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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. Homeostasis occurs within the human body.

(a) State what is meant by the term homeostasis and explain why it is important.

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(b) Describe how the body deals with increases in each of the following.

(i) The water content of the blood.

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(ii) The carbon dioxide concentration of the blood.

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(iii) The glucose concentration of 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. Human reproduction begins with fertilisation and ends with the birth of a baby.

(a) Explain why meiosis is necessary for the formation of gametes.

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(b) Explain why there is an equal chance of a boy or girl being produced as a result of fertilisation. You may use X and Y chromosomes in a genetic diagram to illustrate your answer.

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(c) After fertilisation occurs, a fetus and a placenta develop in the uterus.

(i) Describe the functions of the placenta.

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(ii) Describe the process of birth.

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Q2

(Total 20 marks)



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

- 3. The skin is the external covering of the body and one of its functions is the regulation of body temperature.
- (a) Describe and explain how the skin responds to a decrease in the internal body temperature.

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(b) Suggest why wearing clothes that consist of several thin layers is more effective in helping to keep a person warm than one thick layer.

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

- 4. The ribs are a part of the skeleton and are involved in the process of breathing.
 - (a) Explain how the ribs and diaphragm help to bring about pressure changes in the lungs that allow inspiration (breathing in) to occur.

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<p>(c) Explain the importance of diet in bone formation.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>Leave blank</p>		
<p style="text-align: right;">(6)</p> <p style="text-align: right;">(Total 20 marks)</p>	<p style="text-align: center;">Q4</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>		



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

5. Humans are made up of many different types of cell but each cell has a similar basic structure.

(a) Describe the functions of each of the following.

(i) Nucleus

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(ii) Cell membrane

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(iii) Cytoplasm

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(b) Cells may form tissues and tissues may group together to form organs. Using muscle as an example, explain what is meant by the term tissue.

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(c) Describe the formation of new cells by mitosis.

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Q5

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TOTAL FOR SECTION A: 60 MARKS



SECTION B

Answer any TWO questions in this section.

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

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6. In recent years, the composition of the atmosphere appears to have been changing.

(a) Explain how the balance of oxygen and carbon dioxide in the world's atmosphere is maintained.

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(b) Chemicals known as CFCs have been used in aerosol cans. CFCs are known to damage the ozone layer in the upper atmosphere.

Suggest and describe how the use of CFCs in aerosol cans has changed the atmosphere and the effects this may have on humans.

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(c) (i) Describe how a plant produces carbohydrates and the ways plants use these carbohydrates.

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(ii) Describe how plant material helps the movement of food through the human gut.

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Q6

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

7. There are various mechanisms for protecting the human body from diseases.
- (a) Describe how the process of blood clotting occurs and explain its role in the protection of the body.

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(b) Using a named example, describe the origin of antibiotics and how they help the body in dealing with pathogens.

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(c) Explain how many countries have been able to reduce the number of cases of tuberculosis.

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(d) Oral Rehydration Therapy (ORT) can be used to reduce the effects of some diseases. Describe the conditions under which ORT is used and explain how it works.

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<p style="text-align: center;">If you answer Question 8, put a cross in this box <input type="checkbox"/>.</p> <p>8. Pollution of both the atmosphere and water occurs in many parts of the world.</p> <p>Describe the origin and effects of each of the following sources of pollution.</p> <p>(a) Describe the origin and effects of nitrogen compounds in the water.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(7)</p>	Leave blank
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(b) Describe the origin and effects of sulphur dioxide in the air.

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(c) Describe the origin and effects of carbon monoxide in the air.

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Q8

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

9. Malaria is an endemic disease in parts of the world and the *Anopheles* mosquito acts as a vector for the disease.

(a) Explain what is meant by each of the following terms.

(i) Endemic

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(ii) Vector

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(b) With the help of a labelled diagram, describe the life cycle of the mosquito.

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(c) An epidemic of cholera often occurs after a natural disaster.

(i) Explain what is meant by the term epidemic.

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(ii) Describe and explain the measures that a person could take to avoid developing cholera.

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Q9

(Total 20 marks)

TOTAL FOR SECTION B: 40 MARKS

TOTAL FOR PAPER: 100 MARKS

END

