

## **AQA Knowledge test Unit 2 Biology**

### **B2.1 Cells and Simple cell transport**

#### **B2.1.1 Cells and cell structure**

1. What are the main parts of animal cells?
2. Which parts of a cell are found in plant cells but not animal cells?
3. Name the parts of bacterial cells?
4. Name the parts of yeast cells contain?
5. What is the function of a nucleus of a cell?
6. If a cell has adapted to do a particular function, what is it said to be?
7. What is the function of cytoplasm?
8. What is the function of a cell membrane?
9. What is the function of mitochondria?
10. Where does protein synthesis in the cell happen?
11. Which feature do plant cells have which help them to strengthen their cells?
12. What is the function of the chloroplasts?
13. What is found inside the permanent vacuole of plant cells?
14. What is important about the genetic information in a bacterial cell?
15. What part is missing from a red blood cell? **Why is this?**
16. Name two features of a sperm cell.
17. What is the function of the goblet cell?
18. Where in the body do you find goblet cells?
19. Why do cilia and sperm have lots of mitochondria?

#### **B2.1.2 Dissolved substances**

1. How do dissolved substances move in and out of cells?
2. What is the definition of diffusion?
3. What will affect the rate of diffusion?
4. What is a concentration gradient?
5. Name two locations in the body where diffusion is important.
6. Which important gas passes through cell membranes into cells?

## **B2.2 Tissues, organs and organ systems**

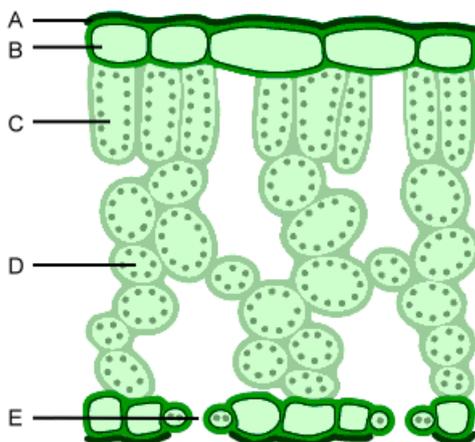
### **B2.2.1 Animal organs**

1. What does multicellular mean?
2. What is a tissue?
3. What is an organ?
4. What is an organ system?
5. What is the function of muscular tissue?
6. What is glandular tissue?
7. What is epithelial tissue?
8. Which 3 main tissues does the stomach contain?
9. Complete the following table for parts of the digestive system, name the parts.

<b>Part(s)</b>	<b>Function</b>
	<b>Digests food</b>
	<b>Produces bile</b>
	<b>Absorbs water/ produces faeces</b>
	<b>Digest and absorb soluble food</b>
	<b>Produce digestive juices</b>

### **B2.2.2 Plant organs**

1. What are the 4 main organs of plants?
2. What tissue are plants covered in?
3. Which tissue is responsible for carrying out most photosynthesis?
4. Which tissue transports water around the plant?
5. Which tissue transports sugars around the plant?
6. What tissue allows gases in and out of a plant leaf?
7. Label parts A-E.



### **B2.3.1 Photosynthesis**

1. What are the reactants needed for photosynthesis?
2. What are the products of photosynthesis?
3. Which type of energy is essential for photosynthesis to take place?
4. Which organelle (part of a cell) carries out photosynthesis?
5. What is the name of the green substance which captures light energy (and is found in chloroplasts) to enable photosynthesis?
6. Where does the water, required by plants, come from?
7. What three factors can limit the rate of photosynthesis?
8. How is glucose used by plants and algae? (There are a number of ways.)
9. What else do plants need to absorb from the soil to produce proteins?
10. What do plants store **glucose** as?
11. **Why do plants store glucose?**
12. List three things you can do in a greenhouse to increase growth.

### **B2.4.1 Distribution of organisms**

1. Which six physical factors affect organisms?
2. What is a quadrat?
3. Which two methods can be used to collect quantitative data on the distribution of organisms?
4. How can you make sure you place the quadrats at random?
5. Why should a large sample size be used when sampling data?
6. What is another term for non-living factors?
7. What is another term for living factors?

## **B2.5 Proteins – their functions and uses**

### **B2.5.1 Proteins/B2.5.2 Enzymes**

1. Which molecule are proteins made from?
2. What happens to the long chains formed by these molecules?
3. What do proteins act as?
4. What do catalysts do?
5. What are biological catalysts called?
6. Which type of molecule are enzymes made from?
7. What property of enzymes is vital for its function?
8. What do high temperatures do to enzymes?
9. What other factor is important for enzymes to function correctly?
10. What does denatured mean?
11. Which two enzymes are present in biological detergents (washing powders)?
12. How does having enzymes in biological detergents help them to perform better?
13. How are proteases used in industry?
14. How is isomerase used in industry?

### **B2.5.2 Enzymes**

1. Where are digestive enzymes produced?
2. What is the general function of digestive enzymes?
3. Where is the enzyme amylase produced?
4. What does amylase do?
5. Where is the enzyme protease produced?
6. What does protease do?
7. Where is the enzyme lipase produced?
8. What does lipase do?
9. What conditions do the enzymes in the stomach work best in?
10. Approximately what is the pH of the acid in the stomach?
11. Where is 'bile' produced?
12. What does bile do?
13. Do enzymes in the small intestine prefer alkaline or acid conditions?
14. Name 3 processes where enzymes work inside cells.

## **B2.6 Aerobic and anaerobic respiration**

### **B2.6.1 Aerobic respiration**

1. What are chemical reactions inside the body controlled by?
2. What are the reactants of aerobic respiration?
3. What are the products of aerobic respiration?
4. Where, in the cell, do most of the reactions in aerobic respiration take place?
5. How is energy produced by respiration used by ALL organisms?
6. How is energy produced by respiration used by mammals and birds?
7. How is energy produced by respiration used by plants?
8. What are the two main ways the body responds during exercise?
9. Why does the body respond to exercise in this way?

### **B2.6.2 Anaerobic respiration**

1. Which substance do muscles store glucose as?
2. What happens to the stored glucose in muscles during exercise?
3. Why do muscles carry out anaerobic respiration?
4. How does the breakdown of glucose differ in aerobic and anaerobic respiration?
5. What is the product of anaerobic respiration?
6. How does the amount of energy produced differ in aerobic and anaerobic respiration?
- 7. HT -How is the oxygen debt produced by anaerobic respiration repaid?**
8. Why do muscles become fatigued?
9. What does 'fatigued' mean?
10. What is one of the causes of muscle fatigue?
11. What is fermentation?

## **B2.7 Cell division and inheritance**

### **B2.7.1 Cell division**

1. How are chromosomes normally arranged in body cells?
2. What is the name of the type of cell division seen in body cells?
3. What do chromosomes contain?
4. What first happens to the genetic material when a body cell divides?
5. How many times does a body cell divide?
6. How does the genetic information of a new cell, produced by a body cell dividing, compare with the original cell?
7. How many sets of chromosomes does a human body cell have?
8. How many sets of chromosomes do sex cells have?
9. What is another name for 'sex cells'?
10. What is the name of the type of cell division that produces gametes?
- 11. HT- What first happens to the genetic material when a cell divides to form gametes?**
- 12. HT - How many divisions does an original cell go through to produce sex cells?**
- 13. HT - How many gametes are formed after one original cell divides?**
- 14. HT - How many sets of chromosomes do these gametes contain?**
- 15. HT - How does the genetic information of gametes compare to the original cell?**
16. What happens to at fertilisation?
17. What type of cell division happens once an egg has been fertilised?
18. Why do mature animal cells divide?
19. Where do human stem cells come from?
20. What can human stem cells have the ability to do?
21. When do animal cells differentiate compared to plant cells?
22. How many pairs of chromosomes are there in a human body cell?

## **B2.7 Cell division and Inheritance**

### **B2.7.2 Genetic variation**

1. How does sexual reproduction give rise to variation?
2. How are inherited characteristics controlled?
3. What is an allele?
4. What is a dominant allele?
5. What is a recessive allele?
6. Which molecule are chromosomes made from and what is its structure like?
7. What is a gene?
8. What does a gene contain?
9. What does DNA fingerprinting tell us?
10. What are the female sex chromosomes?
11. What are the male sex chromosomes?
- 12. HT - What is a monohybrid cross?**
- 13. HT - What does homozygous and heterozygous mean?**
- 14. HT - What does genotype mean?**
- 15. HT - What does phenotype mean?**
16. What are genetic disorders?
17. What is 'polydactyly'?
18. How is polydactyly inherited?
19. What is cystic fibrosis?
20. How is cystic fibrosis inherited?
21. What does a 'carrier' mean?
22. How can you carry out screening for these disorders?
23. What is a generic pedigree?
24. What ideas did Mendel propose and why was this discovery not recognised until after his death?
25. Which organism did Mendel carry out most of his research on?

## **B2.8 Speciation**

### **B2.8.1 Old and new species**

1. Where does evidence for early forms of life come from?
2. Why are scientists not certain about how life began on Earth?
3. What is a fossil?
4. How are fossils formed?
5. What can we learn from the fossil record?
6. How might extinction be caused?
- 7. HT - What is speciation?**
- 8. HT - Describe the process of natural selection.**