

Science Bowl Practice Questions – Earth Science

1. Multiple Choice: The ice sheet that covered northeastern United States came from which of the following locations?

- w) Labrador center in eastern Canada
- x) Keewatin center in central Canada
- y) Cordilleran center in the Rocky Mountains
- z) Greenland

ANSWER: W -- LABRADOR CENTER IN EASTERN CANADA

2. Multiple Choice: A volcano which is composed of lava flows and pyroclastic material and which is steep-sided and very tall is known as:

- w) Syncline
- x) Composite cone
- y) Anticline
- z) none of these

ANSWER: X -- COMPOSITE CONE

3. Multiple Choice: The solidified lava of a volcano belongs to which rock family? Is it:

- w) igneous
- x) metamorphic
- y) sedimentary
- z) fossilized

ANSWER: W -- IGNEOUS

4. Multiple Choice: In geological studies, a dome shaped intrusion is called a:

- w) volcanic neck
- x) laccolith
- y) nuee ardente
- z) caldera

ANSWER: X -- LACCOLITH

5. Multiple Choice: Shiprock in New Mexico is a:

- w) laccolith
- x) volcanic neck
- y) cinder cone
- z) caldera

ANSWER: X -- VOLCANIC NECK

6. Multiple Choice: Iceland has a great deal of volcanic activity. The reason for this is:

- w) it was formed above a mid-ocean rift.
- x) it is part of the "Ring of Fire".
- y) two tectonic plates are rubbing against each other under Iceland.
- z) the American plate is diving under the European plate in this region.

ANSWER: W -- IT WAS FORMED ABOVE A MID-OCEAN RIFT.

7. Multiple Choice: Of the following, the rock that is most resistant to both chemical and mechanical weathering is:

- w) shale
- x) limestone
- y) marble
- z) quartzite

ANSWER: Z -- QUARTZITE

8. Short Answer: There is a specific term used by geologists to describe rock weathering in which shells or plates are broken away from a rock leaving it rounded in appearance. What is this term?

ANSWER: EXFOLIATION

9. Short Answer: Biosphere describes the earth realm where life occurs What describes the entire solid earth realm and is composed of mineral matter?

ANSWER: LITHOSPHERE

10. Multiple Choice: Which of the following energy sources does NOT originally come from the Sun?

- w) wind
- x) Ocean thermal energy conversion
- y) geothermal
- z) hydroelectric

ANSWER: Y – GEOTHERMAL

11. Short Answer: What is the name of the atmosphere layer of upwardly diminishing temperature situated above the stratosphere and topped by the mesopause?

ANSWER: MESOSPHERE

12. Short Answer: What is the term used to measure the intensity of solar radiation and is equal to one gram calorie per square centimeter per minute?

ANSWER: LANGLEY

13. Multiple Choice: What percentage of the earth's atmosphere does O₂ comprise?

- w) 75%
- x) 50%
- y) 21%
- z) 32%

ANSWER: Y -- 21%

14. Short Answer: What gas makes up the majority of our atmosphere?

ANSWER: NITROGEN

15. Multiple Choice: The tanning rays of the sun are called:

- w) infrared rays
- x) visible light
- y) ultraviolet rays
- z) gamma rays

ANSWER: Y -- ULTRAVIOLET RAYS

16. Multiple Choice: What is the relative humidity when the absolute humidity is 3 grams per cubic meter and the air has a capacity of 12 grams per cubic meter?

- w) 4%
- x) 9%
- y) 25%
- z) 400%

ANSWER: Y -- 25%

17. Multiple Choice: While many different gases are found in the atmosphere, a number do NOT contribute significantly to solar heating of the atmosphere. Which TWO of the following gases do NOT absorb much heat?

- w) carbon dioxide
- x) nitrogen
- y) water vapor
- z) oxygen

ANSWER: X and Z -- NITROGEN and OXYGEN

18. Multiple Choice: Global climate change is being attributed to the atmospheric increase in what two gases produced by human activities?

- w) oxygen and hydrogen
- x) ozone and methane
- y) nitrous oxide and sulfur dioxide
- z) methane and carbon dioxide
- e) ozone and carbon monoxide

ANSWER: Z -- METHANE AND CARBON DIOXIDE

19. Short Answer: To within 5%, how much has atmospheric CO₂ concentration INCREASED since the year 1800?

ANSWER: 25%

20. Multiple Choice: The concentration of carbon dioxide in the atmosphere is in the range of:

- w) 1-10 parts per million
- x) 10-100 parts per million
- y) 100-1000 parts per million
- z) 1000-10,000 parts per million

ANSWER: Y -- 100-1000 PARTS PER MILLION (the exact number is 350 ppm as of the time of this article)

21. Short Answer: The ozone layer is located in which region of the atmosphere?

ANSWER: STRATOSPHERE

22. Multiple Choice: In geological studies, all of the following are TRUE of P waves except that they:

- w) are body waves
- x) travel like sound waves
- y) can pass through liquids
- z) are slower than S waves

ANSWER: Z -- ARE SLOWER THAN S WAVES

23. Multiple Choice: Which of the following terms is used to describe the appearance of a mineral in transmitted light? Is it:

- w) diaphaneity (pron: die-ah-fah-na-ah-tee)
- x) translucence
- y) opaqueness
- z) porosity

ANSWER: W -- DIAPHANEITY

24. Multiple Choice: In geological studies, arkose contains which of the following minerals which gives it a reddish color?

- w) orthoclase
- x) calcite
- y) aragonite (pron: a-rag-o-nite)
- z) quartz

ANSWER: W -- ORTHOCLASE

25. Multiple Choice: Which one of the following minerals does NOT contain silica tetrahedrons?

- w) quartz
- x) muscovite
- y) halite
- z) orthoclase

ANSWER: Y – HALITE

26. Multiple Choice: Which of the following minerals is noted for its one perfect cleavage?

- w) calcite
- x) muscovite
- y) quartz
- z) pyrite

ANSWER: X -- MUSCOVITE

27. Multiple Choice: Which of the following gases is given off in the acid test of a carbonate mineral?

- w) chlorine
- x) nitrogen
- y) carbon dioxide
- z) sulfur dioxide

ANSWER: Y -- CARBON DIOXIDE

28. Multiple Choice: Fine parallel lines, or striations, are most likely to be seen on a cleavage surface of which of the following minerals?

- w) quartz
- x) orthoclase
- y) hornblende
- z) plagioclase (pron: play-gee-o-klase)

ANSWER: Z – PLAGIOCLASE

29. Multiple Choice: Which of the following minerals is NOT a silicate?

- w) orthoclase
- x) muscovite
- y) augite (pron: aw-jIt)
- z) magnetite

ANSWER: Z – MAGNETITE

30. Multiple Choice: Which of the following pairs contains one igneous and one sedimentary rock?

- w) shale and marble
- x) sandstone and quartzite
- y) granite and limestone
- z) obsidian and gneiss

ANSWER: Y -- GRANITE AND LIMESTONE

31. Multiple Choice: Which of these pairs of minerals are always found in granites?

- w) muscovite and calcite
- x) quartz and orthoclase
- y) hornblende and talc
- z) augite and magnetite

ANSWER: X -- QUARTZ AND ORTHOCLASE

32. Multiple Choice: An example of a rock whose minerals have been crushed into thin sheets or bands is:

- w) shale
- x) schist
- y) conglomerate
- z) granite

ANSWER: X -- SCHIST

33. Multiple Choice: The hydrolysis of orthoclase results in the formation of:

- w) shale
- x) kaolin
- y) lime
- z) hydrochloric acid

ANSWER: X – KAOLIN

34. Multiple Choice: The deposits of loess in the United States probably originated as which of the following?

- w) talus
- x) rock flour
- y) humus
- z) geyserite

ANSWER: X -- ROCK FLOUR

35. Multiple Choice: This sedimentary rock was used to build the Pantheon and the Colossium:

- w) marble
- x) travertine
- y) sandstone
- z) ironstone

ANSWER: X -- TRAVERTINE

36. Short Answer: What is another name for the semi-precious stone heliotrope?

ANSWER: BLOODSTONE

37. Short Answer: Rocks are classified depending upon how they are formed. In which class would slate be found?

ANSWER: METAMORPHIC

38. Multiple Choice: Which of the following is an igneous rock?

- w) Granite
- x) Shale
- y) Coal
- z) Slate

ANSWER: W – GRANITE

39. Multiple Choice: Which of the following is a metamorphic rock?

- w) sandstone
- x) granite
- y) quartz
- z) marble

ANSWER: Z – MARBLE

40. Multiple Choice: The black sand of the Hawaiian Islands is composed of which of the following?

- w) dark limestone
- x) quartz
- y) gypsum
- z) basalt

ANSWER: Z -- BASALT

41. Short Answer: Name the clay mineral produced by the alteration of potash feldspar which is also used in ceramics.

ANSWER: KAOLINITE

42. Multiple Choice: All of the following are examples of chemically precipitated sedimentary rock except:

- w) limestone
- x) sandstone
- y) dolomite

ANSWER: X -- SANDSTONE

43. Short Answer: Name the extremely fine-grained, wind-blown clay particularly characteristic of the arid and semi-arid southwestern United States, Mexico and South America. This material was used by the southwestern Indians and Mexicans for constructing huts and buildings from prehistoric times.

ANSWER: ADOBE

44. Multiple Choice: Which of the following materials is the hardest?

- w) calcite
- x) silicon carbide
- y) topaz
- z) quartz

ANSWER: X -- SILICON CARBIDE

45. Multiple Choice: Igneous rocks that form from magma are known as:

- w) minerals
- x) granite
- y) intrusive rocks
- z) gneiss (pron: nice)

ANSWER: Y -- INTRUSIVE ROCKS

46. Multiple Choice: The mineral halite is:

- w) potassium chloride
- x) sodium chloride
- y) calcium chloride
- z) calcium bromide

ANSWER: X -- SODIUM CHLORIDE

47. Multiple Choice: What is the name of the white clay which has been used for thousands of years in the fabrication of ceramic bodies? Is it:

- w) Talc

- x) Kaolin
- y) Feldspar
- z) Quartz

ANSWER: X -- KAOLIN

48. Multiple Choice: An agate is a form of what mineral?

- w) magnetite
- x) feldspar
- y) quartz
- z) copper

ANSWER: Y – QUARTZ

49. Multiple Choice: Which of the following is the name of the partly melted rock layer on which the plates move?

- w) lithosphere
- x) asthenosphere
- y) hydrosphere
- z) outer core

ANSWER: X -- ASTHENOSPHERE

50. Multiple Choice: Which of the following areas is closest to the total surface area of the earth in square kilometers?

- w) 500 million
- x) 500 billion
- y) 500 thousand
- z) 5 billion

ANSWER: W -- 500 MILLION

51. Multiple Choice: We know that the OUTER core is liquid because:

- w) P waves pass through it
- x) S waves pass through it
- y) P waves cannot pass through it
- z) S waves cannot pass through it

ANSWER: Z -- S WAVES CANNOT PASS THROUGH IT

52. Short Answer: It is 9:00 p.m. in Greenwich, England. You are on a ship whose local time is 6:00 p.m. What is the longitude of your ship?

ANSWER: 45 DEGREES WEST

53. Multiple Choice: Field capacity represents the maximum quantity of water held:

- w) in the soil against the force of gravity
- x) in the ground water zone
- y) in the intermediate zone
- z) below the water table

ANSWER: W -- IN THE SOIL AGAINST THE FORCE OF GRAVITY

54. Multiple Choice: Trade winds are persistent easterly winds develop between:

- w) subtropical high pressure and equatorial doldrum
- x) subtropical high pressure and subpolar low pressure
- y) westerlies and polar highs
- z) none of the above

ANSWER: W -- SUBTROPICAL HIGH PRESSURE AND EQUATORIAL DOLDRUM

55. Multiple Choice: An open-ocean community is also called a:

- w) pelagic community (pron: pe-laj-ick)
- x) benthic community (pron: ben-thick)
- y) lentic community (pron: len-tick)
- z) lotic community (pron: lot-ick)

ANSWER: W -- PELAGIC COMMUNITY

56. Multiple Choice: A lake or pond community is also known as a:

- w) pelagic community (pron: pe-laj-ick)
- x) benthic community (pron: ben-thick)
- y) lentic community (pron: len-tick)
- z) lotic community (pron: lot-ick)

ANSWER: Y -- LENTIC COMMUNITY

57. Short Answer: What is the name given to a region where one plate of the earth's crust is sliding under another?

ANSWER: SUBDUCTION ZONE

58. Multiple Choice: The tectonic plates on which India and the adjacent portion of Asia ride are colliding at a rate of:

- w) 1-10 millimeters per year
- x) 1-10 centimeters per year

- y) 1-10 meters per year
- z) 1-10 decimeters per year

ANSWER: X -- 1-10 CENTIMETERS PER YEAR

59. Multiple Choice: In which of these states can large numbers of drumlins be found?

- w) Oregon
- x) California
- y) Texas
- z) Wisconsin

ANSWER: Z -- WISCONSIN

60. Multiple Choice: Which one of these glacial features is believed to have formed in the bed of a subglacial stream?

- w) an esker
- x) a kame
- y) a drumlin
- z) a moraine

ANSWER: W -- AN ESKER

61. Multiple Choice: In which of the following is a continental glacier found?

- w) Switzerland
- x) the Rockies
- y) Greenland
- z) the Andes Mountains

ANSWER: Y – GREENLAND

62. Multiple Choice: Deposits that form when the ice in a glacier melts are called:

- w) drifts
- x) dunes
- y) veins
- z) cirques (pron: serks)

ANSWER: W – DRIFTS

63. Multiple Choice: The earth's climate has been warming since the last glacial period which ended about how many years ago?

- w) 1,000 to 2,000 years ago
- x) 10,000 to 20,000 years ago
- y) 100,000 to 200,000 years ago
- z) 1,000,000 to 2,000,000 years ago

ANSWER: X -- 10,000 TO 20,000 YEARS AGO

64. Multiple Choice: Cirrus clouds are:

- w) rain clouds
- x) thick and fleecy
- y) made of ice crystals
- z) low cloud layers

ANSWER: Y -- MADE OF ICE CRYSTALS

65. Multiple Choice: The name of a rapid rise of coastal water that accompanies the arrival of a cyclone is called:

- w) hurricane
- x) storm surge
- y) tidal wave
- z) cyclonistat

ANSWER: X -- STORM SURGE

66. Multiple Choice: Certain substances are classified as water pollutants, others as air pollutants and still others as land pollutants. Which of the following pollutes all three parts of our environment?

- w) fluorocarbons
- x) smog
- y) acid rain
- z) ozone

ANSWER: Y -- ACID RAIN

67. Short Answer: What is the name of the phenomenon that causes an accumulation of heat in the lower atmosphere because of the absorption of long-wave radiation from the Earth's surface?

ANSWER: GREENHOUSE EFFECT

68. Multiple Choice: Which is true for Low-Latitude Climates?

- w) have a winter season
- x) lack a winter season
- y) are wet throughout the year
- z) are dry throughout the year

ANSWER: X -- LACK A WINTER SEASON

69. Multiple Choice: The Greenhouse Effect is caused primarily by which of the following processes?

- w) blocking incoming short wave solar energy
- x) absorbing incoming short wave solar energy
- y) heating of the Earth's stratosphere
- z) absorbing outgoing long wave radiation from the Earth

ANSWER: Z -- ABSORBING OUTGOING LONG WAVE RADIATION FROM THE EARTH

70. Multiple Choice: Fluorite is what number on Moh's hardness scale?

- w) 1
- x) 2
- y) 3
- z) 4

ANSWER: Z -- 4

71. Multiple Choice: Apatite is what number on Moh's (pron: moes: rhyme with toes) hardness scale?

- w) 1
- x) 3
- y) 5
- z) 7

ANSWER: Y – 5

72. Multiple Choice: Hematite is a primary ore of which of the following metals?

- w) zinc
- x) tungsten
- y) iron
- z) none of the above

ANSWER: Y -- IRON

73. Multiple Choice: Galena is a primary ore of which of the following metals?

- w) zinc
- x) tungsten
- y) lead
- z) silver

ANSWER: Y -- LEAD

74. Multiple Choice: Sphalerite is a primary ore of which of the following metals?

- w) zinc
- x) tin
- y) copper
- z) iron

ANSWER: W -- ZINC

75. Multiple Choice: Which of the following minerals is a source of copper?

- w) Bauxite (pron: box-ite)
- x) Hematite
- y) Malachite
- z) Galena

ANSWER: Y -- MALACHITE

76. Multiple Choice: Which physical phenomenon or principle is most often applied in the search for petroleum reservoirs?

- w) gravitational attraction
- x) magnetic field distortions
- y) natural radioactive decay of minerals
- z) acoustic wave transmission and reflection

ANSWER: Z -- ACOUSTIC WAVE TRANSMISSION AND REFLECTION

77. Multiple Choice: Which of the following time periods describes the age of the coal deposits of the Eastern United States?

- w) Jurassic and Cambrian
- x) Mississippian and Pennsylvanian
- y) Pliocene and Miocene
- z) none of these

ANSWER: X -- MISSISSIPPIAN AND PENNSYLVANIAN

78. Multiple Choice: Of the following four geologic periods, which is the oldest?

- w) Devonian
- x) Silurian
- y) Permian
- z) Jurassic

ANSWER: X -- SILURIAN

79. Multiple Choice: Of the following four geologic periods, which is the most recent?

- w) Devonian
- x) Silurian
- y) Permian
- z) Jurassic

ANSWER: Z -- JURASSIC

80. Multiple Choice: On the Phanerozoic (pron: fan-eh-reh-zO-ik) Time Scale, which of the following geologic periods occurred approximately 225 to 280 million years ago? Is it:

- w) Jurassic
- x) Permian
- y) Carboniferous
- z) Silurian

ANSWER: X – PERMIAN

81. Multiple Choice: On the Phanerozoic (pron: fan-eh-row-zo-ick) Time Scale, which of the following geologic periods occurred approximately 395 to 430 million years ago? Is it:

- w) Jurassic (pron: ju-ras-ick)
- x) Permian
- y) Carboniferous
- z) Silurian

ANSWER: Z -- SILURIAN

82. Multiple Choice: On the Phanerozoic (pron: fan-eh-reh-zO-ik) time scale, which of the following geologic periods occurred approximately 500 to 570 million years ago? Is it:

- w) Cambrian
- x) Ordovician (pron: ord-eh-vish-en)
- y) Carboniferous
- z) Silurian

ANSWER: W -- CAMBRIAN

83. Multiple Choice: The Miocene, Eocene and Paleocene epoches belong to what geologic period on the Phanerozoic Time Scale? Is it the:

- w) Devonian
- x) Permian
- y) Triassic (pron: try-as-ick)
- z) Tertiary

ANSWER: Z -- TERTIARY

84. Multiple Choice: During which period, in the earth's history, did MOST dinosaurs become extinct?

- w) Carboniferous
- x) Cretaceous
- y) Quaternary
- z) Triassic

ANSWER: X – CRETACEOUS

85. Multiple Choice: The disappearance of the dinosaurs also marks the end of which geological era?

- w) Precambrian
- x) Cambrian
- y) Mesozoic (pron: mez-ah-zo-ik)
- z) Cenozoic (pron: see-nah-zo-ik)

ANSWER: Y -- MESOZOIC

86. Multiple Choice: On a topographic map, lines that indicate water depth are termed:

- w) isogonic lines (pron: eye-seh-gone-ik)
- x) bathymetric lines (pron: bath-i-meh-trik)
- y) isopachs
- z) none of these

ANSWER: X -- BATHYMETRIC LINES

87. Multiple Choice: In geological studies, a fault in the earth's surface in which the hanging wall has moved UP relative to the footwall is termed:

- w) overthrust fault
- x) reverse fault
- y) tear fault
- z) none of these

ANSWER: X -- REVERSE FAULT

88. Multiple Choice: In geological studies, a fault in the earth's surface along which primarily horizontal movement has taken place is termed:

- w) overthrust fault
- x) strike-slip fault
- y) reverse fault
- z) none of the above

ANSWER: X -- STRIKE-SLIP FAULT

89. Multiple Choice: In studies of the surface of the earth, a reverse fault having a dip between 10 and 45 degrees is known as a:

- w) thrust fault
- x) normal fault
- y) strike-slip fault

z) neither of these

ANSWER: W -- THRUST FAULT

90. Short Answer: What is the name given to a flat-topped plateau bordered on all sides by cliffs?

ANSWER: MESA or BUTTE

91. Multiple Choice: You are adrift off the coast of Miami, Florida in the Gulf Stream. Where would you most likely land?

- w) Argentina
- x) Louisiana
- y) New York
- z) The British Isles

ANSWER: Z -- THE BRITISH ISLES

92. Short Answer: A troughlike downfold of strata is called a:

ANSWER: SYNCLINE

93. Multiple Choice: The horse latitude which occurs at approximately 30° - 35° north is also known as the:

- w) doldrums
- x) calms of Cancer
- y) calms of Capricorn
- z) trough of the Pacific

ANSWER: X -- CALMS OF CANCER

94. Short Answer: Of the three types of corals, Scleractinian, Rugose and Tabulate, which one is still in existence today?

ANSWER: SCLERACTINIAN

95. Multiple Choice: A circular cavity ground out of bedrock by running water is called a:

- w) cave
- x) pothole
- y) sinkhole
- z) kettle hole

ANSWER: X -- POTHOLE

96. Multiple Choice: A yazoo stream flows through which of the following?

- w) gorge
- x) divide
- y) backswamp
- z) water gap

ANSWER: Y -- BACKSWAMP

97. Multiple Choice: Which of the following is a famous hanging trough waterfall?

- w) Yellowstone Falls
- x) Yosemite Falls
- y) Niagara Falls
- z) Victoria Falls

ANSWER: X -- YOSEMITE FALLS

98. Multiple Choice: A wave with a wavelength of 40 meters and a height of 2 meters will NOT be refracted in water with a depth of more than:

- w) 1 meter
- x) 2 meters
- y) 10 meters
- z) 20 meters

ANSWER: Z -- 20 METERS

99. Multiple Choice: The lag time between precipitation period and peak discharge period of a river:

- w) is increased by urbanization
- x) is decreased by urbanization
- y) is shorter for a large drainage basin than for a small one
- z) depends upon the hydraulic heads

ANSWER: X -- IS DECREASED BY URBANIZATION

100. Short Answer: Give the general term used to designate the sand, silt, and mud deposited by a stream, along its bank or upon its floodplain, during periods of high water.

ANSWER: ALLUVIUM or ALLUVIAL