Answer Key:

1. a. 1 8.5” x 11” double-sided note sheet
   b. goggles
   c. non-programmable calculator
2. a. Phagocytosis
   b. Pinocytosis
   c. Receptor-mediated endocytosis
3. Vesicles are small membrane-enclosed compartments that can store and transport molecules
4. D (helicase)
5. Osmosis is the movement of solvent through a semipermeable membrane from a region of low concentration of solute to a region of high concentration of solute.
6. Proteins may denature due to changes in pH or temperature.
7. B (mitochondria)
8. Leucoplasts are non-pigmented organelles found in plant cells and are specialized for bulk storage of starch, lipids, or proteins.
9. Stroma
10. Components of different organelles may require different environments to function; for example, pH may vary within different organelles.
11. A (turgid)
12. a. Actin filaments
    b. Intermediate filaments
    c. Microtubules
13. D (packaging of lipids)
14. C (mobility of the cell)
15. Active transport
16. Amphipathic
17. B (capsid)
18. Cholesterol maintains the fluidity of the cell membrane without allowing it to become too fluid; determines semipermeability.
19. a. Glycolysis
    b. Intermediate step
    c. Krebs Cycle (citric acid cycle and tricarboxylic acid cycle are also acceptable)
    d. Electron Transport Chain (ETC)
20. C□H□□O□ + 6O□ → 6CO□ + 6H□O + energy
21. $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
22. Energy from the ETC is used to pump protons across the membrane to create a gradient. As the protons pass back through ATP synthase, the phosphorylation of ADP is catalyzed, forming ATP
23. C (cristae)
24. C (ATP and water)
25. Rubisco
26. C (P680)
27. C (mitochondria)
28. a. insertion

b. deletion
c. duplication

29. C (2:3)
30. B (Hershey and Chase)
31. a. LDL 2
    b. IDL 3
    c. HDL 1
    d. Chylomicrons 5
    e. VLDL 4
32. Lipoproteins transport cholesterol, triglycerides, and other fats.
33. Eukaryotic DNA is linear and arranged into chromosomes, while prokaryotic DNA is circular
34. B (flagella)
35. ATP is formed as needed and is not consumed; energy released when the phosphate bond is broken is used in another reaction.
36. B (Phosphofructokinase)
37. Can be any of the following:
    a. chromosomes coil and can be viewed under a light microscope
    b. the nucleolus disappears
    c. the nuclear envelope disappears
    d. the spindle apparatus forms
    e. chromosomes are seen as a pair of sister chromatids joined by a centromere
38. B (DNA replicates)
39. B (metaphase)
40. Cytokinesis
41. a. the virus attaches to the host cell
    b. the virus inserts its genetic material into the host cell
    c. multiplication of the viral chromosome
    d. viral chromosomes surrounded by newly synthesised protein coats
    e. release of new virus particles by lysis of host cell wall
42. a.5
    b.4
    c.2
    d.1
    e.3
43. glycolysis
44. a
45. a. ethanol
    b. carbon dioxide
46. histones package DNA into structural units called nucleosomes
47. a. chromatid
    b. centromere
    c. DNA
48. amount of oxygen consumed/rate of cellular respiration
49. contents of each respirometer

50. volume of contents of respirometer, temperature, environment, etc.