

METHODIST GIRLS' SCHOOL

Founded in 1887



PRELIMINARY EXAMINATION 2026

Secondary 4

GEOGRAPHY

Paper 1

Friday
21 August 2026

2279/01
1 hour 45 minutes

MARK SCHEME

Answer **all** questions.

1 Cluster 1: Geography in Everyday Life

A group of students carried out fieldwork at Mount Bromo National Park, Indonesia. Mount Bromo is an active volcano that attracts many tourists each year. The students were concerned that increasing tourist numbers may damage the fragile volcanic environment.

The students tested the following hypothesis: 'The environmental quality of viewpoints at Mount Bromo decreases as the number of tourists increases.'

Study Fig. 1.1 (Insert), which shows the tourist area around Mount Bromo.

- (a) The students decided to carry out a visitor survey on the environmental quality of Bromo National Park at the six viewpoints shown in Fig. 1.1.
- (i) With reference to Fig. 1.1, explain how the students could sample tourists at the viewpoints to collect the data needed to test their hypothesis. [4]

Award 1 mark for each explanation, to a maximum of 4 marks.

Award a maximum of 1 additional mark for further development of each explanation where applicable.

- Many did not explain how to use sampling methods
- Convenience sampling – why?
- Stratified sampling – relevance of age/gender to the hypothesis?
- Many did not explain the reason for using a particular sampling method
- “go to different viewpoints” – which?

Possible responses include:

- Students could collect data at all six viewpoints shown in the figure [1]. This allows students to make comparisons between different viewpoints [1 additional mark].
- Students could use simple random sampling as it is used to remove bias that could stem from the selection of visitors [1].
- Students can collect data from 10 visitors at each viewpoint by using a random number table to select the visitors [1]. Surveying an equal number of people allows for a fair comparison across viewpoints [1].

AO2

- (ii) With reference to Fig. 1.1, state **three** questions and response options which the students could use for a closed-ended survey to test the hypothesis. [3]

Award 1 mark for each suitable question with response options.

- Max. 1m for answers with no response options
- “Where is this viewpoint?” A, B, C, D, E, F
- Open vs closed-ended questions
- On a scale of 1-5, how dirty is this viewpoint? 1: Very dirty, 5: Not dirty

Possible responses include:

Question: On a scale of 1-5, how would you rate the overall environmental quality at this viewpoint?

□ 1 – very good

- ☐ 2 – good
- ☐ 3 – average
- ☐ 4 – poor
- ☐ 5 – very poor

Question: How much litter did you observe at this viewpoint?

- ☐ None
- ☐ A little
- ☐ Quite a lot
- ☐ A lot

Question: On a scale of 1 to 5, how crowded is this viewpoint?

- ☐ 1 – very crowded
- ☐ 2 – crowded
- ☐ 3 – moderately crowded
- ☐ 4 – slightly crowded
- ☐ 5 – not crowded at all

AO1

- (iii) Suggest how the students could improve the reliability of the fieldwork. [4]

Award 1 mark for each suggestion.

Award 1 additional mark for further development.

- Some wrote about using random sampling to increase reliability ☐ This should be the default method!
- Stratified sampling – how is this relevant to hypothesis / area of investigation?
- “Use stratified sampling to increase sample size”

Possible responses include:

- Students could take photographs of the environment at each viewpoint [1]. These photographs can be used later to verify the visitors’ responses about the environmental quality of the viewpoint [1 additional mark].
- Students could repeat the investigation on weekdays and weekends [1]. This makes the findings more representative of visitor patterns [1 additional mark].
- Students can increase the sample size [1]. With a larger sample size, this will increase the reliability of responses [1].

AO1

- (b) The students also assessed the environmental quality at each viewpoint using environmental characteristics shown in Table 1.1.

Table 1.1

Environmental quality characteristics

Characteristic
Amount of litter
Vegetation cover
Evidence of soil erosion
Evidence of trampling
Overall environmental quality

The students then counted the number of tourists who stopped at each viewpoint over a 20-minute period as shown in Table 1.2.

Table 1.2
Environmental quality score and number of tourists at each viewpoint

Viewpoint	Environmental Quality Score	Number of tourists
A	-5	168
B	-2	136
C	4	118
D	8	28
E	1	105
F	7	46

**A higher score indicates better environmental quality.*

- (i) Study Fig. 1.2, which shows the relationship between the environmental quality score and the number of tourists at the six viewpoints.

Using Table 1.2 and Fig. 1.2, complete the graph on Fig. 1.2 and draw a best-fit line.

1m for E

1m for F

1m for best fit line

- Some completely missed this question
- Some did not label E and F
- Keep graph clean with relevant points/lines only

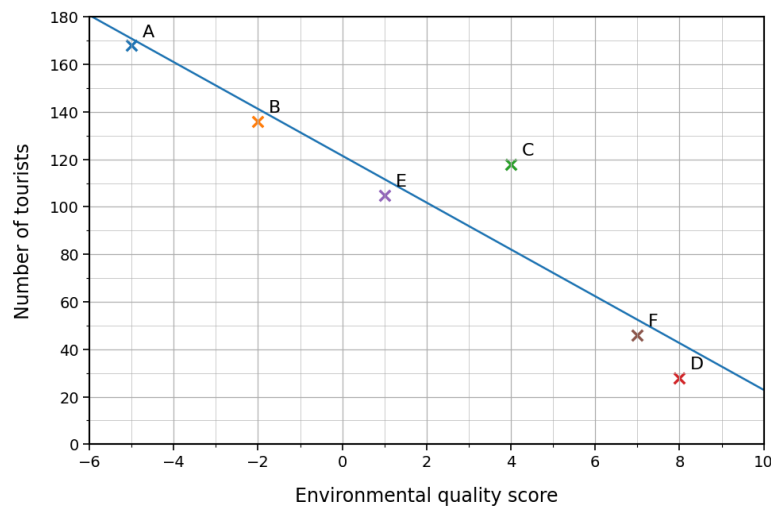


Fig. 1.2

AO2

- (ii) Study Fig. 1.3 (Insert), which shows photographs of Viewpoint A and Viewpoint D.

Using Figs. 1.2 and 1.3, evaluate how well the data supports the students' hypothesis. [6]

Award 1 mark for each evaluation on how well the data supports the hypothesis, to a maximum of 6 marks.

Award a maximum of 1 additional mark for further development of each evaluation, where applicable.

- “The hypothesis is valid”
- Some responses described data in Figures without explaining how the data supports / does not support hypothesis

Possible responses include:

Support:

- The data supports the students' hypothesis because as the environmental quality score increases, the number of tourists decreases [1]. For example, Viewpoint A has the lowest environmental quality score (-5) and the highest number of tourists (168), while Viewpoint D has the highest environmental quality score (8) and the lowest number of tourists (28) [1 additional mark].
- The photographs in Fig. 1.3 support the hypothesis [1]. Fig. 1.3 shows that Viewpoint A is crowded with a lot of littering and land pollution, whereas Viewpoint D has fewer tourists and healthier vegetation with little evidence of environmental damage [1 additional mark].

Don't support:

- However, the hypothesis is not completely supported because Viewpoint C is an anomaly. [1]
- Although it has a relatively high environmental quality score of 4, it still has 118 tourists, which is more than expected based on the overall trend. This suggests that other factors besides tourist numbers that may affect environmental quality [1 additional mark].

AO3

[Total: 20]

2 Cluster 2: Tourism

(a) Study Fig. 2.1 (Insert), which shows tourism expenditure by different groups of visitors in Kyoto, Japan in 2019.

(i) Using Fig. 2.1, describe the trend in tourism expenditure in 2019. [3]

Award 1 mark for each valid description, to a maximum of 3 marks.

Possible responses include:

- Foreign overnight visitors had the highest total tourism expenditure of 60991yen [1]
- Domestic day visitors had the lowest total tourism expenditure of 11054yen [1]
- Overnight visitors spent more than day visitors for both domestic and foreign visitors, 115961yen vs 30820yen [1]
- Accommodation was the largest expenditure category for overnight visitors of 40845yen [1].
- Shopping was the largest expenditure category for foreign day visitors of 17469yen [1].
- Foreign visitors generally spent more than domestic visitors, 80757yen vs 66024yen [1].

AO2

(ii) With reference to Fig. 2.1, explain how ability and mobility have contributed to the growth of tourism. [3]

Award 1 mark for each suggestion, to a maximum of 2 marks.

Award a maximum of 1 additional mark for further development of each suggestion where applicable.

Possible responses include:

- Higher disposable incomes enable more people to afford holidays [1]. This increases tourism expenditure on accommodation, shopping and food shown in Fig. 2.1 [1 additional mark].
- More leisure time allows people to travel more frequently or stay for longer [1]. This increases tourism expenditure, particularly by overnight visitors [1 additional mark].
- Improvements in transport, such as better air and rail networks, make destinations easier to reach [1]. This encourages more people to travel and increases tourism expenditure [1 additional mark].
- Budget airlines reduce the cost of travelling [1]. This makes travel more affordable and encourages more people to visit destinations [1 additional mark].
- Online booking platforms make it easier for tourists to plan and book their trips [1]. This encourages more people to travel, contributing to tourism growth [1 additional mark].

AO1

- (b) 'Destinations gain more than they lose from tourism development.'

How far do you agree with this statement? Explain your answer. [9]

Relevant content

Positive impacts of tourism:

- creates employment opportunities and generates income for local people
- contributes to government revenue through taxes and tourist spending
- stimulates the growth of businesses and infrastructure
- encourages the conservation and restoration of natural and cultural attractions
- promotes cultural exchange and understanding between tourists and local communities
-

Negative impacts of tourism:

- overcrowding and congestion at tourist attractions
- increased pollution, litter and environmental degradation
- damage to natural habitats and heritage sites
- rising cost of living and housing prices for local residents
- commercialisation or loss of local culture
- overdependence on tourism, making destinations vulnerable to external shocks such as pandemics or economic recessions

A possible approach

The answer makes a clear judgement on whether tourism development brings greater benefits than costs to destinations, with reference to examples and/or case studies. The answer could first explain how tourism contributes to economic development by creating employment, generating income for businesses and governments, and improving infrastructure. An example could be tourism accounted for 330 million jobs worldwide in 2019. It could also discuss how tourism supports the conservation of natural and cultural attractions and promotes cultural exchange. The answer could then consider the negative impacts of tourism, such as overcrowding, congestion, environmental degradation, increased cost of living and the loss of local culture. An example could be how the totem poles in Canada have been commodified and made as souvenirs for tourists to purchase.

The evaluation should weigh the arguments discussed before arriving at a reasoned conclusion.

Sample conclusion:

Overall, I agree to some extent that destinations gain more than they lose from tourism development. Although tourism creates employment, generates income and supports the conservation of attractions, these benefits may not be sustainable if tourism is poorly managed. In destinations experiencing overtourism, environmental degradation and social problems can outweigh the economic gains. Therefore, destinations are more likely to benefit from tourism only when effective management strategies are implemented to balance economic growth with the protection of local communities and the environment.

AO3

(DL Competency: Critical Thinking: Evaluation information and arguments)

Level	Marks	Generic Level Descriptors for 9-Mark AO3 Question
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4 (Accelerating)	7 - 9	Develops arguments that supports both sides of the discussion clearly using a range of points with good elaboration. Examples used demonstrate a comprehensive understanding of the issue or phenomenon. Evaluation is derived from a well-reasoned consideration of the arguments.
3 (Developing)	4 - 6	Develops arguments that support one side of the discussion well using one or two points with some elaboration. Example(s) used demonstrate a good understanding of the issue or phenomenon. Evaluation is well supported by arguments.
2 (Emerging)	1 - 3	Arguments are unclear with limited description or may be listed. No examples provided or examples are generic, demonstrating a basic understanding of the issue or phenomenon. Evaluation is simple, missing or unclear.
1 (Limited Evidence)	0	No creditworthy response

[Total: 15]

3 Cluster 3: Climate

- (a) Study Figs. 3.1 and 3.2 (Insert), which show the climographs of Alice Springs and Rockhampton in Australia.
- (i) Using Figs. 3.1 and 3.2, compare the temperature patterns in Alice Springs and Rockhampton. [3]

Award 1 mark for each valid comparison, to a maximum of 3 marks.

Possible responses include:

- Both have similar moderate mean annual temperatures of 22.1°C. [1]
- Alice Springs has a larger annual temperature range than Rockhampton, 18°C vs 9°C [1]
- Both locations experience their highest temperatures during December to February and lowest temperatures during June to August [1]

AO2

- (ii) Study Fig. 3.3 (Insert), which shows a map of Australia.

With reference to Figs. 3.1, 3.2 and 3.3, account for the difference in temperatures in Alice Springs and Rockhampton. [4]

Award 1 mark for each explanation, to a maximum of 2 marks.

Award a maximum of 1 additional mark for further development of each explanation where applicable.

Possible responses include:

- Rockhampton is located near the coast. The sea heats up and cools down more slowly than land, moderating temperatures throughout the year [1]
- During winter, the sea is warmer than the land, warming the air along the coastal area and hence temperatures are warmer. [1 additional mark].
- Alice Springs is located further inland. Land heats up and cools down more quickly than the sea, resulting in greater temperature extremes [1]
- Alice Springs is less affected by the moderating influence of the sea and instead experience the continental effect [1]
- As a result, temperatures are generally higher in summer and lower in winter [1 additional mark].

AO2

- (b) Study Fig 3.4 (Insert), which shows information on the effect of Australian bushfires on local communities.

With reference to Fig. 3.4, explain why some communities are at higher risk of experiencing bushfires than others. [3]

Award 1 mark for each explanation, to a maximum of 2 marks.

Award a maximum of 1 additional mark for further development of each explanation where applicable.

Possible responses include:

- **Nature of Hazard:** Bushfires are short-term events, which usually occurs suddenly [1]. This is a higher risk for communities as it often leads to widespread destruction of properties and loss of lives [1 additional mark].
- **Exposure:** Some communities are located close to forests or bushland [1]. They are more likely to be affected when bushfires spread [1 additional mark].
- **Exposure:** Communities located within or near areas of dense vegetation are more exposed [1]. Dry vegetation provides fuel that allows bushfires to spread rapidly [1 additional mark].
- **Vulnerability:** Communities in hot, dry regions are more exposed [1]. High temperatures and low rainfall increase the likelihood and intensity of bushfires [1 additional mark].

AO2

- (c) Explain how mitigation and adaptation strategies can help build community resilience to climate change. [5]

Award 1 mark for each explanation, to a maximum of 3 marks.

Award a maximum of 1 additional mark for further development of each explanation where applicable.

Possible responses include:

Mitigation

- Switching to renewable energy reduces greenhouse gas emissions [1]. This slows the rate of climate change by reducing the amount of carbon dioxide released into the atmosphere [1 additional mark].
- E.g. COP 2015 had a legally binding treaty and was adopted by 191 countries. [1 additional mark].
- Use of low carbon technologies [1]. This lowers greenhouse gas emissions from burning fossil fuels [1 additional mark].
- E.g. In 2020, Singapore set aside \$49 million to fund low-carbon energy research

Adaptation

- Sea walls and polders reduce the impact of coastal flooding [1]. They protect people and property from rising sea levels and storm surges [1 additional mark].
- E.g. Seawalls in ECP protect the coastlines in Singapore. [1 additional mark].
- Drought-resistant crops help maintain food production during periods of low rainfall [1]. Using technology to help in food security [1]. Ensuring the technology allow for high-quality food, which can also help communities to remain food secure despite changing climatic conditions. [1 additional mark].
- E.g. Singapore's "30 by 30" plan aims to increase local food supply to account for 30% of residents' needs by 2030. [1 additional mark].

AO1

[Total: 15]

Table of Specifications

Question	AO1	AO2	AO3
1(a)(i)		4	
1(a)(ii)	3		
1(a)(iii)	4		
1(b)(i)		3	
1(b)(ii)			6
2(a)(i)		3	
2(a)(ii)	3		
2(b)			9
3(a)(i)		3	
3(a)(ii)		4	
3(b)		3	
3(c)	5		
TOTAL	15	20	15