1. Where are the Hadley Cells in meteorology located?

1. Between 30 degrees and 60 degrees
2. The Hadley Cells don’t exist
3. Between the Equator and 30 degrees
4. Between 60 degrees and the Polar Ice Caps

2. Which of these materials is NOT a major component of the plasma membrane?

1. Phospholipids
2. Glycoprotein
3. Proteins
4. DNA

3. Which of the following is an Alkali Metal

1. Sodium
2. Hydrogen
3. Tin
4. Calcium

4. What muscle is part of the calf muscle?

1. Gastrocnemius
2. patella tendon
3. Quadricep
4. Achilles

5. Approximately how many angstroms is the diameter of an Hydrogen atom?

1. one-millionth of an angstrom
2. one-thousanth of an angstrom
3. one-hundreth of an angstrom
4. one angstrom

6. A pound-force is \_\_\_ a Newton?

1. greater than
2. less than
3. equal to
4. not the same dimensions

7. The free-air correction is

1. related to density of rocks
2. related to Earth's elliptical shape and rotation
3. related to elevation
4. related to the terrain

8. The largest organ of the body is the

a.      Liver

b.      Colon

c.       Epidermis

d.      Lungs

9.  In the laboratory, Austin is given a mixture of iron filings, sand, and salt. To separate the mixture, Austin uses a magnet, boiling water, and a filter. Which statement is true about the process Austin uses to separate this mixture?

a.       Austin uses only physical changes to separate the mixture’s components

b.      Austin uses only chemical changes to separate the mixture’s components

c.       Austin uses both physical and chemical changes to separate the mixture

d.      Austin uses neither physical nor chemical changes to separate the mixture

10. The mass of a high mass star is \_\_\_\_\_ solar masses

a.       4-8

b.      >12

c.       <6

d.      >8

11. The region between two biomes, such as the savannah, is called

a.       Ecobine

b.      Ecozone

c.       Ecological Shift

d.      Ecotone

12. Second stage of cell replication is:

a.       Prophase

b.      Metaphase

c.       Anaphase

d.      Cytokinesis

13.  When a system is at equilibrium, \_\_\_\_\_\_\_\_\_\_?

a.       The reverse process is spontaneous but the forward process is not

b.      the forward process and the reverse processes are both spontaneous

c.       the forward process is spontaneous by the reverse process is not

d.      the process is not spontaneous in either direction

e. both forward and reverse processes have stopped

14. The wavelength of electromagnetic waves for gamma rays is from 1\*10-12 m to \_\_\_\_\_\_\_\_\_

a.       1 um

b.      100 um

c.       1\*10-11

d.      2 m

15.      The only nutrient cycle that does not have an atmospheric component –

a.       Carbon

b.      Sulfur

c.       Phosphorous

d.      Water

16. Which organelle(s) participate(s) in respiration?

a.       Mitochondria

b.      Cytoplast

c.       Ribosomes

d.      A and B

e.       All of the Above

17. Young’s Modulus models

a.       Stress/strain

b.      Force/area

c.       N/Kg

d.      Distance/time

18. The entropy of the universe is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

a.       Constant

b.      Continually decreasing

c.       Continually increasing

d.      Zero

19. The two types of lava are

a.       Magma and lava

b.      Covfefe and Aa

c.       Pahoehoe and submarine

d.      Pahoehoe and Aa

20.  What does ATP stand for?

a.       Adenine Thymine Phosphorous

b.      Adenine triphosphate

c.       Adenosine triphosphate

d.      Animals Try Protein

21.  Balance the equation: H2 + O = H2O

a.       2H2 + O = 2H2O

b.      2H2 + O2 = 2H2O

c.       H2 + O2 = 2H20

D.     It is already balanced

22.  The Law of Reflection states that:

a.       Beams lose intensity once reflected

b.      The angle of incidence equals the angle of reflection

c.       Two beams intersecting will cancel each other out

d.      You are prettier in a mirror than in real life

23.  The highest layer of the atmosphere is the

a.       Exosphere

b.      Troposphere

c.       Stratosphere

d.      Lithosphere

24. How many carbons does propane have?

1. 2
2. 3
3. 6
4. 7

25. What part of a plant allows gas to enter and exit the leaf?

1. Stomata
2. Pistil
3. Sepals
4. Anther

26. How many mL of water are in 300 grams of water at STP?

1. 3 grams
2. 30 grams
3. 300 grams
4. 3000 grams

27. When ΔG is less than zero, a chemical reaction is:

1. Spontaneous
2. Nonspontanious
3. Spontaneous only at high temperatures
4. Spontaneous only at relatively low temperatures

28. Of the following biological levels of organization, what represents the smallest or lowest level ?

1. Organs
2. Populations
3. Cells
4. Organisms
5. Tissues

29. A molecule with the formula C3H8 is a(n):

1. Hexane
2. Propane
3. Decane
4. Butane

30. When two continental plates collide, a(n) \_\_\_\_\_ forms.

1. Valley
2. Mountain
3. Volcano
4. Underwater volcano

31. Which of the following statements is wrong? I. A body can have a constant speed but a varying velocity. II. A body can have a constant velocity but a varying speed. III. A body can have a zero velocity and finite acceleration.

1. I only
2. III only
3. None of these
4. II only

32. What is not true about momentum?

1. It is the product of the mass and the velocity of the body
2. It is a vector quantity whose direction is the same as that of the velocity
3. It is a force
4. The SI unit is kilogram meter per second

33. To which superfamily do ants belong?

1. Hornets
2. Wasps
3. Bees
4. Arachnids

34. A cell in a hypotonic environment is most likely to:

1. Contract
2. Expand
3. Thrive
4. Not respond

35. Which of the following is the largest layer in the Earth?

1. Inner core
2. Outer core
3. Mantle
4. Crust

36. Which of the following is the most ideal conditions for flying an airplane?

1. Warm/humid air
2. Warm/dry air
3. Cold/humid
4. Cold/dry air

37. The charge of an atom is determined by the ratio of:

1. Protons/neutrons
2. Protons/electrons
3. Electrons/protons
4. Neutrons/electrons

38. Which of the following terms is MOST commonly used to refer to the copying of DNA during the cell cycle:

1. Duplication
2. Replication
3. Translation
4. Complementation

39. Meanders are typically associated with:

1. turbulent rivers
2. low-gradient streams
3. V-shaped valleys
4. alluvial fans

40.Which of the following is LEAST accurate regarding the element helium:

1. it is the second most abundant element in the universe
2. it is constantly escaping from Earth’s atmosphere into space
3. it is toxic to humans even in very low concentrations
4. it is a noble gas

41.To a person standing on shore, an object dropped from the mast of a passing sailboat will trace what path, assuming negligible air resistance. Is it:

1. vertical straight line
2. slanted straight line
3. Parabola
4. Hyperbola

42. From the following biological levels of organization, which one represents the smallest:

1. Organs
2. Populations
3. Cells
4. tissues

43. Total distance covered in total time taken is termed as

1. instantaneous speed
2. average speed
3. uniform speed
4. variable speed

44.Which of the following gases has the weakest attractive forces between particles?

1. CO2
2. He
3. NO
4. HCl

45. A mass of rock formed when a large body of magma cools inside the crust is called a:

1. Neck
2. Dike
3. Lava plateau
4. Batholith

46. Protons have a \_\_ charge.

1. Positive
2. Neutral
3. Negative
4. Negative and positive

47. What is the most basic pH?

1. 1
2. 7
3. 17
4. 14

48. Which noble gas has the highest melting point?

1. Argon
2. Krypton
3. Xenon
4. Radon

49. A poise is the unit of measure for which of the following?

1. Pressure
2. Viscosity
3. Force
4. Mass

50. Which of these do not contain nucleic acids?

1. Chloroplast
2. Prion
3. Virus
4. Archaea
5. None of the above

51. What number is defined as the number of atoms in 12 grams of the isotope carbon-12?

1. Graham’s number
2. Skewe’s number
3. Tau
4. Avogadro’s number

52. In simple harmonic motion involving a spring, the acceleration of the object is directly proportional to the \_\_\_\_\_\_\_\_.

1. Displacement
2. Velocity
3. Mass
4. Spring size

53. Which of these minerals is highest on the Moh’s scale?

1. Feldspar
2. Topaz
3. Corundum
4. Apatite

54. What does molar mass mean?

1. The mass of a small mammal
2. The mass of a square, flat tooth
3. The mass of an atom
4. The mass of a certain number of atoms of the same element

55. If two cars collide, one being a truck, and the other being a smart car, which exerts more force on the other?

1. Smart Car
2. Truck
3. Both the same
4. Cannot be determined

56. What are the 4 layers of the earth in order (outside to inside)

1. Crust, Mantle, Outer Core, Inner Core
2. Bedrock, Magma, Iron, Molten Iron
3. Crust, Median, Core, Gravitational Center
4. Icing, Vanilla Cake, Inner Icing, Chocolate Cake

57. What is the name of a singular stack of thylakoids

1. Chlorophyll
2. Grana
3. Chloroplasts
4. Granum

58.  What type of reaction is the following: 2 AgNO3  +  BaSO4    Ba(NO3)2  +  Ag2SO4

a.      Single replacement

b.      Double replacement

c.      Acid base

d.      Synthesis

e.      Decomposition

59. Which of the following molecules are polar?

a.      CCl4

b.      CO2

c.      H2O

d.      Oil

e.      H2

60.  How many atoms are in 1.00 moles of Br2?

a.      80

b.      160

c.      6.022 x 1023

d.      1.204 x 1024

e.      You cannot count them

61.   What is the name of CuCl2?

a.      Copper chloride

b.      Copper dichloride

c.      Copper (I) chloride

d.      Copper (II) chloride

e.      Copper chlorine

62.  Which of the following is an ionic compound?

a.      H2O

b.      CF4

c.      BaCl2

d.      NH3

e.      CO

63.   How many mL are in 1.00 hL?

a.      1 x 103 mL

b.      1 x 104 mL

c.      1 x 105 mL

d.      1 x 106 mL

e.      1 x 107 mL

64.  What is the density of an object that has a mass of 5.25 g and a volume of 75.0 mL?

a.      394 g·mL

b.      0.070 g/mL

c.      70.0 g/L

d.      14.3 mL/g

e.      0.0143 L/g

65.      Which of the following is a homogenous mixture?

a.      Sand on the beach

b.      Sugar water

c.      Muddy water

d.      Lucky Charms cereal

e.      Italian salad dressing (needs to be shaken)

66.      Which of the following is a physical change?

a.      Boiling ethanol

b.      Rust forming on a bike

c.      Baking a cake

d.      Burning magnesium

e.      Pennies fizzing when in vinegar

67.   What type of reaction makes CO2 (g) and H2O (g) as the products

a.      Synthesis

b.      Combustion

c.      Single replacement

d.      Double replacement

e.      Decomposition