1.2 Cells: 10-minute Pack

AQA 7402 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 This question contains short recall and application items on cell structure and specialisation.

(a) Which organelle is the main site of aerobic respiration in a eukaryotic cell? **(1)**

- ☐ A) Golgi apparatus
- ☐ B) Mitochondrion
- ☐ C) Ribosome
- ☐ D) Lysosome

(b) Which of the following is NOT typically found in a prokaryotic cell? **(1)**

- ☐ A) Plasmid
- ☐ B) Cell wall
- ☐ C) Membrane-bound nucleus
- ☐ D) Ribosomes

(c) State the function of the nucleolus. **(1)**

(d) A mature sperm cell contains a large number of mitochondria concentrated in its mid-piece. Explain how this adaptation helps the sperm cell carry out its function. **(2)**

(e) State two structural adaptations of a root hair cell that suit it to the absorption of water and mineral ions. **(2)**

(Total for Question 1 is 7 marks)

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Mark scheme · 1.2 Cells: 10-minute Pack

Question 1

(a) B - Mitochondrion cao **B1**

(a) Answer: B - Mitochondrion

(b) C - Membrane-bound nucleus cao **B1**

(b) Answer: C - Membrane-bound nucleus

(c) produces/assembles ribosomes (makes ribosomal RNA, rRNA) (oe) **B1**

(c) Answer: It produces ribosomes / makes ribosomal RNA (rRNA) and assembles ribosomes

(d) the mitochondria carry out aerobic respiration to release ATP **B1**

(d) ATP provides the energy needed for the tail (flagellum) to move/beat, propelling the sperm towards the egg **B1**

(d) Answer: The mitochondria respire aerobically to produce ATP, which provides the energy needed for the tail (flagellum) to move, allowing the sperm to swim towards the egg

(e) long hair-like extension of the cell, increasing surface area for absorption **B1**

(e) large number of mitochondria to provide ATP for active transport of mineral ions (or thin cell wall/large permanent vacuole maintaining a steep water potential gradient) **B1**

(e) Answer: Any two of: a long root hair/extension of the cell, increasing surface area for absorption; many mitochondria, providing ATP for active transport of mineral ions; thin cell wall/large permanent vacuole to maintain a steep water potential/concentration gradient

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