

Cell structure and specialised cells: practice questions

5 questions · 13 marks · mark scheme at the back

For Edexcel GCSE Biology 1BI0 and Combined Science 1SC0. **Triple only** is not in Combined Science. **Higher tier** is only on the Higher paper.

Name

Total / 13

1 Which structure is found in a plant leaf cell but not in an animal cell? [1 mark]

- A. ☐ Mitochondria
- B. ☐ Ribosomes
- C. ☐ Cell wall
- D. ☐ Nucleus

2 A bacterial cell and an animal cell both contain genetic material. (a) Describe two ways the genetic material of a bacterial cell differs from that of an animal cell. (2) (b) State the function of the flagellum of a bacterial cell. (1) [3 marks]

3 Explain how each of the following features helps a sperm cell to carry out its function. - the acrosome - the haploid nucleus - the mitochondria - the tail [4 marks]

4 Describe three ways in which an egg cell is adapted to its function.

[3 marks]

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5 Ciliated epithelial cells line the airways. Describe how these cells are adapted to their function.

[2 marks]

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Mark scheme

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

1. [1]

C C cell wall (1)

2. [3]

- the DNA is not enclosed in a nucleus / bacterial cell has no nucleus / DNA is free in the cytoplasm (1)
- the bacterial cell has plasmids / has plasmid DNA (as well as chromosomal DNA) (1) allow small rings of DNA
- (b) to move the cell / to make the cell swim (1) allow for movement

3. [4]

- acrosome contains (digestive) enzymes that digest / break down the outer layer of the egg cell (so the sperm can enter) (1)
- haploid nucleus contains half the number of chromosomes, so the full number is restored when it fuses with the egg nucleus (1)
- mitochondria release energy (by aerobic respiration) for the tail to move / for swimming (1)
- tail moves / whips from side to side to push the sperm towards the egg (1) allow so the sperm can swim

4. [3]

- nutrients / food store in the cytoplasm (1) allow to provide energy / nutrients for the early embryo
- haploid nucleus / half the number of chromosomes (1) allow so the full number is restored when it fuses with the sperm nucleus
- the cell membrane changes after fertilisation (1) allow so that no more sperm can enter

5. [2]

- they have cilia / hair-like projections (on the surface) (1)
- which beat / move to sweep mucus (containing trapped dust and microorganisms) away from the lungs (1)