

International Academic
Competitions

**Environmental Science Examination
2024 Asian Championships**

Name _____

School _____

Age _____

Instructions – Mark your answers on the scantron provided. Correct answers are worth 2 points. Incorrect answers are worth –1 point. Questions left blank are worth 0 points. Write the answer to your tiebreaker question in the box at the top of your scantron.

1. What type of rock is made of molten rock and named for the Latin word for “fire”?
 - A. Sedimentary
 - B. Igneous
 - C. Metamorphic
 - D. Deciduous
2. What ocean is the second largest on Earth?
 - A. Pacific Ocean
 - B. Atlantic Ocean
 - C. Indian Ocean
 - D. Arctic Ocean
3. What is the name of the liquid layer of the Earth found below the mantle?
 - A. Inner core
 - B. Lithosphere
 - C. Outer core
 - D. Geosphere
4. What phenomenon is measured by the Richter scale?
 - A. Earthquakes
 - B. Avalanches
 - C. Hurricanes
 - D. Floods
5. What of the following describes climate?
 - A. A long-term weather pattern, over at least 30 years
 - B. A specific event such as a rainstorm
 - C. A measure of temperature of the previous 2 weeks
 - D. A forecast of a region’s expected rainfall
6. Which of the following is NOT a hurricane-prone region?
 - A. Florida
 - B. Caribbean
 - C. Western Mexico
 - D. Great Plains

7. What layer of the atmosphere falls between the mesosphere and troposphere?
 - A. Exosphere
 - B. Thermosphere
 - C. Magnetosphere
 - D. Stratosphere

8. What element gives Mars its color?
 - A. Copper
 - B. Iron
 - C. Bromine
 - D. Nitrogen

9. What biome is usually marked by a seriously cold streak and a lack of trees?
 - A. Tundra
 - B. Taiga
 - C. Alpine
 - D. Endolithic

10. Which of the following sources holds the majority of Earth’s freshwater?
 - A. Aquifers
 - B. Glacial ice caps
 - C. Clouds
 - D. Lakes

11. Where does cold air which spills into “Tornado Alley” originate from?
 - A. Southeastern Woodlands
 - B. Chihuahuan Desert
 - C. Great Lakes system
 - D. Rocky Mountains

12. What noble gas, with the atomic number 10, is often found in signs and lighting?
 - A. Xenon
 - B. Neon
 - C. Krypton
 - D. Helium

13. Which of the following pairs of geologic periods and dominant animal species is NOT paired correctly?
 - A. Cenozoic Era - Mammals
 - B. Reptiles - Cretaceous
 - C. Devonian - Fishes
 - D. Birds - Cambrian

14. What geographic features form a triangle where a river meets the sea?
 - A. Banks
 - B. Deltas
 - C. Isthmuses
 - D. Interlocking spurs

15. Which of the following is used to cool nuclear reactors?
- Dihydrogen phosphate
 - Water
 - Liquid oxygen
 - Bromine
16. Which of the following energy sources is NOT renewable?
- Tidal power
 - Geothermal power
 - Hydrocarbons
 - Bioenergy
17. The dark material in soil formed from decomposed organic matter is known as what?
- Nitric oxide
 - Runoff
 - Humus
 - Perlite
18. Which of the following adaptations is NOT meant for hot and arid climates?
- Large ears of the fennec fox
 - Cacti's stomata which open at night
 - The lack of sweat glands on the kangaroo rat
 - The strong sense of smell among elephants
19. The most widely-used climate classification system was named for what German scientist?
- Wladimir Köppen
 - Alexander von Humboldt
 - Carl Bosch
 - Daniel Fahrenheit
20. What time period falls between the Triassic and Cretaceous periods?
- Pre-Cambrian
 - Proterozoic
 - Mesozoic
 - Jurassic
21. At which of the following dates and locations could one see the sun directly overhead?
- Tropic of Cancer, June 21st
 - Tropic of Capricorn, June 21st
 - Equator, December 21st
 - South Pole, December 21st
22. Which planet has an extreme version of the Greenhouse effect?
- Mercury
 - Saturn
 - Venus
 - Mars
23. Which of the following is NOT a type of fault?
- Magmatic fault
 - Reverse fault
 - Slip-strike
 - Thrust fault
24. Which of these cities was NOT the namesake of a major climate change agreement?
- Paris
 - Pittsburgh
 - Kyoto
 - Copenhagen
25. Which location has glaciers most in danger of disappearing in the next few decades?
- Alaskan coast
 - New Guinea
 - Greenland
 - Patagonia
26. The Columbian Exchange brought which of the following crops to Eurasia?
- Carrot
 - Potato
 - Wheat
 - Barley
27. Tectonic plates are pulled into the Earth's mantle during what process?
- Divergence
 - Adduction
 - Subduction
 - Transformation
28. The Sahel is a region which is expanding southwards in Africa via what process?
- Ecological succession
 - Deforestation
 - Desertification
 - Dune erosion
29. Which of the following is the most common greenhouse gas emitted by human activities?
- Methane
 - Nitrous oxide
 - Carbon dioxide
 - Water vapor
30. What phenomenon occurs when deep, nutrient-rich ocean water rises towards the surface?
- Upwelling
 - Mineralization
 - Ekman spiral
 - Coriolis–Stokes force

31. The “deep water” formation of the thermohaline circulation occurs where?
- Central Indian Ocean
 - North Atlantic
 - South Pacific
 - Arctic Ocean
32. What meteorologist is known for studying tornadoes?
- Ted Fujita
 - William Ferrel
 - Rachel Carson
 - Francis Beaufort
33. What number on the Mohs hardness scale is represented by quartz?
- 1
 - 3
 - 7
 - 10
34. Which of these formations would exhibit low atmospheric pressure?
- Typhoons
 - Anticyclones
 - Horse latitudes
 - The eastern Pacific during La Niña
35. The Saffir-Simpson scale measures what type of weather phenomenon?
- Hurricanes
 - Earthquakes
 - Lightning storms
 - Volcanic eruptions
36. What last period of the Paleozoic ended with “The Great Dying,” the largest extinction on Earth’s history?
- Permian period
 - Devonian period
 - Cambrian period
 - Mesozoic period
37. Which of these natural disasters causes the most deaths in the U.S. in modern times?
- Floods
 - Heat waves
 - Cold snaps
 - Wildfires
38. Shrublands do NOT typically contain which of the following?
- Chaparral
 - Coyote brush
 - Acacia
 - Maple
39. Which of these felines is found in the Western Hemisphere?
- Mountain lions
 - Tigers
 - Cheetahs
 - Servals
40. What process threatens to kill ecosystems such as the Great Barrier Reef?
- Ocean acidification
 - Carbon capture
 - Leaching
 - Coral bleaching
41. After Denali, what is the second tallest mountain in the United States?
- Mount Saint Elias
 - Mount Whitney
 - Mount Rainier
 - Mount Elbert
42. The National Park System protects all EXCEPT which of the following ecosystems?
- Yosemite
 - Smoky Mountains
 - Teton Mountains
 - Nebraska Sandhills
43. Crater Lake was created by which of the following events?
- The impact of the Chicxulub asteroid
 - The collapse of Mount Mazama
 - Collapse of a limestone cave
 - Glaciation during the Ice Age
44. Pangea broke up into Laurasia and what other major land mass?
- Ur
 - Rodina
 - Atlantica
 - Gondwanaland
45. Which of the following does NOT occur during a geomagnetic storm?
- Aurora Borealis in the mid-latitudes
 - The Sun emits a coronal mass ejection
 - Electrical grids malfunction
 - Lightning storms are triggered in the tropics
46. The fraction of sunlight diffusely reflected by a body is known by what term?
- Adsorption
 - Albedo
 - Take-back
 - Photovoltaic

47. Relative humidity reaches 100% at what point?
- Frost point
 - Dew point
 - Bubble point
 - Sublimation threshold
48. Which of the following is the rarest element in Earth's crust?
- Tungsten
 - Platinum
 - Gold
 - Astatine
49. Which crop was devastated by the Boll Weevil in the U.S. South?
- Tobacco
 - Rice
 - Apples
 - Cotton
50. What aluminum silicate mineral is the most abundant in the Earth's crust?
- Quartz
 - Silicon
 - Aluminum
 - Feldspar
51. Hydrologically, Lake Michigan is connected with what other Great Lake?
- Lake Huron
 - Lake Superior
 - Lake Erie
 - Lake Ontario
52. Which of the following species is the most closely related to modern humans?
- Neanderthals
 - Australopithecus afarensis
 - Homo erectus
 - Homo habilis
53. What type of cloud is known for its thin and wispy shape and high elevation?
- Cumulonimbus
 - Stratus
 - Cirrus
 - Altostratus
54. The jet stream flows in which direction?
- West to east
 - South to north
 - East to west
 - southeast to northwest
55. Which of the following mammals is NOT nocturnal?
- Steppe eagles
 - Coyotes
 - Bats
 - Raccoons
56. Which of the following is the bottommost layer of the atmosphere?
- Troposphere
 - Stratosphere
 - Exosphere
 - Asthenosphere
57. Which of the following flower species engages primarily in abiotic pollination?
- Apple trees
 - Nutmeg tree
 - Hog plums
 - Dandelions
58. Seasonal lag impacts which of the following locations most?
- Subpolar islands
 - Inland continental climates
 - Mediterranean climates
 - Oceanic climates
59. A solar year lasts for roughly how many hours over 365 days?
- 3 hours
 - 6 hours
 - 12 hours
 - 16 hours
60. What type of climate has the most pronounced dry and wet seasons?
- Equatorial climate
 - Humid subtropical climates
 - Monsoon climates
 - Subarctic climates
61. What wind speed makes a tornado officially a tornado?
- 51 miles per hour
 - 73 miles per hour
 - 100 miles per hour
 - 212 miles per hour
62. What carcinogenic chemical was released during the East Palestine derailment?
- Aluminum oxide
 - Vinyl Chloride
 - Methyl formate
 - Cyanide
63. The Dust Bowl was primarily caused by what practice?
- Pollution caused by slash and burn agriculture
 - Monocrop agriculture of soybeans
 - Draining of the Ogallala Aquifer
 - Destruction of natural topsoil
64. Which of the following entities would NOT be part of an ecological community?
- Nitrogen-fixing bacteria
 - A rock providing shelter to lizards
 - Decomposers
 - Primary consumers

65. Photosynthesis emerged roughly how many years ago?
- 3.5 billion
 - 2 billion
 - 850 million
 - 400 million
66. Which of the following penguin species do NOT live near Antarctica?
- Southern rockhopper penguin
 - Emperor Penguin
 - Chinstrap penguins
 - Adélie penguin
67. Karst topography is NOT characterized by which of the following features
- Losing streams
 - Sinkholes
 - Cenotes
 - Hoodoos
68. Which of the following rocks is NOT a carbonate?
- Calcite
 - Aragonite
 - Dolostone
 - Andesite
69. What scientist is termed the “Father of the Green Revolution”?
- M. S. Swaminathan
 - Norman Borlaug
 - Yuan Longping
 - Fritz Haber
70. 500,000 Indians were exposed to methyl isocyanate in what disaster?
- Bhola incident
 - Aberfan disaster
 - Bhopal gas tragedy
 - Kodaikanal poisoning
71. What Ohio river is known for having caught fire multiple times due to its pollution?
- Cuyahoga River
 - Mississippi River
 - Hudson River
 - Holston River
72. Which of the following best describes fracking?
- When a drill is planted into the seafloor on an offshore well
 - When a pumpjack mechanically lifts oil from the ground
 - A well stimulation technique which creates cracks to extract oil
 - A drilling machine buries into the ground to expose oil trapped in rock
73. Which of the following formations is NOT associated with rivers?
- V-shaped valleys
 - Trenches
 - Meanders
 - Oxbow Lakes
74. What name has been proposed for our current geological epoch due to the influence of human activities?
- Primateocene
 - Anglopocene
 - Carbonocene
 - Anthropocene
75. What phenomenon has suddenly caused a rapid decrease in honeybee populations?
- Varroa mite infestations
 - Colony collapse disorder
 - Nosema ceranae infections
 - Neonicotinoid insecticide use

Tiebreaker

This question will only be scored if there is a tie for placement on the exam. **This is a required question, but there is no penalty for a wrong answer to this question.**

Write your answer legibly in the space provided on your scantron.

According to the most recent data, how many trees are there in the Amazon rainforest?