

# **BIOL-8 Practice Test 01 — Answer Key**

## **Modules 1-4: Foundations of Human Biology**

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## **Part A: Multiple Choice Answers**

| <b>Q</b> | <b>Answer</b> | <b>Explanation</b>                                      |
|----------|---------------|---|
| 1        | C             | All living things are made of cells                     |
| 2        | A             | Cell → Tissue → Organ → Organ System → Organism         |
| 3        | B             | The independent variable is what the scientist changes  |
| 4        | B             | Theories are well-supported by many experiments         |
| 5        | B             | Homeostasis = maintaining a stable internal environment |
| 6        | B             | Autotrophs make their own food                          |
| 7        | C             | Atomic number = number of protons                       |
| 8        | B             | Covalent bonds involve sharing electrons                |
| 9        | C             | Water is polar due to unequal electron sharing          |
| 10       | B             | Acids have pH less than 7                               |
| 11       | A             | Carbon, Hydrogen, Oxygen, Nitrogen are most common      |
| 12       | B             | Hydrogen bonds give water its unique properties         |
| 13       | B             | Acids release H <sup>+</sup> ions                       |
| 14       | B             | Dehydration synthesis removes water to build polymers   |
| 15       | C             | Carbohydrates provide quick energy                      |
| 16       | B             | Amino acids are protein monomers                        |
| 17       | B             | Amino acid sequence determines protein shape/function   |
| 18       | D             | DNA and RNA are nucleic acids                           |
| 19       | B             | Hydrolysis adds water to break polymers                 |

| <b>Q</b> | <b>Answer</b> | <b>Explanation</b>                               |
|----------|---------------|--|
| 20       | B             | Cell theory: cells come from pre-existing cells  |
| 21       | C             | Prokaryotes lack a membrane-bound nucleus        |
| 22       | C             | Mitochondria produce ATP                         |
| 23       | C             | Ribosomes are the site of protein synthesis      |
| 24       | C             | Plant cells have cell walls; animal cells do not |
| 25       | D             | Golgi apparatus packages and ships proteins      |

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## **Part B: Fill in the Blank Answers**

| <b>Q</b> | <b>Answer</b>                    |
|----------|----------------------------------|
| 26       | cell                             |
| 27       | nucleus                          |
| 28       | isotopes                         |
| 29       | basic (or alkaline)              |
| 30       | monosaccharide (or simple sugar) |
| 31       | energy                           |
| 32       | ribosome                         |
| 33       | cell                             |
| 34       | chloroplasts                     |
| 35       | rough                            |

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## **Part C: Short Answer Key**

### **36. Characteristics of living things (any 3):**

- Cellular organization (made of cells)
- Metabolism (use energy)
- Homeostasis (maintain internal stability)
- Growth and development
- Reproduction
- Response to stimuli
- Adaptation

### **37. Ionic vs. Covalent bonds:**

- Ionic bonds: electrons are transferred from one atom to another
- Covalent bonds: electrons are shared between atoms

### **38. Four biomolecules:**

- Carbohydrates, Lipids, Proteins, Nucleic Acids
- Nucleic acids (DNA and RNA) store genetic information

### **39. Prokaryotes vs. Eukaryotes:**

- Prokaryotes: no nucleus, no membrane-bound organelles, smaller (ex: bacteria)
  - Eukaryotes: have a nucleus and membrane-bound organelles, larger (ex: plants, animals)
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*End of Answer Key*