



CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION

HUMAN AND SOCIAL BIOLOGY

Paper 032 – General Proficiency

ALTERNATIVE TO SCHOOL-BASED ASSESSMENT

1 hour 15 minutes

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of a case study and FOURTEEN related questions.
2. Answer ALL questions.
3. Write your answers in the spaces provided in this booklet.
4. Do NOT write in the margins.
5. If you need to rewrite any answer and there is not enough space to do so on the original page, you must use the extra lined page(s) provided at the back of this booklet. **Remember to draw a line through your original answer.**
6. **If you use the extra page(s) you MUST write the question number clearly in the box provided at the top of the extra page(s) and, where relevant, include the question part beside the answer.**

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

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INSTRUCTIONS: The following case study contains information for a research project. Read the case and answer the questions that follow each section.

CASE STUDY

Background

The eruption of Mount Soufrière in St Vincent caused ashfall on the island and on the neighbouring island of Barbados. This prompted the Government of Barbados to issue a directive to residents not to leave their homes unless absolutely necessary. The government advised that if residents had to go outside, they should take measures to protect themselves. Harold, a secondary school student who lives in Barbados, learns through social media that his classmates were negatively affected by the ashfall in a number of ways. Being curious, he decided to conduct an online survey, using a questionnaire, on the effects of volcanic ash on the health of 25 of his classmates. In addition, he did an internet search on the long-term effects of volcanic ash on humans.

1. Write a suitable statement of the problem.

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(2 marks)

2. State the aim of the investigation.

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(2 marks)

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Methodology

3. Identify the sample that was used by Harold in conducting his research.

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(1 mark)

4. State TWO other ways in which Harold could have collected the data.

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(2 marks)

5. Suggest THREE questions Harold may have asked his classmates in the collection of his data.

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(3 marks)

6. State TWO limitations of Harold's research.

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(2 marks)

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Presentation of Data

Harold recorded the findings of his survey in Table 1.

TABLE 1: TABLE SHOWING THE FREQUENCY OF SYMPTOMS EXPERIENCED BY HAROLD'S CLASSMATES

Symptom	Number of Students Experiencing Symptom
Loss of voice	7
Nasal congestion	5
Coughing	20
Sneezing	11
Runny nose	9
Itchy eyes	12
Bloodshot eyes	3
Skin irritation	9
No effect	4

7. Use the data in Table 1 to complete Column 2 of Table 2 by inserting the frequency for EACH part of the body affected by volcanic ash.

TABLE 2: PARTS OF THE BODY AFFECTED BY VOLCANIC ASH

Part of the Body Affected by Volcanic Ash	Frequency
Eyes	
Nose	
Throat	
Skin	

(4 marks)

8. On the grid provided on page 7, use a scale of 2 cm to represent 5 units to draw a bar chart showing the information in Table 2. Include a suitable title for the graph. (7 marks)

9. State ONE other way in which the data could be presented.

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(1 mark)

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Analysis and Interpretation of Data

10. From your graph, identify

(a) the part of the body which was MOST affected by the volcanic ash

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(1 mark)

(b) the part of the body which was LEAST affected by the volcanic ash.

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(1 mark)

11. Based on the data obtained, list THREE ways in which individuals could have protected themselves while going outdoors.

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(3 marks)

12. Six structures of the respiratory system are listed below.

Alveoli Pharynx Bronchus Nasal passage Larynx Bronchiole

Arrange the structures in the order in which the ash would have passed through when it was inhaled. The first and last structures have been inserted for you.

Nasal passage → (a) → (b) → (c) → (d) → alveoli

(a).....
(b).....
(c).....
(d).....
(4 marks)



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Recommendations and Conclusion

13. (a) Volcanic ash is abrasive in nature. Discuss how inhaling volcanic ash could affect the functioning of the alveoli.

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(4 marks)

- (b) The eruption of a volcano is a natural phenomenon in which small amounts of carbon monoxide are emitted. Explain how the inhalation of carbon monoxide could result in death.

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(2 marks)

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14. State ONE conclusion that can be drawn from the research.

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(1 mark)

Total 40 marks

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.



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