

## RVHS H2 GEOGRAPHY PAPER 2 PRELIMS 2018

1

- (a) Suggest a suitable research question for this investigation about infiltration rates. [1]

*Key criteria:*

1. clearly defined
2. capable of being researched
3. situated within manageable spatial and/or time scales

*Award 1m for any suitable research question. No marks if a hypothesis statement is given.*

*e.g. How do raingardens impact infiltration patterns in urban areas in the tropics?*

- (b) With reference to Resources 1 and 2, explain two potential risks associated with carrying out this geographical investigation and how the group might minimise each risk. [4]

*'Risk' is defined as the threats to welfare and danger to life for the investigators. In the context, these may include:*

- Dangers associated with traffic because of proximity to the roads
- The canal as a source of danger
- Weather related risks (thunder storms, high mid-day temperatures)

*Award 2m for each elaborated risk and proposal for precautionary measures*

- (c) Referring to Resource 2, explain how the students used the equipment to measure the infiltration rate at a data site. [5]

1. Operational steps to using the double-ring infiltrometer and explanation of rationale
  - a) Plunging infiltrometer up to limit of the ring lid
  - b) Filling the outer ring to prevent lateral diffusion of water
  - c) Filling up to a standardised level and noting the fall in water level on the ruled markings on the infiltrometer for a standardised time.
  - d) Refilling to the same level and repeating the measurement of water level fall in a standardised time (to maintain standardised pressure on the soil) for the number of times necessary
2. Precautionary principles (minimal disturbance of soil structure, timing and reading)
  - a) Taking care to clear the sample site of irrelevant debris like rocks and litter which might compromise readings
  - b) Minimising disturbance of soil structure by single, clean action of inserting the infiltrometer
  - c) Avoiding parallax error by ensuring perpendicularity of the infiltrometer

*Point Marked: Award max 3m for pure description of steps without rationale*

- (d) The students reflected that the findings might have been compromised by intervening factors. With reference to Resources 1, 2 and 3, discuss how the process of data collection could be improved. [7]

**Indicative content:**

*Intervening factors affecting accuracy / credibility of data:*

- 1) *Separation of data collection into 2 sittings compromises the comparability of the data collected. Ideal situation would have been collecting all data within the same sitting to ensure that relevant conditions like antecedent soil moisture are the same*
- 2) *random sampling might not have been the most suitable method for ensuring that the range of data collected is representative of the types of surfaces found along segments A and B respectively (many types of surfaces)*
- 3) *Difficulties of measuring in a planted bed*

*Suggestions for improvement:*

- *Improving sampling method (stratified)*
- *Improving data collection procedure (take at one sitting, postpone and repeat fieldwork)*

**Levels marked:**

Level	Marks	Descriptors
3	6-7	<ul style="list-style-type: none"> <li>○ <i>Response demonstrates accurate knowledge of criteria for accurate data collection methods, both of the use of the infiltrometer and the sampling technique, and critically evaluates the described process issues for both accuracy and/or reliability.</i></li> <li>○ <i>Recommendations are given for addressing the issues.</i></li> <li>○ <i>Reflects a good understanding of the context of the investigation by citing relevant information from the resources and preamble</i></li> </ul>
2	3-5	<ul style="list-style-type: none"> <li>○ <i>Response demonstrates good knowledge of data collection methods. Provides an explanation of issues relating to reliability and/or accuracy with some reference to possible improvements. Description may be limited in depth and detail or apply mostly to only one set of measurements</i></li> <li>○ <i>Brief mention is made of recommendations to address the issues</i></li> <li>○ <i>Some reference is made to relevant information from the resources and preamble.</i></li> </ul>
1	1-2	<ul style="list-style-type: none"> <li>○ <i>Response shows superficial knowledge of relevant data collection methods. Some reference is made to issues with accuracy and reliability but may recommend inappropriate or irrelevant improvements or provide incorrect explanation of methods.</i></li> <li>○ <i>Response may be of limited relevance to the given context. Little or no reference is made to resources.</i></li> </ul>

- (e)** Discuss the value of this geographical investigation and its potential contribution to the management of urban runoff in Bukit Batok. [8]

**Indicative content:**

*Value of the investigation is in validating the effectiveness of the raingarden as a SUDs (sustainable urban drainage system) strategy for managing pluvial flooding.*

*Findings of the investigation can be used by PUB to refine and improve on their plans or to extend their plans to the rest of the canal.*

*Evaluation of the limited scope of the findings and suggestions on further extensions of investigation (e.g. extending sample to different ground surfaces, investigation into canal discharge patterns, water testing for quality of raingarden effluents, longitudinal studies of infiltration rates)*

**Levels marked:**

Level	Marks	Descriptors
3	7-8	<p><i>Response demonstrates a clear knowledge and understanding of the context in the question.</i></p> <p><i>Uses relevant, detailed and accurate <u>factual information</u> and <u>conceptual understanding</u>.</i></p> <p><i>Reflects strong critical thinking skills and may include perceptive insights for the strongest responses. Source(s) is well used to support the response.</i></p> <ul style="list-style-type: none"> <li>○ <i>Provides a <u>logical and well-developed evaluation</u> well founded on evidence and/or different viewpoints.</i></li> </ul>

2	4-6	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 <u>lacks detail</u> and may <u>contain some inaccuracies</u> . Displays general critical thinking skills. Source(s) is used to support parts of the response. <ul style="list-style-type: none"> <li>○ Provides an evaluation, which may be limited in depth and sufficient elaboration in some parts.</li> </ul>
1	1-3	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. <ul style="list-style-type: none"> <li>○ Provides little or no evaluation</li> </ul>
0	0	No creditworthy response.

## Theme 1: Tropical Environments Tropical Climates

2

- (a) Compare the global pattern of atmospheric pressure in December with that in June as shown in Resource 4. [3]

*Award 1m for each comparison point with citation of example*

- Latitudinal shifts in high pressure and low pressure centres between December and June
- Inversion of high and low pressure
- Persistence but latitudinal shift of subpolar pressure centres.
- land-sea differences in shifts of pressure centres

- (b) With reference to Resource 5, explain the seasonal change in the earth's radiation balance. [4]

*Award 2m for stating key seasonal changes to zones of radiative surplus and deficit, and citing evidence from Resource 5*

*Award 2m for explanations of changes:*

- Seasonal shift of subsolar point due to tilt of the earth's axis in relation to plan of ecliptic.
- Seasonal shift of Hadley cell and ITCZ providing cloud cover
- Differences between hemispheres in terms of land-sea surface difference of albedo

- (c) Referring to Resources 4 and 5, discuss the extent to which atmospheric pressure may be attributed to solar heating. [7]

Indicative content:

- Solar heating affects atmospheric pressure through influence of the atmospheric temperature range and seasonality. Where the earth's surface receives more intense and prolonged solar heating, temperature profiles are generally high, and this in turn contributes to low atmospheric pressures due to thermal expansion, increased buoyancy and atmospheric instability due to convective uplift.
- This is supported by the correspondence between the latitudinal range of radiative surplus (a result of higher insolation) and lower atmospheric pressure shown in resources 4 and 5.
- However, atmospheric temperature is not merely governed by the amount of radiative input an area receives. Other factors affecting the ability of surfaces to trap or reflect heat, including albedo of glaciers and low level clouds affecting counterradiation
- Atmospheric pressure may be influenced by regional influences of temperature such as upwelling of cold currents.

Levels marked:

Level	Marks	Descriptors
3	6-7	Response adequately explains link between atmospheric pressure, temperature and solar heating. Evaluation is made of the relative importance of solar heating vis-à-vis regional factors. Located examples are raised from the resources or beyond for illustration to good effect
2	3-5	Response explains link between atmospheric pressure, temperature and solar heating. Other factors besides solar heating may be mentioned but may not be well elaborated and applied to the question (ie evaluated according to the question) Located examples are superficially mentioned
1	1-2	Response shows superficial knowledge of link between atmospheric pressure, temperature and solar heating. Little mention of other factors. Little or no reference to resources for examples.

- (d) Comment on the periodicity of El Niño events from 1950 to 2018 according to the Oceanic Niño Index in Resource 6. [3]

*Award 1m for each observation supported with cited detail from resource 6*

- *El Nino events have a wide range of periodicities:*
  - *Strong events have a longer periodicity*
  - *Moderate events have a shorter periodicity*
- *El Nino events generally alternate with La Nina*
  - *However, some periods have persistent El Nino or La Nina with slight perturbations*

- (e) With reference to Resources 6 and 7, discuss the validity of the notion that El Nino Southern Oscillation (ENSO) related events aggravate the impacts of climate change as much as they are affected by it. [8]

Indicative content:

- *El Nino Southern Oscillation (ENSO) events refer to departures from regional climatic patterns and phenomena associated with the expected Walker circulation patterns, such as exceptional high temperatures and rainfall in the western South America, and drought conditions in Indo-Australia.*
- *Resource 7 also shows worldwide climatic anomalies that may be associated via teleconnections with the moderate La Nina event as seen in Resource 6*
- *Climate change impacts range from generally higher temperatures, which are amplified regionally by positive feedback such as arid desiccation, to new extents of glacial retreat. However climate change impacts also include more extreme fluctuations of seasonal temperatures (polar vortex and heat waves).*
- *The response should discuss the extent to which the phenomena outlined in Resource 7 can be attributed to climate change and to the associated ENSO event*

Levels marked:

Level	Marks	Descriptors
3	7-8	Response demonstrates a clear knowledge and understanding of the context in the question. Uses <b>relevant, detailed and accurate</b> <u>factual information</u> and <u>conceptual understanding</u> . Reflects <b>strong critical thinking skills</b> and may include <b>perceptive insights</b> for the strongest responses. Source(s) is well used to support the response. <ul style="list-style-type: none"> <li>○ Provides a <u>logical and well-developed evaluation</u> well founded on <b>evidence</b> and/or <b>different viewpoints</b>.</li> </ul>
2	4-6	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 <u>lacks detail</u> and may <u>contain some inaccuracies</u> . Displays general critical thinking skills. Source(s) is used to support parts of the response.

		<ul style="list-style-type: none"> <li>Provides an evaluation, which may be limited in depth and sufficient elaboration in some parts.</li> </ul>
<b>1</b>	<b>1-3</b>	<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>
<b>0</b>	<b>0</b>	No creditworthy response.

## Theme 2: Development, Economy and Environment FDI, TNCs and GPNs

**3**

- (a)** Describe the changes in FDI shown in Resource 8. [3]

*Changes can be observed in the form of:*

- Increase in number of FDI
- Scale of FDI
- Spatial spread of sources of FDI

*Award 1m for any changes observed supported with evidence from Resource 8*

- (b)** Suggest reasons for the changes you have described in **(a)**. [5]

### Indicative content

- Acceleration of the process of globalisation and the NIDL
- Comparative advantages in manufacturing offered by China
- FDI policies and favourable investment climate offered by China

### Levels marked:

Level	Marks	Descriptors
3	5	<ul style="list-style-type: none"> <li>Response demonstrates a wide-ranging and comprehensive coverage of reasons for the changes described in (a).</li> <li>Substantiating example(s) are also well incorporated into response.</li> </ul>
2	3-4	<ul style="list-style-type: none"> <li>Response demonstrates a decent coverage of reasons for the changes described in (a) with the use of resources to support explanations.</li> <li>Explanations, however, may lack some depth or detail.</li> </ul>
1	1-2	<ul style="list-style-type: none"> <li>Response shows some to little knowledge of reasons for the changes described in (a).</li> <li>Response may be too generic and has limited reference to the Resources.</li> </ul>

- (c)** Using evidence from Resource 9, describe the characteristics of the industrial estate which make it an attractive location for foreign transnational corporations (TNCs). [4]

*Possible answers include:*

- Good road access and communication network
- Existence of environmental services like reservoir, water treatment plants, incineration plant and landfill for waste disposal

- Strong presence of other companies like Toyota and Isuzu
- Siting of the export processing zone, the IEAT office and Customs office, as well as the residential area
- Availability of open spaces surrounding the industrial estate

*Award 1m for any descriptions supported with evidence from Resource 9*

- (d)** Describe and suggest reasons for BMW's GPN as illustrated in Resource 10. [4]

*Possible answers include:*

- Geographical proximity
- Avoidance of import tariffs
- Historical ties to outsourcing locations
- Comparative advantages like cheaper rent and labour cost

*Award 1m for any valid description and explanation*

- (e)** Using Resources 8, 9 and 10, as well as your own knowledge, recommend whether BMW should consider changing its current GPN in favour of Asian countries like China and Thailand. Justify your answer. [9]

#### Indicative content

*In this decision-making question, there are no wrong answers.*

*Candidates should combine their knowledge and understanding of the global economy with the evidence provided in the resources to make a decision.*

*A case can be made for BMW to stick with its current GPN or pivot towards the Asian market.*

*Possible considerations include:*

- The current geo-political situations of the European Union.
- Market potential and trajectory of growth of the Asian countries including China and Thailand.
- The profit-maximising tendencies of TNCs like BMW.

*Marked by levels on the generic mark scheme.*

### **Theme 3: Sustainable Development Urban Reimaging in the UK**

**4**

- (a)** With reference to Resources 12 and 13, which urban area is considered more economically successful? Explain your answer. [4]

*Reading.*

*Possible responses:*

- Comparisons between the number of professionals, skilled trades, caring and leisure workers
- Comparisons between the percentage of economically active people in Reading and Middlesbrough

*Award 1m for each comparison/ explanation supported with evidence from Resources 12 and 13.*

- (b)** Using Resources 14, 15 and 16, which urban area might be more in need of urban reimaging? Explain your answer. [5]

### Indicative content

Middlesbrough.

Possible responses:

- The perceived industrial image of Middlesbrough
- Population decline in Middlesbrough
- Findings from the national well-being survey shown in Resource 16

Levels marked:

Level	Marks	Descriptors
3	5	<ul style="list-style-type: none"><li>○ Response demonstrates accurate knowledge and a good understanding of the concept of urban reimagining.</li><li>○ Good use of the resources with supporting data used to back up decision and explanation.</li><li>○ Response is clear and shows focussed and detailed comparison.</li></ul>
2	3-4	<ul style="list-style-type: none"><li>○ Response demonstrates decent knowledge and understanding of the concept of urban reimagining.</li><li>○ Use of resources present in response but lack accuracy.</li><li>○ Response may lack clarity, detail, and relevance to question.</li></ul>
1	1-2	<ul style="list-style-type: none"><li>○ Response shows limited understanding of the concept of urban reimagining.</li><li>○ Response lacks detail, clarity and focus on the question with limited use of the resources.</li></ul>

- (c) With reference to Resource 17, evaluate the strengths and limitations of such rebranding strategies.

[5]

### Indicative content

Possible strengths:

- Aesthetic appeal of the logos and slogans
- Eye catching and catchy

Possible Limitations:

- Over-exaggeration
- Unrepresentative stereotype

Levels marked:

Level	Marks	Descriptors
3	5	<ul style="list-style-type: none"><li>○ Response demonstrates accurate knowledge and a good understanding of the strengths and limitations of the rebranding strategies shown in Resource.</li><li>○ Good use of the resource to support discussions.</li><li>○ Response is clear and shows focussed and detailed evaluation.</li></ul>
2	3-4	<ul style="list-style-type: none"><li>○ Response demonstrates adequate knowledge and understanding of the strengths and limitations of the rebranding strategies.</li><li>○ Use of resource present in response but lack accuracy.</li><li>○ Response may lack clarity, detail, and relevance to question.</li></ul>
1	1-2	<ul style="list-style-type: none"><li>○ Response shows some knowledge and understanding of the strengths and limitations of the rebranding strategies.</li><li>○ Use of the resource is limited.</li><li>○ Response lacks detail, clarity and focus on the question.</li></ul>

- (d) Apart from what is shown in Resource 17, describe other strategies to improve the image of urban places. [3]

*Possible responses:*

- Advertising
- Hosting of major sporting or cultural events
- Improving of city infrastructure

- (e) Would urban reimagining necessarily improve the liveability of urban places? Discuss with reference to the resources and your own knowledge. [8]

**Indicative content**

*Response should exhibit a strong understanding of concepts of urban liveability and urban reimagining. Contextualised examples should also be included to substantiate arguments and references to the various resources should be made.*

*In short, whether an urban location is liveable or not is largely determined by the extent to which the place satisfies the physical and psychological needs and wants of its residents. Thus, urban reimagining efforts must take note of the above to meet the differing needs of the different social groups (original residents, newcomers, youths, the elderly, the disabled, etc) in the city.*

*Levels marked:*

Level	Marks	Descriptors
3	7-8	<ul style="list-style-type: none"> <li>○ Response demonstrates accurate and comprehensive knowledge of the links between the concepts of urban liveability and urban reimagining.</li> <li>○ Good use of the resources is shown to support arguments put forth.</li> <li>○ Substantiating example(s) are also well incorporated into response.</li> </ul>
2	4-6	<ul style="list-style-type: none"> <li>○ Response demonstrates some good knowledge of the concepts of urban liveability and urban reimagining.</li> <li>○ Explanations, however, may lack some depth or detail, and/or use of the resources.</li> </ul>
1	1-3	<ul style="list-style-type: none"> <li>○ Response shows some to little knowledge of the concepts of urban liveability and urban reimagining.</li> <li>○ Response may be too generic and has limited reference to the Resources.</li> </ul>