

Science Bowl

EARTH SCIENCE

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; Multiple Choice: Shiprock in New Mexico is a:

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

ANSWER: X -- VOLCANIC NECK

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ERSC-91; 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.

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; Multiple Choice: What percentage of the earth's atmosphere does O₂ comprise?

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

ANSWER: Y -- 21%

ERSC-91; Short Answer: What gas makes up the majority of our atmosphere?

ANSWER: NITROGEN

ERSC-91; 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

ERSC-91; 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%

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ERSC-91; 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

ERSC-91; 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

ERSC-91; Short Answer: To within 5%, how much has atmospheric CO₂ concentration INCREASED since the year 1800?

ANSWER: 25%

ERSC-91; 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)

ERSC-91; Short Answer: The ozone layer is located in which region of the atmosphere?

ANSWER: STRATOSPHERE

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; Multiple Choice: Which one of the following minerals does NOT contain silica tetrahedrons?

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

ANSWER: Y -- HALITE

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; Multiple Choice: The hydrolysis of orthoclase results in the formation of:

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

ANSWER: X -- KAOLIN

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ERSC-91; 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

ERSC-91; Multiple Choice: This sedimentary rock was used to build the Pantheon and the Colosseum:

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

ANSWER: X -- TRAVERTINE

ERSC-91; Short Answer: What is another name for the semi-precious stone heliotrope?

ANSWER: BLOODSTONE

ERSC-91; Short Answer: Rocks are classified depending upon how they are formed. In which class would slate be found?

ANSWER: METAMORPHIC

ERSC-91; Multiple Choice: Which of the following is an igneous rock?

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

ANSWER: W -- GRANITE

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ERSC-91; Multiple Choice: Which of the following is a metamorphic rock?

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

ANSWER: Z -- MARBLE

ERSC-91; 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

ERSC-91; Short Answer: Name the clay mineral produced by the alteration of potash feldspar which is also used in ceramics.

ANSWER: KAOLINITE

ERSC-91; Multiple Choice: All of the following are examples of chemically precipitated sedimentary rock except:

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

ANSWER: X -- SANDSTONE

ERSC-91; 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

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ERSC-91; Multiple Choice: Which of the following materials is the hardest?

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

ANSWER: X -- SILICON CARBIDE

ERSC-91; 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

ERSC-91; Multiple Choice: The mineral halite is:

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

ANSWER: X -- SODIUM CHLORIDE

ERSC-91; 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

ERSC-91; Multiple Choice: An agate is a form of what mineral?

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

ANSWER: Y -- QUARTZ

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; Multiple Choice: The tectonic plates on which India and the adjacent portion of Asia 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

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ERSC-91; Short Answer: What is the name of the phenomenon that causes an accumulation of heat in the lower atmosphere because of the absorption of longwave radiation from the Earth's surface?

ANSWER: GREENHOUSE EFFECT

ERSC-91; 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

ERSC-91; 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

ERSC-91; Multiple Choice: Fluorite is what number on Moh's hardness scale?

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

ANSWER: Z -- 4

ERSC-91; 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

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ERSC-91; 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

ERSC-91; Multiple Choice: Galena is a primary ore of which of the following metals?

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

ANSWER: Y -- LEAD

ERSC-91; Multiple Choice: Sphalerite is a primary ore of which of the following metals?

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

ANSWER: W -- ZINC

ERSC-91; 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; Multiple Choice: Of the following four geologic periods, which is the oldest?

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

ANSWER: X -- SILURIAN

ERSC-91; Multiple Choice: Of the following four geologic periods, which is the most recent?

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

ANSWER: Z -- JURASSIC

ERSC-91; 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; Multiple Choice: The Miocene, Eocene and Paleocene epochs 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; Short Answer: What is the name given to a flat-topped plateau bordered on all sides by cliffs?

ANSWER: MESA or BUTTE

ERSC-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

ERSC-91; Short Answer: A troughlike downfold of strata is called a:

ANSWER: SYNCLINE

ERSC-91; 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

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ERSC-91; Short Answer: Of the three types of corals, Scleractinian, Rugose and Tabulate, which one is still in existence today?

ANSWER: SCLERACTINIAN

ERSC-91; 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

ERSC-91; Multiple Choice: A yazoo stream flows through which of the following?

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

ANSWER: Y -- BACKSWAMP

ERSC-91; 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

ERSC-91; 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

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ERSC-91; 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

ERSC-91; 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

ERSC-91; Short Answer: What term is applied to dry stream channels with nearly vertical walls and flat bottoms which are characteristic of semi-arid regions. They may suddenly become filled with torrential waters after heavy rains. The term has a Spanish origin.

ANSWER: ARROYO

ERSC-91; Multiple Choice: What percentage of the earth's water is fresh water?

- w) 50%
- x) 22%
- y) 7%
- z) 3%

ANSWER: Z -- 3%

ERSC-91; Multiple Choice: The deep, least productive part of a lake is called the:

- w) littoral zone
- x) profundal zone
- y) photic zone
- z) limnetic zone

ANSWER: X -- PROFUNDAL ZONE

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ERSC-91; Multiple Choice: Which of the following does NOT affect sea level change?

- w) Antarctic ice sheet
- x) small glaciers and ice caps
- y) Arctic sea ice
- z) Greenland ice sheet

ANSWER: Y -- ARCTIC SEA ICE

ERSC-91; Multiple Choice: If all the Earth's ice melted, the increase in sea level would be approximately:

- w) 100 meters
- x) 2 meters
- y) 70 meters
- z) 20 meters

ANSWER: Y -- 70 METERS

ERSC-91; Multiple Choice: The curved body of water formed when a meandering river reshapes and cuts off one of its bends is called:

- w) an Essing pond
- x) an Oxbow lake
- y) a Swensen pool
- z) a Groovy pool

ANSWER: X -- AN OXBOW LAKE

ERSC-91; Multiple Choice: The chemical union of iron, oxygen and water forms

- w) magnetite
- x) hematite
- y) limonite
- z) pyrite

ANSWER: Y -- LIMONITE

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ERSC-91; Multiple Choice: Give the term that describes different crystalline modifications of the same chemical substance. Is it:

- w) polymorphism
- x) isomorphism
- y) tetrahedral
- z) perovskite

ANSWER: W -- POLYMORPHISM

ERSC-91; Multiple Choice: Of the energy used in the United States, about what percent is provided by hydroelectric power?

- w) 4%
- x) 20%
- y) 50%
- z) 75%

ANSWER: W -- 4%

ERSC-91; Multiple Choice: The B-horizon of a pedalfer soil is noted for its accumulation of:

- w) carbonate
- x) nitrogen
- y) humus
- z) oxides

ANSWER: Z -- OXIDES

ERSC-91; Multiple Choice: Pedocal (pron: ped-eh-kal) soils are usually found to have developed in:

- w) forests
- x) swamps
- y) grasslands
- z) jungles

ANSWER: Y -- GRASSLANDS

Science Bowl

EARTH SCIENCE

ERSC-91; Multiple Choice: High quality crop soil requires humus as a major component. Which of the following best describes the composition of humus

- w) fine sand particles
- x) decaying organic matter
- y) mineral like clay matter
- z) chemical fertilizers

ANSWER: X -- DECAYING ORGANIC MATTER

ERSC-91; Multiple Choice: The aquifer of a famous artesian formation in the Great Plains is a layer of rock called the:

- w) Clinton limestone
- x) Dakota sandstone
- y) Pierre shale
- z) Vermont marble

ANSWER: X -- DAKOTA SANDSTONE

ERSC-91; Multiple Choice: The principal aquifer of the artesian wells of Florida is a:

- w) porous sandstone
- x) fissured limestone
- y) series of clay beds
- z) mass of pumice

ANSWER: X -- FISSURED LIMESTONE

ERSC-91; Multiple Choice: The saltation of sand grains refers to the sand grains:

- w) being coated with salt
- x) moving in jumps and bounces
- y) moving in a steady stream
- z) being cemented together

ANSWER: X -- MOVING IN JUMPS AND BOUNCES

Science Bowl

EARTH SCIENCE

ERSC-91; Multiple Choice: The surface of a "desert pavement" is composed mainly of which of the following?

- w) loose sand
- x) sand and clay
- y) pebbles and boulders
- z) concrete and cement

ANSWER: Y -- PEBBLES AND BOULDERS

ERSC-91; Multiple Choice: Which of the following are barchans?

- w) deflation basins
- x) oases
- y) crescent-shaped dunes
- z) sand storms

ANSWER: Y -- CRESCENT-SHAPED DUNES

ERSC-91; Multiple Choice: Which of the following does NOT form as a result of a low level temperature inversion?

- w) smog
- x) sleet
- y) tornado
- z) fog

ANSWER: Y -- TORNADO

ERSC-92; Multiple Choice: A type of lava characterized by a blocky appearance is termed:

- w) Pillow Lava
- x) Aa
- y) Vesicular
- z) none of these

ANSWER: X -- Aa

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: A type of volcano composed of mainly pyroclastics is termed:

- w) cinder cone
- x) shield cone
- y) composite cone
- z) none of these

ANSWER: W -- CINDER CONE

ERSC-92; Short Answer: Lassen Peak is an active volcano in the United States In what state is Lassen Peak located?

ANSWER: CALIFORNIA

ERSC-92; Multiple Choice: An example of a typical shield volcano is:

- w) Washington's Mount Rainier
- x) Hawaii's Mauna Loa
- y) Ecuador's Mount Cotopaxi
- z) Japan's Mount Fuji

ANSWER: X -- HAWAII'S MAUNA LOA

ERSC-92; Multiple Choice: Molten rock beneath the Earth's crust is called:

- w) magma
- x) liquicite
- y) lava
- z) igneous

ANSWER: W -- MAGMA

ERSC-92; Short Answer: What is the name and locality of the highest mountain peak in North America?

ANSWER: MOUNT MCKINLEY, ALASKA, U.S.A.

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: The jet-stream lies between which two layers of the earth's atmosphere?

- w) thermosphere and ionosphere
- x) mesosphere and thermosphere
- y) troposphere and stratosphere
- z) stratosphere and mesosphere

ANSWER: Y -- TROPOSPHERE AND STRATOSPHERE

ERSC-92; Multiple Choice: The degree of aridity of a geographic region is generally defined as the ratio of precipitation to:

- w) condensation
- x) evaporation
- y) transpiration
- z) snowpack depth

ANSWER: X -- EVAPORATION

ERSC-92; Multiple Choice: In the nebular hypothesis, each planet is formed from which of the following?

- w) a comet
- x) a number of moons
- y) a passing star
- z) a ring of gas

ANSWER: Z -- A RING OF GAS

ERSC-92; Short Answer: What is a selenologist (pron: sel-e-nol-o-jist)?

ANSWER: LUNAR GEOLOGIST

ERSC-92; Multiple Choice: There are three commonly detectable points of zero polarization of diffuse sky radiation, neutral points, lying along the vertical circle through the sun. Which of the following is NOT one of these points? Is it the:

- w) Arago Point
- x) Babinet Point
- y) Brewster Point
- z) Longfellow Point

ANSWER: Z -- LONGFELLOW POINT

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: An igneous rock which is commonly black, has a glassy texture, and has a conchoidal (pron: kong-koid-al) fracture is which of the following?

- w) pelite (pron: pel-ite)
- x) calcite
- y) obsidian
- z) none of the above

ANSWER: Y -- OBSIDIAN

ERSC-92; Multiple Choice: In geological studies, a breccia contains particles that have which of the following shapes?

- w) rounded
- x) angular
- y) square
- z) spheroidal

ANSWER: X -- ANGULAR

ERSC-92; Multiple Choice: Which of the following is the most important chemically-active fluid involved in the formation of rocks?

- w) hydrochloric acid
- x) sulfuric acid
- y) water
- z) methane

ANSWER: Y -- WATER

ERSC-92; Short Answer: Most natural minerals can be found in what two crystal systems?

ANSWER: ORTHORHOMBIC AND MONOCLINIC

ERSC-92; Multiple Choice: Diamond and graphite are polymorphs of which of the following elements?

- w) magnesium
- x) carbon
- y) sulfur
- z) nitrogen

ANSWER: X -- CARBON

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: The streak of a mineral can be obtained most easily by performing which of the following tests?

- w) rubbing the mineral on an unglazed white tile
- x) putting the mineral into acid
- y) scratching the mineral with a diamond
- z) examining the mineral under a microscope

ANSWER: W -- RUBBING THE MINERAL ON AN UNGLAZED WHITE TILE

ERSC-92; Multiple Choice: Which of the following pairs of minerals are difficult to tell apart because both are always dark in color and almost equally hard?

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

ANSWER: Z -- HORNBLende AND AUGITE

ERSC-92; Multiple Choice: A specialized form of concordant igneous intrusion that is characterized by a dome in the country rock and a nearly planar floor is called a:

- w) lopolith
- x) laccolith
- y) batholith
- z) stock

ANSWER: X -- LACCOLITH

ERSC-92; Multiple Choice: The most common mineral found in igneous rock is:

- w) feldspar
- x) olivine
- y) muscovite
- z) fluorite

ANSWER: W -- FELDSPAR

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: The metamorphic rock which forms from pure limestone is:

- w) slate
- x) gneiss
- y) schist
- z) marble

ANSWER: Z -- MARBLE

ERSC-92; Multiple Choice: Which coal is considered a metamorphic rock?

- w) anthracite coal
- x) bituminous coal
- y) lignite coal
- z) all of these

ANSWER: W -- ANTHRACITE

ERSC-92; Short Answer: What is the name for a sloping pile of rocks at the foot of a cliff?

ANSWER: TALUS SLOPE

ERSC-92; Multiple Choice: The earth's average density is:

- w) 2.82 grams per cubic centimeter
- x) 4.75 grams per cubic centimeter
- y) 5.52 grams per cubic centimeter
- z) 10.5 grams per cubic centimeter

ANSWER: Y -- 5.52 GRAMS PER CUBIC CENTIMETER

ERSC-92; Multiple Choice: The continental shelves comprise what percentage of the Earth's total land area?

- w) 38 percent
- x) 28 percent
- y) 18 percent
- z) 8 percent

ANSWER: Y -- 18 PERCENT

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: Continental shelves range in width from:

- w) 1,500 to 5,000 kilometers
- x) 1,500 to 3,000 kilometers
- y) 0 to 5,000 kilometers
- z) 0 to 1,500 kilometers

ANSWER: Z -- 0 TO 1,500 KILOMETERS

ERSC-92; Multiple Choice: The transport of energy or matter across the parallels of latitude in a north-south direction or the reverse is called:

- w) global transport
- x) air transport
- y) meridional transport
- z) polar transport

ANSWER: Y -- MERIDIONAL TRANSPORT

ERSC-92; Multiple Choice: Orthoclase is what number on Moh's hardness scale?

- w) 4
- x) 5
- y) 6
- z) 7

ANSWER: Y -- 6

ERSC-92; Short Answer: Diamond is what number on the Moh's hardness scale?

ANSWER: 10

ERSC-92; Multiple Choice: Which of the following is the chemical formula for calcite?

- w) CaCO_3
- x) CaMgSO_4
- y) FeCO_3
- z) FeS_2

ANSWER: W -- CaCO_3

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: The nickname, "Fool's Gold," refers to which of the following?

- w) calcite
- x) apatite
- y) fluorite
- z) pyrite

ANSWER: Z -- PYRITE

ERSC-92; Short Answer: The oxide of what lightweight metal forms corundum, rubies, and sapphires?

ANSWER: ALUMINUM

ERSC-92; Multiple Choice: Which of the following is the only element which is "mined" from the sea? Is it:

- w) copper
- x) magnesium
- y) uranium
- z) zinc

ANSWER: X -- MAGNESIUM

ERSC-92; Multiple Choice: Which physical phenomenon or principle is most often applied in the search for petroleum reservoirs?

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

ANSWER: Z -- ACOUSTIC WAVE TRANSMISSION AND REFLECTION

ERSC-92; Multiple Choice: Which of the following names is given to the supercontinent thought to have existed in the Cambrian period? Is it:

- w) Pangaea
- x) Afrasia
- y) Gondwanaland
- z) Europia

ANSWER: W -- PANGAEA

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: Which of the following is the oldest period of time lasting from the beginnings of the earth to approximately 570 million years ago?

- w) Precambrian
- x) Pleistocene (pron: ply-sto-sin)
- y) Miocene (pron: my-o-sin)
- z) Jurassic

ANSWER: W -- PRECAMBRIAN

ERSC-92; Multiple Choice: Which of the following time periods includes part of the geologic range of dinosaurs?

- w) Mississippian
- x) Devonian
- y) Jurassic
- z) none of the above

ANSWER: Y -- JURASSIC

ERSC-92; Short Answer: This period in earth history is the earliest subdivision of the Paleozoic Era. Many of the oldest known invertebrate fossils occur in this period, the principal types being trilobites, chitinous brachiopods, and primitive graptolites. Name this period.

ANSWER: CAMBRIAN PERIOD

ERSC-92; Multiple Choice: On the Phanerozoic time scale, which of the following geologic periods occurred approximately 65 to 136 million years ago? Is it:

- w) Cambrian
- x) Ordovician
- y) Carboniferous
- z) Cretaceous

ANSWER: Z -- CRETACEOUS

ERSC-92; Multiple Choice: The emergence of land plants is generally accepted as occurring during what period on the geologic time scale:

- w) Cretaceous
- x) Triassic
- y) Permian
- z) Silurian

ANSWER: Z -- SILURIAN

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: Angiosperms developed during the:

- w) Precambrian period
- x) Cenozoic era
- y) Paleozoic era
- z) Mesozoic era

ANSWER: Z -- MESOZOIC ERA

ERSC-92; Multiple Choice: On a topographic map, lines that connect points of the same elevation are termed:

- w) benchmarks
- x) bathymetric lines
- y) contour lines
- z) isobars

ANSWER: Y -- CONTOUR LINES

ERSC-92; Multiple Choice: Of the following, the color blue on a topographic map indicates what surface feature?

- w) vegetation
- x) water
- y) photorevision
- z) rock formations

ANSWER: X -- WATER

ERSC-92; Multiple Choice: Of the following choices, the color purple on a topographic map indicates what surface feature?

- w) vegetation
- x) water
- y) photorevision
- z) rock formations

ANSWER: Y -- PHOTOREVISION

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: Which of the following names is used to describe the zero degree longitudinal line that runs through Greenwich, England?

- w) Great Circle
- x) Principle Line
- y) Longitudinal Maximum
- z) Prime Meridian

ANSWER: Z --PRIME MERIDIAN

ERSC-92; Multiple Choice: Another method of locating points on a map besides the longitude and latitude method which is frequently employed in the western states is known as the:

- w) Arc Method
- x) Tier and Range System
- y) Square Similar Method
- z) none of these

ANSWER: X -- TIER AND RANGE SYSTEM

ERSC-92; Multiple Choice: A point of known or assumed elevation on a topographic map is termed:

- w) benchmark
- x) contour line
- y) bathymetric point
- z) none of these

ANSWER: W -- BENCHMARK

ERSC-92; Multiple Choice: Which of the following terms is used to describe the angular difference between TRUE north and magnetic north on a topographic map? Is it:

- w) Magnetic field
- x) Magnetic intensity
- y) Magnetic inclination
- z) Magnetic declination

ANSWER: Z -- MAGNETIC DECLINATION

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: In geological studies, a fracture in the earth's surface along which movement has taken place is termed:

- w) tension fracture
- x) gash fracture
- y) fault
- z) none of these

ANSWER: Y -- FAULT

ERSC-92; Multiple Choice: In geological studies, a fault in the earth's surface in which the hanging wall has moved down relative to the footwall is termed:

- w) normal fault
- x) reverse fault
- y) upthrust fault
- z) none of these

ANSWER: W -- NORMAL FAULT

ERSC-92; Multiple Choice: In geological studies, a reverse fault having a dip less than 10 degrees is known as which of the following types of faults.

- w) normal
- x) overthrust
- y) strike-slip
- z) none of the above.

ANSWER: X -- OVERTHRUST

ERSC-92; Multiple Choice: The San Andreas fault in California is a classic example of which of the following types of faults?

- w) tear fault
- x) upthrust fault
- y) dip-slip fault
- z) strike-slip fault

ANSWER: Z -- STRIKE-SLIP FAULT

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: Of the following states, the principal bituminous coal producing state in the United States is:

- w) Tennessee
- x) Illinois
- y) Pennsylvania
- z) West Virginia

ANSWER: Z -- WEST VIRGINIA

ERSC-92; Multiple Choice: Continents have three major features. The oldest areas of each continent are the:

- w) folded mountains
- x) stable platforms
- y) mountain cores
- z) shields

ANSWER: Z -- SHIELDS

ERSC-92; Short Answer: What is the name for a distinctive fossil that exists over a relatively large part of the earth during a short time of earth history?

ANSWER: INDEX FOSSIL

ERSC-92; Multiple Choice: Cordaites (pron: kor-day-i-tees) were the ancestor of one of the following. Were they primitive:

- w) amphibians
- x) cone-bearing trees
- y) snakes
- z) sharks

ANSWER: X -- CONE-BEARING TREES

ERSC-92; Multiple Choice: The fossils found in the tar pits of Rancho La Brea in Los Angeles included all of the following EXCEPT one. Which one was absent?

- w) saber-toothed cat
- x) dire wolf
- y) woolly mammoth
- z) giant ground sloth

ANSWER: Y -- WOOLY MAMMOTH

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: The fossil archaeopteryx is the earliest known example of:

- w) mammal
- x) fish
- y) bird
- z) snake

ANSWER: Y -- BIRD

ERSC-92; Short Answer: Name the famous scientist who, in 1835, discovered seashell fossils 13,000 feet up in the Andes.

ANSWER: CHARLES DARWIN

ERSC-92; Multiple Choice: Large streams that enter a standing body of water produce which of the following geological features at their mouths?

- w) deltas
- x) load casts
- y) anticlines
- z) sync (pron: sink)

ANSWER: W -- DELTAS

ERSC-92; Short Answer: What are tidal waves called that surge up rivers from narrow estuaries called?

ANSWER: TIDAL BORES

ERSC-92; Multiple Choice: The Cromwell Current is a subsurface current that flows how? Does it flow:

- w) west in the Atlantic Ocean
- x) east in the Atlantic Ocean
- y) east in the Pacific Ocean
- z) west in the Pacific Ocean

ANSWER: Y -- EAST IN THE PACIFIC OCEAN

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: Crinoids are the same as one of the following. Which one is it? Is it

- w) algae
- x) sea scorpions
- y) sea lilies
- z) lobe-finned fishes

ANSWER: Y -- SEA LILIES

ERSC-92; Multiple Choice: Which one of the following seas has the lowest salinity?

- w) Baltic
- x) Dead
- y) Mediterranean
- z) Red

ANSWER: W -- BALTIC

ERSC-92; Short Answer: What is the name given to the excessive growth of algae and other primary producers in streams and lakes as a result of an input of soil nutrients? The name begins with the letter "E".

ANSWER: EUTROPHICATION

ERSC-92; Multiple Choice: In an ocean, the upper layer of water with sufficient light penetration to support photosynthesis by aquatic plants is known as the:

- w) free zone
- x) plant zone
- y) photic zone
- z) primary zone

ANSWER: Y -- PHOTIC ZONE

ERSC-92; Multiple Choice: Caves are frequently associated with a certain kind of topography that includes sinkholes, disappearing streams and many limestone outcrops. With which of the following topographies are such features related?

- w) arid topography
- x) valley and ridge topography
- y) Karst topography
- z) none of these

ANSWER: Y -- KARST TOPOGRAPHY

Science Bowl

EARTH SCIENCE

ERSC-92; Multiple Choice: Most cave deposits form from which of the following minerals?

- w) hematite
- x) calcite
- y) quartz
- z) none of these

ANSWER: X -- CALCITE

ERSC-93; Multiple Choice: A pair of rivers that mark the approximate southern limit of the Ice Age glaciers in North America are the Missouri and which of the following?

- w) St. Lawrence
- x) Ohio
- y) Delaware
- z) Tennessee

ANSWER: X -- OHIO

ERSC-93; Multiple Choice: Which of the following number of years best approximates the length of time since the last ice age in the United States?

- w) 1,000,000
- x) 1,000
- y) 11,000
- z) 250,000

ANSWER: Y -- 11,000

ERSC-93; Short Answer: What is molten rock that remains underground called?

ANSWER: MAGMA

ERSC-93; Short Answer: Name the volcano in the continental United States that erupted in May 1980.

ANSWER: MOUNT ST. HELENS

ERSC-93; Multiple Choice: The Hawaiian Islands are what type of volcano?

- w) shield
- x) composite
- y) cinder cone

ANSWER: W -- SHIELD

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: The internal structure of crystals was first studied with which of the following?

- w) x-rays
- x) isotopes
- y) electron microscopes
- z) lasers

ANSWER: W -- X-RAYS

ERSC-93; Short Answer: What is the world's largest active volcano?

ANSWER: MAUNA LOA, HAWAII

ERSC-93; Multiple Choice: In geological studies, cemented volcanic ash is called:

- w) caldera
- x) a-a
- y) lava
- z) tuff

ANSWER: Z -- TUFF

ERSC-93; Multiple Choice: All of the following are TRUE of the Paricutin volcano except

- w) its slopes are steep
- x) it is a lava cone
- y) it is located in Mexico
- z) it was built over a short period of time

ANSWER: X -- IT IS A LAVA CONE

ERSC-93; Multiple Choice: Iceland is least likely to have

- w) a fissure eruption
- x) a lava plateau
- y) an explosive eruption
- z) a shield volcano

ANSWER: Y -- AN EXPLOSIVE ERUPTION

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: The principal volcanic gas (in terms of quantity) is:

- w) carbon dioxide
- x) nitrogen dioxide
- y) sulfur dioxide
- z) steam (H₂O)

ANSWER: Z -- STEAM (H₂O)

ERSC-93; Multiple Choice: Which of the following elements is found in the earth's crust as both a native element and as a compound?

- w) argon
- x) copper
- y) chlorine
- z) silicon

ANSWER: X -- COPPER

ERSC-93; Multiple Choice: According to the protoplanet hypothesis, the solar system begins as which of the following?

- w) a star
- x) a vacuum
- y) a huge cloud of dust and gas
- z) a group of comets.

ANSWER: Y -- A HUGE CLOUD OF DUST AND GAS

ERSC-93; Multiple Choice: On which one of the following is the largest known volcanic cone in the solar system located?

- w) Earth
- x) Io
- y) Mars
- z) the moon

ANSWER: Y -- MARS

Science Bowl

EARTH SCIENCE

ERSC-93; Short Answer: Mount St. Helens is one of the more active volcanos in the United States today. In what state is Mount St. Helens located?

ANSWER: WASHINGTON

ERSC-93; Multiple Choice: What type of rocks are formed as a result of volcanic activity?

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

ANSWER: Y -- IGNEOUS

ERSC-93; Short Answer: This world-famous volcano erupted in 79 A.D., 1139, 1631, 1779, 1793, 1872, 1906, and 1944. Name this volcano.

ANSWER: MT. VESUVIUS

ERSC-93; Short Answer: Name the very old mountain belt located in southern Missouri and Northern Arkansas.

ANSWER: OZARKS

ERSC-93; Short Answer: Name the mountain range, located in South America, which runs through Peru.

ANSWER: ANDES

ERSC-93; Multiple Choice: In which of the following mountain ranges are volcanic rocks least common?

- w) Andes
- x) Cascades
- y) Himalayas
- z) Sierra Nevadas

ANSWER: Y -- HIMALAYAS

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Which of the following mountain ranges were formed as a result of volcanic action?

- w) Appalachians
- x) Teton Range
- y) Front Range
- z) Cascade Range

ANSWER: Z -- CASCADE RANGE

ERSC-93; Multiple Choice: Which of the following is the most important erosional and transportation agent?

- w) wind
- x) water
- y) glaciers
- z) none of the above

ANSWER: X -- WATER

ERSC-93; Multiple Choice: Winds are classed as agents of erosion rather than of weathering because:

- w) they have nothing to do with the weather
- x) they carry rock particles away
- y) they work only part of the time
- z) they build up rather than wear down the rock

ANSWER: X -- THEY CARRY ROCK PARTICLES AWAY

ERSC-93; Multiple Choice: Carbonic acid is extremely active in the chemical weathering of:

- w) feldspar
- x) quartz
- y) carbon
- z) quartzite

ANSWER: W -- FELDSPAR

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Of the following minerals, the one most resistant to both chemical and mechanical weathering is:

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

ANSWER: Z -- QUARTZ

ERSC-93; Multiple Choice: When shale weathers, it forms mostly:

- w) clay
- x) quartz
- y) soluble carbonates
- z) slate

ANSWER: W -- CLAY

ERSC-93; Multiple Choice: Waste gases from industrial plants form acids that hasten chemical weathering. Most of the gases are compounds of:

- w) argon
- x) hydrogen
- y) iron
- z) sulfur

ANSWER: Z -- SULFUR

ERSC-93; Multiple Choice: Which one of the following is an example of chemical weathering?

- w) the splitting of a boulder
- x) the grinding of pebbles into sand
- y) the cleavage of a feldspar crystal
- z) the rusting of hornblende

ANSWER: Z -- THE RUSTING OF HORNBLLENDE

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: The oxygen in the earth's atmosphere was probably produced by which of the following?

- w) volcanos
- x) photosynthetic organisms
- y) radioactive minerals
- z) meteors

ANSWER: X -- PHOTOSYNTHETIC ORGANISMS

ERSC-93; Multiple Choice: How much of the sun's total radiation actually reaches the earth? Is it one part in

- w) 2,000
- x) 200,000
- y) 2 million
- z) 2 billion

ANSWER: Z -- ONE PART IN 2 BILLION

ERSC-93; Multiple Choice: To what does the atmosphere's "greenhouse effect" refer to?

- w) the fact that ozone reflects ultraviolet radiation
- x) the fact that air prevents heat from leaving the earth
- y) the fact that clouds prevent sunlight from reaching the earth
- z) the fact that green plants use sunlight to produce food

ANSWER: X -- THE FACT THAT AIR PREVENTS HEAT FROM LEAVING THE EARTH

ERSC-93; Short Answer: What is the name given to the term that defines the proportion of the incident solar radiation which is diffusely reflected from the atmosphere and surface of the planet back into outer space?

ANSWER: ALBEDO

ERSC-93; Short Answer: What is the name of the electromagnetic radiation in the range of 0.4 to 0.7 microns?

ANSWER: VISIBLE LIGHT

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: What name is given to the science which studies the atmosphere?

- w) oceanography
- x) atmospherology
- y) meteorology
- z) weatherology

ANSWER: Y -- METEOROLOGY

ERSC-93; Multiple Choice: The available incoming solar radiation is known as:

- w) reflection
- x) insolation
- y) reradiation
- z) absorption

ANSWER: X -- INSOLATION

ERSC-93; Multiple Choice: You are flying between Chicago and San Francisco on a commercial jet. The pilot comes on the public address system and announces that the plane's cruising altitude is 40,000 feet. At this altitude are you in the:

- w) troposphere
- x) stratosphere
- y) ozonosphere
- z) chemosphere

ANSWER: X -- STRATOSPHERE

ERSC-93; Short Answer: The gaseous water density of the atmosphere is more commonly known as what?

ANSWER: HUMIDITY

ERSC-93; Multiple Choice: Which region of the electro-magnetic spectrum will cause sunburns?

- w) ultraviolet
- x) infrared
- y) visible

ANSWER: W -- ULTRAVIOLET

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Which of the following processes doesn't account for an increase in atmospheric CO₂ (carbon dioxide) levels?

- w) deforestation
- x) photosynthetic processes
- y) plant respiration
- z) fossil fuel combustion

ANSWER: X -- PHOTOSYNTHETIC PROCESSES

ERSC-93; Short Answer: The ozone in the atmosphere helps to block out excess of what type of rays?

ANSWER: ULTRAVIOLET LIGHT

ERSC-93; Multiple Choice: Global climate change is being attributed to the atmospheric increase in what two gases produced by human activities?

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

ANSWER: Y -- METHANE AND CARBON DIOXIDE

ERSC-93; Multiple Choice: According to the French scientist Buffon, the solar system formed when our sun

- w) was first formed
- x) collided with a comet
- y) began to cool down
- z) began to expand.

ANSWER: X -- COLLIDED WITH A COMET

ERSC-93; Multiple Choice: Which element in chlorofluorocarbons (CFCs) is responsible for destroying the Earth's ozone layer?

- w) oxygen
- x) fluorine
- y) chlorine
- z) bromine

ANSWER: Y -- CHLORINE

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: The Coriolis effect is responsible for which atmospheric phenomenon?

- w) trade winds
- x) the jet stream
- y) monsoons
- z) hurricanes

ANSWER: Z -- HURRICANES

ERSC-93; Multiple Choice: Which of the following reasons explains why quartz cannot be identified by its color alone?

- w) Its color is too faint.
- x) It has no color.
- y) It exists in a variety of colors.
- z) Its color fades.

ANSWER: Y -- IT EXISTS IN A VARIETY OF COLORS

ERSC-93; Multiple Choice: Which of the following causes the oblate spheroid shape of the earth?

- w) the earth's magnetism
- x) the earth's gravity
- y) the earth's rotation
- z) the moon's tidal pull

ANSWER: Y -- THE EARTH'S ROTATION

ERSC-93; Multiple Choice: Which of these events gives us evidence that the earth is spherical?

- w) a volcanic eruption
- x) an earthquake
- y) an eclipse of the moon
- z) the earth's rotation

ANSWER: Y -- AN ECLIPSE OF THE MOON

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Which one of these is NOT true?

- w) All planets revolve in the same direction.
- x) All planets rotate in the same direction.
- y) The orbits of the planets are all ellipses.
- z) The orbits of the planets are nearly in the same plane.

ANSWER: X -- ALL PLANETS ROTATE IN THE SAME DIRECTION.

ERSC-93; Multiple Choice: An area that is not in a major earthquake belt is the region of the

- w) Andes mountains
- x) Coast Ranges of Central America
- y) Appalachian Mountains
- z) the islands of Japan

ANSWER: Y -- APPALACHIAN MOUNTAINS

ERSC-93; Multiple Choice: A city that suffered a major earthquake, but is not on a plate boundary, is

- w) Los Angeles, California
- x) San Francisco, California
- y) Tokyo, Japan
- z) Charleston, South Carolina

ANSWER: Z -- CHARLESTON, SOUTH CAROLINA

ERSC-93; Multiple Choice: Which of the following is TRUE of an earthquake's epicenter and focus?

- w) they are the same
- x) the focus is above the epicenter
- y) the epicenter is at the earth's surface
- z) the focus is at the earth's inner core

ANSWER: Y -- THE EPICENTER IS AT THE EARTH'S SURFACE

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Most earthquakes originate at depths of between
w) the surface and 100 kilometers
x) 100 kilometers and 500 kilometers
y) 500 kilometers and 700 kilometers
z) 700 kilometers and the outer core

ANSWER: W -- THE SURFACE AND 100 KILOMETERS

ERSC-93; Multiple Choice: The most powerful earthquake ever recorded in North America had a Richter scale magnitude closest to
w) 6.5
x) 7.5
y) 8.5
z) 9.5

ANSWER: Y -- 8.5

ERSC-93; Multiple Choice: Waves generated by underwater earthquakes are called:
w) tsunamis (pronounced su-nam-ees)
x) a bore
y) a tidal wave
z) neap tidal wave

ANSWER: W -- TSUNAMIS

ERSC-93; Multiple Choice: What is the chemical formula for quartz?
w) CaCO_3
x) SiO_2
y) Fe_2O_3
z) none of these

ANSWER: X -- SiO_2

ERSC-93; Short Answer: Which is a metamorphic rock, slate or shale?

ANSWER: SLATE

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Rocks formed in layers are said to be:

- w) crystalline
- x) stratified
- y) chemical
- z) metamorphosed

ANSWER: X -- STRATIFIED

ERSC-93; Multiple Choice: Coal is believed to have been principally formed in which of the following types of environment?

- w) river beds
- x) swamps
- y) volcanic regions
- z) deserts

ANSWER: X -- SWAMPS

ERSC-93; Multiple Choice: A rock composed of cemented sand and gravel is:

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

ANSWER: X -- CONGLOMERATE

ERSC-93; Multiple Choice: When clay hardens into rock, it forms:

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

ANSWER: Y -- SHALE

ERSC-93; Multiple Choice: Our sun is a

- w) protostar
- x) main-sequence star
- y) variable star
- z) dwarf star

ANSWER: X -- MAIN-SEQUENCE STAR

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Which geologic period does not belong in the Mesozoic era?

- w) Permian
- x) Cretaceous
- y) Triassic
- z) Jurassic

ANSWER: W -- PERMIAN

ERSC-93; Multiple Choice: What type of map projection is most appropriate for navigation charts?

- w) Conic
- x) Mercator
- y) Polar
- z) Cartesian

ANSWER: X -- MERCATOR

ERSC-93; Multiple Choice: What is the range of the Mid-Atlantic Ridge?

- w) from Cuba to the Azores
- x) from Iceland to Antarctica
- y) from Cape Hatteras to Gibraltar
- z) from Cape Horn to the Cape of Good Hope

ANSWER: X -- FROM ICELAND TO ANTARCTICA

ERSC-93; Multiple Choice: Fossils are rarely found in such rocks as:

- w) limestone
- x) sandstone
- y) shale
- z) granite

ANSWER: Z -- GRANITE

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: As we have seen with Hurricane Andrew, natural forces can cause great loss of human life. Which of the following natural disasters has resulted in the greatest loss of human life in a single occurrence?

- w) typhoon
- x) volcanic eruption
- y) earthquake
- z) tornado

ANSWER: Y -- EARTHQUAKE (ON JANUARY 23, 1556, 830,000 PEOPLE DIED IN SHENSI, CHINW)

ERSC-93; Multiple Choice: The rock in which ground water is LEAST likely to form caverns is:

- w) sandstone
- x) limestone
- y) salt
- z) rock gypsum

ANSWER: W -- SANDSTONE

ERSC-93; Multiple Choice: The longest era was the

- w) Mesozoic
- x) Precambrian
- y) Cenozoic
- z) Paleozoic

ANSWER: X -- PRECAMBRIAN

ERSC-93; Multiple Choice: On the Richter scale, a magnitude 6 earthquake is how much larger than a magnitude 4 earthquake?

- w) 1.5 times
- x) 4 times
- y) 15 times
- z) 100 times

ANSWER: Z -- 100 TIMES

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: The air around a high pressure area circulates:

- w) clockwise in the Northern Hemisphere
- x) counterclockwise in the Northern Hemisphere
- y) clockwise in the Southern Hemisphere
- z) in either direction regardless of hemisphere

ANSWER: W -- CLOCKWISE IN THE NORTHERN HEMISPHERE

ERSC-93; Multiple Choice: The principal mineral in most sand beaches is

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

ANSWER: W -- QUARTZ

ERSC-93; Multiple Choice: The oldest rocks that contain abundant fossils are:

- w) Precambrian
- x) Paleozoic
- y) Mesozoic
- z) Cenozoic

ANSWER: X -- PALEOZOIC

ERSC-93; Multiple Choice: The wind-chill index outside is -10 F when the wind blows at 20 mph and the air temperature is 20 F. To what temperature will a dry object cool when placed outside?

- w) 20 F
- x) 10 F
- y) -10 F
- z) -20 F

ANSWER: W -- 20 F

ERSC-93; Multiple Choice: A geologic feature called a kimberlite indicates the possibility of the presence of which of the following?

- w) rubies
- x) diamonds
- y) sapphires
- z) opals

ANSWER: X -- DIAMONDS

Science Bowl

EARTH SCIENCE

ERSC-93; Short Answer: Rocks are classified depending upon how they are formed. In which class would marble be found?

ANSWER: METAMORPHIC

ERSC-93; Short Answer: In terms of the mass of material ejected into the atmosphere, what is the name of the largest volcanic eruption of this century, and where was it located?

ANSWER: MOUNT PINATUBO, PHILIPPINES

ERSC-93; Short Answer: Which stone, usually green, was used for Chinese, Aztec and Mayacarvings?

ANSWER: JADE

ERSC-93; Multiple Choice: Which of the following minerals is a source of lead?

- w) Bauxite
- x) Hematite
- y) Malachite
- z) Galena

ANSWER: Z -- GALENA

ERSC-93; Multiple Choice: Which of the following is the mineral name for ordinary salt?

- w) biotite
- x) calcite
- y) halite
- z) dolomite

ANSWER: Y -- HALITE

ERSC-93; Short Answer: After what geophysical occurrence might you see Bishop's Ring around the sun?

ANSWER: VOLCANIC ERUPTION

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: The core of the earth is thought to be composed of which of the following?

- w) basalt and granite
- x) compressed gases
- y) uranium and lead
- z) iron and nickel

ANSWER: Z -- IRON AND NICKEL

ERSC-93; Multiple Choice: Safety aside, for which of the following reasons is alcohol used in preference to mercury in a minimum thermometer?

- w) Alcohol has a higher boiling point
- x) Alcohol has a lower freezing point
- y) Alcohol contracts more uniformly
- z) Alcohol can be dyed for visibility

ANSWER: X -- ALCOHOL HAS A LOWER FREEZING POINT

ERSC-93; Multiple Choice: Which of the following distances in kilometers is closest to the diameter of the earth?

- w) 750 kilometers
- x) 2,750 kilometers
- y) 12,750 kilometers
- z) 127,500 kilometers

ANSWER: Y -- 12,750 KILOMETERS

ERSC-93; Multiple Choice: Which of the following is the approximate ratio of the area of the continents to the area of the earth's oceans?

- w) 2:1
- x) 1:1
- y) 2:5
- z) 1:10

ANSWER: Y -- 2:5

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: In geological studies, the Mohorovicic Discontinuity, commonly called the Moho, is the boundary between the

- w) the mantle and the crust
- x) asthenosphere and the mantle
- y) mantle and the outer core
- z) outer core and the inner core

ANSWER: W -- THE MANTLE AND THE CRUST

ERSC-93; Short Answer: To the nearest half degree, the Arctic Circle is at what latitude?

ANSWER: 66 AND 1/2 DEGREES or 66 AND 1/2 DEGREES NORTH

ERSC-93; Short Answer: Name the gaseous hydrocarbon that occurs naturally in sedimentary strata.

ANSWER: METHANE (CH₄)

ERSC-93; Multiple Choice: Biomass energy is

- w) formed through photosynthesis
- x) caused by heat due to the large mass of the Earth
- y) has been used for only a few years
- z) the predominant source of commercial heat energy in the northern regions of the United States

ANSWER: W -- FORMED THROUGH PHOTOSYNTHESIS

ERSC-93; Multiple Choice: Which animal is the center of the timber-harvest controversy in the Pacific Northwest?

- w) blackfooted ferret
- x) California condor
- y) northern spotted owl
- z) gray wolf

ANSWER: Y -- NORTHERN SPOTTED OWL

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: North American Indians used this mineral of volcanic origin to make tips for arrows:

- w) obsidian
- x) quartz
- y) flint
- z) pumice

ANSWER: W -- OBSIDIAN

ERSC-93; Short Answer: Certain clay layers deposited at the end of the cretaceous period are enriched in what element?

ANSWER: IRIDIUM

ERSC-93; Multiple Choice: The largest single component, by weight, in the average American landfill is:

- w) toxic waste
- x) diapers
- y) newspapers
- z) pizza boxes

ANSWER: Y -- NEWSPAPERS

ERSC-93; Multiple Choice: Carbon dioxide is an important greenhouse gas. What is the current rate in parts per million per year of atmospheric increase of this gas?

- w) 0.15 ppm per year (parts per million)
- x) 1.5 ppm per year
- y) 15 ppm per year
- z) 150 ppm per year

ANSWER: X -- 1.5 PPM PER YEAR

ERSC-93; Multiple Choice: When the front of a glacier is stationary for a long time, the glacier will do which of the following?

- w) form many crevasses
- x) melt away
- y) not erode its bed
- z) build a large terminal moraine

ANSWER: Z -- BUILD A LARGE TERMINAL MORaine

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: Valleys formed by glaciers always have which of the following characteristics?

- w) U-shaped cross sections
- x) straight courses
- y) uniform slopes
- z) bedrock floors

ANSWER: W -- U-SHAPED CROSS SECTIONS

ERSC-93; Multiple Choice: The approximate average yearly rainfall in centimeters for the United States is:

- w) 25 centimeters
- x) 50 centimeters
- y) 75 centimeters
- z) 100 centimeters

ANSWER: Y -- 75 CENTIMETERS

ERSC-93; Multiple Choice: When does the air cool most rapidly? Is it during

- w) a cloudy day
- x) a cloudy night
- y) a sunny day
- z) a clear night

ANSWER: Z -- A CLEAR NIGHT

ERSC-93; Multiple Choice: What form of runoff is water that flows down a slope within the upper layers of the soil rather than on top of them?

- w) interflow
- x) extraflow
- y) endoflow
- z) detrital runoff

ANSWER: W -- INTERFLOW

ERSC-93; Short Answer: A falling barometer often means rainy weather because water vapor is (lighter or heavier) than oxygen or nitrogen.

ANSWER: LIGHTER

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: What is considered to be the approximate difference in average temperature between the "little ice age" and today?

- w) 1 to 3 degrees centigrade
- x) 5 to 8 degrees centigrade
- y) 10 to 12 degrees centigrade
- z) 15 to 20 degrees centigrade

ANSWER: W -- 1 TO 3 DEGREES CENTIGRADE

ERSC-93; Multiple Choice: On which of the following does the capacity of a kilogram of air for holding water depend?

- w) the air pressure
- x) the air temperature
- y) the dust content of the air
- z) the ions in the air

ANSWER: X -- THE AIR TEMPERATURE

ERSC-93; Multiple choice: What is considered to be the oldest lake in North America?

- w) Mono Lake, CA
- x) Lake Superior, MI
- y) The Great Salt Lake, UT
- z) Crater Lake, OR

ANSWER: W -- MONO LAKE, CA

ERSC-93; Multiple Choice: When the difference in the temperature of the wet-bulb thermometer and dry-bulb thermometer is large, what does it indicate about the air?

- w) it is very dry
- x) it is nearly saturated
- y) it is very warm
- z) it is very cold

ANSWER: W -- IT IS VERY DRY

Science Bowl

EARTH SCIENCE

RSC-93; Multiple Choice: Which of the following is an average number of inches of snow equal to one inch of rain?

- w) 1 inch
- x) 5 inches
- y) 10 inches
- z) 25 inches

ANSWER: Y -- 10 inches

ERSC-93; Multiple Choice: Cloud droplets unite most easily to form raindrops in clouds containing which of the following substances?

- w) ozone
- x) plant pollen
- y) carbon tetrachloride
- z) large salt crystals

ANSWER: Z -- LARGE SALT CRYSTALS

ERSC-93; Multiple Choice: Sulfuric acid aerosols from the eruption of Mt. Pinatubo reduced the rate of global warming last year. They also contributed to the record size of:

- w) acid rainfalls in Europe
- x) the anchovy catch off Peru
- y) the ozone hole over Antarctica
- z) fish kills in the Amazon River

ANSWER: Y -- THE OZONE HOLE OVER ANTARCTICA

ERSC-93; Short Answer: What is another name for the 180th meridian?

ANSWER: INTERNATIONAL DATE LINE

ERSC-93; Multiple Choice: Which of the following mountain ranges was formed during the Mesozoic era?

- w) Rocky Mountains
- x) Cascades
- y) Appalachian
- z) Sierra Nevada

ANSWER: Z -- SIERRA NEVADA

Science Bowl

EARTH SCIENCE

ERSC-93; Multiple Choice: What mineral is the most dense?

- w) hematite
- x) cinnabar
- y) marcasite
- z) rhodochrosite

ANSWER: X -- CINNABAR

ERSC-93; Multiple Choice: Pangaea is the name of a former continent that included:

- w) all the continents
- x) only Europe and Asia
- y) only South America and Africa
- z) only North and South America

ANSWER: W -- ALL THE CONTINENTS