CEDAR GIRLS' SECONDARY SCHOOL
Preliminary Examination 2021
Secondary Four

HUMANITIES **2272/02**

Paper 2 Geography **14 September 2021**

INSERT **1 hour 40 minutes**

READ THESE INSTRUCTIONS FIRST

This Insert contains Table 2 for Question 2, Figs. 3, 4 and 5, Photograph A and Table 3 for Question 5, and Photograph B for Question 6.

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Table 2 for Question 2

Number of hotels and rooms on Bintan Island

Year	Hotel type *	Number of hotels	Number of rooms
2013	1 & 2 stars	25	510
	3 – 5 stars	10	1658
2015	1 & 2 stars	26	552
	3 – 5 stars	10	1674
2017	1 & 2 stars	15	350
	3 – 5 stars	27	2587
2019	1 & 2 stars	14	1029
	3 – 5 stars	26	2525

* 1 & 2 star hotels offer the basic necessities of a bed and bathroom in each room, with 2 star hotels offering limited amenities like a television, phone and closet. 3 – 5 star hotels are increasingly more stylish and comfortable, with a wider range of services and amenities like a fitness centre, a swimming pool, business services, on-site restaurants, room service, conference rooms and valet services.

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Photograph A for Question 5

Tsunami waves hitting Tohoku's coastline after an offshore earthquake took place

Fig. 3 for Question 5

Japan's coastal defence against a tsunami

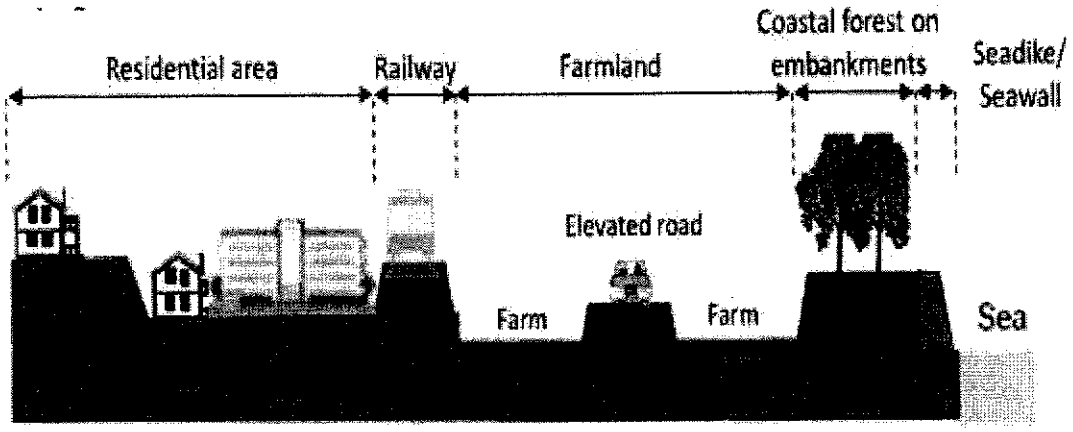

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Fig. 4 for Question 5

Road Trip Volcano Tour

Please keep in mind that the 2018 Kilauea eruption resulted in closures and changes in parts of the park.

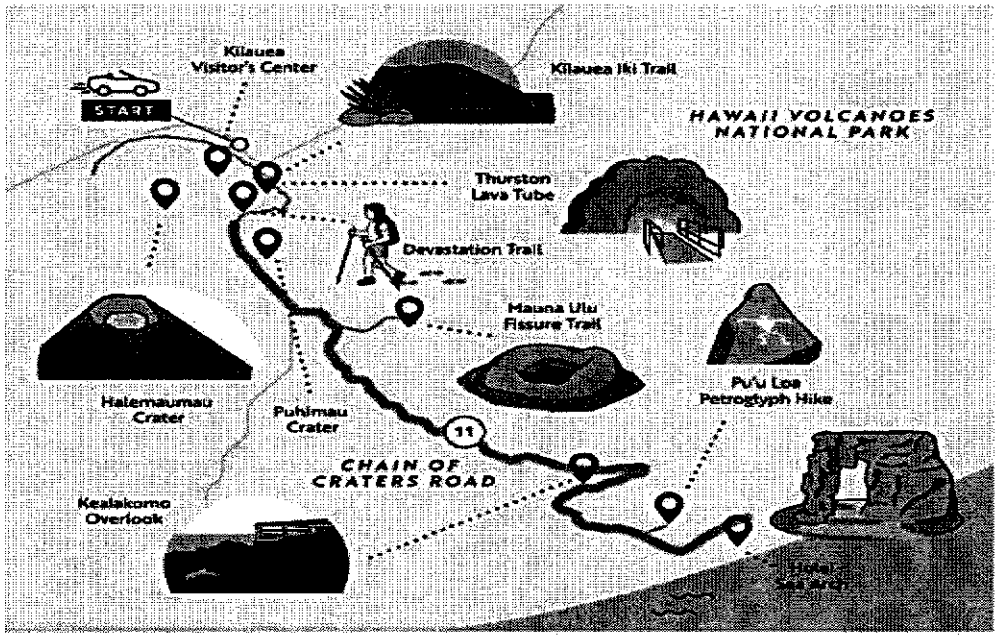

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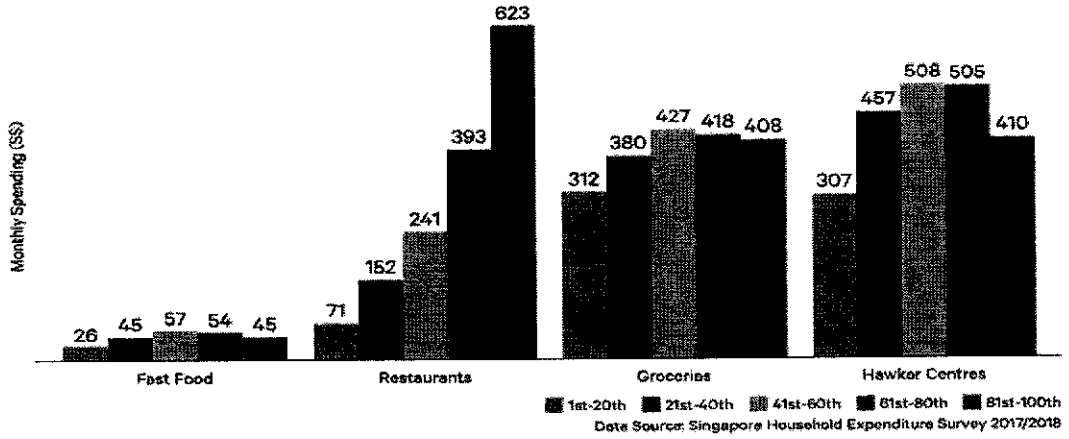
Table 3 for Question 5

Singapore households' total expenditure by income percentile

Household Expenditure by Income Percentile (S$)	1st to 20th	21st to 40th	41st to 60th	61st to 80th	81st to 100th
Total	2570	3753	4812	5826	7537
Food and Beverage (including services)	723	1059	1259	1406	1548
Home	1658	2334	3028	3735	4977
Shopping and Recreation	189	360	525	685	1012

Fig. 5 for Question 5

Singapore households' food and beverage expenditure (based on income percentile)



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Photograph B for Question 6

Implementation of an irrigation scheme during food production

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Preliminary Examination 2021
Secondary Four

HUMANITIES

2272/02

Paper 2 Geography

14 September 2021

1 hour 40 minutes

Additional Materials: Insert

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.

Section A
Answer **one** question.

Section B
Answer **one** question.

Section C
Answer **one** question.

Candidates should support their answers with the use of relevant examples.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.
The Insert contains Table 2 for Question 2, Figs. 3, 4 and 5, Photograph A and Table 3 for Question 5, and Photograph B for Question 6.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **8** printed pages and **1** Insert.

[Turn over

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Section A

Answer **one** question from this section.

1 Study Fig. 1, which shows weather graphs **W**, **X**, **Y** and **Z** that were drawn from information obtained at a school weather station over 7 days.

Weather graphs drawn from information obtained at a school weather station

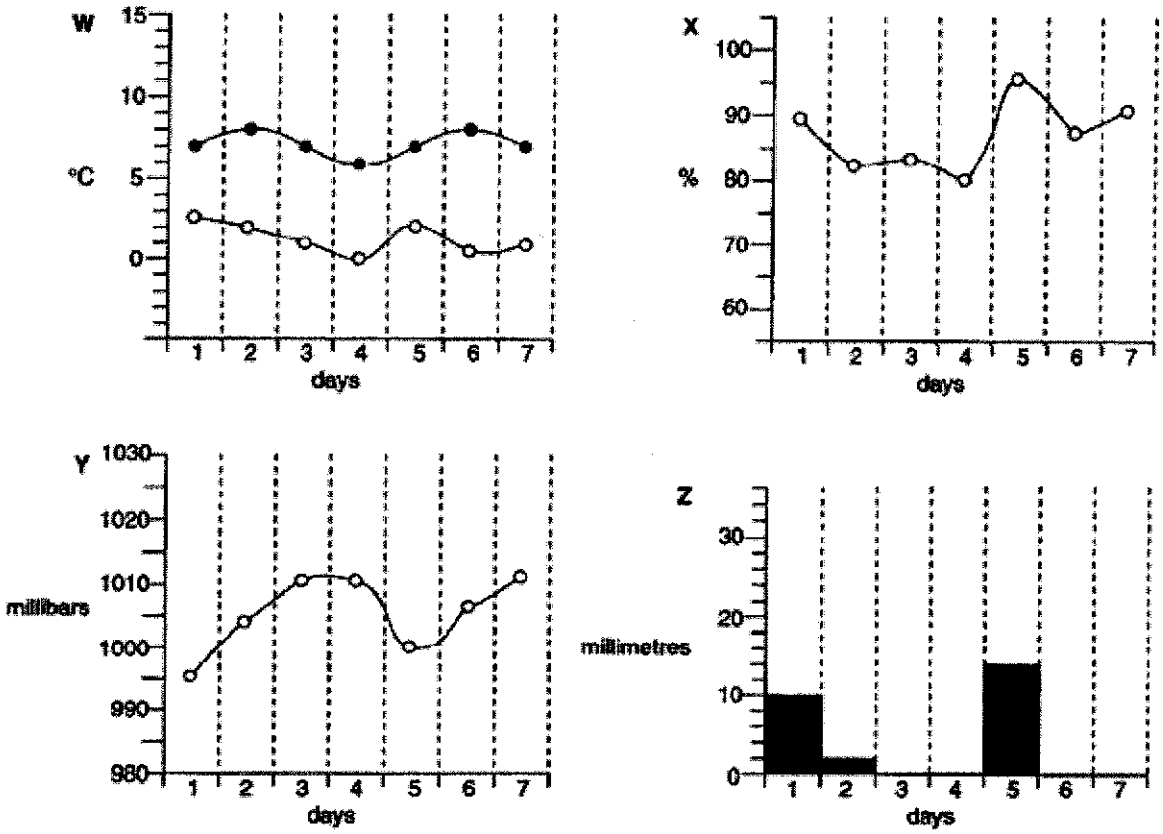

Fig. 1

(a) (i) Using information from **W**, identify the day with the largest diurnal range and state the diurnal range for that day. [2]

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(ii) Study Fig. 2, which shows the weather instrument used to obtain data in **W** (Fig. 1).

Weather instrument to obtain data in W

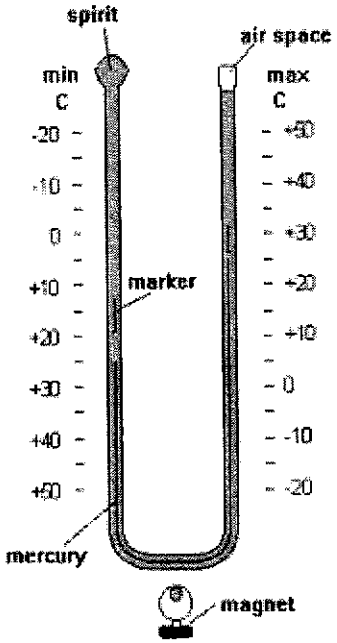

Fig. 2

Name the instrument shown in Fig. 2 and describe the steps to take measurements and read data from this instrument accurately. [4]

(b) Describe a suitable form of graphical representation for data from **X** and **Y** to form a conclusion on the relationship between these two weather elements. [3]

(c) Compare the weather elements between rainy days and clear weather days. Support your answer using data from Fig. 1. [4]

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2 Students wanted to investigate the impact of the tourism industry on the lives of people on Bintan Island, Indonesia.

(a) Study Table 1, which shows the employment structure of people of Bintan Island aged 15 years and above in 2011 and 2018.

Employment structure of Bintan Island

Sector	Employment (%)	
	2011	2018
primary	16	11
secondary	31	30
tertiary	53	59

Table 1

(i) Using information from Table 1, state the sector that experienced the greatest change and describe how it changed from 2011 to 2018. [2]

(ii) Describe a suitable graph to represent changes in the employment structure of Bintan Island shown in Table 1. [3]

(b) The students hypothesised that tourism development on Bintan Island led to changes in the employment structure shown in Table 1.

They wanted to survey locals aged 25 years and above to collect data.

(i) Justify their decision to survey locals aged 25 years and above. [2]

(ii) Suggest **one** question that should be included in their survey and account for your suggestion. [2]

(iii) Study Table 2 (Insert), which shows the number of hotels and rooms on Bintan Island from 2013 to 2019.

How far should the students accept their hypothesis? Use data from Tables 1 and 2 to support your answer. [4]

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Section B

Answer **one** question from this section.

3 **(a)** Use an example of cultivating a crop to illustrate how agriculture contributes to climate change. [4]

(b) 'Latitude has a greater influence on the temperature of locations than altitude.'

To what extent do you agree with this statement? Give examples to support your answer. [8]

4 **(a)** Use an example of a movie to illustrate how films induce travelling. [4]

(b) 'The social impacts are more compelling reasons to take action against climate change than the economic costs incurred.'

To what extent do you agree with this statement? Give examples to support your answer. [8]

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Section C

Answer **one** question from this section.

5 **(a)** Study Photograph A (Insert), which shows the impact of tsunami that hit Tohoku, Japan in 2011, and Fig. 3 (Insert), which shows an example of coastal defence against tsunami.

Use information from Photograph A and Fig. 3 to explain how the impacts of tsunami on a country can be minimised. [4]

(b) Study Fig. 4 (Insert), which shows an itinerary for visiting an active volcano in Hawaii.

Based on Fig. 4 and other information, explain why volcano tours are popular despite the dangers they pose. [4]

(c) Explain the social and economic effects caused by excessive food consumption. [5]

(d) Study Table 3 (Insert), which shows Singapore households' total expenditure by income percentile, and Fig. 5 (Insert), which shows the expenditure on food and beverage by the same households.

With reference to Table 3 and Fig. 5, describe the trends in food and beverage expenditure of Singapore households in relation to their income. [4]

(e) 'Variations in food consumption patterns between developed and less developed countries are mainly due to socio-cultural factors.'

Do you agree? Support your answer with examples. [8]

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6 (a) Study Fig. 6, which shows obesity in the USA.

Obesity in the USA

Fig. 6

With the help of Fig. 6 and your own knowledge, explain possible reasons for obesity and its potential risks to health. [4]

(b) Evaluate the impact agribusinesses have on food security. [5]

(c) Study Photograph B (Insert), which shows the implementation of an irrigation scheme during food production.

Identify the irrigation scheme shown in Photograph B and explain how it helps to increase food production. [4]

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(d) Study Fig. 7, which shows the factors leading to food security crisis in different parts of world in the 21st century.

Factors leading to food security crises in the world

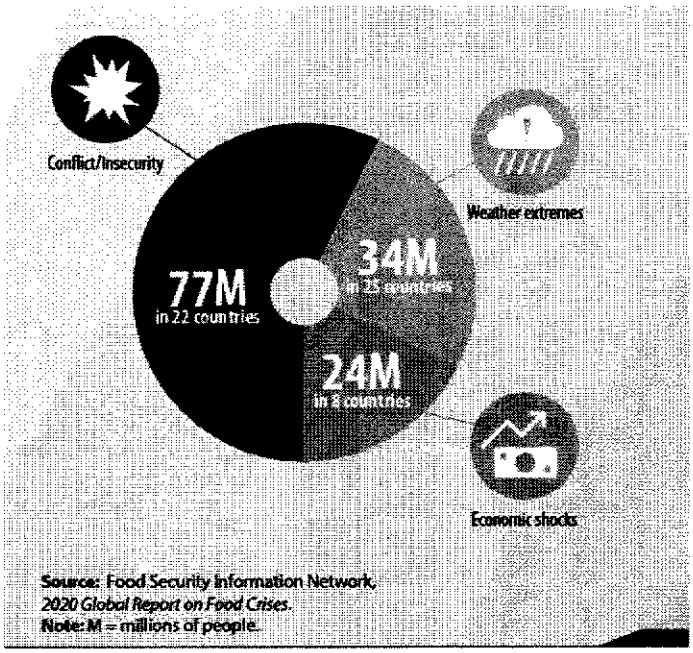

Fig. 7

Using details from Fig. 7, explain the reasons that led to food insecurity in different countries in the 21st century. [4]

(e) 'Government policies, not modern farming methods, play a more crucial role in solving the hunger problem faced by developing countries.'

How far do you agree with this statement? Support your answer with evidence. [8]

Copyright Acknowledgements:

Question 1	Figure 1	©	https://papers.xtremepape.rs/CAIE/IGCSE/Geography%20(0460)/0460_s02_qp_1.pdf
Question 1aii	Figure 2	©	https://docs.google.com/forms/viewform?bc=transparent&embedded=true&f=Arial%252C%2BVerdana%252C%2Bsans-serif&hl=en&htc=%2523666666&id=1YlX6OPnoyEmd0Cj8GF90k5NhOR1nsWxvcEzE3Y5p_Mo&lc=%2523c21d0c&pli=1&tc=%2523000000&ttl=0
Question 2a	Table 1	©	https://kepri.bps.go.id/indicator/6/501/1/percentage-of-working-population-by-business-field.html
Question 2biii	Table 2	©	https://kepri.bps.go.id/subject/16/pariwisata.html#subjekViewTab3
Question 5a	Photograph A & Figure 3	©	https://atquake.wordpress.com/2020/02/24/full-reverse/
Question 5b	Figure 4	©	https://www.shakaguide.com/planyourtrip/big-island/shaka-guides-hawaii-volcanoes-national-park-tour-itinerary
Question 5d	Table 3 & Figure 5	©	https://www.valuechampion.sg/average-household-budget-singapore
Question 6a	Figure 6	©	http://www.boylecartoon.co.uk/html/uk/statue.html
Question 6c	Photograph B	©	https://www.agrihousefoundation.com/2019/04/15/irrigated-agriculture-as-a-path-for-increased-food-production/
Question 6d	Figure 7	©	https://www.imf.org/external/pubs/ft/fandd/2020/09/images/picture2.jpg

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Preliminary Examination 2021
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HUMANITIES **2272/02**

Paper 2 Geography **14 September 2021**

1 hour 40 minutes

Additional Materials:

Suggested Answers & Mark Scheme

This document consists of **8** printed pages.

[Turn over

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1 (a) (i) Using information from **W**, identify the day with the largest diurnal range and state the diurnal range for that day. [2]

Award 1 mark for identifying day with largest diurnal range.
Award 1 mark for stating diurnal range.

- Day 6
- 7.5°C

1 (a) (ii) Name the instrument shown in Fig. 2 and describe the steps to take measurements and read data from this instrument accurately. [4]

Award 1 mark for naming instrument.
Award 1 mark for each valid description.

- Six's thermometer / Maximum-Minimum thermometer
- [Compulsory] reset both arms of thermometer by using the magnet to drag the markers to rest at the top of the mercury column
- after resetting, allow time for the markers to stabilise before taking readings
- look at thermometer at eye level to minimise parallax error
- compulsory: read temperature indicated by bottom of markers

1 (b) Describe a suitable form of graphical representation for data from **X** and **Y** to form a conclusion on the relationship between these two weather elements. [3]

Award 1 mark for suggesting suitable graphical representation; OR
Award 1 mark for each valid description of suitable graphical representation.

- [Optional] scatter graph with best fit line
- draw x-axis: relative humidity (%); y-axis: air pressure (millibars) *[Accept swop of axis]*
- on graph area, plot 7 corresponding pairs of RH and air pressure data read from graphs X and Y
- if applicable, draw a best fit line that cuts at least 3 pairs of data

1 (c) Compare the weather conditions between rainy days and clear weather days. Support your answer using data from Fig. 1. [4]

Award 1 mark for identifying rainy days and clear weather days.
Award 1 mark for each valid similarity supported by evidence, up to 2 marks.
Award 1 mark for each valid difference supported by evidence, up to 2 marks.

	Rainy days (Day 1, 2 & 5)	Clear weather days (Day 3, 4, 6 & 7)
Temperature	▪ no discernable difference, generally low temperature on all days: → maximum temperature of 8°C measured on both rainy day (Day 2) and clear weather days (Day 6)	
	▪ smaller temperature range → smallest diurnal range of 4.5°C is on days(Day 1 & 5)	▪ larger temperature range →with exception of Day 2, larger diurnal range of 6°C and highest daily range of 7.5°C are on clear weather days
Relative humidity	▪ generally higher → with the exception of Day 2, RH were highest on Day 1 (90%) and	▪ generally lower → 82 to 89%, with exception of Day 7 (90%)

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	Day 5 (96%) which were rainy days	
Air pressure	▪ generally lower → with exception of Day 2, air pressure were lowest on Day 1 (995mb) and Day 5 (1000mb)	▪ generally higher → 1005 to 1010mb

2 (a) (i) Using information from Table 1, state the sector that experienced the greatest change and describe how it changed from 2011 to 2018. [2]

Award 1 mark for identifying sector that experienced greatest change.
Award 1 mark for valid description of sector that experienced greatest change.

- tertiary
- increased by 6%

2 (a) (ii) Describe a suitable graph to represent changes in the employment structure of Bintan Island shown in Table 1. [3]

Award 1 mark for suggesting suitable graphical representation; OR
Award 1 mark for each valid description of suitable graphical representation, namely:
- *description of axis*
- *description of legend*
- *appearance of graph eg lines, bars*

- [Optional] comparative bar graph
- axis: x – sector; y – % employed
- plot the % employed against the sector. Each sector has 2 bars, with each bar representing each year
- include title and a legend to indicate the different year

- [Optional] compound line graph
- axis: x – year; y - % employed
- plot the % employed for each year. Each year has 3 lines, with each line representing each sector
- include title and a legend to indicate the different sectors

2 (b) (i) Justify their decision to survey locals aged 25 years and above. [2]

Award 1 mark for valid explanation.

- students' objective is to find out whether changes in employment sector from 2011 to 2018 as shown in Table 1 is due to tourism development
- hence to track changes between 2011 and 2018 as shown in Table 1, the youngest age would be 15 year olds at 2011, who would be 25 years old currently

2 (b) (ii) Suggest **one** question that should be included in their survey and account for your suggestion. [2]

Award 1 mark for valid question suggested, including mode of response.
Award 1 mark for valid explanation.

- Q: From 2011 until today, is your job related to the tourism industry?
  For 2011: ☐ Yes ☐ No

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For 2018: ☐ Yes ☐ No
For 2021: ☐ Yes ☐ No
→ students can find out whether respondents experienced any changes in employment since 2011 that is due to tourism developments on Bintan Island

2 (b) (iii) How far should the students accept their hypothesis? Use data from Tables 1 and 2 to support your answer. [4]

Award 1 mark for each valid explanation to accept hypothesis supported by evidence, up to 3 marks.
Award at least 1 mark for a valid explanation of why hypothesis is rejected.

- from Table 2, number of 3 – 5 star hotels on Bintan Island increased from 10 in 2013 to a peak of 27 in 2017, before dropping to 26 in 2019, resulting in number of rooms increasing from 1658 in 2013 to a peak of 2587 in 2017, before dropping to 2525 in 2019
- in contrast, the number of 1 & 2 star hotels on Bintan Island increased slightly from 25 in 2013 to 26 in 2015, before dropping progressively to 15, then 14 in 2017 and 2019 respectively. These led to corresponding changes in rooms which increased from 510 in 2013 to 552 in 2015, which then dropped to 350 in 2017, but rose to 1029 in 2019 despite the decreased number of hotels
- general increase in the number of hotels on Bintan Island, whether 3 – 5 stars or 1 & 2 stars, will generate more jobs in the hotel industry, ranging from chambermaids and front desk staff which are needed in all hotel types, to porters, chefs, wait staff, spa and entertainment workers who are needed to provide the wider range of services available in the 3 – 5 star hotels
  → hypothesis can be <u>accepted</u> as hotel industry is part of tertiary sector, increases in hotels and rooms generating more jobs would lead to increase in number/% of people on Bintan Island employed in the tertiary sector
- however, hypothesis <u>cannot be wholly accepted</u> as tertiary sector also consists of other service jobs that can be found beyond tourism sector eg accountant, banking

3 (a) Use an example of cultivating a crop to illustrate how agriculture contributes to climate change. [4]

Award 1 mark for a valid example of cultivating a crop.
Award 1 mark for each valid explanation of how cultivating the identified crop contributes to climate change.

- eg planting rice *[Accept any other valid crop named.]*
- clearing land of existing vegetation for cultivation leads to lesser trees to remove carbon dioxide from the atmosphere, which is a greenhouse gas
- clearing land of existing vegetation for cultivation releases carbon trapped in the soil into the atmosphere, which combines with oxygen to form carbon dioxide, a greenhouse gas
- wet rice cultivation releases methane into the atmosphere which is a greenhouse gas. Greater cultivation of rice due to increasing population releases even more methane which traps more heat in the atmosphere, leading to increased temperatures
- to increase productivity, farmers use machines like combined harvesters which run on fuel. Burning of fuel releases carbon dioxide into the atmosphere which traps more heat
- modern rice cultivation involves use of chemical fertilisers to increase soil fertility to maximise output. Chemical fertilisers are nitrogen-based, which when applied to crops, combine with oxygen to form nitrous oxide which is a greenhouse gas

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3 (b) 'Latitude has a greater influence on the temperature of locations than altitude.'

To what extent do you agree with this statement? Give examples to support your answer. [8]

Key Indicative Content:
- temperature of locations
- latitude
- altitude

L1 (0 – 3m)
At this level answers will be generalised with minimal support if any given at all. Reasoning rather weak and expression may be unclear. A basic answer that has little development. Answers lack examples or other evidence, or it is so sketchy that it adds little support to the answer.

L2 (4 – 6m)
Disagreement or agreement will be supported by appropriate detail. Or, both agreement and disagreement are considered but support is patchy so that the answer is not full. Good reasoning and logic in parts of the answer with good expression in place. Some examples or other evidence will be presented to support answer in at least one place in the answer.

L3 (7 – 8m)
At this level answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported, Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive.

4 (a) Use an example of a movie to illustrate how films induce travelling. [4]

Award 1 mark for a valid example of cultivating a movie.
Award 1 mark for each valid explanation of how the movie induces travelling.

- eg Lord of the Rings trilogy *[Accept any other valid movie.]*
- featured lush greenery and stunning landscape of New Zealand – nature-lovers attracted to visit and see these landscape personally
- movie sets of hobbits' village built in New Zealand are left intact even after movie shooting completed – fans of movie visit these sets to immerse themselves in actual movie sets and backdrops
- special effects, costumes and other movie artefacts still in studios that were purpose-built for shooting of movie – fans visit studios in New Zealand to try on these costumes or see special effects and how these work up close

4 (b) 'The social impacts are more compelling reasons to take action against climate change than the economic costs incurred.'

To what extent do you agree with this statement? Give examples to support your answer. [8]

Key Indicative Content:
- climate change
- social impacts of climate change eg spread of diseases, food shortage, loss of homes/ lives
- economic costs of climate change eg losses due to climate change, costs to combat effect (rising sea level)

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L1 (0 – 3m)
At this level answers will be generalised with minimal support if any given at all. Reasoning rather weak and expression may be unclear. A basic answer that has little development. Answers lack examples or other evidence, or it is so sketchy that it adds little support to the answer.

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L3 (7 – 8m)
At this level answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported, Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive.

5 (a) Use information from Photograph A and Fig. 3 to explain how the impacts of tsunami on a country can be minimised. [4]

Award 2 mark for each explanation that shows a problem and a solution.

- construct sea dykes/seawalls to ensure that the impact of the waves is minimised prior to reaching further inland. This prevents coastal properties such as houses and infrastructure such as roads, located parallel to the shore from being destroyed.
- densely populated areas are rezoned furthest away from the coast. As waves can travel long distances inland (as seen from the height of the waves) so by the time the waves reach inland, the level of destruction may not be as damaging.
- ensure that there are areas that are purposefully elevated such as embankments and transport infrastructure, as well as vegetation to absorb the force of waves and contain the additional amount of water from reaching inland. The elevation also serves as higher ground for residents seeking protection.

5 (b) Based on Fig. 4 and other information, explain why volcano tours are popular despite the dangers they pose. [4]

Award 1 mark for each valid explanation.

- awe-inspiring view of the volcano and hence a popular tourist site for visitors. Commonly offered by locals as it is a source of income and job opportunities eg tour guides, tour agencies
- tours offer different types of activities that allow people to enjoy nature in the form of landforms eg crater, and the nature activities eg hiking
- although the volcano erupted in 2018, measures could have been taken to ensure that the area is safe for human activities e.g. closures and changes in parts of the park that were severely affected by volcanic eruption / or such places could be an attraction (e.g. for visitors to see for themselves the ruins as a result of their eruptions)
- road tour of 4 – 6 hours allows fast and efficient travel
- mentality of visitors and locals that tours are safe as the frequency of volcanic eruptions are far and few
- mentality of visitors that tours are safe since they are still offered / sold

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5 (c) Explain the social and economic effects caused by excessive food consumption. [5]

Award 1 mark for each valid explanation on social effects, up to 3 marks.
Award 1 mark for each valid explanation on economic effects, up to 3 marks.

Social
- creates problem of food wastage where food that are still edible are thrown away every year in countries with excessive food for consumption
  → problem for society as it contributes to additional wastes that must be disposed of, putting a strain on landfills
- dieting is a common phenomenon because to lose the additional weight (to maintain a desired BMI) individuals go on diets to maintain an ideal weight by losing weight
- diseases related to dieting such as bulimia and anorexia can lead to other health implications (anemia) which worsens the individual's health, even causing death

Economic
- creates a systemic problem as resources used in the production of food such as water and electricity are wasted when they could be used for other purposes
- dieting provides employment and value to an economy and society since diet related books, medication, procedures and weight loss classes are created with this increasing demand

5 (d) With reference to Table 3 and Fig. 5, describe the trends in food and beverage expenditure of Singapore households in relation to their income. [4]

Award 1 mark for each valid description supported by evidence.
Award up to 2 marks for valid descriptions unsupported by evidence.

- on average, households in Singapore spent about S$1,199 per month on food, which represents 24% of their total monthly budget. However, lower percentile households spend a higher % on food than that of higher percentile household (e.g. bottom 20 spends 28% while top 20 spends about 20%)
- little or slight variation in grocery spending, around S$350 to S$475 per month - All households show lowest spending at fast food restaurants in relation to other food and beverage spending
- however, the top percentile households spent almost 8 times as much on dining out at restaurants than the bottom quintile households
- despite the spending differences in traditional sit-down restaurants, it seems most families all love eating at hawker centres equally, with the category consisting of about S$400 to S$500 per month for most income levels

5 (e) 'Variations in food consumption patterns between DCs and LDCs are mainly due to socio-cultural factors.'

Do you agree? Support your answer with examples. [8]

Key Indicative Content
- variations in food consumption patterns between DCs and LDCs
- agree: socio-cultural factors eg changing food preferences due to health concerns, world trends, globalisation such as strong presence of convenience food/ restaurants
- disagree: economic factors eg rising disposable income, rising prices

Level 1 (0 – 3m)

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At this level, answers are generalised or with minimal detail on the given factor. Examples may or may not be used to support points.

Level 2 (4 – 6m)
At this level, answers will contain some appropriate detail. The content includes both the given factor as well as other factors. There is some attempt at examples but may not be complete for each attempted factor.

Level 3 (7 – 8m)
At this level, answers will be comprehensive and supported by sound knowledge. Examples are provided for each factor, fully supported. There is a good attempt at a conclusion, identifying the main cause leading to the variation between countries.

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