



**CARIBBEAN EXAMINATIONS COUNCIL**

**CARIBBEAN SECONDARY EDUCATION CERTIFICATE®  
EXAMINATION**

**HUMAN AND SOCIAL BIOLOGY**

**Paper 02 – General Proficiency**

*2 hours*

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This paper consists of SIX questions in TWO sections.
2. Answer ALL questions.
3. Do NOT write in the margins.
4. Write your answers in the spaces provided in this booklet.
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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**SECTION A**

**Answer ALL questions in this section.**

1. (a) A balanced diet assists in reducing the incidence of diseases.

(i) Define the term 'balanced diet'.

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**(2 marks)**

(ii) State TWO nutrients, **other than water**, that must be included in the diet for it to be balanced.

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**(2 marks)**

(b) Water can be used as a solvent. State ONE **other** function of water.

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**(1 mark)**

(c) Constipation often occurs as a result of an insufficient intake of water in one's diet. Name ONE **other** important component of the diet that is necessary to prevent constipation.

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**(1 mark)**



(d) Table 1 shows the body mass (in kg) and height (in m) of four males.

**TABLE 1: BODY MASS AND HEIGHT OF FOUR MALES**

Person	Body Mass (kg)	Height (m)	Body Mass Index (BMI)	Category
Roger	65	1.55	27.1	Overweight
John	80	1.80		
Peter	200	1.90		
Stephen	45	1.62		

(i) Calculate the body mass index (BMI) of EACH male and state the category to which EACH individual belongs. The first row has been done for you. **Write your response in Table 1 and show your working in the space below.**

**(3 marks)**

(ii) Which of the four males would be MOST at risk for developing cardiovascular diseases?

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**(1 mark)**

(iii) Which male, though not obese, would be considered unhealthy?

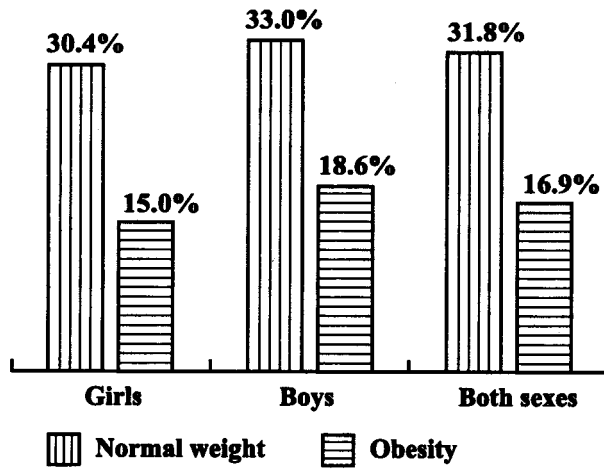
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**(1 mark)**

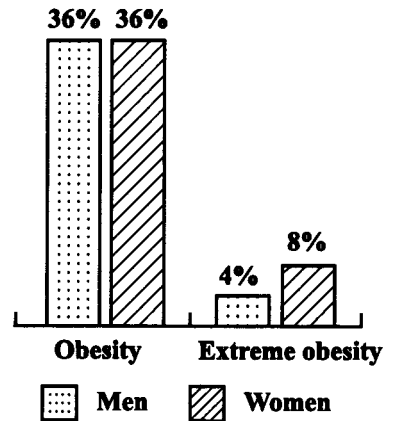
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(e) The following graphs show data from a national health and nutrition examination survey. Figure 1 shows the weight data for boys and girls, while Figure 2 shows data for the same boys and girls, as men and women, ten years later.



**Figure 1.**  
Weight data for boys and girls



**Figure 2.**  
Weight data ten years later

(i) Suggest TWO reasons why more boys than girls were obese.

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(2 marks)

(ii) Suggest TWO reasons why as the boys and girls aged, a greater percentage of women than men showed extreme obesity.

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(2 marks)

**Total 15 marks**



2. (a) Breathing is necessary for life as it brings oxygen into the body and takes carbon dioxide out of the body.

(i) Define the term 'vital capacity'.

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**(2 marks)**

(ii) Name the instrument used to measure vital capacity.

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**(1 mark)**

(b) List THREE factors which increase the rate and depth of breathing.

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**(3 marks)**

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(c) Drug abuse is a serious problem among young people in the Caribbean. Drugs are chemicals which change the manner in which the body functions. Some drugs can be classified as depressants while others are referred to as stimulants.

(i) Explain the difference between a depressant and a stimulant, and give ONE example of EACH.

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**(4 marks)**

(ii) At school, Suresh is tempted to try marijuana because his friends tell him that it can help him to get better grades. He is fearful because his teacher told his class that people can become dependent on drugs. Explain to Suresh the difference between physical and psychological dependence on drugs.

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**(2 marks)**



(iii) Suggest THREE reasons why young people may start taking drugs.

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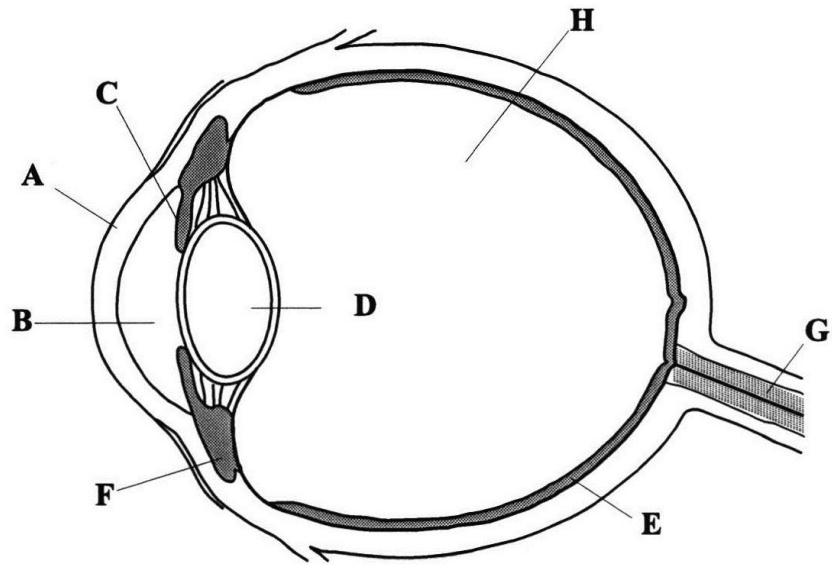
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**(3 marks)**

**Total 15 marks**



3. Figure 3 shows the cross-section of a human eye.



(a) Identify EACH of the structures labelled

- (i) A .....
- (ii) C .....
- (iii) G .....

**(3 marks)**

(b) Which letter represents the structure that

- (i) converts light energy to nerve impulses .....
- (ii) refracts light and helps the eyeball keep its shape .....
- (iii) supports the lens? .....

**(3 marks)**





(c) Nigel was previously able to read the newspaper by holding it about 20 cm away from his eyes. Now that he is 55 years old, he must hold the paper 60 cm away from his eyes in order to read it.

(i) Name the condition Nigel has developed and state the cause of the condition.

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**(3 marks)**

(ii) What type of lens should be used to correct the problem?

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**(1 mark)**

(d) Nigel's wife is also having vision problems. She was diagnosed with hypertension five years ago. Suggest a possible eye disease that she may have developed and how it may be treated.

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**(2 marks)**

(e) Lee's best friend told her that "our eyes really see things upside down". Lee is confused by this statement because she sees everything right side up. Is Lee's friend telling the truth? Explain your response.

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**(3 marks)**

**Total 15 marks**

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4. (a) (i) List THREE aspects of antenatal care that the doctor should monitor during a woman's pregnancy.

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**(3 marks)**

- (ii) State THREE reasons why mothers should breastfeed their babies.

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**(3 marks)**

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- (b) (i) Three women attend a family planning clinic. Mandy is newly married and does not want to have children right away. Susan has four children and does not want any more. Helen's religious views prohibit her from using artificial contraception. Advise EACH woman on her BEST option for contraception, giving an explanation for EACH option.

Mandy .....

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Susan .....

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Helen .....

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**(6 marks)**

- (ii) Vernon and Phyllis have a casual sexual relationship. Phyllis insists that Vernon use a condom during sexual intercourse. Suggest TWO benefits and ONE limitation of using condoms.

Benefits .....

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Limitation .....

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**(3 marks)**

**Total 15 marks**

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**SECTION B**

**Answer ALL questions in this section.**

5. (a) Obesity is linked to many diseases, such as diabetes mellitus, in the Caribbean.

List **THREE other** diseases that are associated with obesity, and **THREE** steps one can take to treat obesity.

Diseases associated with obesity .....

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Steps to treat obesity .....

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**(6 marks)**



- (b) (i) Cindy was diagnosed with Type II diabetes mellitus. Explain TWO differences between Type I and Type II diabetes.

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**(4 marks)**

- (ii) Outline FIVE effects of uncontrolled diabetes.

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**(5 marks)**

**Total 15 marks**

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