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Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						7	0	4	2	/	0	2	Signature	

Paper Reference(s)

7042/02

London Examinations GCE

Human Biology

Ordinary Level

Paper 2

Wednesday 23 January 2008 – Afternoon

Time: 2 hours

Examiner's use only		

Team Leader's use only		

Question Number	Leave Blank
1	
2	
3	
4	
5	
6	
7	
8	
9	
Total	

Materials required for examination
Nil

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.
Check that you have the correct question paper.
The paper is arranged in TWO sections, A and B.
In Section A, answer any THREE questions. In Section B, answer any TWO questions.
Write your answers in the spaces provided in this question paper.
Indicate which question you are answering by marking the box (☒). If you change your mind, put a line through the box (~~☒~~) and then indicate your new question with a cross (☒).

Information for Candidates

Calculators may be used.
The total mark for this paper is 100. All questions carry equal marks.
Marks for parts of questions are shown in round brackets: e.g. **(2)**.
This paper has 9 questions. All blank pages are indicated.

Advice to Candidates

Write your answers neatly and in good English.
Draw labelled diagrams where these will make the answers clearer. Facts explained in a labelled diagram need not be repeated in the written answer.

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SECTION A

Answer any THREE questions in this section.

If you answer Question 1, put a cross in this box ☒.

1. (a) Changes in volume and pressure occur in the lungs during breathing. Describe how these changes are brought about.

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(b) The amount of activity carried out by a person varies. There can be an increase in activity such as vigorous exercise or a decrease such as sleeping. Explain why the rate of breathing changes when there is a change in activity.

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(c) Describe how oxygen and carbon dioxide are carried in the blood.

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Q1

(Total 20 marks)

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If you answer Question 2, put a cross in this box ☒.

2. Digestion of food begins in the mouth.

(a) Describe how the structures of incisors, canines and molars are each suited to their functions.

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(b) (i) Explain how tooth decay is caused and how thorough brushing of your teeth is likely to reduce tooth decay.

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(ii) Describe the importance of a suitable diet in the development of healthy teeth and gums.

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(c) Apart from chewing, what other processes occur in the mouth to help digest a piece of bread?

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(Total 20 marks)

Q2

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If you answer Question 3, put a cross in this box ☒.

3. (a) What is meant by the term **tissue**? Explain your answer with reference to **two** named examples.

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(b) Describe the functions of each of the following cell organelles:

- nucleus
- mitochondria
- cytoplasm.

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(c) What is an **enzyme**? Explain why enzymes are important in living organisms.

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Q3

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If you answer Question 4, put a cross in this box ☒.

4. Reflex actions occur in many parts of the body.

(a) What is meant by the term **reflex action**?

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(b) Draw a diagram to show a reflex arc for a withdrawal reflex that would allow a person to remove their finger from a hot plate. On the diagram, label the structures that make up the reflex arc.

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(c) The functioning of the eye involves a number of reflex actions. Explain the value to the eye of the iris reflex and the blink reflex.

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Q4

(Total 20 marks)

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If you answer Question 5, put a cross in this box ☒.

5. (a) Various methods of birth control are available. Each is based on a biological principle. Explain the biological principle on which each of the following is based: contraceptive pill, condom and sterilisation.

In your answer describe the advantages and disadvantages of each method.

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(b) Explain why gametes (sperm and ova) are produced by meiosis rather than by mitosis.

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(c) Give an outline of the changes that occur in the growth and development in a boy between the ages of 12 and 16 years.

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(Total 20 marks)

TOTAL FOR SECTION A: 60 MARKS

Q5

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SECTION B

Answer any TWO questions in this section.

If you answer Question 6, put a cross in this box ☒.

6. (a) In many parts of the world, the number of cars is increasing and many people continue to smoke. Describe how exhaust gases from cars and the smoking of cigarettes affect the quality of the air that people breathe and their health.

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(b) Describe how the body responds to bacterial diseases.

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(c) Explain why a person is able to become immune to a bacterial disease, such as tuberculosis, but cannot develop immunity to diseases that result from smoking.

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Q6

(Total 20 marks)

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If you answer Question 7, put a cross in this box ☒.

7. (a) Draw a large labelled diagram to illustrate the structure of a bacterium.

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(b) Some bacteria are pathogens. Explain, giving **two** bacterial examples, what is meant by the term **pathogen**.

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(c) Describe ways in which bacteria and fungi are useful to us.

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(d) Give **three** ways in which the structure of a fungus differs from that of a bacterium.

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Q7

(Total 20 marks)

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If you answer Question 8, put a cross in this box ☒.

8. (a) To stop the spread of Schistosomiasis (Bilharzia), it is necessary to disrupt the life cycle of the fluke *Schistosoma*.

Describe measures that could be used to control Schistosomiasis and explain how each is likely to work.

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(b) (i) Explain how epidemic diseases differ from endemic diseases.

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(ii) Explain why tuberculosis could become an epidemic but Schistosomiasis is unlikely to become an epidemic.

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Q8

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If you answer Question 9, put a cross in this box ☒.

9. (a) Explain how humans depend on plants for their survival.

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(b) A food chain shows how energy is passed from producers to different consumers. Suggest why food chains do not usually contain more than four consumers.

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(c) Irradiation can be used to preserve food. Describe **four** other methods of food preservation and, in each case, explain why it is successful.

(10)

Q9

(Total 20 marks)

TOTAL FOR SECTION B: 40 MARKS

TOTAL FOR PAPER: 100 MARKS

END