

Name:

Edexcel Style

Combined Science GCSE

Exchange and Transport in Animals Test

(Levels 4–9)

Date:

Time Allowed: 50mins

Question	Links to Student Progress Sheet	Score	Total Marks Available
1	8.1, 8.3, 8.2a		12
2	8.6		12
3	8.2b		5
4	8.7, 8.8, 8.12		12
5	8.9a ,b, c, 8.10, 8.11		9
Total	Topic 8		50

Score	Estimated Grade
47 – 50	9
40 – 46	8
33 – 39	7
28 – 32	6
24 – 27	5
20 – 23	4
0 – 19	U

Please be aware that these grade boundaries are Twinkl's own, and may not be in-line with Edexcel's own.

Area for Improvement:

1.

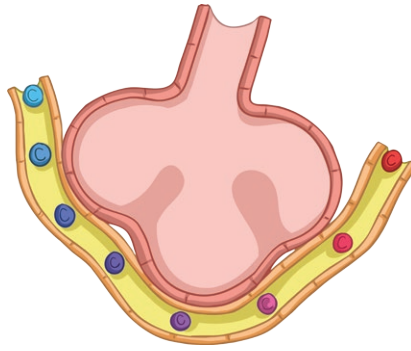


Figure 1

(a) What is the name of the exchange surface shown in the figure above?

(1)

- ☐ lung
- ☐ alveoli
- ☐ stomata
- ☐ bronchiole

(b) In which organ system is the surface from question 1a found?

(1)

- ☐ muscular system
- ☐ cardiovascular system
- ☐ respiratory system
- ☐ excretory system

(c) State two features which adapt the surface from question 1a for gas exchange.

(2)

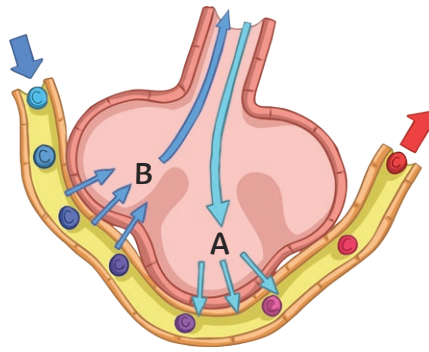


Figure 2

(d) Name the gases which are indicated by the arrows A and B in figure 2.

(2)

Gas A is _____

Gas B is _____

(e) Explain how the structure of the lungs is adapted for gas exchange.

(6)

[illegible]

(Total for Question 1 = 12 marks)

2. (a) Draw a straight line to match the part of the blood to the correct function.

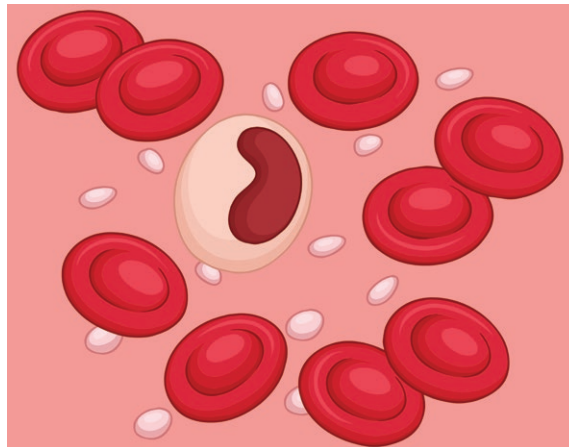
(4)

Red blood cells (erythrocytes)	Protects against pathogens
White blood cells (phagocytes and lymphocytes)	Helps the blood to clot
Plasma	Transports O ₂ around the body
Platelets	Transports dissolved substances around the body

- (b) Label the parts of the blood on the diagram below, using the words from the box.

(4)

red blood cell	white blood cell	platelet	plasma
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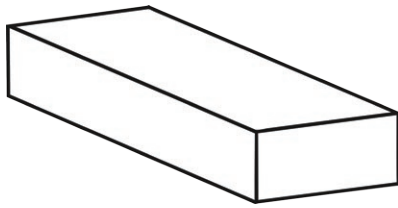
- (c) Explain how a red blood cell is adapted to its function.

(4)

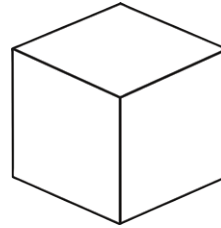
(Total for Question 2 = 12 marks)

3. (a) Each shape has a volume of 8cm^3 .
Which shape has the greatest surface area to volume ratio?

(1)



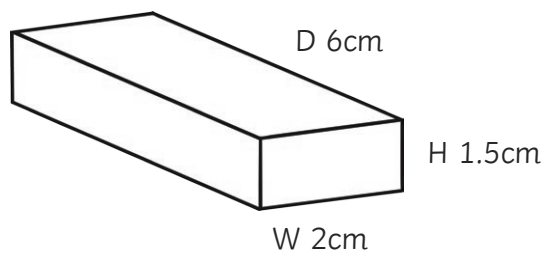
Shape A



Shape B

-
- (b) Calculate the surface area to volume ratio of the shape below.

(4)



Surface area:volume = _____

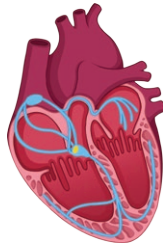
(Total for Question 3 = 5 marks)

4. (a) Describe how the structure of the blood vessels is adapted to their function.

(4)

- (b) Explain how the structure of the heart is adapted to its function.

(6)



- (c) Calculate the stroke volume if the cardiac output is 5.5L/min and the heart rate 75bpm.

Use the equation: **cardiac output = stroke volume x heart rate**

(2)

Stroke volume = _____ ml

(Total for Question 4 = 12 marks)

5. (a) Complete the word equation below for the reaction of respiration.

(3)

glucose + _____ → _____ + _____ + [energy]

- (b) Complete the sentence below by choosing the correct word from the box.

(1)

produces	makes	releases	destroys
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The reaction of respiration _____ energy.

- (c) Is the reaction of respiration exothermic or endothermic?

(1)

- (d) State one way in which aerobic and anaerobic respiration in humans is different, and one way in which the reactions are similar.

(2)

Difference: _____

Similarity: _____

- (e) Two students carried out an investigation to look at the rate of respiration in organisms. Tick the **two** factors below which may have been measured as the dependent variable in their investigation.

(2)

- ☐ oxygen production
- ☐ carbon dioxide production
- ☐ temperature change
- ☐ change in mass (of organisms)
- ☐ volume of air produced

(Total for Question 5 = 9 marks)

TOTAL FOR PAPER = 50 MARKS