

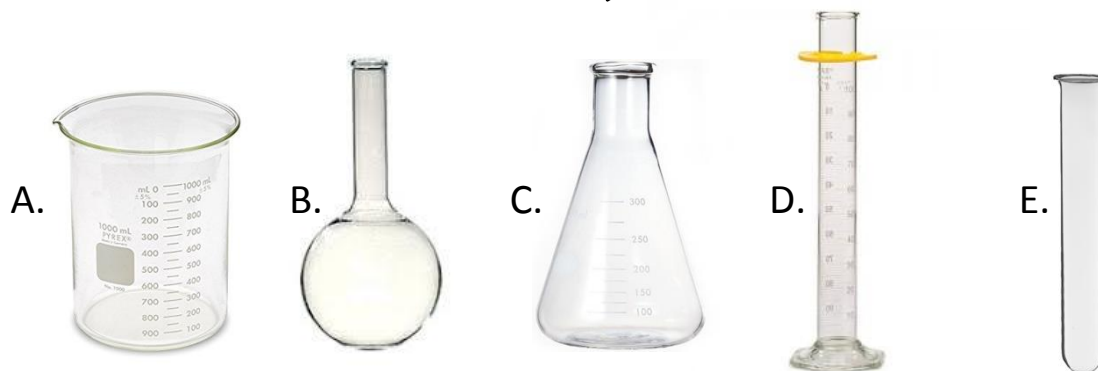
Fall Semester Review Packet #1 (Intro -cells)

1. Being skeptical and being open to change are parts of
 - a. Homeostasis
 - b. Control grouping
 - c. **Scientific thought**
2. In science, ___?___ are truths that are valid everywhere in our known universe
 - a. **Laws**
 - b. Hypothesis
 - c. Inferences
 - d. Theory's
3. Flammable materials, like alcohol, should never be dispensed or used near
 - a. An open door
 - b. **An open flame**
 - c. Another student
 - d. A sink
4. The system of moral principles and values needed for scientific investigations is called
 - a. Theories
 - b. **Ethics**
 - c. Observations
 - d. Inferences
5. Approved eye protection devices (such as goggles) are worn in the laboratory
 - a. To avoid eye strain
 - b. To improve your vision
 - c. Only if you need corrective lenses
 - d. **Any times chemicals, heat or glassware are used**
6. During an experiment, the group that does not change is known as
 - a. **Control group**
 - b. Experimental group
 - c. Alpha group
 - d. Bible study group
7. A specific, testable prediction for a limited set of conditions is a (also known as an educated guess)
 - a. Theory
 - b. **Hypothesis**
 - c. Inference
 - d. Observation

8. Which of the following is considered the study of the human body?
- a. Biology
 - b. Genetics
 - c. Zoology
 - d. **Physiology**
9. Which of the following is considered the study of life?
- a. **Biology**
 - b. Genetics
 - c. Zoology
 - d. Physiology
10. Which of the following is considered the study of animals
- a. Biology
 - b. Genetics
 - c. **Zoology**
 - d. Physiology
11. Which term identifies the study of how organisms interact with each other and with their environment?
- a. Zoology
 - b. Biology
 - c. Genetics
 - d. **Ecology**
12. Which of the following identifies the study of how organisms pass traits to their offspring?
- a. Zoology
 - b. Biology
 - c. **Genetics**
 - d. Ecology
13. Which term identifies the study of plants?
- a. Zoology
 - b. Biology
 - c. Physiology
 - d. **Botany**
14. The sum of all chemical reactions that occur within an organism is called
- a. **Metabolism**
 - b. Homeostasis
 - c. Synthesis reactions
 - d. Double replacement reactions

15. What term is used to identify a characteristic of life where organisms make more of their kind?
- Growth
 - Reproduction
 - Locomotion (movement)
 - Foundation is the cell
16. Does an organism need to show the properties of life at every level of development?
- Yes, otherwise it is no longer alive
 - No, but it has to show all of them at some stage of its life
 - Yes, it needs to be able to pass them along to its offspring
 - No. but it has to show them in correct order from birth to death

Please use these photos to answer questions number 17-23 only

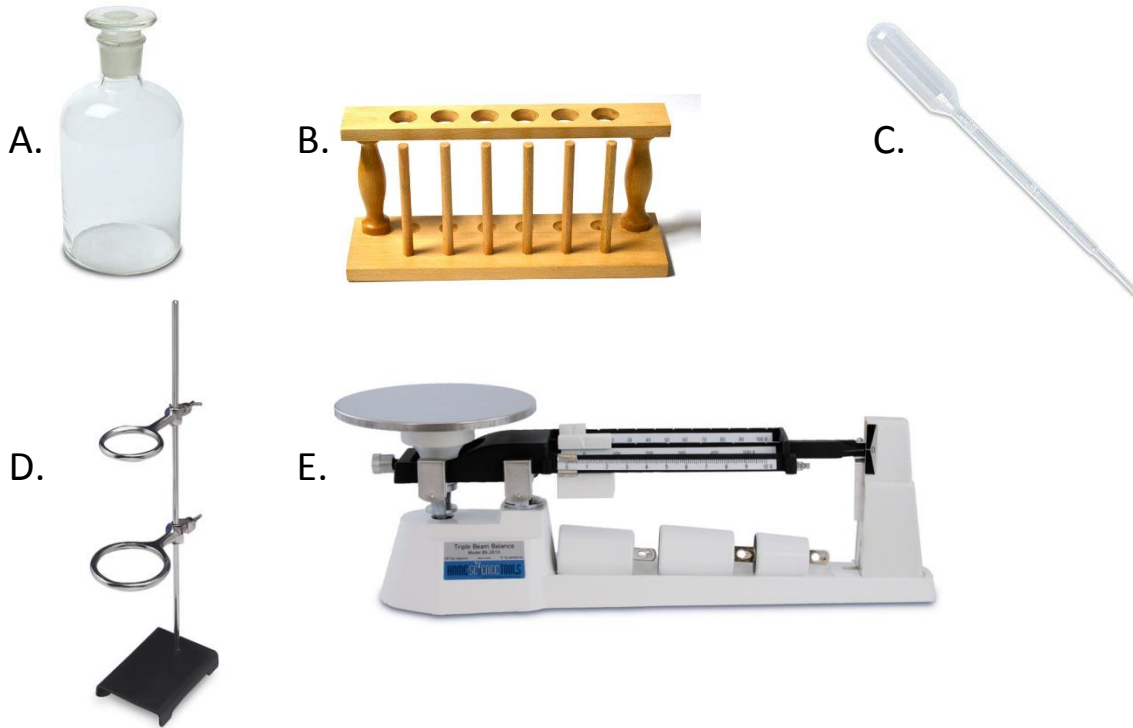


Please identify ...

- The test tube
- Which glass ware item would form a meniscus that you would read?
- Which item is best for measuring liquids
- Florence flask
- Graduated beaker
- Graduated Erlenmeyer flask
- Graduated cylinder

24. What is true of all hypotheses?
- They are true
 - They are false
 - They are testable
 - They are indisputable
25. Which of the following units would be the most appropriate for determining the mass of an apple?
- Gram
 - Kilogram
 - Milligram
 - Centigram
26. How does a microscope help scientists observe objects?
- It measures objects
 - It magnifies objects
 - It performs calculations
 - It stains transparent objects
27. Some toads that live in west Texas bury themselves during the heat of the day. What characteristic of life does this behavior describe?
- Heredity
 - Reproduction
 - Metabolism
 - Responsiveness (interaction with the environment)
28. Which of the following is not considered living?
- Texas fence lizard
 - Mediterranean gecko
 - West Nile Virus
 - Northern gray squirrel
29. To support claims, scientists require
- Evidence
 - Opinions
 - Technology
 - Photographs
30. Which of the following observations is qualitative, describes in words not numbers?
- Surveying the size of the Canadian Goose population
 - Observing the nocturnal behavior of coyote populations in Dalworthington Gardens
 - Recording the date when goose migrations begin every year
 - Counting the number of Barn Sparrow nests that are robbed of eggs in a given area

Please use these photos to answer questions number 31-34 only



Please identify

31. Which item will you need to tare prior to using?
 32. The item needed to hold equipment while heating or cooling
 33. The pipette
 34. The reagent bottle
-
35. Which of the following will not help you to avoid stress while working with a microscope?
 - a. Keep both eyes closed
 - b. Sit down
 - c. Adjust the light on the scope
 - d. Turn off the lights in the room
 36. Which of the following statements is considered incorrect in the safe operation of a light microscope?
 - a. Use a coarse adjustment knob when focusing on 40x
 - b. Use a fine adjustment knob when focusing on 40x
 - c. Adjust the light to get a better view of the specimen
 - d. Use a coarse adjustment knob when focusing on 400x

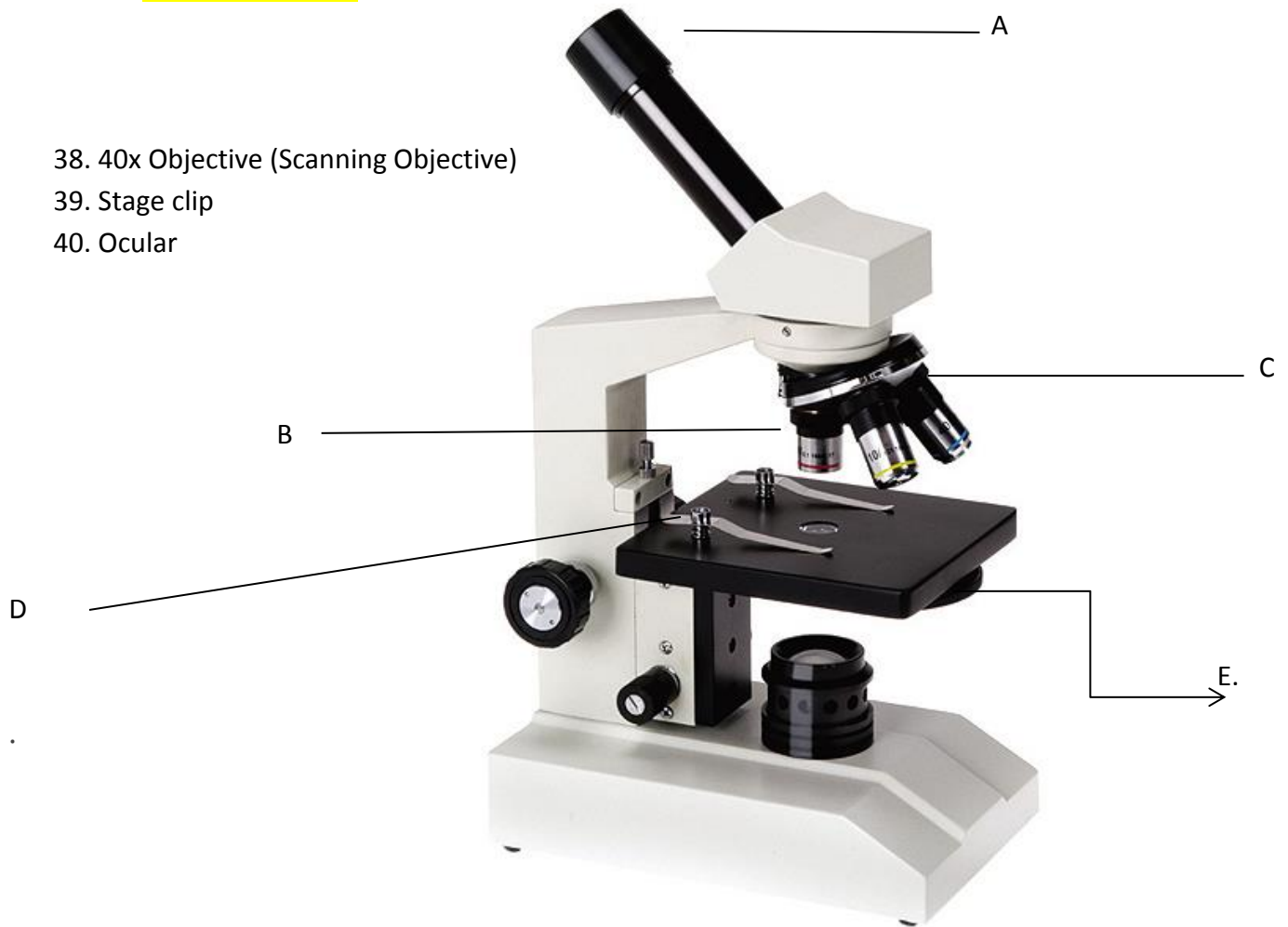
37. Personal eyeglasses provide as much protection as

- a. A face shield
- b. Safety glasses
- c. Splash proof chemical goggles
- d. None of these

38. 40x Objective (Scanning Objective)

39. Stage clip

40. Ocular



41. Which of the following will cause a hurricane to **gain strength**?
- Cool ocean waters
 - Land
 - Mountains
 - Warm ocean waters
 - Rotation of the earth
42. The material that contains the information that **determines inherited characteristics is**
- DNA
 - RNA
 - Ribosomes
 - ATP
43. Molecules composed of glycerol and a fatty acid. It is a long chain of carbon atoms with **one or more double bonds**.
- Saturated fat
 - Unsaturated fat
 - Buffer
 - Protein
44. Any compound that increases the number of **hydronium ions** when dissolved in water is considered a/an
- Acids
 - Bases
 - Neutral
 - Buffers
45. From our lab, we identified that the heating of water will increase steadily from freezing (0°C) to boiling (100°C).
- True
 - False
46. An organic compound that consists of a **sugar, a phosphate, and a nitrogenous** base would be called a/an
- Amino acid
 - Buffer
 - Nucleotide
 - Nucleic acid
47. Atoms do not contain
- Protons
 - Electrons
 - Ions
 - Neutrons
48. The attraction between water molecules is caused by
- Covalent bonds
 - Hydrogen bonds
 - Metallic bonds
 - Ionic and covalent bonds

49. An atom is called an ion when it has
- Either lost or gained electrons
 - Lost its nucleus
 - Has more neutrons than protons
50. The ability of water to form drops is an example of
- Adhesion
 - Cohesion
 - Ionic bonding
 - Hydrogen bonding
51. Environmentally speaking, what **is the purpose** of a hurricane?
- Rearrange the landscape
 - Redistribute the oceanic water in the Atlantic basin
 - Transport warm oceanic temperatures up to the upper atmosphere
 - Keep the nutrients in the ocean evenly distributed
52. One solution has a pH of 2, another has a pH of 7. Which of the following is true?
- Both solutions are acidic
 - The solution with a pH of 2 is basic, and the solution with a pH of 7 is acidic
 - The solution with a pH of 7 is neutral, and the solution with a pH of 2 is acidic
 - Both identify the range of neutral solutions
53. Plants store the sun's energy for the future use as
- DNA
 - Starch
 - Protein
 - Lipid bilayer
54. From our Lab, we identified that the addition of salt (or any other solute) will decrease the freezing point of water and increase the boiling point of water. This is most effective when deicing aircraft, roadbeds, and sidewalks as well as keeping our car radiators from boiling over.
- True
 - False
55. Which of the following would vinegar be associated with?
- Acid solution
 - Base solution
 - Neutral solution
 - Compounds
56. The ***smallest unit*** of an element that maintains the chemical properties of that element is considered ...
- Proton
 - Neutron
 - Atom
 - Electron

57. **A fat molecule** or a molecule that has similar properties; examples include oils, waxes, and steroids is considered a/an
- Lipid
 - Protein
 - Carbohydrate
 - Amino acid
 - Buffer
58. A bond formed when atoms **share one or more pairs** of electrons is called
- Ionic bond
 - Metallic bond
 - Hydrogen bond
 - Covalent bond
59. A natural polymer that is present in all living cells and **that plays a role in protein synthesis is called**
- DNA
 - Amino acid
 - RNA
 - Carbohydrate
60. A class of molecules that includes sugars, starches, and fiber; contains **carbon, hydrogen and oxygen** is called
- Carbohydrate
 - Amino acid
 - Hydrocarbon
 - Protein
61. An organic compound that is made up of one or more **chains of amino acids** and that is a principal component of all cells is called
- Carbohydrate
 - Hydrocarbon
 - Buffer
 - Protein
62. An attractive force between **oppositely charged ions**, which form when electrons are transferred from one atom to another would be considered a/an
- Covalent bonds
 - Metallic bonds
 - Ionic bonds
 - Hydrogen bonds
63. A compound of a class of simple organic compounds that contain a carboxyl group, amino group and that combine to form proteins is considered to be a/an
- Amino acid
 - Carbohydrates
 - Hydrocarbons
 - Buffer

64. An organic compound, either RNA or DNA, whose molecules are made up of **one or two chains of nucleotides** and can carry genetic information is called a/an
- Buffer
 - Nucleic acid**
 - Amino acid
 - Carbohydrate
65. Any compound that increases the number **of hydroxide ions** when dissolved in water is considered a/an
- Acid
 - Neutral
 - Base**
 - Buffer
66. A solution **made from a weak acid and its conjugate base** that neutralizes small amounts of acids or bases added to it would be considered a/an
- Acid
 - Base
 - Neutral
 - Buffer**
67. An organic molecule that acts as the **main energy source** for cell processes; composed of a nitrogenous base, a sugar, and three phosphate groups is called
- Mitochondria
 - RNA
 - DNA
 - ATP**
68. When heating water, increasing energy causes the water molecules to vibrate so much that the hydrogen bonds break apart thus going through a phase change from a solid (ice) to liquid and finally into a gas (humidity)
- True**
 - False
69. A molecule, either protein or RNA, that **acts as a catalyst** in biochemical reactions is considered a/an
- Buffer
 - Enzymes**
 - Carbohydrate
 - Protein
70. Molecules composed of glycerol and a fatty acid. It is a long chain of carbon atoms connected by **single covalent** bonds
- Saturated fat**
 - Unsaturated fat
 - Buffer
 - Protein

71. Which **direction** does a hurricane rotate?
- In the northern hemisphere they rotate counterclockwise and in the southern hemisphere they rotate clockwise.
 - They will always rotate counterclockwise
 - They will always rotate clockwise
 - In the northern hemisphere they rotate clockwise and in the southern hemisphere they rotate counterclockwise.
72. Enzymes
- Are usually proteins
 - Decrease the speed of chemical reactions
 - Increase the activation energy of chemical reactions
 - Are composed of virus components
73. The starting materials for a chemical reaction are called
- Nucleotide
 - Products
 - Reactants
 - Buffers
74. A solution is a mixture of
- Polar and nonpolar substances
 - Protons and neutrons
 - Unevenly distributed substances
 - Evenly distributed substances
75. **Without** energy, organisms could not
- Maintain homeostasis
 - Carry out chemical reactions
 - Make their own food
 - All of the above
76. In an atom with the **same number of electrons and protons**, the electrical charge is
- Neutral
 - Positive
 - Negative
 - Not enough information to determine
77. Activation energy is needed by chemical reactions that
- Release energy
 - Absorb energy
 - Are catalyzed by enzymes
 - All of the above
78. Starch
- Is made of a sugar, a base, and a phosphate group
 - Does not contain carbon atoms
 - Is made of amino acids
 - Is a carbohydrate in which energy is stored

79. Using the periodic table, how **many orbital** shells does the element Boron (B) have?
- a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5
80. What is the **maximum** number of **orbital shells** in an atom that we know of?
- a. 2
 - b. 4
 - c. 7
 - d. 8
 - e. 9
81. How **many electrons** are found in Calcium (Ca)
- a. 2
 - b. 8
 - c. 10
 - d. 20
82. What is the **maximum number** of electrons found in the outer most shell?
- a. 2
 - b. 4
 - c. 7
 - d. 8
83. How many **protons** does Lithium have?
- a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5