1.      A greenhouse gas produced by cows and certain bacteria is

a.      Oxygen

b.      Ethane gas

c.      Methane gas

d.      Carbon monoxide

e.      Nitrogen

2.      The outer protein coat of a virus is called a(n)

a.      Bacteriophage

b.      Capsid

c.      Amino Acid

d.      Shield

e.      Sheath

3.      Which of the following characteristics of living things is NOT true about viruses?

a.      Obtain and use energy

b.      Grow and develop

c.      Respond to stimuli

d.      Contain genetic material

e.      Evolve

4.      A student is collecting the gas given off from a plant in bright sunlight at a temperature of 27 degrees Celsius. The gas being collected is

a.      ATP

b.      Glucose

c.      Carbon dioxide

d.      Nitrogen

e.      Oxygen

5.      If carbon dioxide is completely removed from a plant’s environment, what would you expect to happen to the plant’s production of high-energy sugars?

a.      More sugars will be produced

b.      No sugars will be produced

c.      The same amount of sugars will be produced but without carbon dioxide

d.      Fewer sugars will be produced at first, but then the plant will recover

6.      Place these steps of enzyme catalysis in the correct order:

1.      The substrate and enzyme change shape

2.      The substrate enters the active site

3.      The enzyme reverts to its original configuration

4.      The product is expelled

a.      1, 2, 3, 4

b.      2, 3, 1, 4

c.      2, 1, 4, 3

d.      2, 1, 3, 4

e.      4, 3, 2, 1

7.      All of the following are characteristics of mitochondria and chloroplasts EXCEPT:

a.      Both possess their own DNA

b.      Both are surrounded by a double membrane

c.      Both can capture the energy of sunlight

d.      Both likely evolved from prokaryotic bacteria

e.      Both are involved in energy conversion

8. If you placed a freshwater fish into a saltwater tank, you would be placing the fish in a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ environment.

a.      Hypertonic

b.      Hypotonic

c.      Isotonic

d.      Plasmotonic

e.      Osmotonic

9.      What would happen if a nurse gave a patient an IV of pure water?

a.      Their blood cells would shrink

b.      Their blood cells would burst

c.      The patient would slowly become rehydrated

d.      The nurse would be promoted for outstanding medical care

e.      There would be no impact on the patient’s cells

10.   Which of the following enclose their DNA in a nucleus?

a.      Prokaryotes

b.      Bacteria

c.      Eukaryotes

d.      Viruses

e.      Ribosomes

11.      The \_\_\_\_\_\_\_\_\_\_\_ forms the relatively cool, brittle plates of plate tectonics?

a.      Lithosphere

b.      Asthenosphere

c.      Troposphere

d.      Earth

e.      None of the above

12.      \_\_\_\_\_\_\_\_\_\_\_\_ rock forms from the crystallization of molten magma?

a.      Sedimentary

b.      Indigenous

c.      Primary

d.      Igneous

e.      None of the above

13.      \_\_\_\_\_\_\_\_\_\_\_ is a fictitious outward force on a particle rotating about an axis?

a.      Centrifugal Force

b.      Centripetal Force

c.      Tangential Force

d.      Coriolis Force

e.      None of the above

14.      \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_, are 3 different types of silicates?

a.      Tectosilicates, Inosilicates, Sorosilicate

b.      Nesosilicate, Cyclosilicate, Phyllosilicate

c.      Igneous silicate, Metamorphic silicates, Sedimentary silicates

d.      A & B

e.      None of the above

15.      The composition of the earth’s core is believed to be \_\_\_\_\_\_?

a.      Basalt

b.      Granite

c.      Peridotite

d.      Solid iron-nickel alloy

e.      None of the above

16.      What is the chemical formula of Halite?

a.      PbJ

b.      MnM

c.      NaCl

d.      KCl

e.      None of the above

17.      What type of rock is Magnetite?

a.      Igneous

b.      Metamorphic

c.      Sedimentary

d.      Gemstone

e.      None of the above

18.      What type of rock is Sandstone?

a.      Clastic

b.      Igneous

c.      Sedimentary

d.      A & C

e.      None of the above

19.      The definition of geology is?

a.      the science that deals with the earth's physical structure and substance, its history, and the processes that act on it.

b.      the branch of science concerned with the nature and properties of matter and energy. The subject matter of physics, distinguished from that of chemistry and biology, includes mechanics, heat, light and other radiation, sound, electricity, magnetism, and the structure of atoms.

c.      the branch of science that deals with the identification of the substances of which matter is composed; the investigation of their properties and the ways in which they interact, combine, and change; and the use of these processes to form new substances.

d.      the study of living organisms, divided into many specialized fields that cover their morphology, physiology, anatomy, behavior, origin, and distribution.

e.      None of the above

20.   Rounding is?

a.      the grinding away of sharp edges and corners of rock fragments during transportation

b.      the relative sphericity of a grain

c.      weathering of sharp edges and corners of bedrock at Earth’s surface

d.      All of these

e.      None of the above

21. Which of the following is not a strong acid?

1. HCl
2. HNO3
3. H2SO4
4. HF
5. HClO4

22. Which of the following is defined as the support force perpendicular to the surface it contacts?

1. Normal Force
2. Gravitational Force
3. Frictional Force
4. Tension Force
5. Contact Force

23. Which of the following is not a macromolecule?

1. Carbohydrate
2. Protein
3. Nucleic Acid
4. Lipid
5. Peptide

24. Which of the following is not a simple machine?

1. Lever
2. Conveyor Belt
3. Pulley
4. Inclined Plane
5. Wedge

25. What is the molar mass of Helium (in g/mol)?

1. 1
2. 2
3. 3
4. 4
5. 5

26. Which of the following particles is not in an atom?

1. Proton
2. Neutron
3. Molecule
4. Electron

27. What are the units for the coefficient of static friction?

1. Kg
2. N/m^2
3. W
4. N/m
5. No units

28. Compaction and cementation are two common processes associated with

1. Erosion
2. Transportation
3. Sedimentation
4. Lithification
5. Nitrification

29. Where is the pituitary gland found?

1. Liver
2. Kidney
3. Heart
4. Brain
5. Lungs

30. What is the acceleration due to gravity on Earth (ft/sec^2)

1. 8
2. 16
3. 32
4. 64
5. 9.8

31. How many tentacles does an octopus have?

1. 0
2. 2
3. 6
4. 8
5. 10

32. A person has 7 neck vertebrae, how many does a giraffe have?

1. 0
2. 7
3. 14
4. 23
5. 70

33. In physics, a vector is a quantity that has\_\_\_\_\_.

1. magnitude and time
2. magnitude and direction
3. time and direction
4. time only
5. magnitude only

34. What is the minimum resultant possible when adding a 3m vector to an 8m vector?

1. 0m
2. 3m
3. 5m
4. 11m
5. 24m

35. What is the maximum resultant possible when adding a 3m vector to an 5m vector?

1. 0m
2. 2m
3. 3m
4. 8m
5. 15m

36. An unfortunate insect splatters against the front of a moving truck.  Compared to the force of the truck on the insect, the magnitude of the force of the insect on the truck is \_\_\_\_\_\_\_\_\_\_\_\_\_\_?

1. larger
2. smaller
3. the same
4. All of the above
5. None of the above

37. An unfortunate insect splatters against the front of a moving truck.  Compared to the acceleration of the truck, the magnitude of the acceleration of the insect \_\_\_\_\_\_\_\_\_\_\_\_\_\_?

1. larger
2. smaller
3. the same
4. All of the above
5. None of the above

38. The metric unit of weight is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. slug
2. pound
3. joule
4. newton
5. kilogram

39. The metric unit of mass is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. slug
2. pound
3. joule
4. newton
5. Kilogram

40.     A glass rod is rubbed with a piece of silk.  During the process the glass rod acquires a positive charge and the silk

a.      acquires a positive charge also.

b.      acquires a negative charge.

c.       remains neutral.

d.      could either be positively charged or negatively charged.  It depends on how hard the rod was rubbed.

41.      Two charged objects attract each other with a certain force.  If the charges on both objects are doubled with no change in separation, the force between them

a.      quadruples.

b.      doubles.

c.       halves.

d.      increases, but we can't say how much without knowing the distance between them.

42.      If you have a box with sides of 25 cm by 28 cm by 18 cm full of a liquid that has a mass 20 kg, what is the density of the liquid?

a.      2500 kg/m3

b.      630 kg/m3

c.       0.00178 kg/m3

d.      1590 kg/m3

43. A model rocket is pushed upwards by a force of 6 Newtons for a period of 4 seconds.  What is the impulse delivered to the rocket?

1. 12 Ns
2. 3 N/s
3. 0.33 s/N
4. 8 Ns
5. 24 Ns

44.   A unit of pressure is called a

a.      Bernoulli.

b.      Pascal.

c.       Pound.

d.      Meter.

e.      Newton.

45.      A solid cylinder which has a mass of 25 kg and a radius of 0.2 m, rotates with constant angular acceleration about a fixed axis.  At time t = 0 s, the cylinder is at rest.  At time, t = 2.0 s, its angular velocity is 1.0 rad/s. What is the angular acceleration of the cylinder between t = 0 s and t = 2 s?

a.      0.5 rad/s2

b.      1.0 rad/s2

c.       2.0 rad/s2

d.      3.0 rad/s2

e.      4.0 rad/s2

46.      If you are driving with a negative velocity and you step on the gas pedal, the acceleration is

a.      positive

b.      negative

c.       zero

d.      left

e.      None of the above

47.      An object is released from rest and falls in the absence of air resistance. Which of the following is true about its motion?

a.      Its acceleration is zero

b.      Its acceleration is constant

c.       Its velocity is constant

d.      Its acceleration is increasing

e.      Its velocity is decreasing

48.      Suppose that a train whistle at rest has a frequency of 3000 Hertz. If you are standing still and observe the frequency to be 3010 Hertz (higher pitch), you can conclude that

a.      the train is moving away from you.

b.      the train is moving toward you

c.       the sound from the whistle has echoed

d.      not enough information is given

49.      Frequencies of sound that are too high for the human ear to hear are called

a.      supersonic

b.      infrasonic

c.       ultrasonic

d.      subsonic

e.      sonic drive-in

50.   Which of these waves has the longest wavelength?

a.      Green visible light

b.      Ultraviolet

c.      Infrared

d.    Microwave

e.    Red visible light

51.   Which is the name of the sharp pieces of a rose bush that are used to protect the plant?

a.      Petals

b.      Quills

c.      Needle

d.    Prickle

e.   Thorn

52. What is the study of living organisms?

1. Chemistry
2. Earth Science
3. Biology
4. Physics

53. What is the branch of science that deals with the identification of the substances of which matter is composed, the investigation of their properties, and the ways in which they interact?

1. Earth Science
2. Chemistry
3. Biology
4. Physics

54. What the branch of science concerned with the nature and properties of matter and energy?

1. Physics
2. Chemistry
3. Biology
4. Earth Science

55. What is the branch of science dealing with the physical constitution of the earth and its atmosphere?

1. Biology
2. Physics
3. Chemistry
4. Earth Science

56. What area has the largest tidal range?

1. San Francisco Bay
2. Arctic Circle
3. Bay of Bengal
4. Bay of Fundy
5. Strait of Gibraltar

57. In what type of unconformity is there no evidence of erosion?

1. Paraconformity
2. Disconformity
3. Chrono-conformity
4. Non-conformity
5. Angular unconformity

58. When glaciers begin to melt, the gases trapped within the ice’s surface is released, producing a sound. What is this sound called?

1. Crevasse Escapement
2. Fizzle
3. Bergy Seltzer
4. Carbonation
5. Zungenbecken

59. What drives seafloor spreading?

1. The Sun
2. Sedimentary deposition
3. Oceanic trenches
4. Convection currents
5. Earth’s magnetic field

60. Which of the following describes a mixture of water and ash that flow down the slope of a volcano?

1. Avalanche
2. Lahar
3. Mudslide
4. Lava
5. Fumerole

61. The opening at the top of a volcano is called?

1. Crater
2. Laccolith
3. Magma chamber
4. Ash layer
5. Hole

62. Who is considered to be the father of modern geology?

1. Alfred Wegener
2. Charles Darwin
3. Andrija Mohorovičić
4. James Hutton
5. Louis Agassiz

63. Which of the following describes the point at the surface of the earth directly above where the earthquake rupture started?

1. Hypocenter
2. Topographic center
3. Seismic center
4. Focus
5. Epicenter

64. What is the largest galaxy we know of?

1. Messier 31
2. NGC1227
3. IC 1011
4. Messier 87
5. None of the above

65. What is the surface temperature of the sun?

1. ~5800K
2. ~5800°C
3. ~9650K
4. ~9650°C
5. Hot

66. The chemical element found in dolomite that is not found in limestone is

a. calcium

b. carbon

c. magnesium

d. oxygen