**Cells (answers)**

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| Instructions to students  • You have 50 minutes to complete the test.  • Please answer all questions in the spaces provided.  • There is to be no talking during the test. | Marks  Section I: Multiple-choice questions: 5 marks  Section II: Short-answer questions: 12 marks  Section III: Extended-response questions: 8 marks  Total: 25 marks |

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| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Score: /25  Grade: % |
| Comments: | |

Section I: Multiple-choice questions

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| For each question, circle or highlight the correct answer.  1 The part of a microscope labelled A on the diagram is called the: | |  |
| A | the objective lens. |
| B | the stage. |
| C | the mirror. |
| D | the base. |
| 2 The part of the cell that controls the entry and exit of substances is: | | |
| A | the nucleus. | |
| B | the ribosomes. | |
| C | the cell membrane. | |
| D | the mitochondria. | |
| 3 A pathogen is: | | |
| A | a specialised plant cell. | |
| B | an organelle found in many protists. | |
| C | a microorganism that can potentially cause disease. | |
| D | a type of multicellular organism. | |

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| 4 Which organelle in a plant cell absorbs light for photosynthesis? | |
|  | |
| A | Ribosomes |
| B | Vacuoles |
| C | Mitochondria |
| D | Chloroplasts |
| 5 Which one of the following statements about cell theory is incorrect? | |
| A | Cells are the basic units of life. |
| B | A virus is a type of cell. |
| C | New cells are created from existing cells. |
| D | All living things are composed of cells. |

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|  | Section I  Total marks:  /5 marks |

Section II: Short-answer questions

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| 6 Label parts A–D on the animal cell shown below. | | |
| Award 1 mark for each correct answer as below:  A: Nucleus  B: Mitochondrion  C: Cytoplasm  D: Cell membrane | | |
|  | | /4 marks |
| 7 You are viewing a specimen through a compound light microscope with a × 5 eyepiece magnification and a × 20 objective lens magnification. What is the total magnification of your view? | | |
| × 100 | | |
|  | /1 mark | |
| 8 What are antibiotics? Where do they usually originate in nature? | | |
| Antibiotics are substances that kill bacteria (1 mark). Most antibiotics are naturally produced by fungi / moulds (1 mark). | | |
|  | /2 marks | |
| 9 What is natural flora, and why do our bodies need it? | | |
| Natural flora is made up of the microbes that normally live inside our bodies (1 mark) and help keep us healthy by helping digestion and by fighting pathogens (1 mark). | | |
|  | /2 marks | |
| 10 Evaluate the following statement: ‘Chloroplasts are like microscopic solar panels’. | | |
|  | | |
| Chloroplasts are very small organelles found in plant cells (and some unicellular organisms) (1 mark). Like solar panels they convert solar energy into chemical energy (1 mark). This process is called photosynthesis / is used to produce glucose that can be used by the cell (1 mark). | | |
|  | /3 marks | |
|  | Section II  Total marks:  /12 marks | |

Section III: Extended-response questions

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| 11 You are looking at the cells below through a compound light microscope. They have been stained with a blue dye. Determine the cell type (animal, plant, fungal or bacterial). Justify your choice by describing the features that are present and / or absent in these cells. | | | |
|  | | | |
| Image is of an animal cell (1 mark)  Students’ reasoning will vary (1 mark for each feature, up to 3 marks). For example:  • No cell wall present so it is not a fungal cell (1 mark).  • No cell wall or chloroplasts so it is not a plant cell (1 mark).  • It has a nucleus so it not bacterial (1 mark). | | | |
|  | | | /4 marks |
| 12 Compare and contrast a compound light microscope with a stereomicroscope. | | | |
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| Students’ answers will vary (award 1 mark for each comparison, up to 4 marks).  Both a compound light microscope and stereomicroscope use light to view the specimen.  A compound light microscope shines light through the specimen, while a stereomicroscope bounces light off the surface of the specimen.  The specimen for a compound light microscope is a fine slice on a slide, while a stereomicroscope uses the whole or small parts of the specimen.  Compound light microscopes can be monocular or binocular, while stereomicroscopes are typically binocular.  Compound light microscopes view the specimen in 2D because the specimen is a thin slice, while stereomicroscopes view the specimen in 3D. | | | |
|  | | /4 marks | |
|  | Section III  Total marks:  /8 marks | | |