

FORM TP 02025015



TEST CODE **01253032**

JANUARY 2025

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

622

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.**

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

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622

NOTHING HAS BEEN OMITTED.

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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

Kendrick's older sister Donna is expecting a baby. He overheard their mother tell Donna that babies who are breastfed thrive better than those who are fed with formula milk. Kendrick decided to investigate the nutritional content of breast milk and formula milk. He gathered his data by reading the nutritional facts label of a brand of formula milk and researching the nutritional contents of breast milk. Kendrick also interviewed two maternity nurses and a pediatrician to obtain their opinions about the benefits of breast milk versus those of formula milk.

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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5. State THREE limitations of Kendrick's research.

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(3 marks)

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Presentation of Data

Kendrick recorded the findings about the nutritional value of breast milk and formula milk in Table 1 and Table 2.

TABLE 1: MICRONUTRIENTS IN BREAST MILK AND FORMULA MILK

Micronutrient	Breast Milk (mg/100 mL)	Formula Milk (mg/100 mL)
Calcium	35	46
Sodium	15	16
Vitamin C	4	9
Iron	1	3

TABLE 2: MACRONUTRIENTS IN BREAST MILK AND FORMULA MILK

Macronutrient	Breast Milk (mg/100 mL)	Formula Milk (mg/100 mL)
Protein	1.1	2.5
Fat	4.5	2.6
Carbohydrate	5.8	8.2

Kendrick also recorded the following responses from the interviews conducted with the nurses and pediatrician.

- There are economic savings to breastfeeding.
 - Breast milk contains antibodies, hormones, enzymes, beneficial bacteria and white blood cells which are absent in formula milk.
 - Breast milk is always at the right temperature.
 - Breastfeeding creates a bond between the mother and the baby.
6. On the grid provided on page 9, using a scale of 2 cm to represent 10 mg/100 mL, draw a bar chart to represent the data in Table 1. Include a suitable title for the graph. (8 marks)

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7. State ONE other way in which the data could have been presented.

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(1 mark)

Analysis and Interpretation of Data

8. From your graph or otherwise, determine

(a) the micronutrient which is present in the GREATEST amount in both types of milk.

.....
(1 mark)

(b) the micronutrient which is present in the LEAST amount in both types of milk.

.....
(1 mark)

(c) the micronutrient which is in similar proportions in both types of milk.

.....
(1 mark)

9. Based on the data in **Table 2 on page 8,**

(a) state which type of milk is **more likely** to result in weight gain in babies. Give ONE reason for your response.

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(2 marks)

(b) identify the macronutrient which is present in the GREATEST amount in breast milk.

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(1 mark)

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10. Identify TWO components in breast milk which will improve babies' immunity.

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(2 marks)

11. Describe the type of immunity that is passed from mother to baby.

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(2 marks)

12. Lipase is an enzyme found in breast milk. Identify the macronutrient that this enzyme breaks down.

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(1 mark)

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

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(1 mark)

Total 40 marks

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END OF TEST

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

