHY PAPER 2

GRADE 10 FINAL EXAMINATION

NOVEMBER 2024

MARKS: 150	TIME: 3 HOURS
EXAMINER:	MR B. JOHNS
MODERATOR:	MR S. PATTENDEN

This question paper consists of 16 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO SECTIONS:

   SECTION A: QUESTION 1: Population Geography (60)

   QUESTION 2: Water Resources (60)

   SECTION B: QUESTION 3: Geographical Skills and Techniques (30)

2. Answer all THREE questions.
3. ALL diagrams are included in the QUESTION PAPER.
4. Leave a line between subsections of questions answered.
5. Start EACH question at the top of a NEW page.
6. Number your answers correctly according to the numbering system used in this question paper.
7. Do NOT write in the margins of the answer book.
8. Draw fully labelled diagrams when instructed to do so.
9. Answer in FULL SENTENCES, except when asked to state, name, identify or list.
10. The unit of measurement MUST be given in the final answer, where applicable, for example 1 020 hPa, 14 °C and 45 m.
11. You may use a non-programmable calculator.
12. You may use a magnifying glass.
13. Write neatly and legibly.

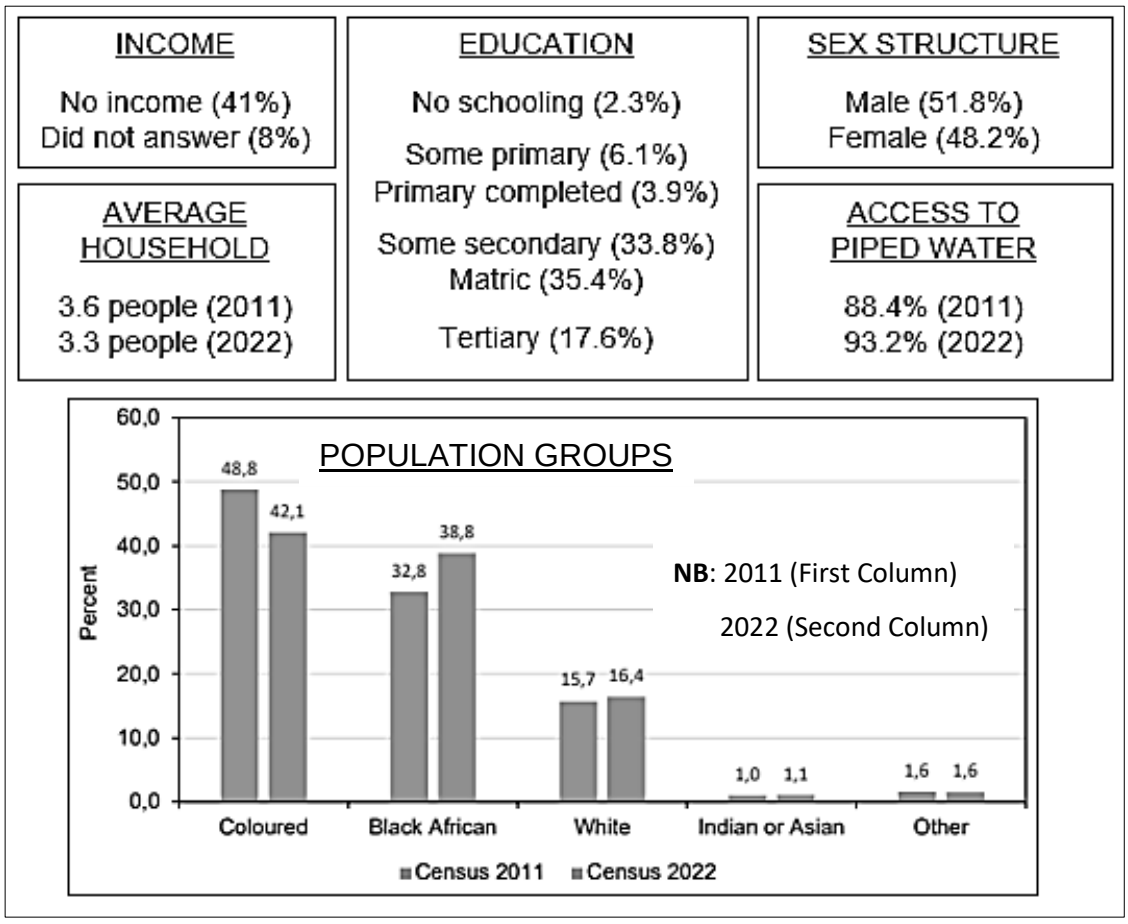
SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1 : 50 000 TOPOGRAPHIC MAP 2931CA VERULAM and a 1 : 10 000 orthophoto map extract from 2931 CA 11 VERULAM are provided.
15. The area demarcated in RED on the topographic map represents the area covered by the orthophoto map.
16. Show ALL calculations where applicable. Marks will be allocated for this.
17. You must hand in the topographic and orthophoto map to the invigilator at the end of this examination session.

SECTION A: POPULATION GEOGRAPHY AND WATER RESOURCES

QUESTION 1: POPULATION GEOGRAPHY

1.1 The following data comes from Census 2022 for the Western Cape.



CENSUS 2022 DATA: WESTERN CAPE

1.1.1 What percentage of people indicated that they receive an income?

1.1.2 Were there more females or males in the Western Cape in 2022?

1.1.3 Indicate the level of education for 35.4% of the population.

1.1.4 Identify the major population group in the Western Cape.

1.1.5 Has access to basic services decreased or increased?

1.1.6 What percentage of people in the Western Cape have a post-matric qualification?

1.1.7 Have households generally become larger or smaller?

1.1.8 What is the term given for the official counting of a population?

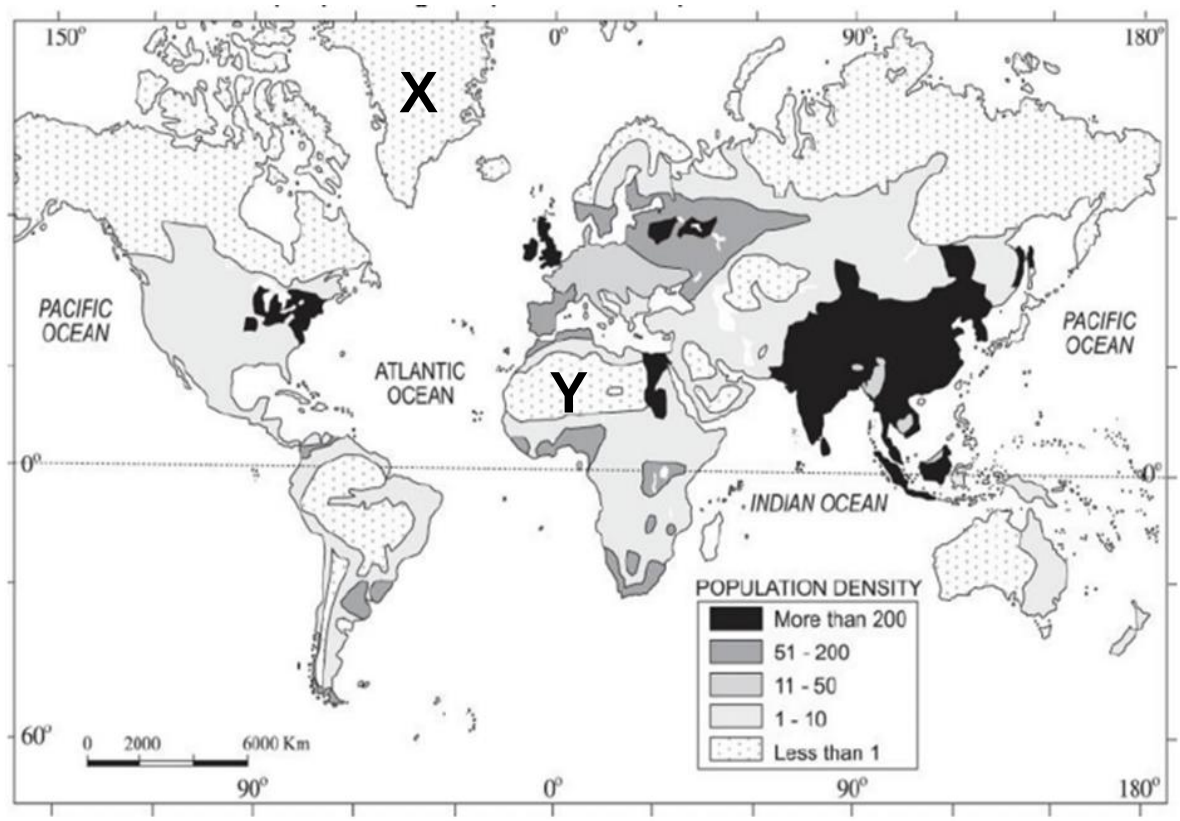
(8 x 1) (8)

1.2 Match the term in COLUMN B with the correct definition/statement in COLUMN A. Write ONLY the letter (A to J) next to the question number (1.2.1 to 1.2.7).

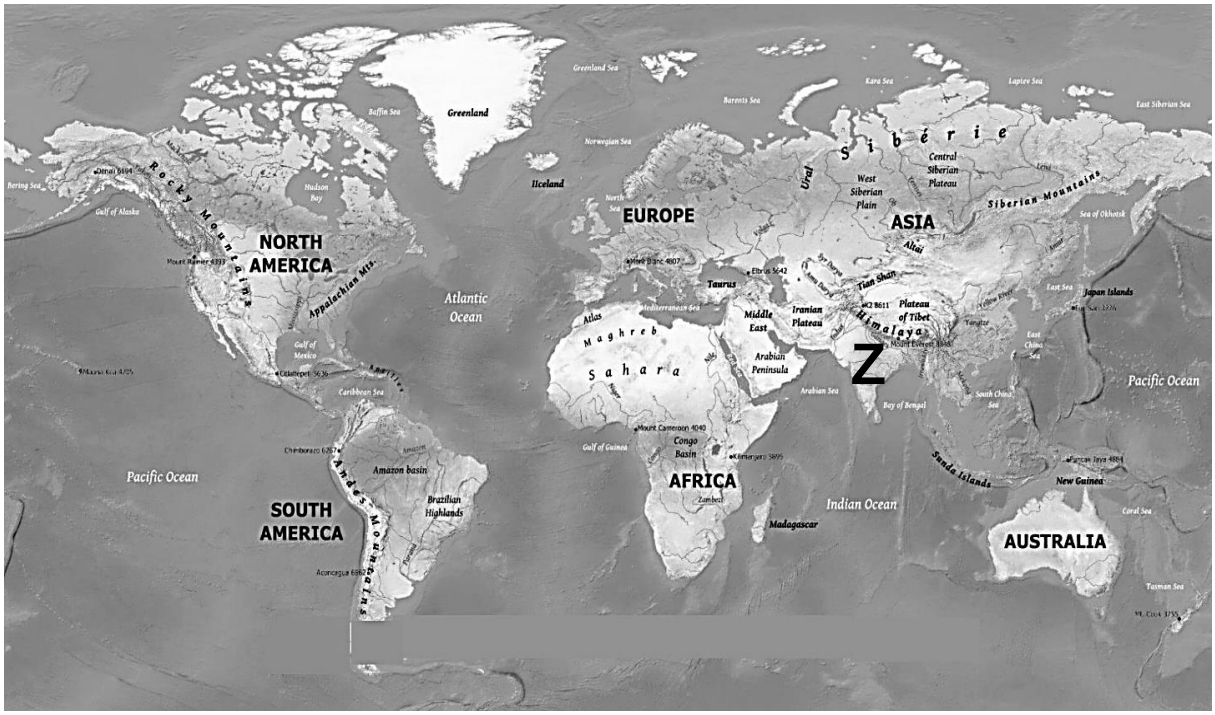
COLUMN A		COLUMN B	
1.2.1	An irrational fear or hatred of foreigners.	A	Urbanisation
1.2.2	A temporary movement of people and their livestock in search of pasturage.	B	Emigration
1.2.3	An increase in the percentage of people living in towns and cities.	C	War
1.2.4	A description of how people are spread out across an area.	D	Life Expectancy
1.2.5	A political factor that increases the death rate of a country.	E	Transhumance
1.2.6	The average number of children a woman is expected to have in a lifetime.	F	Birth Rate
1.2.7	The movement of people out of a country.	G	Xenophobia
		H	Fertility Rate
		I	Immigration
		J	Distribution

(7 x 1) (7)

1.3 Study the world maps.



POPULATION DENSITY OF THE WORLD



PHYSICAL MAP OF THE WORLD

1.3.1 State the unit of measurement for population density. (1 x 1) (1)

1.3.2 Write down the population density for Cape Town. (1 x 1) (1)

Refer to the country marked **X** on the population density map.

1.3.3 Name the country marked **X**. (1 x 1) (1)

1.3.4 Describe country **X** as either densely or sparsely populated. (1 x 1) (1)

1.3.5 Explain why country **A** is densely or sparsely populated. (1 x 2) (2)

Refer to region **Y**.

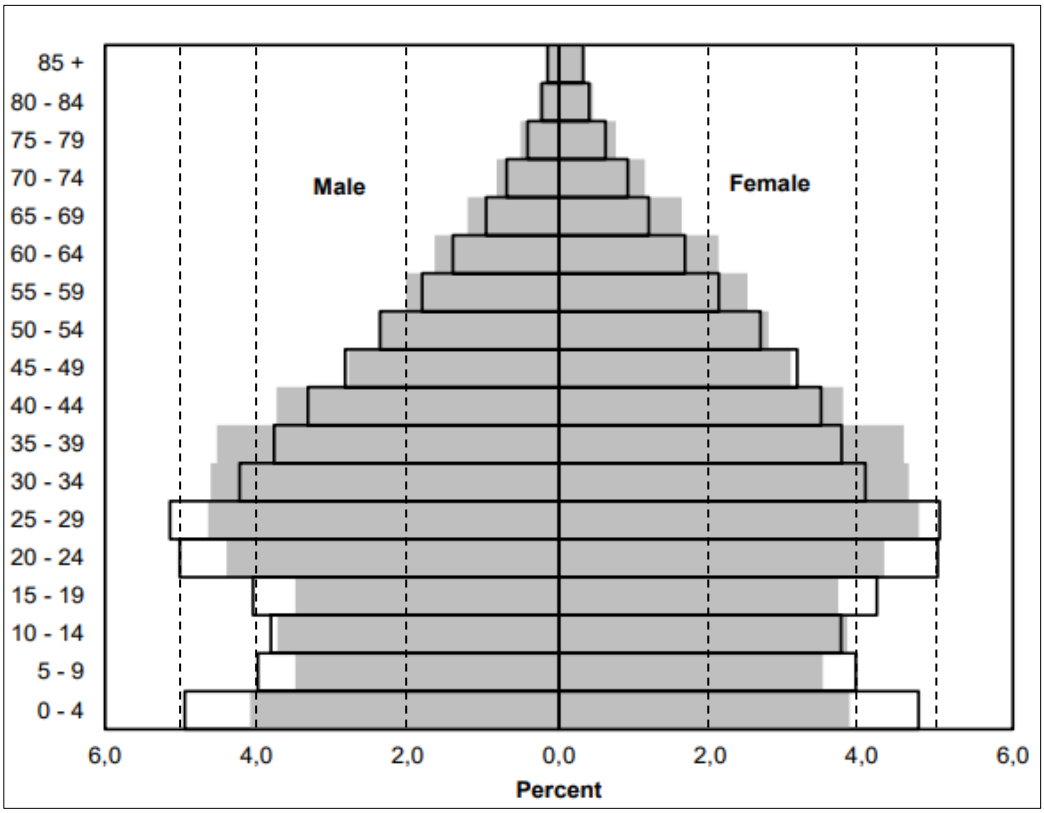
1.3.6 Account for the low population density at region **Y**. (2 x 2) (4)

Refer to the country marked **Z** on the physical map.

1.3.7 Identify the country marked **Z**. (1 x 1) (1)

1.3.8 Discuss possible reasons why **Z** is so densely populated. (2 x 2) (4)

1.4 Study the population pyramid of the Western Cape below. The clear bars ☐ represent data for 2011, and the shaded areas ▒ represent data for 2022.



POPULATION PYRAMID FOR WESTERN CAPE

1.4.1 What indication on the pyramid exists that the Western Cape has a relatively low life expectancy. (1 x 2) (2)

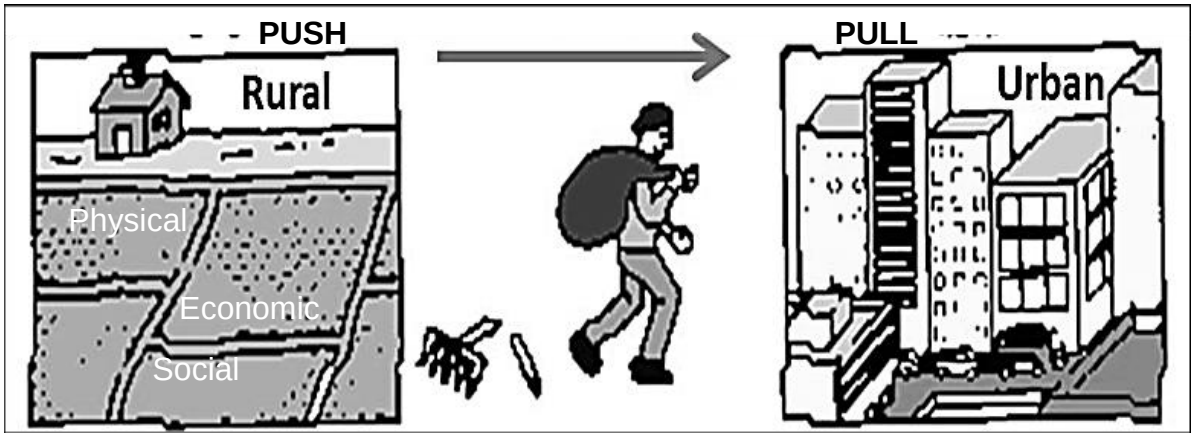
1.4.2 Suggest ONE possible reason for the low life expectancy in the Western Cape. (1 x 2) (2)

1.4.3 What percentage of females were aged between 30 - 34 years in 2011? (1 x 1) (1)

1.4.4 Did the percentage of females aged 30 – 34 years in 2022 decrease or increase over that of 2011? By how much did it decrease or increase? (2 x 1) (2)

1.4.5 In a paragraph of approximately EIGHT lines compare the birth rate for 2022 with that of 2011 in the Western Cape. In the comparison focus on any differences and/or similarities between male and female birth rates in the respective years, in addition to providing reasons for any change in the birth rates. (4 x 2) (8)

1.5 Refer to the illustration on a specific type of migration.



A SPECIFIC TYPE OF MIGRATION

1.5.1 Identify the type of movement shown. (1 x 1) (1)

1.5.2 Distinguish between a push and a pull factor. (2 x 1) (2)

1.5.3 List TWO examples of each of the following kinds of push factors:

a) Economic (2 x 1) (2)

b) Social (2 x 1) (2)

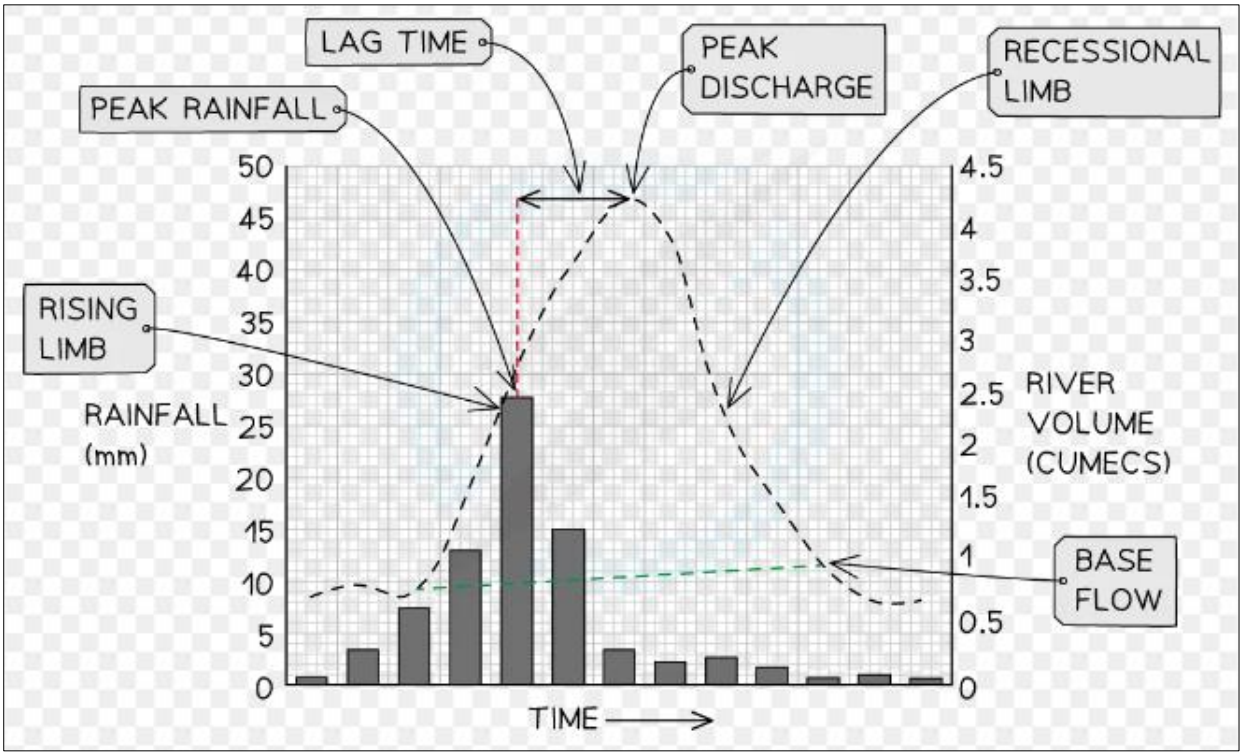
1.5.4 Identify TWO physical push factors and explain how each factor causes the type of migration illustrated. (2 x 2) (4)

1.5.5 Discuss TWO challenges that migrants possibly face when arriving in an urban area. (2 x 2) (4)

[60]

QUESTION 2: WATER RESOURCES

2.1 Study the illustration below.



Choose the word from inside the bracket to complete each statement. Write only the correct word next to the question number (2.1.1 to 2.1.3).

2.1.1 Rainfall is indicated by the (bar / line) graph.

2.1.2 The peak discharge recorded over the time period was (45 / 46) cumecs.

2.1.3 The flood hydrograph indicates data from a/an (rural / urban) area.

Match a term from the illustration with a definition/statement in QUESTIONS 2.1.4 to 2.1.8.

2.1.4 The time between maximum discharge and maximum rainfall.

2.1.5 The increase in the recorded discharge.

2.1.6 Another name for the recessional limb.

2.1.7 The infiltrated water that eventually becomes part of the river discharge.

2.1.8 Maximum amount of precipitation over the time period.

(8 x 1) (8)

2.2 Various options are provided as possible answers to the following statements. Choose the answer and write only the letter (A–D) next to the question numbers (2.2.1 to 2.2.7).

2.2.1 Large amounts of water in South Africa is lost through …

A infiltration.
B evaporation.
C condensation.
D transpiration.

2.2.2 The interior of South Africa mainly receives rainfall in …

A summer.
B autumn.
C winter.
D spring.

Refer to the map showing an inter-basin water transfer scheme in South Africa and then answer QUESTIONS 2.2.3 to 2.2.5.



2.2.3 Which ONE of the following is NOT characteristic of an inter-basin transfer scheme?

A Water is moved to areas with high demand.
B Water is moved from areas with a high supply.
C Hydro-electricity is often created in the process.
D Water is moved from areas with a low supply.

2.2.4 The water transfer scheme shown is the …

A Lesotho Highlands Project
B Orange River Project
C Berg River Scheme
D Sundays-Fish River Scheme

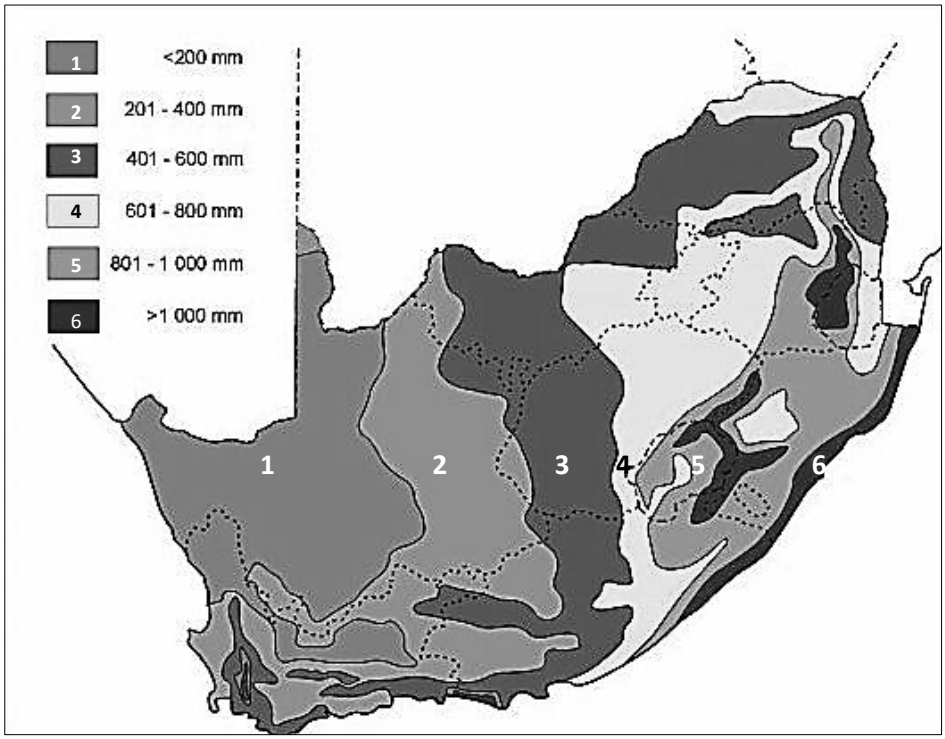
2.2.5 With reference to the water transfer scheme chosen in QUESTION 2.2.4, choose the correct sequence in which water is moved into the Gauteng.

A Senqu River → Katse Dam → Vaal Dam → Ash River
B Senqu River → Ash River → Vaal Dam → Katse Dam
C Senqu River → Katse Dam → Ash River → Vaal Dam
D Vaal Dam → Ash River → Katse Dam → Senqu River

2.2.6 The majority of the rivers in the Northern Cape are … because they only flow after periods of heavy rainfall.

A permanent
B perennial
C non-perennial
D episodic

2.2.7 Refer to the rainfall distribution map of South Africa below:



(i) Rainfall decreases from west to east.
(ii) Rainfall increases from west to east.
(iii) Northern Cape is driest province.
(iv) Kwazulu-Natal is the driest province.

Which statements are true?

A (i) and (iii)
B (i) and (iv)
C (ii) and (iii)
D (ii) and (iv)

(7 x 1) (7)

2.3 Read the extract from the False Bay Echo of September 2024 below.

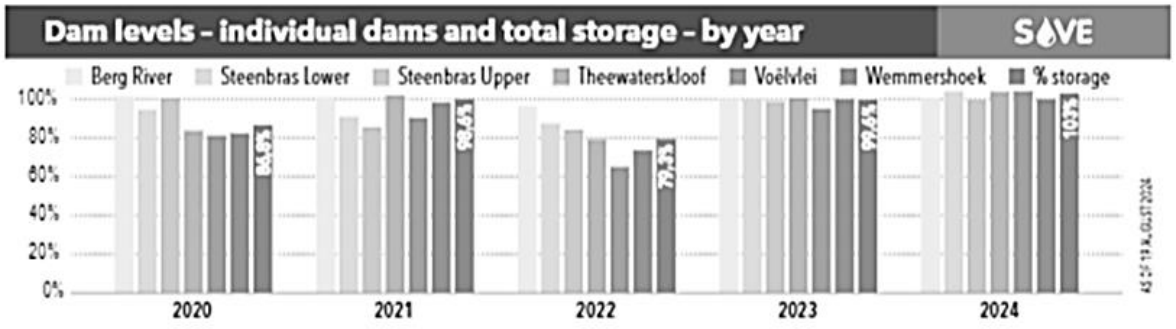
Heavy winter rains fill Western Cape dams to capacity

The dam levels for Cape Town have increased to 103%. The City is still aiming for an overall usage target of 650 million litres per day – which means Capetonians should try to use less than 105 litres per person per day.

Protect our water resources by following water-wise guidelines. Residents and businesses are reminded that the permanent regulations contained in the City's Water By-law still apply across Cape Town, regardless of the restriction level.

Municipal water may be used in gardens only before 09:00 or after 18:00, but never to hose down paved areas.

- *Visit www.capetown.gov.za/thinkwater or www.capetown.gov.za/waterregulations to access the regulations.*



2.3.1 To what percentage have dam levels for Cape Town increased to? (1 x 1) (1)

2.3.2 Quote ELEVEN consecutive words from the extract to suggest what Capetonians can do to help meet the overall water usage target. (1 x 1) (1)

2.3.3 Discuss TWO reasons why water resources are important for urban areas like Cape Town. (2 x 2) (4)

2.3.4 State ONE water restriction that is currently in-place across the City of Cape Town Municipality. (1 x 1) (1)

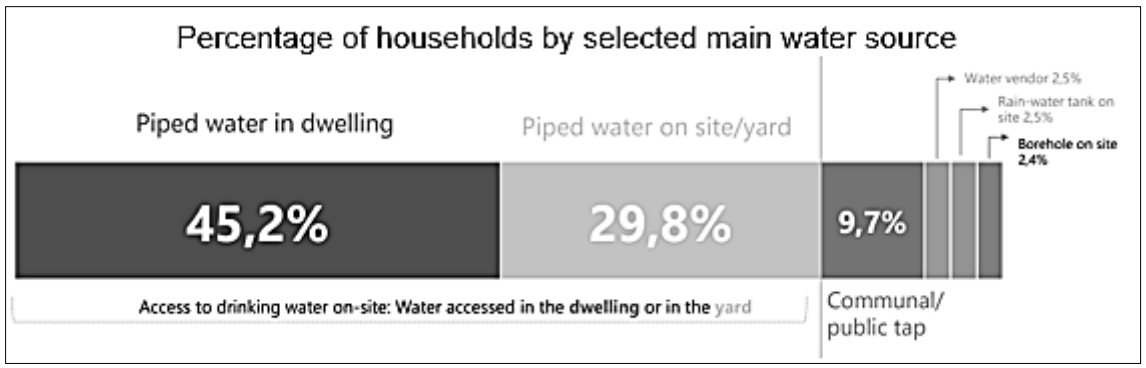
2.3.5 In a paragraph of approximately EIGHT lines describe measures that Capetonians can put in place to save water.

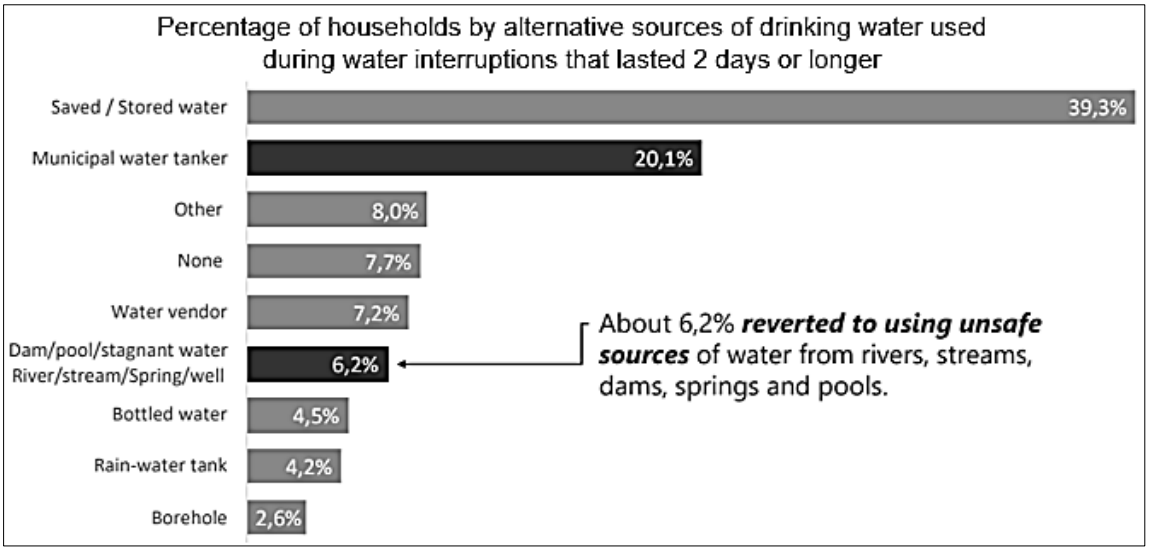
Do NOT use the examples given in the extract. (4 x 2) (8)

2.4 Study the data on the responsibility of municipalities in providing water.

The role of municipalities is to provide water and sanitation services to households. They are responsible for water purification and waste water treatment of sewage and effluent.

According to the General Household Survey (2023) released by Statistics South Africa, three quarters (75%) of South African households have access to improved water sources in the dwelling or in the yard. Approximately (9,7%) of households relied on a communal/public tap as a main source of drinking water





2.4.1 List ONE role of the municipality with regard to water. (1 x 1) (1)

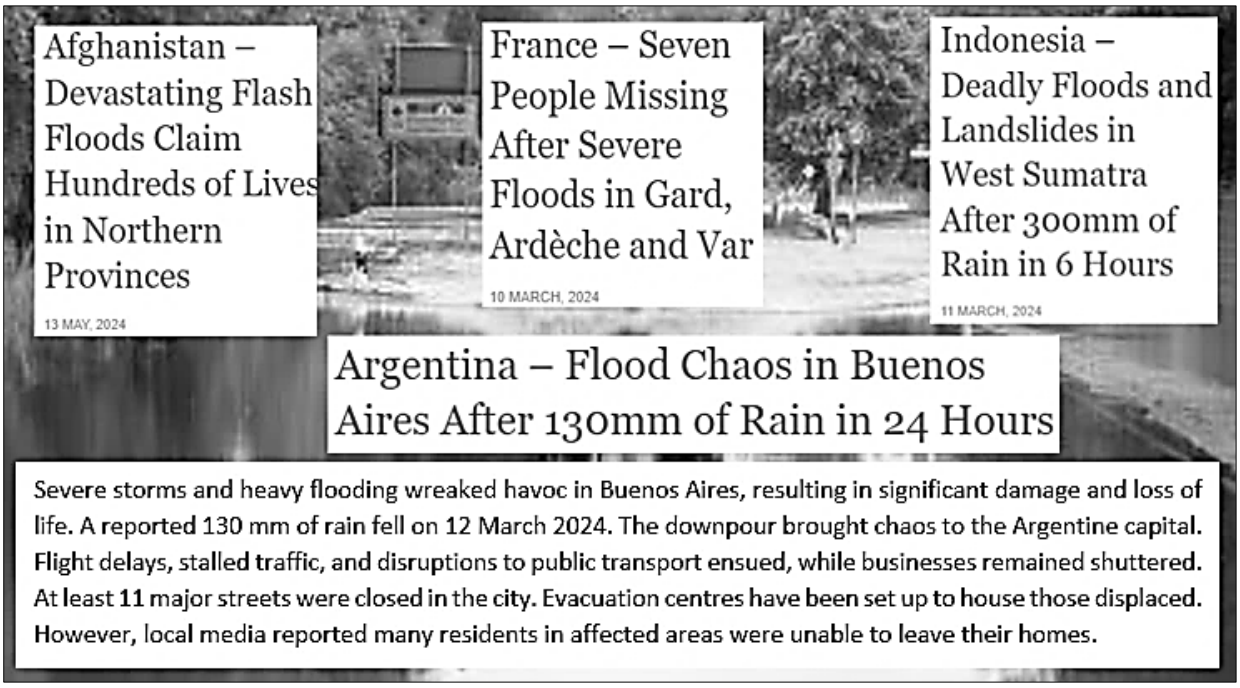
2.4.2 According to the General Household Survey, what percentage of South Africans respectively had access to water inside their homes, and what percentage got water from a public tap. (2 x 1) (2)

2.4.3 Discuss the challenges of water provision that municipalities might face. (2 x 2) (4)

2.4.4 How did 2.6% and 20.1% of those surveyed gain access to water during water interruptions? (2 x 1) (2)

2.4.5 Predict the negative impact that water interruptions can have on a household. (3 x 2) (6)

2.5 Refer to the news headlines from around the world, and the news report on floods in Argentina.



2.5.1 Define the term *flooding*. (1 x 2) (2)

2.5.2 List ONE negative consequences of the flooding in each of the following countries:

a) Afghanistan

b) France. (2 x 1) (2)

2.5.3 Explain why the flooding was so intense in Indonesia. (2 x 1) (2)

2.5.4 How much rain fell in Buenos Aires on 12 March? (1 x 1) (1)

2.5.5 State TWO negative impacts the flooding in Buenos Aires had on transport services. (2 x 1) (2)

2.5.6 Discuss ONE reason affected residents were unable to leave their homes. (1 x 2) (2)

2.5.7 Suggest reasons why flood levels in cities like Buenos Aires are often much higher than those in flooded rural areas. (2 x 2) (4)

[60]

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES



Verulam is a town 24 kilometres north of Durban in KwaZulu-Natal, South Africa and forms part of the eThekwini Metropolitan Municipality.

Verulam is inhabited mainly by people of Indian descent. The population is over 63,000. There are several primary and secondary schools catering for all races and all areas of the town. The town contains densely populated residential and industrial areas, which include a multitude of shopping centres, mosques, temples & churches. At the outskirts are large farming areas, several built-up townships, and rural townships.

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 Study the index of sheets below.

2930BD	2931AC	2931AD
2930DB	2931CA	2931CB
2930DD	2931CC	2931CD

Write down the topographic index map sheet to the south of 2931CA. (1 x 1) (1)

3.1.2 The scale of 1 : 50 000 shows a … area and … detail as it is smaller than 1 : 10 000.

(i) larger
(ii) smaller
(iii) less
(iv) more

A (i) and (iii)
B (i) and (iv)
C (ii) and (iii)
D (ii) and (iv) (1 x 1) (1)

Refer to spot height 98 (block **C4**) and spot height 68 (**C5**) on the orthophoto map.

3.1.3 Calculate the straight-line distance in metres (m) between the spot heights.

Formula: **Actual Distance = Map Distance x Map Scale** (2 x 1) (2)

3.1.4 The true bearing of spot height 98 from spot height 68 is (78° / 257°). (1 x 1) (1)

Refer to the information on magnetic declination on the topographic map.

3.1.5 Determine the difference in years between the current year and the year when magnetic declination was recorded (as shown on map). (1 x 1) (1)

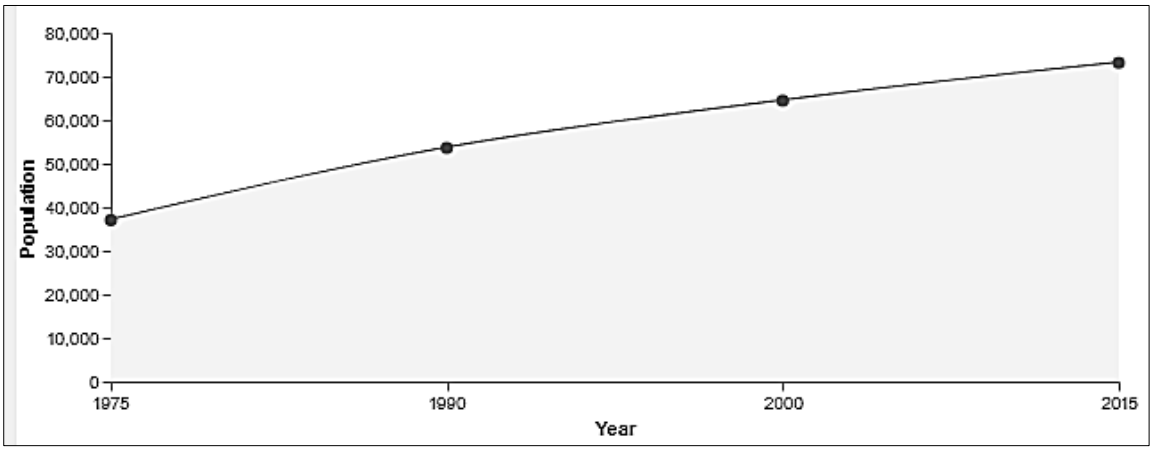
3.1.6 Determine the total change in the magnetic declination. (2 x 1) (2)

3.1.7 Calculate the magnetic declination for the current year. (2 x 1) (2)

3.2 MAP INTERPRETATION

Refer to the topographic map, the fact file and the graph showing the size of the Verulam population between 1975 and 2015.

FACT FILE			
AREA (IN KM²)	POPULATION (2015)	% MALE POPULATION	% FEMALE POPULATION
22.5	73 140	48.7	?



3.2.1 What percentage of the Verulam population is female? (1 x 1) (1)

3.2.2 Is the population showing a decreasing or an increasing trend? (1 x 1) (1)

3.2.3 Block (**D1** / **E3**) has a higher population density. (1 x 1) (1)

3.2.4 Calculate the population density (to ONE decimal place) for Verulam in 2015. Answer should be in people/km². (1 x 1) (1)

3.2.5 Identify TWO natural features that prevent the physical growth of Verulam in a north-easterly direction. (2 x 1) (2)

Water is an important resource. The hydrological (water) feature in **A1** on the topographic map is an integral part of Verulam's social and economic growth.

3.2.6 With the exception of the water feature (and others of the same kind) in **A1**, identify (and explain) TWO ways in which water is managed on the mapped area. [**NB**: Do NOT refer to dams]. (4 x 1) (4)

3.2.7 Discuss why the hydrological (water) feature in **A1** is important. (1 x 2) (2)

3.3 **GEOGRAPHIC INFORMATION SYSTEMS** (**GIS**)

Match the term in COLUMN A with the correct term/statement in COLUMN B. Write only the letter (A to D) next to the question number (3.3.1 to 3.3.3).

COLUMN A		COLUMN B	
3.3.1	Software	A	Gathering information about the earth from a distance.
3.3.2	Attribute data	B	A component of a GIS.
3.3.3	Remote sensing	C	Data on location of a feature.
		D	Descriptive data.

(3 x 1) (3)

Refer to the transport infrastructure at 29° 37' 00" S and 31° 06' 30" E on the topographic map.

3.3.4 Identify the transport infrastructure. (1 x 1) (1)

3.3.5 Discuss ONE social benefit of the transport infrastructure for the community of Verulam. (1 x 2) (2)

3.3.6 Provide evidence from the map that the transport infrastructure is located in an ideal place. (1 x 2) (2)

[30]

TOTAL: 150