



## National Earth Science Exam

### ELEM Earth Science National Championship Exam

Name \_\_\_\_\_

School  
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Grade \_\_\_\_\_

Email address \_\_\_\_\_

**Instructions – Circle the correct answer or leave it blank. Correct answers are worth 2 points. Incorrect answers are worth –1 point. Questions left blank are worth 0 points.**

- The distance in degrees north or south of the Equator is
  - Latitude
  - Longitude
  - Declination
  - Projection
- The factor that the experimenter changes is called
  - The responding variable
  - The independent variable
  - The dependent variable
  - The controlled variables
- The grinding and wearing away of rock surfaces by other rock particles is called
  - Abrasion
  - Reduction
  - Friction
  - Restoration
- What star sits directly above the north pole?
  - The Sun
  - Polaris
  - Polaris Australis
  - Vega
- The brightness that a star would have at a distance of 32.6 light years from Earth
  - Spectra
  - Parallax
  - Apparent magnitude
  - Absolute magnitude
- What type of star is Betelgeuse?
  - Neutron
  - Supergiant
  - Giant
  - White dwarf
- The Sun, at the end of its life cycle will become a
  - Neutron
  - Supergiant
  - Giant
  - White dwarf
- What layer of the sun produces energy in the form of visible light?
  - The Photosphere
  - The Convective Zone
  - Sunspots
  - The Radiative Zone
- The gravitational force on the moon is
  - One half that of the Earth
  - One third that of the Earth
  - One sixth that of the Earth
  - Nearly the same as Earth
- The point at which the moon is farthest from the Earth is called
  - Apogee
  - Perigee
  - Circumlocation
  - Locus
- Why does the moon rise or set 50 minutes later each night?
  - The Earth's rotation is in synch with the moon's revolution
  - The moon is like a geosynchronous satellite
  - It takes 50 minutes for Earth's horizon to catch up to the moon
  - The moon and the Earth move opposite to each other
- Which German scientist proposed a hypothesis now called continental drift?
  - Frederike Otto
  - Alfred Wegner
  - Albert Richter
  - Axel Timmermann

13. What evidence supported the theory of continental drift?
- Fossil evidence
  - Meteorite evidence
  - No two coastlines are the same
  - Ice core evidence
14. Mid-ocean ridges occur at what type of boundary?
- Convergent boundaries
  - Strike-slip boundaries
  - Transform boundaries
  - Divergent boundaries
15. What does the Ring of Fire refer to?
- Glacial jet stream
  - The regions where wildfires are made worse by climate change
  - The area around the Pacific ocean that has numerous volcanoes
  - An aboriginal ceremony dedicated to volcanoes
16. The San Andreas fault is a famous example of a
- Divergent boundary
  - Convergent boundary
  - Transform boundary
  - Subduction zone
17. The location within Earth along a fault at which the first motion of an earthquake occurs is called the
- Epicenter
  - Focus
  - P-wave
  - Elastic rebound
18. Which earthquake waves are compression waves?
- P-waves
  - S-waves
  - Love waves
  - Rayleigh waves
19. Which seismic waves can't travel through Earth's liquid outer core?
- Love Waves
  - P-waves
  - Rayleigh waves
  - S-waves
20. Small, narrow-topped formations are called ?
- Mesas
  - Plateaus
  - Buttes
  - Plains
21. A common kind of mechanical weathering is called ?
- Oxidation
  - Ice wedging
  - Carbonation
  - Leaching
22. Chemical weathering is most rapid in ?
- Hot, dry climates
  - Cold, dry climates
  - Cold, wet climates
  - Hot, wet climates
23. The change of water vapor into liquid water is called ?
- Runoff
  - Evaporation
  - Desalination
  - Condensation
24. The land area from which water runs off into a stream is called a ?
- Tributary
  - Divide
  - Watershed
  - Gully
25. One way to control floods indirectly is through?
- Soil conservation
  - Dams
  - Floodways
  - Artificial levees
26. What is the term that describes the continuous movement of water from the ocean to the atmosphere, from the atmosphere to land and from the land back to the ocean?
- Condensation
  - Evapotranspiration
  - Precipitation
  - Water cycle
27. Any body of rock or sediment in which water can flow and be stored is called a(n)
- Well
  - Aquifer
  - Sinkhole
  - Artesian formation
28. The natural flow of groundwater that has reached the surface is a(n)
- Well
  - Aquifer
  - Spring
  - Travertine

29. Calcite formations that hang from the ceiling of a cavern are called
- Sinks
  - Stalactites
  - Stalagmites
  - Karst
30. When water evaporates?
- There is no phase change
  - Energy is released
  - Energy is absorbed
  - Latent heat is released
31. When a solid substance transforms directly into a gas it is called?
- Evaporation
  - Condensation
  - Absolute Latency
  - Sublimation
32. The temperature at which the condensation rate equals the evaporation rate is called?
- The Dew Point
  - Absolute Humidity Point
  - Relative Humidity
  - Condensation Point
33. A tool used to measure relative humidity is a(n)
- Barometer
  - Anemometer
  - Psychrometer
  - Radiosondes
34. The prefix nimbo- and the suffix -nimbus mean
- High
  - Billowy
  - Rain
  - Layered
35. When the temperature of the air decreases, the rate of evaporation
- Decreases
  - Increases
  - Stays the same
  - Varies
36. The eye of a hurricane is a region of
- Hailstorms
  - Torrential rainfall
  - Calm, clear air
  - Strong winds
37. The lines that connect points of equal atmospheric pressure on a weather map are called
- Isobars
  - Isotherms
  - Highs
  - Contour lines
38. In the mature stage of a thunderstorm, a cumulus cloud grows until it becomes a(n)?
- Stratocumulus cloud
  - Alto cumulus cloud
  - Cumulonimbus cloud
  - Cirrocumulus cloud
39. At the equator, the sun's rays always strike Earth
- At a low angle
  - At nearly a 90 degree angle
  - 18 hours each day
  - No more than 8 hours each day.
40. Which of the following is NOT used as evidence of past climates?
- Fossils
  - Tree rings
  - Ice cores
  - General Circulation Models
41. Ocean currents influence temperature by
- Washing warm, dry sediments out to sea
  - Dispersing the rays of the sun
  - Heating or cooling the air
  - Eroding shorelines
42. Water cools
- More quickly than land does
  - More slowly than land does
  - Only during evaporation
  - During global warming
43. During each orbit around Earth, the moon spins on its axis?
- One time
  - About 29 times
  - 365 times
  - About 27 times
44. The main asteroid belt exists in a region between the orbits of
- Mars and Jupiter
  - Venus and Earth
  - Mercury and Venus
  - Earth and Mars
45. What is the name of large regions across Earth that are classified by the species living there? They can be in different locales but will have similar temperature, precipitation etc?
- Geosphere
  - Biomes
  - Food webs
  - Atmosphere

46. Compared with other moons of Jupiter, the four Galilean moons are
- Younger
  - Lighter
  - Larger
  - Farther from Jupiter
47. Northern lights and southern lights are other names for
- Prominences
  - Auroras
  - Granulations
  - Total Solar irradiance
48. The water released by plants to the atmosphere (plant sweat) is called
- Evaporation
  - Condensation
  - Transpiration
  - Transportation
49. What type of rock are most fossils found in?
- Igneous
  - Metamorphic
  - Basalt
  - Sedimentary
50. An example of a trace fossil is?
- A path of preserved footprints
  - A preserved tooth
  - A preserved seashell
  - A preserved jawbone
51. Water droplets, hail and sleet falling to the earth is called ?
- Condensation nuclei
  - Precipitation
  - Glaze
  - Evapotranspiration
52. Which biome is usually found at the lowest latitude?
- Tundra
  - Boreal Forest
  - Tropical Rainforest
  - Desert
53. The region of Earth that contains all of the water systems is called the
- Hydrosphere
  - Atmosphere
  - Geosphere
  - Biosphere
54. A topographic map can often show different elevations of land features using
- Isobars
  - Contour Lines
  - Written scales
  - Symbols
55. The average temperature, rainfall, and wind of an area that that have occurred over a long period of time is called
- Weather
  - Storms
  - Climate
  - Atmospheric conditions
56. The first phase of the moon after the new moon is a
- Waxing crescent
  - First crescent
  - Waxing Gibbous
  - Waning Crescent
57. A solar eclipse is caused by
- The Earth is between the Sun and the moon
  - The shadow of the Sun cast on the moon
  - The moon blocks the Sun's light and casts a shadow on the Earth
  - The Earth casts a shadow on the moon
58. Bowl shaped depressions on the surface of the moon are called
- Craters
  - Rilles
  - Maria
  - Ridges
59. What molten elements do scientists think make up the core of the Earth?
- Iron and magnesium
  - Iron and Nickel
  - Iron and Silicon
  - Silicon and nickel
60. What evidence do scientists have that water may currently exist on Mars?
- Mars is geologically active
  - Mars has seasons similar to Earth's seasons
  - Mars has frozen polar ice caps
  - Mars has two tiny moons
61. The most distinctive feature of Jupiter is its
- Great Dark Spot
  - Ring
  - Elongated orbit
  - Great Red Spot

62. The planet that rotates faster than any other planet in the solar system is
- Earth
  - Jupiter
  - Uranus
  - Pluto
63. All of the outer planets in the solar system are large except
- Saturn
  - Uranus
  - Pluto
  - Neptune
64. In the process of photosynthesis, green plants give off
- Oxygen
  - Hydrogen
  - Carbon dioxide
  - Helium
65. Saturn's distinctive rings are made of
- Dust and Rocks
  - Rocks, dust and ice particles
  - Dust and ice particles
  - Dust and different gasses
66. The interior of Jupiter is made of
- Solid nickel
  - Liquid, metallic hydrogen
  - Semi-liquid iron
  - Iron and nickel
67. Which of the following is NOT a gas giant?
- Jupiter
  - Saturn
  - Uranus
  - Mars
68. Venus' atmosphere is 96%
- Oxygen
  - Carbon Dioxide
  - Helium
  - Hydrogen
69. What planet is commonly called the evening or morning star due to its high visibility?
- Venus
  - Jupiter
  - Mars
  - Saturn
70. The Earth is divided into 24 time zones, each of 15 degrees of longitude. What are these zones based on?
- The movement of the Sun around Earth
  - The movement of the moon around the Earth
  - Earth's rotation on its axis
  - The locations of natural boundaries like rivers
71. Seasons are caused by?
- The tilt of Earth's axis
  - Earth's distance from sun
  - The Sun's temperature
  - The calendar
72. Stars organized into patterns are called?
- perihelions
  - Satellites
  - Constellations
  - Telescopes
73. The pavement and buildings in cities affect the local climate by
- Decreasing the temperature
  - Increasing the temperature
  - Increasing precipitation
  - Decreasing precipitation
74. What type of storm system commonly forms over warm tropical oceans?
- Anticyclones
  - Thunderstorms
  - Tornadoes
  - Hurricanes
75. Which of the following is the main source of moisture in Earth's atmosphere?
- Streams
  - Oceans
  - Polar ice caps
  - Plants

TIE BREAKER:

Rank the following planets from the smallest to the largest number of moons:

Uranus, Mars, Jupiter, Saturn, Neptune, Pluto,