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(ii) Nuclear division can be either by mitosis or by meiosis. Describe **two** ways in which the daughter cells produced by these methods differ.

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(c) Sometimes cell division results in a mutation occurring.

(i) State **two** factors that may increase the risk of mutations occurring.

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(ii) Explain what a mutation is and why some mutations have harmful effects.

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(Total 20 marks)

Q1

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

2. (a) (i) Explain what is meant by a reflex action and why reflexes are important to the body.

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(4)

(ii) Use a large labelled diagram to show the nerve pathway of the withdrawal reflex.

(8)





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

3. (a) (i) With the help of a large labelled diagram, explain how the forearm is raised at the elbow joint.

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(8)

(ii) Describe how the range of movement at the shoulder joint is greater than at the elbow joint.

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

4. (a) (i) Describe the relationship between blood plasma, tissue fluid and lymph.

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(ii) Describe the functions of each of these fluids.

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(b) (i) During vigorous exercise both the pulse rate and blood pressure usually rise significantly. Explain why this is important to the muscles of the body.

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(ii) Suggest possible dangers of permanently raised blood pressure.

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(iii) Suggest what actions a doctor might advise a patient to take to reduce dangerously high blood pressure.

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(Total 20 marks)

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

5. (a) (i) Describe the structure of the human urinary system.

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(ii) Explain how the kidney regulates the composition and concentration of the blood.

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

**8.** (a) (i) Use a large labelled diagram to show the structure of a virus.

**(3)**

(ii) Describe how the reproduction of a virus is brought about.

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

9. (a) (i) Describe how humans depend on green plants for their supplies of oxygen and energy.

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(ii) Suggest how chemicals used in the environment, such as weedkillers, can also accumulate in the body of a human.

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(b) (i) Sulphur dioxide is a major pollutant in the atmosphere. Describe how this gas comes to be present in the air and the effects it has on humans and on the environment.

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(ii) The concentration of many pollutants, such as sulphur dioxide and carbon dioxide, appears to be increasing. Suggest reasons for this increase and some of the measures that could be taken to reduce it.

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(Total 20 marks)

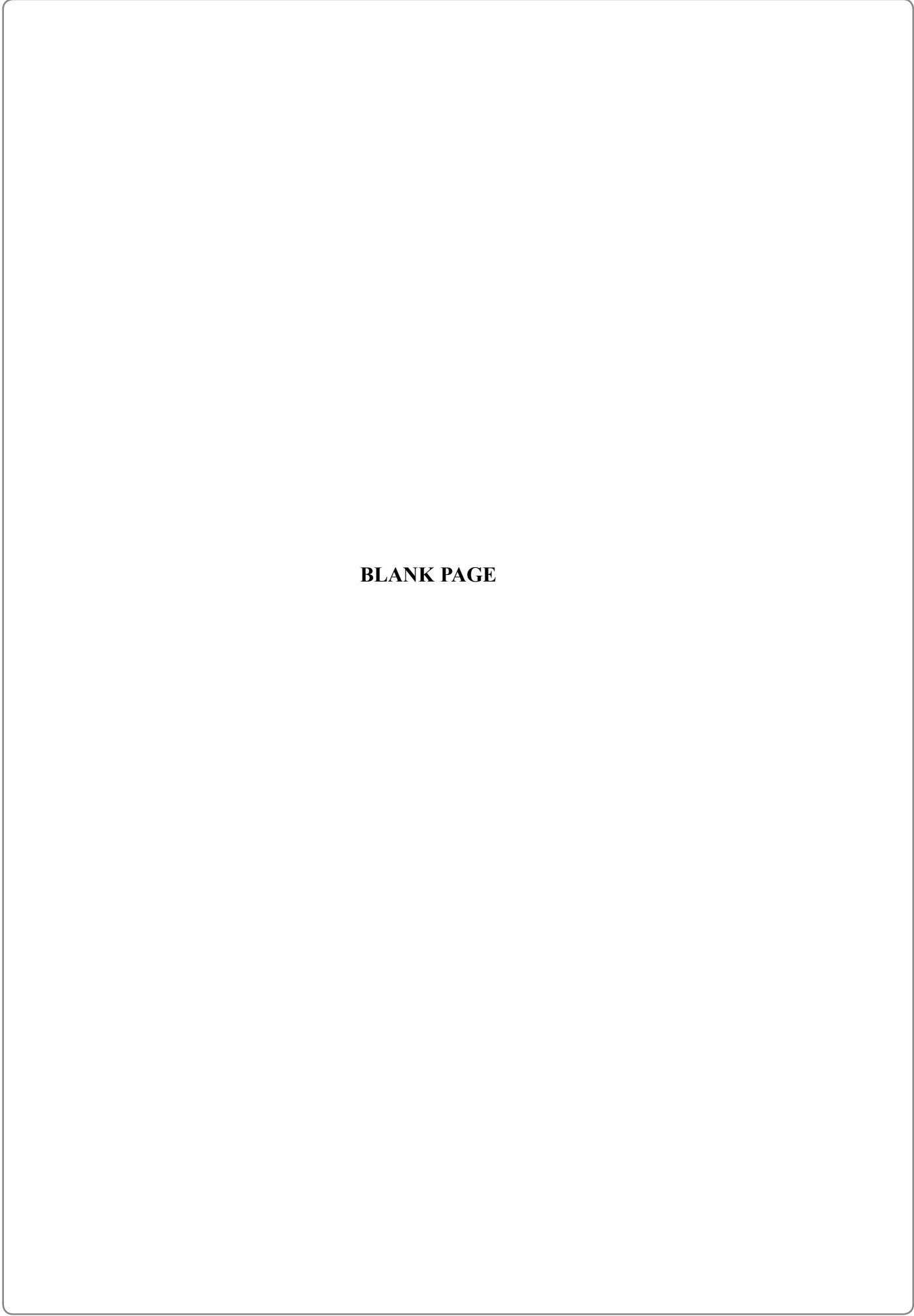
Q9

**TOTAL FOR SECTION B: 40 MARKS**

**TOTAL FOR PAPER: 100 MARKS**

**END**





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