1.9 Cell Structure and Microscopy: 10-minute Pack

AQA 8464 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Bacteria are prokaryotic organisms, made of a single prokaryotic cell. Animals and plants are eukaryotic organisms, made of eukaryotic cells. For each statement below, state whether it is true or false.

(a) Prokaryotic cells contain a nucleus. **(1)**

(b) Prokaryotic cells are generally smaller than eukaryotic cells. **(1)**

(c) A prokaryotic cell may contain one or more small rings of DNA called plasmids. **(1)**

(d) All eukaryotic cells contain chloroplasts. **(1)**

(Total for Question 1 is 4 marks)

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2 A student images a cheek cell using a light microscope. The eyepiece lens magnification is 10x and the objective lens used is 40x. Calculate the total magnification. Show substitution and give the final answer with a unit.

(a) Substitute the magnifications into the equation total magnification = eyepiece x objective. **(1)**

(b) Calculate the total magnification and give the answer with a unit. **(2)**

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(Total for Question 2 is 3 marks)

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3 Onion epidermal cells are almost transparent and colourless when unstained.

(a) Explain why iodine solution is used to stain the sample before it is viewed under the microscope. **(2)**

(Total for Question 3 is 2 marks)

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Mark scheme · 1.9 Cell Structure and Microscopy: 10-minute Pack

Question 1

(a) False **B1**

(a) Answer: False

(b) True **B1**

(b) Answer: True

(c) True **B1**

(c) Answer: True

(d) False (only plant cells and algal cells contain chloroplasts) **B1**

(d) Answer: False

Question 2

(a) substitutes: total magnification = 10 x 40 **M1**

(a) Answer: Total magnification = 10 x 40

(b) performs the multiplication: 10 x 40 **M1**

(b) gives 400x cao **A1**

(b) Answer: 400x

Question 3

(a) cells/cell structures are naturally transparent/colourless, so are difficult to see clearly (lack contrast), oe **B1**

(a) iodine stains structures such as the nucleus and cell wall, adding contrast so they can be seen/identified more easily, oe **B1**

(a) Answer: Cells are naturally transparent; iodine stains structures like the nucleus, adding contrast so they can be seen clearly.

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