

Cells and levels of organisation: practice questions

6 questions • 20 marks • mark scheme at the back

For Pearson Edexcel International GCSE Biology 4BI1 and Science (Double Award) 4SD0. **Biology only** is not in the Double Award and is only examined on Paper 2.

Name

Total / 20

1 Which list shows the levels of organisation in order, from smallest to largest? [1 mark]

- A. ☐ cell, organelle, tissue, organ, system
- B. ☐ organelle, cell, tissue, organ, system
- C. ☐ organelle, tissue, cell, system, organ
- D. ☐ tissue, organelle, cell, organ, system

2 The stomach is an organ in the digestive system. (a) Explain why the stomach is called an organ. (b) Name one other organ in the digestive system. [3 marks]

3 State the function of each of these cell structures. (a) nucleus (b) mitochondria (c) ribosomes (d) cell membrane [4 marks]

4 Name three structures that are found in a palisade mesophyll cell from a leaf but not in a cell from the lining of the human stomach. [3 marks]

Biology only

Explain why cell differentiation is important in the development of a multicellular organism.

Biology only

Discuss the advantages and disadvantages of using stem cells in medicine.

2 / 3

Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

B B (1)

2. [3]

- it is made of several / different tissues (1)
- that work together to perform a specific function / digest food (1)
- (b) any one from: small intestine / large intestine / oesophagus / pancreas / liver (1) allow other correct organs of the system

3. [4]

- (a) contains the genetic material / DNA and controls the activities of the cell (1)
- (b) (site of) aerobic respiration / releases energy (1)
- (c) (site of) protein synthesis / where proteins are made (1)
- (d) controls the movement of substances into and out of the cell (1)

4. [3]

- cell wall (1)
- chloroplasts (1)
- (large / permanent) vacuole (1)
- allow cellulose cell wall; ignore cell sap on its own

5. [3] **Biology only**

- (differentiation produces) specialised cells / cells with different structures (1)
- each type of cell is adapted to carry out a particular job / function (1)
- specialised cells form tissues / organs that carry out jobs efficiently (1)

6. [6] **Biology only**

Level 3 5-6	A detailed discussion giving at least two advantages and two disadvantages, correctly explained, with a balanced overall judgement. The answer is clear and logically structured.
Level 2 3-4	Gives advantages and disadvantages, with some explanation, but the discussion is not fully balanced or detailed.
Level 1 1-2	Gives one or two simple points with little or no explanation.

Indicative content

- advantage: could replace damaged or diseased cells / tissues
- advantage: could treat conditions that are hard to treat now, such as diabetes or paralysis
- advantage: stem cells can differentiate into many types of cell
- disadvantage: stem cells may divide out of control and form tumours
- disadvantage: viruses in donated cells may be passed to the patient
- disadvantage: the patient's immune system may reject the cells
- disadvantage: ethical or religious objections to using embryos