



NATIONAL SENIOR CERTIFICATE EXAMINATION
SUPPLEMENTARY EXAMINATION – MARCH 2019

GEOGRAPHY: PAPER I

Time: 3 hours

300 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 17 pages; an Answer Sheet of 4 pages (i–iv) and Colour Insert of 4 pages (i–iv). Detach the Answer Sheet and the Colour Insert from the middle of the question paper. Please check that your question paper is complete.
 2. Read the questions carefully.
 3. **ALL THREE QUESTIONS ARE COMPULSORY.**
 4. Credit will be awarded for the following:
 - interpretation and explanation; and
 - evidence of personal observations where this is appropriate to the question.
 5. Candidates must pay attention to the mark allocation. Unless otherwise indicated, two marks are awarded for a valid response. This means that a question carrying four marks requires two responses.
 6. You are encouraged to use sketch maps, diagrams and other explanatory drawings to support your answers wherever relevant.
 7. There is a GLOSSARY of words on page 2 explaining the meaning of the words in **bold** that are used in the questions.
 8. It is in your own interest to write legibly and to present your work neatly.
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GLOSSARY

WORD	MEANING
Account for	To justify and provide reasons for something using a short explanation.
Analyse	To discuss in order to explain and interpret.
Assess	To estimate or judge.
Calculate	To work something out using a mathematical method.
Choose	To select; to pick out the correct answer from several alternatives.
Classify	To arrange in categories or groups according to shared qualities.
Compare	To note the similarity and/or dissimilarity between something.
Complete	To finish or include missing items or information.
Contrast	To show the differences or opposite characteristics of something.
Compile	To put together various pieces of information.
Define	To give the precise meaning of ...
Describe	To provide the main characteristics of something; to provide an account of. (Note: a diagram or map may be included as part of a description).
Differentiate	To recognise what makes something different or different in the process of growth.
Discuss	To examine or investigate by way of an argument the various aspects of a statement.
Draw	To show by means of a sketch.
Elaborate	To add details or expand an answer.
Evaluate	To judge or determine, to provide an opinion about a particular matter.
Explain	To make clear or plain. To make sure the reader understands what is being said.
Identify	To give the essential characteristics of; to name.
Justify	To explain and give reasons for.
Label(s)	To identify or name features on a diagram or map using arrows/lines.
List	To write an itemised series of concise statements; to present a list of names, facts, aspects or items.
Match	To find the exact counterpart of another.
Name	To state something; to give; to mention.
Outline	To provide a general explanation or description of something.
Provide	To give.
Select	To choose; to pick out the correct answer from several alternatives.
State	To present information or details plainly, directly, and simply, without discussion.
Suggest	To put forward an idea, to recommend, or propose something.

SECTION A GEOGRAPHICAL ISSUES

QUESTION 1 GEOGRAPHY OF COLESBERG, NORTHERN CAPE

1.1 Geographical and map interpretation skills

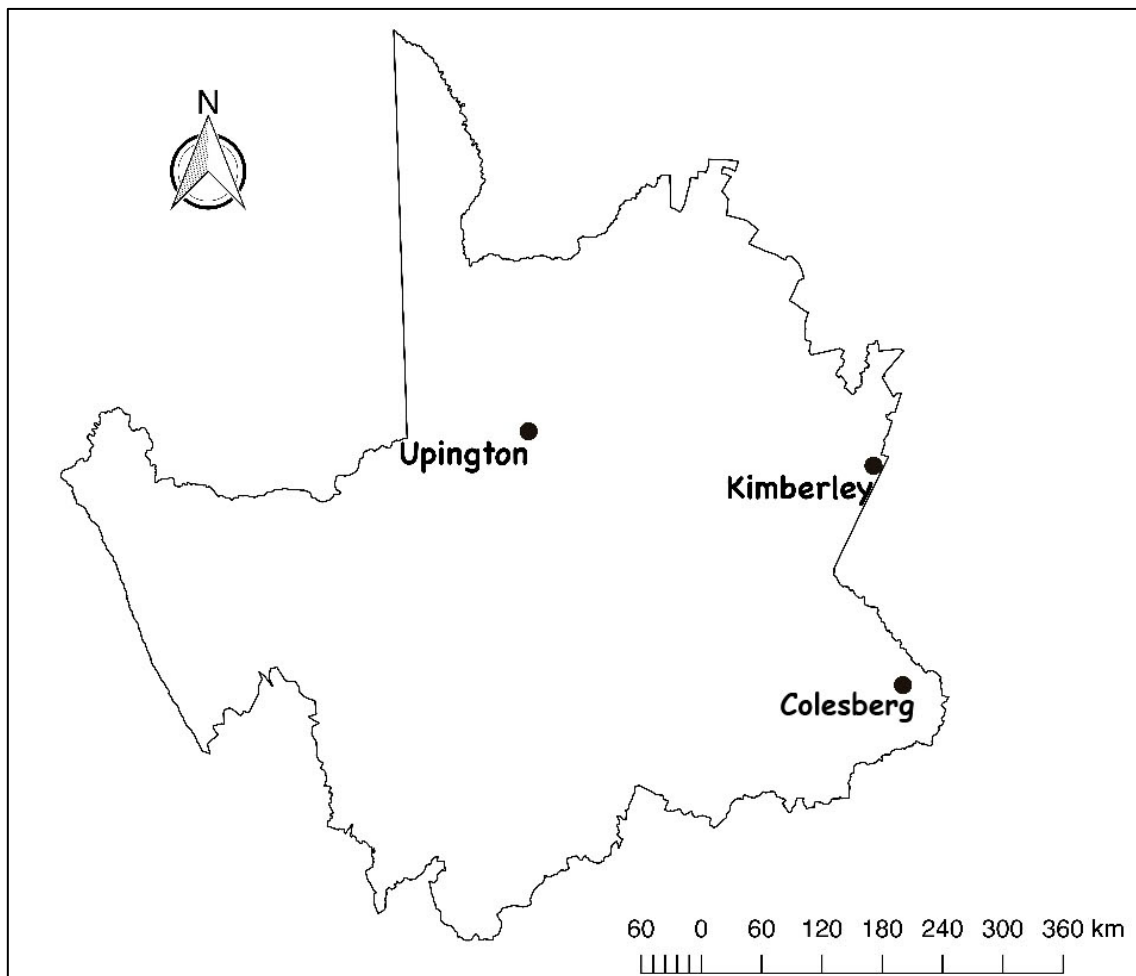
Read and carefully study the following below: Fact File 1 and map of the Northern Cape in Map 1.

Fact File 1: Northern Cape

- The Northern Cape is South Africa's largest province and covers about 30,5% of the country's area. It is also the most sparsely populated.
- It is now a destination for "darkness seekers".
- The province has some of the most extreme weather conditions in the country.
- Mining and agriculture are the province's main economic activities.

[Source adapted from <<http://www.openafricatravel.com/blog/2017/14-fascinating-northern-cape-facts>>]

Map 1: Northern Cape



[Source: Examiner's map]

The following statements are true or false. **Select** the correct option by writing the question number and True or False.

1.1.1 The direction from Colesberg to Kimberley is south. (2)

1.1.2 The Northern Cape is the largest province in South Africa. (2)

1.1.3 The distance from Colesberg to Upington is 580 km. (2)

1.2 **Climate and weather: line thunderstorms**

Study the table below, showing the average climate of Colesberg.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Average temperature (°C)	21,6	21,2	18,7	14,7	10,5	3,1	2,3	6,6	12,6	16	18,4	20,6
Precipitation (mm)	49	64	64	40	21	11	11	14	13	29	37	39

[Source: adapted from <<https://en.climate-data.org/location/8471/>>]

1.2.1 **Choose** the correct underlined option. Write only the question number and the correct option.

(a) Colesberg's total annual rainfall is 166 / 293 / 392 / 393 mm. (2)

(b) Spring / summer / autumn / winter is the wettest season. (2)

(c) The highest average monthly temperature in Colesberg is 20,6° / 21° / 21,2° / 21,6° C. (2)

(d) The range in monthly temperature for Colesberg is 19,3° / 23,9° / 15,5° / 32,0° C. (2)

1.2.2 Colesberg often experiences line thunderstorms. Use the sketch map of South Africa (Map 2, Answer Sheet). Annotate this map to **explain** the formation of line thunderstorms. You must include the following on the map:

- anticyclones
 - low-pressure trough
 - line thunderstorm
 - 500 mm isohyet
- (8)

1.3 Fluvial processes – river capture

Study Map 3 (Colour Insert, page i) showing the ancient Kalahari River and Karoo River before river capture.

- 1.3.1 (a) **Draw** an annotated sketch to **explain** the process of river capture.

Use the list of words provided below.

captor, captured, wind gap, misfit stream, direction of flow,
elbow of capture

(8)

- (b) Using your diagram, **suggest** how river capture took place. (4)

- 1.3.2 **State** the name of the new captor river. (2)

1.4 Settlement – situation, settlement patterns, economic activities and GIS

Study Fact File 2 on Colesberg below and the GIS-generated map of Colesberg (Photograph 1, Colour Insert, page i).

Fact File 2: Colesberg

- Colesberg is a typical town in the Northern Cape and is surrounded by typical Karoo veld and koppies (small hills).
- It is located on the N1 highway from Cape Town to Johannesburg.
- Today the town is a thriving agricultural centre for merino sheep and horse breeding.
- Colesberg's population is 16 869.

[Source adapted from: <<http://www.openafricatrans.com/blog/2017/14-fascinating-northern-cape-facts>>]

- 1.4.1 **Describe** the situation of Colesberg. (2)

- 1.4.2 **Identify** the settlement pattern indicated by A. (2)

- 1.4.3 **State** the land use at X, Y and Z. (6)

- 1.4.4 Settlement B is a town designed during apartheid. **Suggest** a possible feature that was used as a buffer zone. (2)

- 1.4.5 **State** a value-added product from merino sheep. (2)

- 1.4.6 **Compare** and **contrast** the service delivery in Colesberg (labelled A on Photograph 1) and settlement B (labelled B on Photograph 1). (6)

- 1.4.7 **Identify** the type of GIS data used in Photograph 1 for:

- (a) the base layer of the aerial image. (2)

- (b) the roads (in red). (2)

1.5 Settlement concepts

Refer to the photograph of Colesberg below.

Photograph 2: Colesberg



[Source: <<https://en.wikipedia.org/Colesberg-001.jpg>>]

1.5.1 The building in the photograph was originally a residential house and is now used by an estate agent.

Identify the geographic term used to describe the process of changing land use. (2)

1.5.2 **Explain** why this process of changing land use has taken place. (4)

1.5.3 **Assess** ways by which the local population could reduce rural depopulation. (6)

1.6 Economic geography

Read Fact File 3 below on astro-tourism in the Northern Cape.

Fact File 3: Astro-tourism

"Astro-tourism is now a Thing – the Celestial Big Five"

There are plenty of reasons to visit a destination: its culture, history, attractions, food. However, travellers' interests are a bit more up in the air lately – literally. Whether it's the northern lights or the solar eclipse; more people are booking trips just to witness celestial events.

"**Darkness seekers**" hunt for places where the sky is the darkest and clearest. The desert is an ideal environment for this kind of viewing, but the mountains and oceans also lend themselves to unobstructed stargazing. With so much light pollution in cities, it's no wonder that people are heading out into remote lands to bask in the light of the heavenly bodies.

The International Dark Sky Association works with cities, protected parks, and lands to curb light pollution. The organisation has monthly events around the world, such as moonlight hikes, and even a dark sky festival.

Africa's first known "Dark Sky Reserve" is one of the remote areas of the globe that is dark and difficult to get to, but that is luring **astro-tourists** on a unique "**celestial safari**".

[Source adapted from: <<https://www.cntraveler.com/story/astro-tourism-is-now-a-thing>>]

- 1.6.1 **Describe** what you understand by the term astro-tourism. (2)
- 1.6.2 **Classify** astro-tourism in an economic sector. (2)
- 1.6.3 **Evaluate** why Colesberg and the surrounding areas would be an ideal location for astro-tourists, darkness seekers and celestial safaris. (6)

1.7 **Food security**

Refer to the infographic on food security below.

Figure 1: Infographic – food security



[Source: <<http://www.researchmatters.up.ac.za/researcher-projects/view/29>>]

- 1.7.1 **Define** the term food security. (2)
- 1.7.2 If South Africa's population is 57 million, **calculate** how many people are food insecure every day. (2)
- 1.7.3 Write a social media post to **explain** the food insecurity experienced by South Africans. (6)
- 1.7.4 **Evaluate** FOUR possible solutions to ensure food security in South Africa. (8)

100 marks

SECTION B CLIMATE, WEATHER AND GEOMORPHOLOGY

QUESTION 2 CLIMATE

2.1 Climate terminology

Match the correct statement in Column B to the concepts in Column A. Write **ONLY** the question number and the correct letter, for example 2.1.1 – A.

Column A		Column B	
2.1.1	Anabatic	A	A low-lying area, such as a valley bottom, where frost regularly forms in winter.
2.1.2	Pollution dome	B	Warm layer of air, midway up a valley with cold air below caused by a temperature inversion.
2.1.3	Coastal low	C	A layer of air where temperature increases with increasing altitude.
2.1.4	Inversion	D	Small low-pressure system that develops on the coast and moves from west to east.
2.1.5	Frost pocket	E	A visible flow of pollutants from a factory smoke stack.
		F	As the sun's rays heat up the slopes of a mountain the warmer air rises up the sides of the slopes.
		G	A dome-shaped mass of polluted air above a city.
		H	Winds that blow up the length of the valley from the bottom of the mountain to the top.

(10)

2.2 Tropical cyclones

Study Figure 2 (Colour Insert, page ii), showing the hurricane timeline for 2017, and Photograph 3, a satellite image of hurricane Harvey, on the same page.

2.2.1 (a) Using Figure 2, **complete** Table 1 in your Answer Sheet (on page ii). (Note that some cells have already been filled in.) (4)

(b) Using your completed table and Figure 2, **suggest** why only a few of the hurricanes made international news headlines. (4)

2.2.2 (a) **Identify** in which hemisphere hurricane Harvey took place. (2)

(b) **Provide** TWO pieces of evidence from Photograph 3 to support your answer to Question 2.2.2 (a). (4)

2.2.3 **Differentiate** between a tropical storm and a hurricane. (4)

2.2.4 **Draw** a labelled cross-sectional diagram of hurricane Harvey on the template provided in your Answer Sheet. (6)

2.2.5 **Assess** why hurricane Maria, which was stronger than hurricane Harvey, caused less damage. (6)

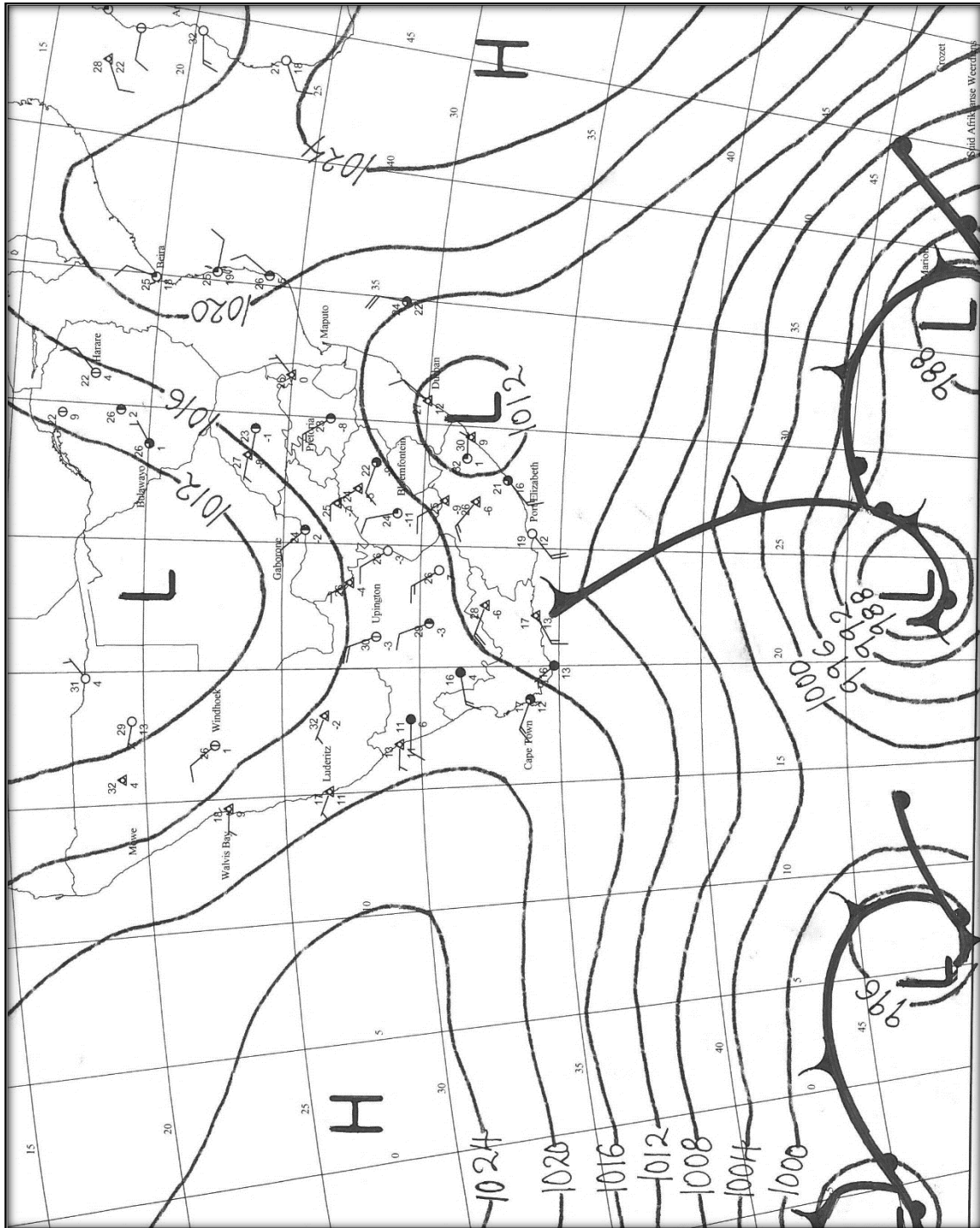
2.3 **Mid-latitude cyclones**

Refer to Map 4 (on the next page), a synoptic weather map, dated 2017-09-05 and answer the questions that follow.

2.3.1 **Choose** the correct underlined term or terms in each of the following sentences. Write only the question number and the correct term.

- (a) A group of mid-latitude cyclones is called a family / cousins / sisters.
- (b) The high pressure west of South Africa is also known as the Internal High / South Atlantic High / South Indian High.
- (c) The air pressure in Bloemfontein is 1012 / 1014 / 1016 mb.
- (d) The change in wind direction in a mid-latitude cyclone is called veering / backing / shearing.
- (e) There is a trough / ridge / cut-off low present over the interior of South Africa. (10)

Map 4: Synoptic weather map



[Source: South African Weather Service]

2.3.2 **State** the geographic term for the following symbol evident on the synoptic map. (2)



2.3.3 **Explain** how the weather feature you identified in Question 2.3.2 was formed. (6)

2.4 **Berg winds**

Study Photograph 4 (Colour Insert, page iii), showing a weather advisory report on typical berg wind conditions.

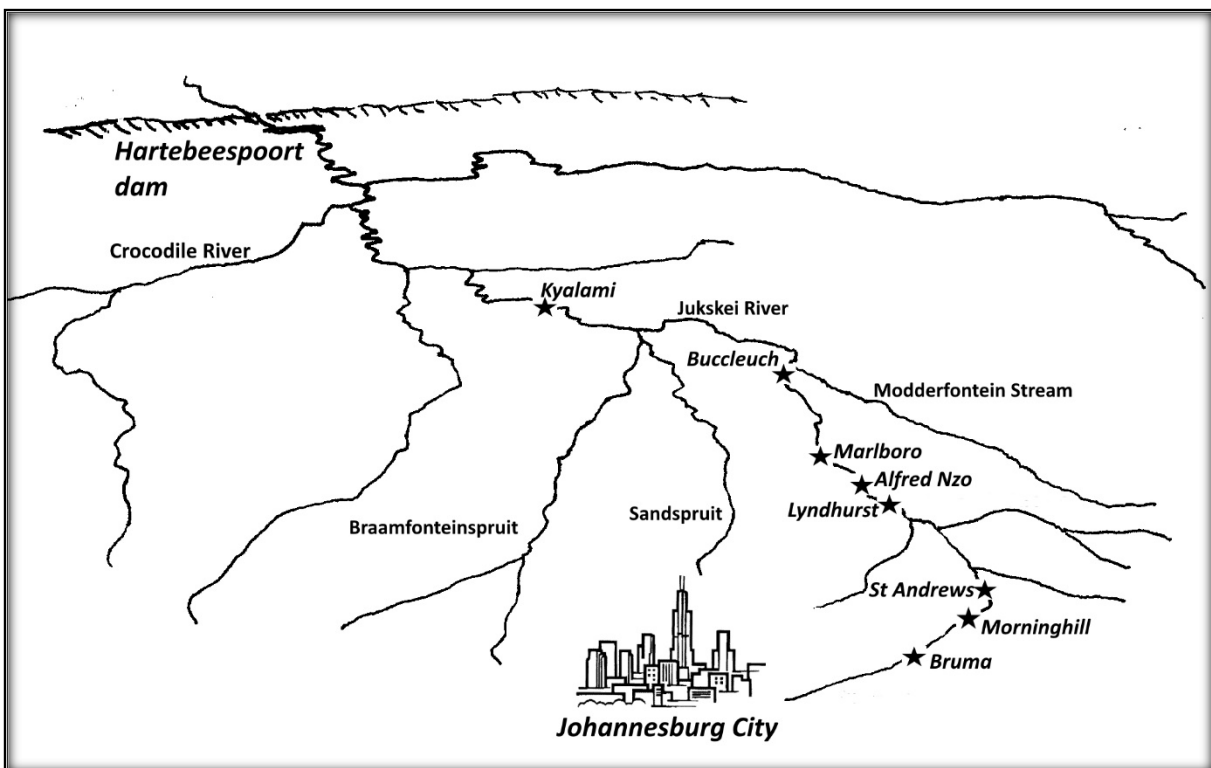
2.4.1 **Explain** how berg winds are formed. (6)

2.4.2 **Discuss** the effects of berg winds by completing the mind map on your Answer Sheet. (6)

2.5 **Fluvial geomorphology**

Study the map below of the Jukskei River in Gauteng.

Map 5: Jukskei River



[Source: <<http://www.edenvaleriverwatch.co.za>>]

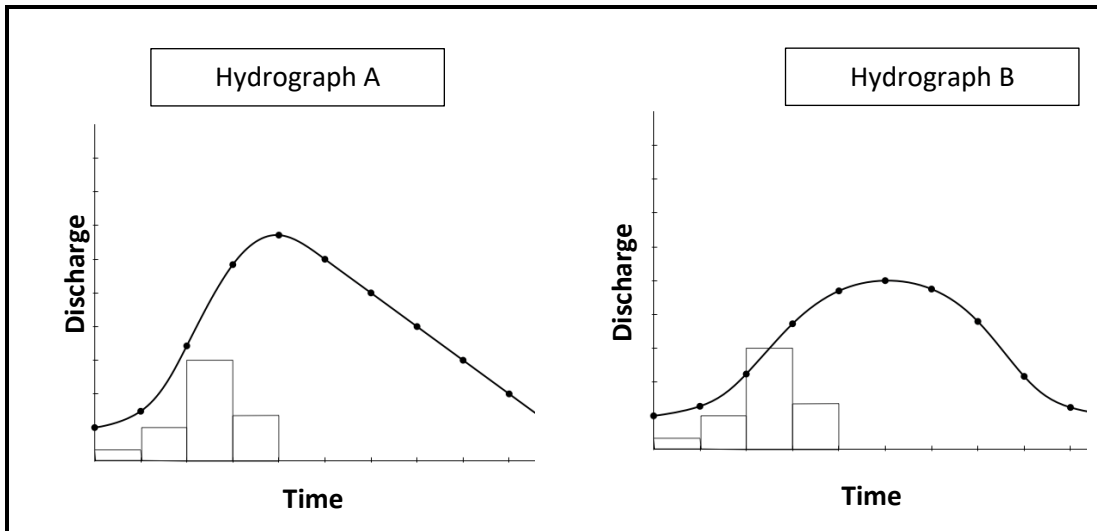
The following statements are true or false. **Select** the correct option by writing the question number and True or False.

- (a) Buccleuch lies at the confluence of the Modderfontein Stream and the Jukskei River.
- (b) The Crocodile River is a tributary of the Jukskei River.
- (c) The discharge would be greater in Bruma than in Kyalami.
- (d) The long profile of the Jukskei River would be ungraded.
- (e) The drainage pattern of the Jukskei River is dendritic.
- (f) Throughout its course, the Jukskei River maintains a turbulent flow. (12)

2.6 **Catchment and river management**

In January 2018, there were severe thunderstorms with heavy rainfall around Gauteng. Refer to Hydrographs A and B below.

Figure 3: Hydrographs



[Source adapted from: <<http://www.alevelgeography.com>>]

- 2.6.1 **Identify** which hydrograph, A or B, best describes the Jukskei after the storms. (2)
- 2.6.2 **Account for** your choice (to Question 2.6.1) by giving THREE reasons. (6)
- 2.6.3 **Analyse** why developers would have to consider urban flooding as part of their planning. (4)
- 2.6.4 **Evaluate** viable water management solutions that could be implemented to help reduce the impact of heavy rainfall and flooding in urban areas. (6)

100 marks

SECTION C RURAL AND URBAN SETTLEMENT AND ECONOMIC GEOGRAPHY OF SOUTH AFRICA

QUESTION 3

3.1 Rural settlements

Study Photograph 5 (Colour Insert, page iii) showing a rural area in South Africa.

- 3.1.1 (a) **State** whether the settlements in Photograph 5 are nucleated or dispersed. (2)
- (b) **Explain** your choice to Question 3.1.1 (a). (2)
- 3.1.2 **Outline** THREE possible advantages of living in the settlement in Photograph 5. (6)
- 3.1.3 **Elaborate** on TWO possible problems faced by the people living in the settlement in Photograph 5. (4)

3.2 Urban settlements – Kliptown, Soweto

Refer to Photograph 6 below showing an advertisement for part of the Kliptown upgrade of Walter Sisulu Square of Dedication and Photograph 7 (Colour Insert, page iv) showing the completed project.

Photograph 6: Walter Sisulu Square of Dedication, Kliptown Upgrade



[Source: Examiner's photograph]

- 3.2.1 **Identify** the term for upgrading an urban area. (2)
- 3.2.2 **Explain** why it was necessary for Soweto to undergo this process. (4)
- 3.2.3 **Suggest** THREE benefits of this development for the residents of Soweto. (6)
- 3.2.4 **Name** TWO other projects that have upgraded urban areas in Gauteng, or in other areas you are familiar with. (4)
- 3.2.5 **Elaborate** why some upgrade projects fail. (6)

3.3 **Central-place theory and economic sectors**

Study the photograph below of a doctor's rooms in Kliptown, Soweto.

Photograph 8: Doctor's rooms, Kliptown



[Source: Examiner's photograph]

Complete Table 2 in your Answer Sheet by **ticking** the correct column. (8)

3.4 **Gauteng – Johannesburg: urban settlement issues**

Read Fact File 4 below and study Photograph 9 (Colour Insert, page iv).

Fact File 4: Urban farms

The first commercial rooftop small-scale farm has been launched on the top floor of the 93-year-old Chamber of Mines building. The project, called the Urban Agriculture Initiative, was launched by Wouldn't It Be Cool (WIBC), a mentorship organisation that empowers entrepreneurs with the skills, knowledge and support they need to start and grow successful agribusinesses, create jobs and support their communities.

The first crop was planted on the rooftop of the Chamber building for the benefit of the **agripreneur**. Nhlanhla Mpati, the agripreneur, has produced a successful basil crop, which was sold to the Johannesburg Fresh Produce Market and surrounding cafes and coffee shops. A sustainable project of this nature has the potential to provide inner-city communities with access to cost-effective and healthy food while providing gainful employment to urban agripreneurs. Unlike other rooftop farms that use rain-harvesting or grey water, agripreneurs make use of hydroponics and aquaponics. This means that crops will be grown in special water solutions without the need for soil or large open spaces. This approach also significantly reduces water consumption given that 95% of the water used is circulated and therefore reused. Production can be increased by extending the gardens upward, and soil erosion and pest control issues are completely eliminated. Hydroponic plants also mature much faster than crops in other mediums, resulting in a faster turnaround.

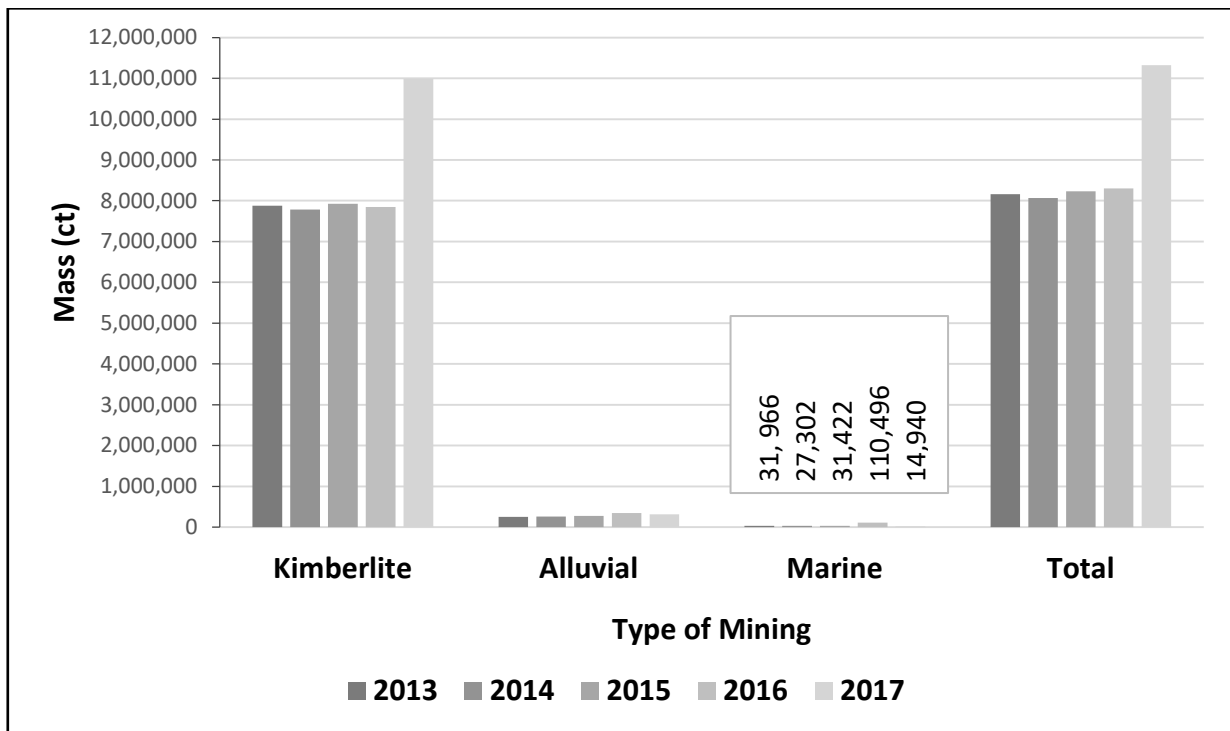
[Source adapted from: *Engineering Weekly*]

- 3.4.1 **Define** the term agripreneur. (2)
- 3.4.2 **Classify** this type of agriculture as intensive or extensive. (2)
- 3.4.3 **Justify** the benefits of these projects for the inner-city community of Johannesburg. (8)
- 3.4.4 **Assess** the advantage that urban rooftop farms have over large-scale commercial farms. (4)
- 3.4.5 Other than rooftop farms, **describe** TWO other green projects in Gauteng, or in an urban area you are familiar with. (4)

3.5 **Economic activities: mining – diamonds**

Study the chart below showing diamond production in South Africa.

Figure 4: Diamond production in South Africa 2013–2017



[Source adapted from: <<https://www.chamberofmines.org.za>>]

- 3.5.1 **State** which was the most productive year for diamond mining. (2)
- 3.5.2 **Calculate** the total earnings made in 2017 if the price was R1 263,00 per carat. (2)
- 3.5.3 **Describe** the difference between kimberlite and alluvial diamonds. (2)
- 3.5.4 **Discuss** why so few marine diamonds are mined in South Africa. (2)
- 3.5.5 **Differentiate** between industrial and gem diamonds. (2)
- 3.5.6 Other than jewellery, **state** TWO industries linked to diamonds. (2)
- 3.5.7 All diamonds mined in South Africa are sorted and cut in Gauteng. **Evaluate** TWO reasons for this. (4)

3.5.8 Study Figure 5

Figure 5: Conflict Diamonds



Compile a report of 1 to 1½ pages where you:

- **describe** how diamonds are classified
- **suggest** how beneficiation of diamonds can boost a country's economy
- **explain** the problems caused by conflict diamonds
- **evaluate** solutions to the problems caused by conflict diamonds (20)

Note: you are to draw on examples you have studied to support your report discussion. Use the rubric below to guide the planning and structure of your report.

Criteria	
Writing skills Use of brief introduction and conclusion Logical discussion and use of subheadings	5
Content knowledge Correct use of geographical terminology and concepts Adherence to topic and subheadings	10
Supporting evidence – analysis and understanding If appropriate reference made to case study material / fact file etc. Reference must be made to familiar / local examples.	5

100 marks

Total: 300 marks