

Cell Test Review Answer Sheet

Someone who is not currently answering a question should hold this paper and inform all persons of the correct answer after the "victim" has tried to do so. Pass the paper on to the next person at each turn!

- 2 advantages of light microscopes over electron microscopes include viewing live cells, objects can be seen in color larger field of view & easier prep of slide.
- 2 advantages of electron microscope over light microscope include higher magnification and greater resolution of image.
- Vacuoles
- Chromosomes
- Lysosomes
- Plasma membrane (Cell membrane is not acceptable for IB use!)
- Mitochondria
- Nucleus
- Nucleolus
- Golgi Apparatus because the short tubes are turned at the ends with little bubbles or vesicles near their ends.
- ribosomes
- smooth ER
- vacuoles
- B (Eukaryotic Cell)** - It has a nucleus!
- cell wall
- Nuclear Envelope (Nuclear membrane is not acceptable for IB use!)
- Cytoplasm
- Plasma membrane
- Chloroplast
- Nucleolus
- DNA (Deoxyribonucleic Acid)
- Flagella (Flagellum- singular)
- Amyloplast
- Chloroplast
- Blue-green Algae and Bacteria
- Plants, animals, fungi & Protocista (protists)
- A nucleolus makes ribosomes.
- Vacuoles store water and other materials the cell needs.
- The mitochondria provides the cell with energy. It is like the powerhouse of the cell.
- A flagella is used for locomotion (movement).
- Cellulose
- Ribosomes make proteins (also known as polypeptides).
- Mitochondria perform cellular respiration in both plant and animal cells.
- Lysosomes a) digest worn out organelles, b) digest the cell's food, c) break down big molecules, d) digest pathogens, & e) help with selective cell death.
- Mitochondria perform cellular respiration in both animal and plant cells.
- Mitochondria, chloroplasts and the nucleus all contain DNA.
- The Theory of Endosymbiosis states that both mitochondria & chloroplasts were once prokaryotic cells that came to live symbiotically in a larger cell. The larger cell gained energy while the mitochondria & chloroplasts gained food and protection from the arrangement. This joining of cells thus created the first eukaryotic cells.
- Cell differentiation = each cell develops to do its own specific job due to the genes which become active within its DNA.
- $0.076 \text{ mm} = 76 \mu\text{m}$. (Move the decimal point 3 units to the right to convert mm to μm .)
- $1000 \mu\text{m} = 1 \text{ mm}$.
- μm means micrometer or micron.
- $435 \mu\text{m} = 0.435 \text{ mm}$
- The Cell Theory States: A) All cells come from pre-existing cells. B) All organisms consist of one or more cells. C) Cells are the smallest living components of life.
- Complex, modern cells are Eukaryotic Cells.
- True. Many cells in organisms are specialized to do only 1 task.
- The plant cell is 0.5 mm (500 μm) long. Actual size = lens field of view / # of cells that fit across viewed area (2 mm / 4)
- The animal cell is 0.1 mm (100 μm) long. Actual size = lens field of view / # of cells that fit across viewed area (0.4 mm / 4)
- Bacteria & Blue-green Algae are examples of prokaryotic cells.
- Prokaryotic cells have a) naked DNA, b) ribosomes free in the cytoplasm, c) no membrane-bound internal membranes.
- Smooth ER
- Cilia
- The Cell Theory States: A) All cells come from pre-existing cells. B) All organisms consist of one or more cells. C) Cells are the smallest living components of life.

53. Cell organelles containing DNA are a) mitochondria, b) chloroplasts, c) nucleus.
54. Drawing magnification = 1000X (Drawing Mag. = Drawing size (mm) / Actual cell size (mm)... (100mm/0.1mm)
55. Mitochondria
56. Cytoplasm
57. Plasma membrane
58. Organelle. The nucleolus, rough ER and chloroplast are all organelles in a cell.
59. Plant cells have a cell wall, chloroplasts, large central vacuole, no centrioles, no lysosomes, and a cell plate during cytokinesis.
60. Animal cells have no cell wall, no chloroplasts, usually smaller vacuoles, centrioles, and divide by a cleavage furrow during cytokinesis.
61. Prokaryotic cells.
62. The drawing magnification = 100X (Drawing Mag. = Drawing Length(mm) /Cell Length (mm)(20 mm/0.2 mm)
63. **300 μm** . (Move the decimal place 3 places to the right to convert mm to μm .)
64. The drawing magnification = 1000X (Drawing Mag. = Drawing Length(mm) /Cell Length (mm)(First convert 200 μm to 0.2 mm. Then 200 mm/0.2 mm =1000X)
65. **80X** (Microscope magnification = eyepiece power X objective lens power, or 4 X 20)
66. (2 answers needed) Light microscopes allow a) viewing of live microorganisms, b) viewing in color, c) viewing a wider field of view, d) easier prep of slide.
67. (2 answers needed) Electron microscopes allow users to see objects a) at higher magnification & b) at higher resolution (higher clarity).
68. Electron microscope
69. Electron microscope
70. Light microscope
71. Plant cells usually have a) cell wall, b) chloroplasts, c) large central vacuole, d) plastids (like amyloplasts), e) squarer or rectangular shapes.
72. Centrioles
73. Nuclear envelope (Nuclear membrane is not acceptable to IB.)
74. In plants, the plasma membrane is found inside the cell wall.
75. In prokaryotic cells, the cell surface membrane is found inside the cell wall.
76. Prokaryotic cells – ribosomes are floating free in the cytoplasm. Eukaryotic cells – ribosomes are found either on the rough ER or floating free in the cytoplasm.
77. Prokaryotic Cells – DNA found in nucleoid (no membrane around it!). Eukaryotic Cells – DNA found in nucleus..... the nuclear envelope surrounds the DNA.
78. Prokaryotic cells – DNA is naked. Eukaryotic cells – DNA is covered by histone proteins.
79. The vacuoles of plant cells are usually much larger than those of animal cells.
80. Nucleoid
81. Cytoplasm
82. Smooth ER lacks lacks ribosomes embedded into its walls, so their surface smooth.
83. ER = Endoplasmic Reticulum
84. Flagella
85. Golgi apparatus
86. Plant cells that live where there is no light (beneath bark, at the center of stems, or in the roots) do not have chloroplasts as photosynthesis cannot occur there.
87. Transmission Electron Microscope
88. Resolution = clarity of viewing an object, or how closely 2 points can be distinguished.
89. Bacteria range from 0.2 - 30 μm in size.
90. Cellular organelles range from 5 -10 μm in size.
91. Unicellular
92. Multicellular
93. Differentiation
94. Stem cells
95. Answer C.....before nucleus
96. Mesosome
97. Protects the internal structure of prokaryotic cells and determines which molecules enter and leave the cell.
98. Cell walls give prokaryotic cells structure or shape and provide protection for the cell.
99. Binary fission means the prokaryotic cell literally splits in two.
100. Fungi
101. Protocista
102. Organelles
103. Extracellular
104. Intracellular
105. Lysosomes a) digest worn out organelles, b) digest the cell's food, c) break down big molecules, d) digest pathogens, & e) help with selective cell death.
106. Answer A - Scanning Electron Microscope
107. ATP
108. Histones (the proteins covering eukaryotic cell DNA)
109. Types of cells with a cell wall include: a) prokaryotic (bacteria & blue-green algae), b) plant, c) fungi, and d) some protist cells (those that are plant-like).

110. The cell wall of prokaryotic cells provides shape, strength & support and protection.
111. Binary fission means the cell simply splits in two to produce 2 identical prokaryotic cells.
112. Fungi
113. B) Protoctista (also known as protists)
114. Organelle
115. Extracellular
116. Intracellular
117. Lysosomes a) digest worn out organelles, b) digest the cell's food, c) break down big molecules, d) digest pathogens, & e) help with selective cell death.
118. Prokaryotic DNA is naked (This means it is 100% DNA and not covered by proteins.). Prokaryotic DNA is not surrounded by a nuclear envelope, but is instead found floating free in the region of the cytoplasm known as the nucleoid.
119. DNA can be found in the nucleus, chloroplast & mitochondria.
120. Two eukaryotic cell organelles that contain both circular and naked DNA are a) chloroplasts and b) mitochondria.