Middle Grades General Science 5-9

Florida Teacher Certification Examination
Test Preparation Course

Post-test

Teaching & Leadership Center

DIRECTIONS: Read each item and select the best response.

1. Which of the properties listed below is a characteristic of a solid but not of a liquid?

A. It has the ability to flow.

B. Its molecules are constantly in motion.

C. It retains a fixed shape and volume.

D. Its volume varies depending on temperature.

2. A sealed container is filled with a gas at standard temperature and pressure. Assuming ideal conditions and behavior, what will happen to the pressure of the gas in the chamber if the temperature is held constant and volume of the chamber is doubled?

A. The pressure will be halved.

B. The pressure will remain the same.

C. The pressure will double.

D. The pressure will be squared.

3. In 1911, this scientist developed the "Planetary Model" of the atom in which electrons orbit the nucleus:

A. John Dalton

B. J.J. Thompson

C. Ernest Rutherford

D. Niels Bohr

4. A composition of two or more substances that can be easily separated is a (an)

A. compound.

B. element.

C. mixture.

D. alloy.

5. A balanced chemical equation for the formation of methane and water is

A. $CO_2 + 4H_2 \rightarrow CH_4 + 2H_2O$.

B. $4CO_2 + 4H_2 \rightarrow 4CH_4 + H_2O$.

C. $CH_4 + 2H_2O \rightarrow CO_2 + H_2$.

D. $CO + H \rightarrow CH_4 + 2H_2O$.

6. H_2 (hydrogen gas) is an example of a(an)

A. polar bond.

B. non-polar bond.

C. ionic bond.

D. non-covalent bond.

7. AB → A + B

What type of reaction is given above?

A. combination

B. decomposition

C. double displacement

D. single displacement

8. According to Ohm's Law,

A. to calculate the current in a circuit, add the voltage to the resistance.

B. to calculate the current in a circuit, divide the voltage by the resistance.

C. to calculate the current in a circuit, divide the voltage by the power.

D. to calculate the current in a circuit, add the voltage to the power.

9. A ball continues rolling in one direction on the floor until friction causes it to stop. This is an example of which law of objects in motion?

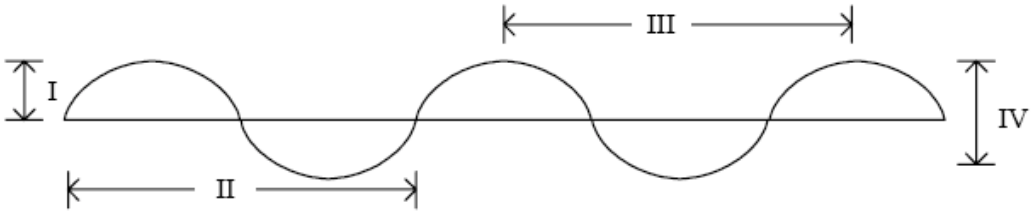
A. Newton's 1st law

B. Newton's 2nd law

C. Newton's 3rd law

D. Kepler's 2nd law

10.



The diagram above shows an instantaneous image of a wave on a string. The rest position of the string is the horizontal straight line. Which of the double-headed arrows indicate the wavelength of the wave?

A. I and II

B. II and III

C. III and IV

D. I and IV

11. Noise-canceling headphones can limit outside sounds through the use of

A. constructive interference.

B. destructive interference.

C. diffraction.

D. the Doppler effect.

12. Two objects with neutral electrostatic charges will

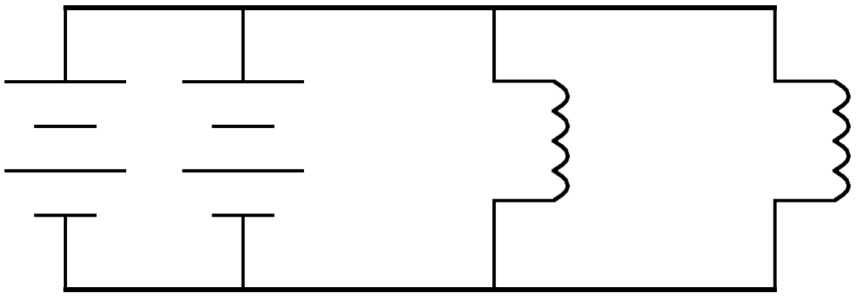
A. repel one another.

B. attract one another.

C. have no effect on each other.

D. emit a spark.

13.



The wiring diagram shown above indicates that

A. the batteries are hooked in series and the light bulbs are hooked in series.

B. the batteries are hooked in parallel and the light bulbs are hooked in parallel.

C. the batteries are hooked in series and the light bulbs are hooked in parallel.

D. the batteries are hooked in parallel and the light bulbs are hooked in series.

14. The device that changes chemical energy to mechanical and electrical energy is a (an)

A. generator.

B. transformer.

C. motor.

D. rectifier.

15. Which phase change indicates that a substance releases energy?

A. freezing

B. evaporation

C. melting

D. sublimation

16. The input electrical energy of an incandescent bulb results in the emission of light and heat. The heat emitted is a demonstration of

A. conservation of energy.

B. excess input energy.

C. waste energy.

D. total energy input.

17. The splitting of atomic nuclei in a reactor's core is called

A. alpha decay.

B. beta decay.

C. fission.

D. fusion.

18. Which type of radiation has the lowest energy?

A. x-rays

B. gamma rays

C. infrared

D. ultraviolet (UV)

19. A mirror used to reflect light to a specific focal point is

A. convex.

B. semi-planer.

C. flat.

D. parabolic.

20. What is the power drawn by a 120-volt electric dishwasher that is rated for 20 amps?

A. 2400 watts

B. 0.167 joules

C. 6.0 watts

D. 167 joules

21. It is believed that this layer of the Earth is composed mainly of solid iron.

A. crust

B. mantle

C. outer core

D. inner core

22. Which geologic era is known as the "age of recent life"?

A. Precambrian

B. Cenozoic

C. Mesozoic

D. Paleozoic

23. Compared to the outer core, the Earth's inner core is believed to be

A. less dense and cooler.

B. less dense and hotter.

C. more dense and hotter.

D. more dense and cooler.

24. Which of the following ocean currents is a cool current encircling Antarctica?

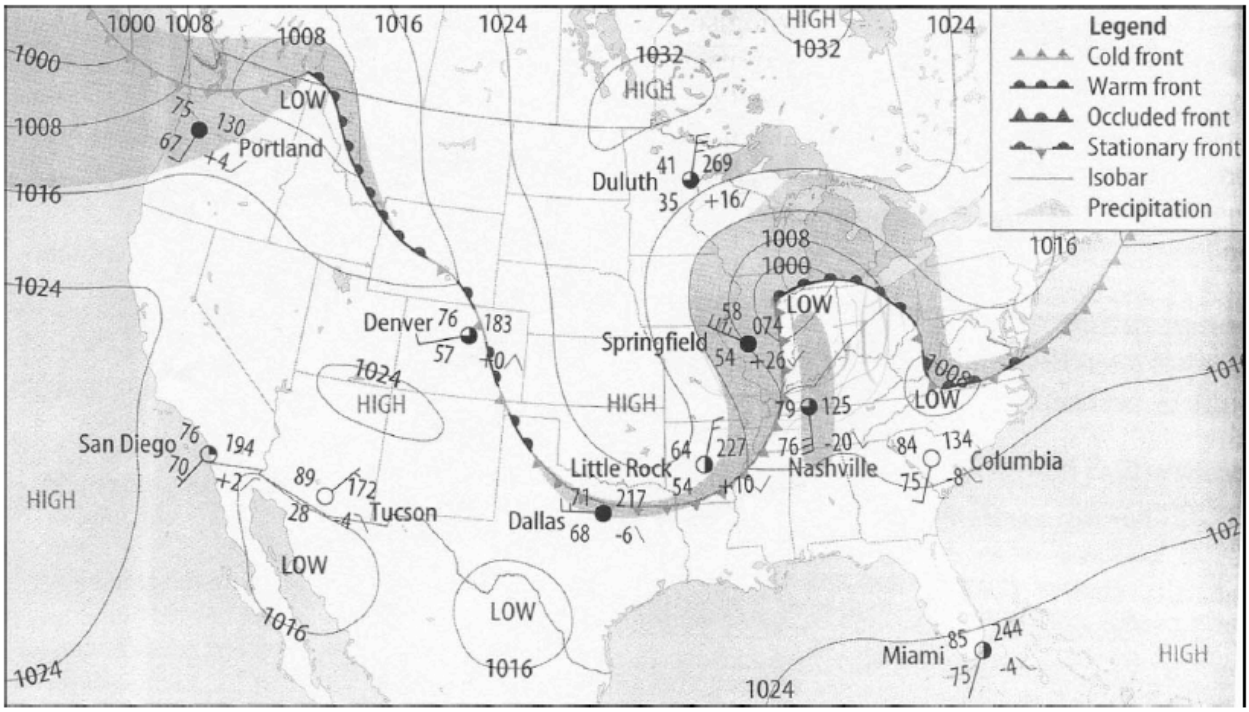
A. California Current

B. Brazil Current

C. West Wind Drift

D. Gulf Stream

25.



According to the weather map, over the next 24 hours the weather in the northwestern United States will likely bring what conditions to Duluth?

A. dry weather and colder temperatures

B. steady rain and colder temperatures

C. dry weather and warmer temperatures

D. steady rain and warmer temperatures

26. Where do oceanic trenches form?

A. Trenches form along divergent plate boundaries.

B. Trenches form along convergent plate boundaries.

C. Trenches form where freshwater meets seawater.

D. Trenches normally form near the middle of tectonic plates.

27. Rocks that are formed by layers of deposited earth or other materials are called

A. igneous rocks.

B. sedimentary rocks.

C. metamorphic rocks.

D. precipitated rocks.

28. Which mineral is highest on the Mohs hardness scale?

A. calcite

B. talc

C. diamond

D. quartz

29. Which layer of the Earth's atmosphere is closest to space?

A. exosphere

B. mesosphere

C. thermosphere

D. troposphere

30. What cloud formations usually cover the sky in a uniform gray?

A. cumulus

B. cirrus

C. altocumulus

D. stratus

31. Hills of sand built by wind-related processes are known as

A. karst topography.

B. dunes.

C. loess deposits.

D. crevasses.

32. The release of chlorofluorocarbons into Earth’s atmosphere has been shown to

A. deplete ozone.

B. pollute groundwater.

C. increase greenhouse gases.

D. weather sedimentary rock.

33. During summer in the Southern hemisphere, the Northern hemisphere experiences

A. summer.

B. winter.

C. spring.

D. fall.

34. According to optical spectrometers, the coolest stars in the known universe are colored

A. white.

B. yellow.

C. red.

D. blue.

35. An astronomer viewing a distant star notices the star's spectral lines are shifted toward shorter wavelengths. This change in wavelength is known as

A. Doppler shift.

B. spectral frequency.

C. the Coriolis effect.

D. planetary motion.

36. A group of celestial objects found in a region located beyond the orbit of the planet Neptune are known as

A. asteroids.

B. comets.

C. meteors.

D. Kuiper belt objects.

37. What is the name of a group of stars visibly related to each other in a particular configuration or pattern?

A. galaxy

B. constellation

C. nebula

D. comet

38. The revolution of planets around the Sun comes from this view of celestial motion.

A. geocentric

B. nebulian

C. heliocentric

D. polycentric

39. The DNA of eukaryotes can be found in the

A. nucleus.

B. ribosomes.

C. lysosomes.

D. cytoplasm.

40. Which cell organelle is responsible for the transport of proteins?

A. mitochondria

B. endoplasmic reticula

C. centriole

D. lysosome

41. In humans, Trisomy 21 due to nondisjunction usually results in an individual with

A. Multiple Sclerosis

B. Crohn's Disease

C. Parkinson's Disease

D. Down Syndrome

42. What is the inheritance pattern typified by a 3:1 phenotype ratio?

A. complete dominance in a dihybrid cross

B. complete dominance in a monohybrid cross

C. incomplete dominance in a monohybrid cross

D. incomplete dominance in a dihybrid cross

43. The substance that goes through a process of translation within cells in order for proteins to be synthesized is

A. DNA.

B. mRNA.

C. chlorophyll.

D. cytoplasm.

44. What classification of protozoan uses pseudopods as a means of locomotion?

A. sarcodina

B. mastigophora

C. cnidospora

D. sporozoa

45. Which kingdom of scientific classification does the duck-billed platypus belong to?

A. vertebrata

B. chordata

C. animalia

D. mammalia

46. Before reaching the ovary, in mature flowers pollen is received by the

A. sepals.

B. anther.

C. stigma.

D. filament.

47. In human circulation, which of the following is responsible for carrying oxygen to cells throughout the body?

A. platelets

B. white blood cells

C. red blood cells

D. bone marrow

48. During human digestion, a substance broken down into peptides by gastric acid in the stomach is

A. glucose.

B. fat.

C. amino acid.

D. protein.

49. Which of the following is part of the human endocrine system?

A. kidneys

B. thyroid

C. lungs

D. gall bladder

50. Which kind of behavior best describes an animal defending a nest, den, or mating site?

A. instinctive

B. learned

C. social

D. territorial

51. Which of the following is not part of the water cycle?

A. respiration

B. evaporation

C. condensation

D. accumulation

52. Which of the following is associated with dissolutioned rock, such as limestone?

A. wind erosion

B. sinkholes

C. sand dunes

D. rust

53. A change in the types of species of an ecological community over time is known as

A. succession.

B. infestation.

C. rehabitation.

D. intrusion.

54. Which of the following has been shown to upset homeostasis in the human body?

A. perspiration

B. respiration

C. circulation

D. stress

55. These organisms mainly obtain their energy from producers.

A. primary consumers

B. omnivores

C. carnivores

D. tertiary consumers

56. A physics teacher plans to have students work with pendulums made from string and washers. His planned activity is

A. appropriate only if all parents have given their permission.

B. inappropriate for students to perform regardless of parental permission.

C. permissible so long as students are wearing appropriate eye protection.

D. subject to approval by the science department head.

57. The appropriate device used to measure the distance travelled by automobile is a(an)

A. galvanometer.

B. pedometer.

C. odometer.

D. o-scope.

58. A solution with a pH of 5 is considered to be

A. acidic

B. neutral

C. alkaline

D. concentrated

59. Who is especially known for the development of the electric battery?

A. Alessandro Volta

B. James Watt

C. Georg Ohm

D. André-Marie Ampere

60. A teacher gives students a science activity to perform along with the materials, the method, and the expected outcomes. The students must complete a worksheet that includes data and observations from the experiment. This is an example of

A. structured inquiry.

B. guided inquiry.

C. open inquiry.

D. verification.