

Year 7 December assessment 2023

Section 1 – Organisms (cells and movement)

Q1.a Brain [1]

b. Ribs/ Rib cage [1]

c. Any two from: [Maximum 2 marks]

- Shape/ Structure

- Movement

- Production of blood cells

d. When one muscle contracts the other one relaxes [1]

Q2. a. Nucleus → Controls the activities of the cell [1]

Cytoplasm → Site of chemical reactions [1]

Chloroplast → Absorbs light to carry out photosynthesis [1]

b. When marking this question, you must first give the students a level of response. Once this is decided a mark within that level is awarded. The indicative content is a list of possible answers that could be included is not a exhaustive list students may include other relevant Scientific knowledge. The indicative content should not be used as a list of marking points to award a mark out of 6. [Maximum 6 marks]

0	No relevant content
Level 1 (1-2 marks)	States one structure and correctly links this to the function for 1 of the specialised cells. 2 nd / 3 rd cells are not mentioned or structure/ function is incorrect.
Level 2 (3-4 marks)	States (at least) one structure and correctly links this to the function for 2 of the specialised cells. 3 rd cell is not mentioned or structure/ function is incorrect.
Level 3 (5-6 marks)	For all 3 specialised cells, states (at least) one structure and correctly links this to the function.

Examples of points made in the response:

- The sperm cell has a tail to swim to the egg (to fertilise it)
- The head of the sperm has enzymes to penetrate the egg.
- The nerve cell is long and thin (axon) so they can carry messages quickly.
- The nerve cell has branched connections at each end to pass electrical signals to other nerve cells.
- A root hair cell has a large surface area to absorb more water (from the soil).
- A root hair cell contains no chloroplasts as they are underground so do not need to photosynthesise.

Q3. a. Stopwatch [1]

b. Number of sprays of air freshener [1]

c. Time taken (to reach the student 5 metres away) [1]

d. As the number of sprays increases the time taken gets less [1]

Accept the opposite

e. Repeat the investigation [1]

f. The movement of particles from a high to low concentration [1]

Total for this section: 20 marks

Section 2 – Matter (particle model and separation techniques)

Q4. a. Change of state 1 – Melting [1]

Change of state 2 – Evaporation [1]

Change of state 3 – Condensation [1]

Change of state 4 – Freezing [1]

b. The gas particles are far apart [1]

With lots of empty space between the particles [1]

Q5. a. Thermometer [1]

b. Conical flask [1]

c. Any temperature above 15°C but below 100°C [1]

It is heated by the water vapour [1]

Accept vapour or steam. Accept it heats up.

d. Sensible safety precaution suggested. E.g. Wear goggles, tie long hair back. [1]

Q6. a. One mark for each of the following: **Maximum of 4 marks**

Suitable (even) scale starting at zero on the y axis [1]

X and Y axis labelled correctly (X = Shape of tea bag, Y = Time for cross not to be seen/ seconds) [1]

2/3 bars plotted correctly (within 1/2 mm) [1]

OR

All bars plotted correctly [2]

Q7. a. Three [1]

b. So that it doesn't smudge/ So that it doesn't interfere with the results [1]

Q8. a. Equipment A – Beaker [1]

Equipment B – Funnel [1]

b. Filtration [1]

Total for this section: 20 marks

Section 3 – Waves (light and sound)

Q9. a. To protect your ears/ Loud sounds can burst the eardrum [1]

b. The pupils saw the bright flash first [1]

Light travels faster than sound [1]

Accept the opposite

c. It was quieter [1]

Q10. a. 5 [1]

b. D [1]

The sound level is lowest [1]

c. Any two from: *[maximum 2 marks]*

Use the same box each time

Use the same distance between the sound sensory and the bell

Use the same bell inside the box

Q11. a. A – Iris [1]

B – Lens [1]

C – Retina [1]

b. Refraction [1]

Q12. a. A continuous straight line from the lamp to the flat laptop and from the laptop to the child's eye. [1]

Angle of incidence approximately equal to the angle of reflection [1]

Arrows in the correct direction on the incident and reflected ray [1]

Maximum of 3 marks

Q13. a. Green light is reflected [1]

All other colours from white light are absorbed [1]

b. (Red filter) Black [1]

(Green filter) Green [1]

Total for this section: 20 marks