

**SECTION A**  
**Theme 4: Geographical Investigation**

**1**

- (a)** Design a recording sheet that the students may use to collate their data collected across the different sites marked out in Resource 1. [3]

Award 1 mark for title, award 2 mark for accurate components in data recording sheet (including consideration of sites, pH and turbidity scores).

- (b)** With reference to Resources 1 and 2, explain the limitations pertaining to the planning and data collection of the investigation. Suggest how these limitations can be overcome. [7]

Indicative Content:

- Uneven spacing of sites – to be overcome by ensuring even spacing of sites along Pang Sua River
- Impacts of water quality not only limited to Pang Sua River – to be overcome by also looking at other potential sites where water quality may be affected by industries
- Too limiting to conduct study on Saturday morning – other days and times to be considered
- Timing of data collection at sites to also be reassessed
- Method of data collection has issue of subjectivity – overcome by using more sophisticated equipment to take readings of pH and turbidity. Consider also other ways to measure water quality.
- Getting more students involved to conduct study for greater effectiveness and more reliable data.

- (c)** Suggest how the students can mitigate the potential risks that may arise when undertaking this investigation. [3]

Indicative Content:

- Road safety
- Attire for fieldwork
- Safety from falling into channel
- Safety from chemicals in channel
- Weather-related considerations

- (d)** Explain why the group's data may differ if they had conducted their investigation after a heavy thunderstorm. [4]

Indicative Content:

- Increase in turbidity – addition of sediment from surrounding area picked up by overland flow
- Decrease in turbidity – addition of rainfall into channel discharge
- Neutralising pH value – addition of rainfall into channel discharge
- Lowering pH value – effect of acid rain

- (e) Suggest how the group of students can extend their investigation to examine the impact of Sungei Kadut Industrial Estate on local communities.

[8]

Indicative Content:

Candidates will need to consider what the other impacts may be that arise due to the activities in the industrial estate.

A higher level response will highlight the various groups of people that may make up the local community in the area around the Sungei Kadut Industrial Estate, of which they may experience different forms of impacts due to the activities at the industrial estate. They may also consider the adaptations of the investigation in alignment with the five stages of investigation, which include:

- Crafting the research question or hypothesis
- Developing a plan for the new investigation
- How to go about collecting data
- How to best present and analyse the collected data
- Evaluating and communicating the new findings

*Levels marked using an adapted version of the H2 generic level descriptors for Theme 4.*

**D H2 Generic Level Descriptors for Open-Ended 9m DRQ on Theme 4**

Level	Marks	Descriptors
3	7–9	Response demonstrates accurate knowledge and understanding of geographical investigation skills and methods relevant to the given context. Provides a logical and well-developed evaluation, which may include perceptive insights for the strongest responses. Reflects strong critical thinking skills and a good understanding of the requirements of the question.
2	4–6	Response demonstrates good knowledge and understanding of geographical investigation skills and methods relevant to the given context. Provides an evaluation, which may be limited in depth and detail. Response reflects critical thinking skills in general but may not always be relevant to the question.
1	1–3	Response shows inadequate knowledge and understanding of geographical investigation skills and methods. Response has some, though limited, relevance to the given context. Provides little or no evaluation. May include material that is irrelevant to the question.
0	0	No creditworthy response.

**Note:**

1. The assessment involves qualitative rather than quantitative evaluation. Judgements on the level to be awarded to an answer will be based on the principle of 'best fit' determined by the descriptors within each level.
2. The descriptors in each level may be worded differently in actual assessment to link them more to the questions set. However, regardless of the wordings used, the quality of responses expected of candidates in each level would not deviate from that stated in the generic level descriptors.

**SECTION B**  
**Theme 1: Tropical Environments**

**Climate Characteristics and Physical Processes in Australia**

**2**

- (a)** With reference to Resource 3, briefly describe the climograph of Cairns. [2]

Award 1 mark for identifying the temperature pattern (being generally high) and 1 mark for the rainfall pattern (high but fluctuating over months) of Cairns.

- (b)** With the aid of a diagram and Resource 4, explain how the change in average sea surface temperatures in the Pacific Ocean between 11 October 2015 and 7 November 2015 could affect the weather conditions in Eastern Australia. [6]

Reserve 1 mark for diagram.

Indicative Content:

- Shift in rainfall patterns in Eastern Australia – drier than usual
- Cool surface temperatures over water
- High pressure created
- Atmospheric stability
- little to no cloud formation

- (c)** Compare the tracks of Tropical Cyclones George and Yasi shown in Resource 5. [3]

Indicative Content:

- longer track
- difference in curvative
- areas in Australia affected by cyclones differ
- direction of movement differs

- (d)** Suggest strategies that could be used to minimise the effects of flooding arising from the tropical cyclone shown in Resource 6. [5]

Indicative Content:

Any of these strategies explained in detail would have been accepted:

- construction of embankments (levees)
- channel deepening and straightening

- use of gabions
- overflow or relief channels
- storage areas
- dam constructions
- prediction (ie using past events to indicate scale of threat)
- preventive planning
- adaption
- early warnings
- evacuation drills
- afforestation of watersheds
- contouring ploughing in the nearby river basin that may worsen floods

- (e) With reference to the resources provided and your own knowledge, how far do you agree that the ITCZ is primarily responsible to explain the climate of Cairns?

[9]

Indicative Content:

*As seen in (a), the climate of Cairns is one being generally high in temperature and rainfall, but fluctuating rainfall over the course of the year.*

Candidates will need to explain how the migration of the ITCZ helps in explaining the seasonality seen in Cairn's climate as shown in the climograph in Resource 3.

Candidates will need to recognise that there are other factors other than the ITCZ that are also responsible in explaining the climate of Cairns as seen in the resources provided. These factors include:

- ENSO (*as also highlighted in part (d)*)
- Winds and Monsoon
- Warm East Australian ocean current
- Tropical cyclones (as seen by Tropical Cyclone George and Yasi as some examples)
- Urbanization as seen in the town in Cairns featured in Resource 6

Higher level responses will consider the extent of impact that these factors may have on the overall climate of Cairns. The use of an evaluation criteria may be helpful in helping them decision which factor is primarily responsible.

*Levels marked using H2 generic level descriptors for open-ended 9m DRQ on Themes 1, 2 and 3.*

**C H2 Generic Level Descriptors for Open-Ended 9m DRQ on Themes 1, 2 and 3**

Level	Marks	Descriptors
3	7–9	<p>Response demonstrates a clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills and may include perceptive insights for the strongest responses. Source(s) is well used to support the response.</p> <ul style="list-style-type: none"> <li>Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Makes a decision which clearly addresses different elements of the issue and/or interest of different stakeholders</li> </ul>
2	4–6	<p>A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally appropriate to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response.</p> <ul style="list-style-type: none"> <li>Provides an evaluation, which may be limited in depth and sufficient elaboration in some parts.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed</li> </ul>
1	1–3	<p>Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited relevance to the question. Source(s) is not used or not accurately used to support the response.</p> <ul style="list-style-type: none"> <li>Provides little or no evaluation</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Evidence of decision-making, if present, is simple and may be flawed</li> </ul>
0	0	No creditworthy response.

**Note:**

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**SECTION C**  
**Theme 2: Development, Economy and Environment**

**Global Production Network of Semiconductors**

**3**

- (a)** Describe the changes in the pattern of network connections from 2000 to 2011 shown in Resource 7. [3]

Indicative Content:

- new connections established
- disconnections over time
- overall arrangement of the network
- the number of connections
- intensity of connections

- (b)** Identify the change in Mexico's profits in manufactured goods between 2000 and 2011 shown in Resource 7 and suggest reasons for this change. [6]

Award 1 mark for candidates that accurately identify the change in Mexico's profits in manufactured goods between 2000 and 2011.

Indicative Content:

Aspects to consider for the change identified above include:

- NIDL and the factors that led to its emergence
- Role of transnational corporations (TNCs)
- Role of the state – regulating economic activities; providing public services and goods; business owner and investor
- Influence of regional and international organisations (intra-regional trade organisations; global financial institutions; trade organisations)
- Involvement of non-state actors

- (c)** Describe the spatial distribution of the production circuit of the semiconductor shown in Resource 8. [3]

Indicative Content:

- Candidates must be able to see how Resource 8 links to the production and its components of:
  - Inputs
  - Transformation
  - Distribution
  - Consumption

- (d) With reference to Resources 8 and 9, explain how the organisation of the semiconductor industry has benefitted USA. [4]

Indicative Content:

- USA could be seen as both host and home economy
- Benefits that may be considered could be of socio-economic and environmental in nature.
- Could also consider stakeholders that may benefit in USA

- (e) With reference to the resources provided, how far do you agree that USA is the most dominant player in the global semiconductor industry? [9]

Indicative Content:

In such an evaluation question, there are no wrong answers. Candidates should combine their knowledge and understanding of the global economy with the evidence from the various resources to come to a decision on whether USA is the most dominant player in the global semiconductor industry.

They could construct an argument for or against USA based on:

- Value of activities
- Various functions of TNCs and their locations
- Scale of activities
- Competitiveness of TNCs
- Profitability of industry for countries
- Network connections
- Temporal considerations

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2	4–6	<p>A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally appropriate to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response.</p> <ul style="list-style-type: none"> <li>Provides an evaluation, which may be limited in depth and sufficient elaboration in some parts.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed</li> </ul>
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**SECTION D**  
**Theme 3: Sustainable Development**

**Issues of Urban Sustainability in Nairobi, Kenya**

**4**

- (a)** With reference to Resource 10, compare the changes in the urban area between 1950 and 2010. [4]

Indicative Content:

Comparisons could be made in terms of:

- Building type
- Building density
- Population numbers, population density
- Land use function

- (b)** State **three** ways in which Nairobi might be considered unsustainable using evidence from Resource 11. [3]

Indicative Content:

The three ways that Nairobi may be considered unsustainable could be derived from the three dimensions of unsustainability highlighted by the concept, which include:

- economic unsustainability
- social unsustainability
- environmental unsustainability.

Candidates will be required to draw these aspects out from Resource 11.

- (c)** With reference to Resource 11 and your own knowledge, account for the traffic conditions in Nairobi. [6]

Indicative Content:

Candidates may approach this question from thinking about these factors that may cause traffic congestion in Nairobi.

- Demographic situation, leading to overcrowding
- Political aspect – lack of planning and financial support
- Urban form and structure, leading to congestion during certain times of day
- Infrastructural considerations – shape of network

- (d) With reference to Resource 12, explain why Dandora may be an attractive location for slum settlements. [6]

Indicative Content:

- Need to consider location of slum being in the periphery of Nairobi; on unwanted and undesirable land
- Economic prospects of the area (factories; market)
- Transport convenience (roads, railway line)
- Low cost housing options
- Existence of infrastructure and amenities – electricity lines, sewage treatments, religious spaces (eg church; school; market)

- (e) With the aid of examples, suggest **three** reasons why the waste management strategy shown in Resource 12 is a poor solution to Nairobi's waste problems. [6]

Indicative Content:

Waste management strategy highlighted in the resource is a landfill / tip dump / rubbish dump / garbage dump / dumping ground – a site for the disposal of waste materials which may be left in piles.

The issues associated with this method that could be mentioned include:

- Groundwater pollution due to leachates
- Air pollution (from landfill gases produced)
- Loss of use of land for other functions (agriculture, housing, business use)
- Expensive process to ensure that the waste disposed does not lead to negative environmental impacts
- Flammability of waste disposed.
- Site for vectors