

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Short Answer: What weather phenomenon causes more deaths in the U.S. annually than any other except lightning?

ANSWER: TORNADOES

GENR-91; Short Answer: What is given to wood whose normal cells have been replaced with mineral deposits?

ANSWER: PETRIFIED WOOD

GENR-91; Multiple Choice: Pollination by birds is called:

- w) autogamy
- x) ornithophily (pron: or-nith-o-philly)
- y) entomophily (pron: ent-eh-mof-illy)
- z) anemophily (pron: an-eh-mof-illy)

ANSWER: X -- ORNITHOPHILY

GENR-91; Short Answer: Unlike rodents, the rabbit has how many incisor teeth?

ANSWER: FOUR

GENR-91; Multiple Choice: What percent of fire-related deaths are due to smoke inhalation rather than burns?

- w) 10%
- x) 50%
- y) 80%
- z) 99%

ANSWER: Y -- 80%

GENR-91; Short Answer: To what familiar fruit is the plantain similar?

ANSWER: BANANA

GENR-91; Short Answer: What U.S. President was recognized as a world authority on American game animals?

ANSWER: THEODORE ROOSEVELT

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Short Answer: How many men have walked on the moon?

ANSWER: TWELVE

GENR-91; Multiple Choice: The fastest-running terrestrial animal is:

w) cheetah

x) lion

y) man

z) jaguar

ANSWER: W -- CHEETAH

GENR-91; Short Answer: In what country do the greatest number of tornadoes occur?

ANSWER: UNITED STATES (Central and Southeastern portions)

GENR-91; Short Answer: What wonder drug was used for three years by the Army and Navy before becoming available to the general public in 1944?

ANSWER: PENICILLIN

GENR-91; Short Answer: Which sea is the saltiest natural lake and is also at the lowest elevation on the face of the earth?

ANSWER: THE DEAD SEA

GENR-91; Short Answer: The scarab, worshipped by the Egyptians, is what type of beetle?

ANSWER: DUNG BEETLE

GENR-91; Multiple Choice: As you go down into a well, your weight:

w) increases slightly

x) decreases slightly

y) remains exactly the same

ANSWER: X -- DECREASES SLIGHTLY

GENR-91; Short ANSWER: W cloud at ground level is called what?

ANSWER: FOG

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Short Answer: What invention in about 1450 A.D. revolutionized communication and the world?

ANSWER: THE PRINTING PRESS

GENR-91; Short Answer: What is the name for the new technology whereby a glass fiber carries as much information as hundreds of copper wires?

ANSWER: FIBER OPTICS (OPTO-ELECTRONICS)

GENR-91; Short Answer: What mammal lays eggs?

ANSWER: PLATYPUS

GENR-91; Short Answer: Linseed oil comes from what plant?

ANSWER: FLAX

GENR-91; Multiple Choice: Bees must collect nectar from approximately how many flowers to make 1 pound of honeycomb? Is it:

- w) 10 thousand
- x) 2 million
- y) 20 million
- z) 50 million

ANSWER: X -- 20 MILLION

GENR-91; Short Answer: What is the name of the largest North American terrestrial rodent, distinguished by its spiny covering?

ANSWER: PORCUPINE

GENR-91; Multiple Choice: Albacore is a type of:

- w) shell-fish
- x) tuna
- y) marble
- z) meteoroid

ANSWER: X -- TUNA

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Multiple Choice: The only species of cat that lives and hunts in groups is:

- w) lion
- x) leopard
- y) jaguar
- z) cougar

ANSWER: W -- LION

GENR-91; Short Answer: Linen is made from what plant?

ANSWER: FLAX

GENR-91; Short Answer: What is arachnology?

ANSWER: STUDY OF ARACHNIDS (accept: study of spiders or scorpions or relatives of spiders)

GENR-91; Short Answer: What is another name for the Paleolithic Age?

ANSWER: THE STONE AGE

GENR-91; Short Answer: What nocturnal animal group makes up one-fourth of all mammals species?

ANSWER: BATS or CHIROPTERA

GENR-91; Short Answer: What is the name of the whale that has a long protruding tusk?

ANSWER: NARWHAL

GENR-91; Short Answer: How many time zones are there on Earth?

ANSWER: TWENTY-FOUR

GENR-91; Short Answer: What land mammal holds the record for the greatest age?

ANSWER: MAN

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Short Answer: What is the better known name for the deadly poison prussic acid?

ANSWER: CYANIDE or HYDROGEN CYANIDE

GENR-91; Short Answer: What colorless, pungent gas is often dissolved in water to yield a solution that is used as a biological preservative?

ANSWER: FORMALDEHYDE

GENR-91; Short Answer: What is the rest mass of a photon?

ANSWER: ZERO

GENR-91; Short Answer: What yellow metal is an alloy of copper and zinc?

ANSWER: BRASS

GENR-91; Short Answer: What is the name given to the process, discovered by Goodyear, of adding sulfur to heated rubber?

ANSWER: VULCANIZATION

GENR-91; Short Answer: Used primarily in fertilizers, which element is never found free in nature even though it makes up about 2.5% of the earth's crust?

ANSWER: POTASSIUM

GENR-91; Short Answer: What element, whose symbol derived from the Latin for "liquid silver", has been found in Egyptian tombs from 1500 B.C.?

ANSWER: MERCURY

GENR-91; Short Answer: What poisonous alkaloid is extracted from tobacco leaves and widely used as an insecticide?

ANSWER: NICOTINE

GENR-91; Short Answer: What is the name for steel alloyed with chromium?

ANSWER: STAINLESS STEEL

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Short Answer: Table sugar, from sugar cane or beet, is what type of sugar?

ANSWER: SUCROSE or DISACCHARIDE or SACCHAROSE

GENR-91; Multiple Choice: Which prefix is often used with scientific terms to indicate that something is the same, equal or constant?

- w) iso (pron: eye-so)
- x) mega
- y) meta
- z) quasi

ANSWER: W -- ISO

GENR-91; Multiple Choice: The study of phenomena at very low temperatures is called:

- w) heat transfer
- x) morphology
- y) crystallography
- z) cryogenics (pron: cry-o-jen-iks)

ANSWER: Z -- CRYOGENICS

GENR-91; Multiple Choice: The branch of medical science which is concerned with the study of disease as it affects a community of people is called:

- w) epidemiology
- x) oncology
- y) paleontology
- z) pathology

ANSWER: W -- EPIDEMIOLOGY

GENR-91; Multiple Choice: The study of how people use tools to perform work and how people physically relate to their working environment is called:

- w) engineering
- x) ergonomics
- y) agronomy
- z) physiology

ANSWER: X -- ERGONOMICS

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Short Answer: Name the first woman to travel in space.

ANSWER: (VALENTINW) TERESHKOVA

GENR-91; Multiple Choice: What famous scientist and inventor participated in the invention of the Aqua-Lung?

- w) Thomas Edison
- x) Isaac Newton
- y) Leonardo da Vinci
- z) Jacques Cousteau

ANSWER: Z -- JACQUES COUSTEAU

GENR-91; Multiple Choice: Superconductivity is a material property associated with:

- w) cooling a substance without a phase change
- x) frictionless liquid flow
- y) a loss of thermal resistance
- z) a loss of electrical resistance

ANSWER: Z -- A LOSS OF ELECTRICAL RESISTANCE

GENR-91; Multiple Choice: A type of plastic that is biodegradable has been in the news lately. The ingredient that makes it biodegradable is:

- w) vegetable oil
- x) petroleum
- y) cornstarch
- z) leather

ANSWER: Y -- CORNSTARCH

GENR-91; Multiple Choice: Who was the marine biologist and author of Silent Spring who was one of the first people to warn of the dangers of pesticides like DDT?

- w) Jacques Cousteau
- x) Rachel Carson
- y) Charles Darwin
- z) Marlin Perkins

ANSWER: X -- RACHEL CARSON

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Multiple Choice: If a metal can be drawn into wires relatively easily it is called:

- w) malleable
- x) ductile
- y) extractive
- z) tactile

ANSWER: X -- DUCTILE

GENR-91; Short Answer: What is the name given to the invasion of warm surface waters off the Peruvian coast that has been identified with strange climactic effects in recent years?

ANSWER: EL NIÑO

GENR-91; Short Answer: Occasionally, a bad cold will cause a decrease in a persons hearing ability. What is the name of the tube that becomes blocked to cause this problem?

ANSWER: EUSTACHIAN TUBE (pron: yu-sta-shen)

GENR-91; Short Answer: Name the general type of mammal that gives birth to undeveloped young that are kept in pouches.

ANSWER: MARSUPIAL

GENR-91; Short Answer: In a musical instrument that produces a fundamental note, what would the wavelength of the second harmonic be relative to the fundamental?

ANSWER: WAVELENGTH WOULD BE ONE-HALF THE FUNDAMENTAL

GENR-91; Multiple Choice: In which country was a method for making rust-resistant iron discovered in the fifth century B.C.?

- w) Sumeria
- x) Egypt
- y) India
- z) Babylon

ANSWER: Y -- INDIA



## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Multiple Choice: Cystitis is the infection of which of the following?

- w) liver
- x) urinary bladder
- y) pancreas
- z) lung

ANSWER: X -- URINARY BLADDER

GENR-91; Short Answer: What is the subdivision in the Plant Kingdom comprising over 20,000 species of Mosses and Liverworts?

ANSWER: BRYOPHYTES (pron: brI-eh-fites)

GENR-91; Short Answer: Name the medical term given to the inflammation of infection of the mucous membranes of the nose.

ANSWER: RHINITIS

GENR-91; Short ANSWER: Wutomobile catalytic converters cause the carbon monoxide and hydrocarbons which result from incomplete combustion to be converted into what two substances?

ANSWER: CARBON DIOXIDE (CO<sub>2</sub>) AND WATER (H<sub>2</sub>O)

GENR-91; Multiple Choice: At room temperature, most elements are in which phase of matter?

- w) solid
- x) liquid
- y) gas
- z) plasma

ANSWER: W -- SOLID

GENR-91; Multiple Choice: The per capita birth rate of a population is known as its:

- w) mortality
- x) natality (pron: nay-tal-eh-ty)
- y) population density
- z) carrying capacity

ANSWER: X -- NATALITY

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Multiple Choice: Who is called the Father of the Nuclear Navy?

- w) Edward Teller
- x) Robert Oppenheimer
- y) Hymen Rickover
- z) Chester Nimitz

ANSWER: Y -- HYMEN RICKOVER

GENR-91; Multiple Choice: The science of weights and measures is called:

- w) metrology
- x) meteorology
- y) mineralogy
- z) morphology

ANSWER: W -- METROLOGY

GENR-91; Short Answer: The following are the names of man-made structures in the United States. Identify the type of structure. Hungry Horse, Yellowtail, Dworshak, Don Pedro, Cougar, Glen Canyon, Grand Coulee and Hoover. Name the type of structure.

ANSWER: DAMS

GENR-91; Multiple Choice: Which of the following is primarily composed of calcium carbonate?

- w) Fish scales
- x) Shark teeth
- y) Oyster Shells
- z) Whale bones

ANSWER: Y -- OYSTER SHELLS

GENR-91; Short Answer: What compound is a common component of air pollution, but is essential in the upper atmosphere to protect life on earth?

ANSWER: OZONE

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Multiple Choice: Water flows through a horizontal pipe at a constant volumetric rate. At a location where the cross sectional area decreases, the velocity of the fluid:

- w) increases
- x) decreases
- y) stays the same

ANSWER: W -- INCREASES

GENR-91; Multiple Choice: What radioactive element is routinely used in treating hyperthyroidism, and in reducing thyroid activity?

- w) Iron-59
- x) Gold-198
- y) Cobalt-60
- z) Iodine-131

ANSWER: Z -- IODINE-131

GENR-91; Short Answer: What is osteoporosis?

ANSWER: IT IS LOSS OF CALCIUM FROM BONES

GENR-91; Multiple Choice: Yeast, used in making bread is a:

- w) plant
- x) fungus
- y) bacteria
- z) seed

ANSWER: X -- FUNGUS

GENR-91; Multiple Choice: The Statue of Liberty is green because of:

- w) green stone
- x) oxidized brass
- y) steel painted green
- z) oxidized copper

ANSWER: Z -- OXIDIZED COPPER

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Short Answer: Name the phase of quartz consistently found in meteorite impact craters, but rarely found in non-meteorite-related geological formations.

ANSWER: STISHOVITE

GENR-91; Short ANSWER: Wt what point are the Celsius and Fahrenheit scales equal?

ANSWER: -40 DEGREES

GENR-91; Multiple Choice: Which of the following vacuum pumps operates by using a very cold surface to trap the gases on the cold surface? Is it a:

- w) sublimation pump
- x) turbo pump
- y) cryopump
- z) diffusion pump.

ANSWER: Y -- CRYOPUMP

GENR-91; Short Answer: Using the fewest names of the members of this family, identify the tree family which includes among its members the: Fink, myrtle, turkey, jacks, laurel, white, live and pin. Name the tree family.

ANSWER: OAK

GENR-91; Short Answer: Using the fewest names of the members of this family, identify the tree family which includes among its members the: Pignut, scarit, mockernut, bitternut, black and shagbark. Name the tree family.

ANSWER: HICKORY

GENR-91; Short Answer: Using the fewest names of the members of this family, identify the tree family which includes among its members the: Chinese, cut-leaved, manchurian, persian, english, black and american. Name the tree family.

ANSWER: WALNUT

## ***Science Bowl***

## GENERAL SCIENCE

GENR-91; Multiple Choice: The word atom is from a Greek word meaning:

- w) small
- x) indivisible
- y) unseen
- z) visible

ANSWER: X -- INDIVISIBLE

GENR-91; Short Answer: Name the famous mathematician/physicist who was born in the year Galileo died.

ANSWER: (ISAAC) NEWTON

GENR-92; Multiple Choice: In 1991, critical habitat was designated for this well-known species in the states of Washington, Oregon and California.

- w) brown bear
- x) northern spotted owl
- y) bald eagle
- z) snail darter

ANSWER: X -- NORTHERN SPOTTED OWL

GENR-92; Short Answer: This large bird of prey is related to the eagle. The bird is found on all continents. Three species, the swallow-tailed, white-tailed and the Mississippi are found in North America. Name this GENR-92; Short Answer: What creatures travel in gaggles?

ANSWER: GEESE

GENR-92; Multiple Choice: Which of the following are NOT native to North America?

- w) Mountain Quail
- x) Ringneck Pheasant
- y) Sharptail Grouse
- z) Masked Bob-White

ANSWER: X -- RINGNECK PHEASANT

GENR-92; Short Answer: Members of the order Apodes, these elongated slender fishes are without pelvic fins and in some species lack pectoral or median GENR-92; Short Answer: What is a shark's skeleton made of?

ANSWER: CARTILAGE

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Short Answer: Identify the Earth's largest INVERTEBRATE animal.

ANSWER: GIANT SQUID

GENR-92; Short Answer: What creature do the Galapagos Islands take their name from?

ANSWER: TORTOISE

GENR-92; Short Answer: What is the only venomous British snake?

ANSWER: ADDER

GENR-92; Short Answer: What is shed when you desquamate?

ANSWER: SKIN or EPIDERMAL CELLS

GENR-92; Short Answer: What are the only places that dogs have sweat glands?

ANSWER: NOSE AND PAWS

GENR-92; Short Answer: What body function are rats unable to do which makes them extra vulnerable to poison?

ANSWER: VOMIT

GENR-92; Multiple Choice: A cyclone is an engineering device that is used to

- w) transport materials
- x) segregate particles
- y) control switching devices
- z) model fractals

ANSWER: X -- SEGREGATE PARTICLES

GENR-92; Multiple Choice: In the United States, low sulfur coal can be found primarily in the:

- w) northeast
- x) southeast
- y) midwest
- z) west

ANSWER: Z -- WEST

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: Electric power is less expensive at night because:

- w) more hydroelectric generation is brought on line at night.
- x) there is less demand at night.
- y) pollution control is less stringent at night.
- z) power plants are more efficient at night.

ANSWER: X -- THERE IS LESS DEMAND AT NIGHT.

GENR-92; Short Answer: Name THREE TECHNIQUES for removing particulates from flue gas produced from the combustion of coal?

- ANSWER: (1) ELECTROSTATIC PRECIPITATION (ESP)  
(2) FABRIC FILTER OR BAGHOUSE  
(3) WET SCRUBBERS  
(4) MECHANICAL COLLECTORS OR CYCLONES

GENR-92; Short Answer: Name TWO sorbents which are used in conventional wet scrubbing processes to remove SO<sub>2</sub> produced by combusting coal.

- ANSWER: (1) LIME  
(2) LIMESTONE  
(3) SODIUM SULFITE OR NaCO<sub>3</sub> OR NaOH

GENR-92; Short Answer: Name THREE gaseous components produced when coal is combusted.

- ANSWER: (1) CO<sub>2</sub>  
(2) SO<sub>2</sub>  
(3) NO<sub>x</sub>  
(4) H<sub>2</sub>O

GENR-92; Multiple Choice: Electricity generated by coal-fired power plants in the United States in 1990 was approximately what percentage of the entire electricity produced by all sources of power production?

- w) 10 percent
- x) 25 percent
- y) 55 percent
- z) 90 percent

ANSWER: Y -- 55 PERCENT

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Short Answer: The majority of the U.S. electricity generating plant use what thermodynamic cycle?

ANSWER: RANKINE

GENR-92; Short Answer: Which continent has the largest KNOWN deposits of coal?

ANSWER: NORTH AMERICA

GENR-92; Multiple Choice: In a typical power plant used to generate electricity in the U.S., the percentage of energy in the fuel that is converted to electricity is about:

- w) 99 percent
- x) 50 percent
- y) 35 percent
- z) 10 percent

ANSWER: Y -- 35 PERCENT

GENR-92; Short Answer: In electronic circuits, what name is given to a frequency discriminating network designed to select or pass certain bands of frequencies with low attenuation and cause very high attenuation to other frequencies?

ANSWER: FILTER

GENR-92; Short Answer: This bistable electronic device assumes one of two stable output states, depending upon the state of the most recently applied input signal. In computer systems this device is used for storing information. Name this common electronic device.

ANSWER: FLIP-FLOP or TOGGLE

GENR-92; Multiple Choice: In a certain electronic circuit the output is positive if input 1 is positive and input 2 is zero. If both inputs are positive the output is zero. This is:

- w) an AND circuit
- x) a NOR circuit
- y) an OR circuit
- z) a high-pass filter

ANSWER: Y -- AN OR CIRCUIT



## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: To reverse the direction of rotation of a three-phase AC induction motor, do one of the following:

- w) reverse any two of the three-phase connections
- x) change the frequency of the applied AC power
- y) operate the motor below the stall torque at very high slip
- z) none of the above

ANSWER: W -- REVERSE ANY TWO OF THE THREE-PHASE CONNECTIONS

GENR-92; Multiple Choice: What are the three elements of a bipolar transistor? Are they the:

- w) grid, plate, cathode
- x) suppressor, deflector, target
- y) energizer, controller, terminus
- z) emitter, base, collector

ANSWER: Z -- EMITTER, BASE, COLLECTOR

GENR-92; Short ANSWER: W 10 pound bag of fertilizer carries the label 20-6-

ANSWER: 2 POUNDS

GENR-92; Multiple Choice: Seawater (i.e. saltwater) freezes at:

- w) the same temperature as fresh water.
- x) at a slightly higher temperature than fresh water.
- y) at a slightly lower temperature than fresh water.
- z) seawater does not freeze.

ANSWER: Y -- AT A SLIGHTLY LOWER TEMPERATURE THAN FRESH WATER.

GENR-92; Multiple Choice: Nitrous oxide, commonly called laughing gas, has been a matter of concern to environmentalists recently because:

- w) it is thought to cause cancer at low concentrations.
- x) it produces photochemical smog.
- y) it is a greenhouse gas.
- z) none of the above

ANSWER: Y -- IT IS A GREENHOUSE GAS.

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: Ozone in the upper atmosphere is produced from:

- w) lightning
- x) photochemical reactions
- y) electrical appliances on Earth
- z) model fractals

ANSWER: X -- PHOTOCHEMICAL REACTIONS

GENR-92; Multiple Choice: Pollination by wind is called:

- w) autogamy
- x) entomophily
- y) anemophily
- z) ornithophily

ANSWER: Y -- ANEMOPHILY

GENR-92; Short Answer: What is the technique by which lasers are used to photograph objects and reproduce them in three dimensions?

ANSWER: HOLOGRAPHY

GENR-92; Short Answer: Name the effect that is caused by scattering of light in colloids or suspensions.

ANSWER: TYNDALL EFFECT

GENR-92; Short Answer: Name the type of camel that has two humps.

ANSWER: BACTRIAN

GENR-92; Short Answer: Name the California scientist who won the Nobel Prize in 1962 for elucidating the details of the photosynthetic process.

ANSWER: (MELVIN) CALVIN

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: Glaucoma is treated by which of the following:

- w) androgenic drug
- x) androgenic blocking drug
- y) cholinergic drug
- z) anticholinergic drug

ANSWER: Y -- CHOLINERGIC DRUG

GENR-92; Multiple Choice: Atolls are most probably formed by:

- w) a rise in the earth's crust
- x) sand brought in from the mainland
- y) collapse of the center of a volcano
- z) coral reef upbuilding during subsidence

ANSWER: Z -- CORAL REEF UPBUILDING DURING SUBSIDENCE

GENR-92; Short Answer: Identify the tree family which includes among its members the: New Mexico, Texas honey, thornless honey, water, black and honey. Name this tree family.

ANSWER: LOCUST

GENR-92; Short Answer: Name the order of insects which includes among its members the: Hawk, Death's Head, Brown-Tail, Carpenter, Clear-Winged, Clothes and Gypsy. Name this insect order.

ANSWER: MOTHS / BUTTERFLIES (accept Lepidopterw)

GENR-92; Short Answer: With many thousands of species, this is one of the largest families in the plant kingdom. Identify this plant family which includes among its members the: Brome, Love, Foxtail, Sudan, Buffalo, Saint Augustine, Burmuda and Blue.

ANSWER: GRASS or GRAMINACEAE

GENR-92; Short Answer: Give the name of the area of science concerned with the study of the customs and societies of mankind.

ANSWER: WNTHROPOLOGY

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: Name the English naturalist who, while credited with being the codeveloper of the theory of evolution by natural selection, is much less famous for this than his codeveloper.

- w) Erasmus Darwin
- x) Robert Ludlow
- y) Alfred Russel Wallace
- z) Rudolf Virchow

ANSWER: Y -- ALFRED RUSSEL WALLACE

GENR-92; Short Answer: The acronym NEPA stands for what?

ANSWER: NATIONAL ENVIRONMENTAL POLICY ACT

GENR-92; Multiple Choice: The U.S. population receives the largest dose of ionizing radiation from:

- w) natural sources.
- x) fallout from nuclear weapons testing.
- y) nuclear medicine.
- z) nuclear power plants.

ANSWER: W -- NATURAL SOURCES.

GENR-92; Multiple Choice: The radioactive element most commonly detected in humans is:

- w) potassium-40
- x) cobalt-60
- y) iodine-131
- z) plutonium-238

ANSWER: W -- POTASSIUM-40

GENR-92; Multiple Choice: The largest breeder reactor built to date is located where?

- w) USSR
- x) Japan
- y) France
- z) United States

ANSWER: Y -- FRANCE

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: Radioisotopes which are used in medical diagnosis are known as what?

- w) tracers
- x) silver bullets
- y) markers
- z) dyes

ANSWER: W -- TRACERS

GENR-92; Multiple Choice: Most commercial nuclear power plants worldwide are cooled by:

- w) sodium
- x) mercury
- y) helium
- z) water

ANSWER: Z -- WATER

GENR-92; Short Answer: What did Ira Remsen discover in 1879, perhaps proclaiming: "How sweet it is"?

ANSWER: SACCHARIN

GENR-92; Short Answer: Name the organization which selects Nobel laureates and awards the prizes in the field of medicine.

ANSWER: THE CAROLINE INSTITUTE (FACULTY OF MEDICINE in STOCKHOLM)

GENR-92; Multiple Choice: As of August 1991, how many DIFFERENT women have won Nobel Prizes in the scientific fields of physics, chemistry, and physiology or medicine? Is it:

- w) 2
- x) 5
- y) 9
- z) 12

ANSWER: Y -- 9

## *Science Bowl*

## GENERAL SCIENCE

GENR-92; Short Answer: This woman scientist was the oldest daughter of another very well-known woman scientist. She was the second woman in history to win a Nobel Prize in science, receiving the prize in 1935 for her work in synthesizing new radioactive elements. Who is this famous woman scientist?

ANSWER: IRENE JOLIOT-CURIE

GENR-92; Short ANSWER: Born in Prague, Czechoslovakia, in 1896, this woman scientist received her MD from the German University in Prague. After moving to Washington University in the United States, she and her husband conducted pioneering work in carbohydrate metabolism. In 1947, this husband-wife team, along with Bernardo Houssay, was awarded the Nobel Prize in medicine, their citation reading "for their discovery of the course of the catalytic conversion." Name this esteemed woman scientist.

ANSWER: (GERTY) RADNITZ CORI

GENR-92; Short Answer: Using X-ray crystallography, this woman scientist determined the structures of large biochemical molecules, including penicillin in 1949 and vitamin B12 in 1956. In 1969 she determined the three dimensional structure of insulin. In 1964 she was awarded the Nobel Prize in chemistry "for her determination by X-ray techniques of the structures of important biochemical substances." Name this woman scientist.

ANSWER: (DOROTHY) CROWFOOT HODGKIN

GENR-92; Short Answer: In 1977, this American female scientist shared the Nobel Prize in medicine for her work in the development of radioimmunoassays of peptide hormones. In awarding the prize, the Nobel Committee described her technique as having "brought about a revolution in biological and medical research". Who is this eminent woman scientist?

ANSWER: (ROSALYN) YALOW

GENR-92; Short Answer: This female American geneticist achieved recognition as one of the world's foremost investigators in cytogenetics, the study of heredity by cellular and genetic methods. In 1951 she discovered that gene fragments in corn could move from chromosome to chromosome, and even from cell to cell. Thirty-two years after this extraordinary work, she was awarded the Nobel Prize in medicine in 1983. Who is this notable woman scientist?

ANSWER: (BARBARA) McCLINTOCK

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Short ANSWER: Ws of 1991, the most recent award of a Nobel Prize in medicine to a woman scientist went to this esteemed pharmacologist and biochemist. She shared her prize with George Hitchings for their development of drugs based on understanding basic cell processes. They came up with drugs that selectively block nucleic acid synthesis without damaging normal cells. Name this woman scientist.

ANSWER: (GERTRUDE) ELION

GENR-92; Short Answer: Who was the first man to hit a golf ball on the moon?

ANSWER: ALAN B. SHEPARD, JR.

GENR-92; Multiple Choice: The earliest experiments on chromosome theory and inheritance were developed by?

- w) Gregor Mendel
- x) Jonas Salk
- y) Charles Sternak
- z) Robert Oppenheimer

ANSWER: W -- GREGOR MENDEL

GENR-92; Multiple Choice: This black engineer was granted a patent in 1872 for the first automatic oil lubricator. The lubricating cup regulated the flow of oil onto moving parts of machines, revolutionizing the machine industry. Was this well-known inventor:

- w) Elijah McCoy
- x) Lewis Latimer
- y) Leonard McFall
- z) Branville Woods

ANSWER: W -- ELIJAH McCOY

GENR-92; Short Answer: "General Sherman" is my name. In 1972 I had a spread of 90 feet and a height of 272 feet. What am I and in what national park do I live?

ANSWER: GIANT SEQUOIA (accept: SIERRA REDWOOD or BIG TREE) in SEQUOIA NATIONAL PARK

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Short ANSWER: Wt Indio, California, stands "The Patriarch," considered the oldest living thing and a national monument. Precisely what is this 4,600 year old object?

ANSWER: BRISTLECONE PINE

GENR-92; Short Answer: The art of growing dwarfed trees in small pots, a technique perfected by the Japanese, is known as what?

ANSWER: BONSAI (pron: bone-sigh)

GENR-92; Short Answer: If an individual is a dendrochronologist (pron: den-drow-kron-OL-o-jist), what would she count?

ANSWER: TREE RINGS (accept: TREE AGE or TREE YEAR)

GENR-92; Short Answer: The principle species of this tree family include the: Black, Eastern, Mountain, Canadian, Formosan, Western and Carolina. Name this tree.

ANSWER: HEMLOCK

GENR-92; Multiple Choice: The uranium fuel used worldwide is mainly in the form of:

- w) U<sub>3</sub>O<sub>8</sub>
- x) UO<sub>2</sub>
- y) UF<sub>6</sub>
- z) U metal

ANSWER: X -- UO<sub>2</sub>

GENR-92; Short Answer: When natural uranium is mined, it contains three isotopes. Which TWO are important in the production of nuclear power?

ANSWER: URANIUM-235 AND URANIUM-238

GENR-92; Short ANSWER: W yellow powder, mostly made of uranium, that is produced in the uranium milling process is called what?

ANSWER: YELLOWCAKE or AMMONIUM DIURANATE



## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Short Answer: In a high-temperature gas-cooled reactor, what gas may be used for a coolant?

ANSWER: HELIUM or CARBON DIOXIDE

GENR-92; Multiple Choice: Spent fuel from a nuclear power plant cools down and loses most of its radioactivity through decay. In the first year, spent fuel loses about what percentage of its radioactivity?

- w) 10 percent
- x) 50 percent
- y) 80 percent
- z) 100 percent

ANSWER: Y -- 80 PERCENT

GENR-92; Short Answer: The Nuclear Waste Policy Act of 1982 and amendments require what Federal agency to site, construct and operate a geologic repository for disposal of high-level nuclear waste?

ANSWER: U.S. DEPARTMENT OF ENERGY

GENR-92; Multiple Choice: The National Council on Radiation Protection and Measurements estimates that the average exposure to ionizing radiation that individual Americans receive annually from ALL sources is about:

- w) 60 millirem
- x) 100 millirem
- y) 360 millirem
- z) 500 millirem

ANSWER: Y -- 360 MILLIREM

GENR-92; Multiple Choice: An important safety feature required at U.S. nuclear power plants that was not present at the Chernobyl Power Plant in the Soviet Union was the:

- w) reactor
- x) cooling water
- y) control rods
- z) containment building

ANSWER: Z -- CONTAINMENT BUILDING

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: As of December, 1990, which of the following countries generated the greatest percentage of its electricity by nuclear power?

- w) England
- x) Japan
- y) United States
- z) France

ANSWER: Z -- FRANCE

GENR-92; Multiple Choice: Most of the nuclear power plants operating in the United States are:

- w) pressurized water reactors
- x) boiling water reactors
- y) high-temperature gas-cooled reactors
- z) liquid-metal fast breeder reactors

ANSWER: W -- PRESSURIZED WATER REACTORS

GENR-92; Multiple Choice: The Oklo reactor in Gabon, Africa, is significant because it:

- w) was the first man-made reactor.
- x) was a natural fission reactor.
- y) was the first reactor used to generate electricity.
- z) produced the most electricity in a single year.

ANSWER: X -- WAS A NATURAL FISSION REACTOR.

GENR-92; Short Answer: In the United States, the units of measure for the potential biological risk associated with exposure to ionizing radiation are the rem and millirem. What comparable units are used in the metric system?

ANSWER: SIEVERTS or MILLISIEVERTS

GENR-92; Multiple Choice: What substance was used as a moderator for the chain reaction in the first nuclear reactor?

- w) graphite
- x) boron
- y) water
- z) cadmium

ANSWER: W -- GRAPHITE

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: The U.S. population receives the largest dose of ionizing radiation from:

- w) natural sources.
- x) fallout from nuclear weapons testing.
- y) nuclear medicine.
- z) nuclear power plants.

ANSWER: W -- NATURAL SOURCES.

GENR-92; Multiple Choice: What state in the United States has the most nuclear power plants?

- w) New York
- x) Illinois
- y) Pennsylvania
- z) South Carolina

ANSWER: X -- ILLINOIS

GENR-92; Short Answer: What country currently has the third largest number of satellites in orbit?

ANSWER: FRANCE

GENR-92; Multiple Choice: The launch of the first LIQUID fueled rocket in the world is attributed to:

- w) China
- x) Russia
- y) United States
- z) Germany

ANSWER: Y -- UNITED STATES

GENR-92; Multiple Choice: The first American Astronaut to ORBIT the Earth was:

- w) Alan Shepard
- x) John Glenn
- y) Gus Grissom
- z) Scott Carpenter

ANSWER: X -- JOHN GLENN

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Short Answer: What is made from chicle?

ANSWER: CHEWING GUM

GENR-92; Short Answer: What do you produce by adding *Lactobacillus Bulgaricus* to milk?

ANSWER: YOGURT

GENR-92; Multiple Choice: Which of the following materials is used along with iron ore and limestone to produce iron in a modern blast furnace?

- w) coke
- x) cementite
- y) coal
- z) bauxite

ANSWER: W -- COKE

GENR-92; Short Answer: What kind of poisoning is known as plumbism (pron: plum - biz - em)?

ANSWER: LEAD POISONING

GENR-92; Short Answer: What month is showing on the calendar when the Earth is nearest the sun?

ANSWER: JANUARY

GENR-92; Short Answer: On June 22, how many hours of daylight are there in a day at the North Pole?

ANSWER: 24

GENR-92; Short Answer: To within a half minute, how many minutes does it take for light to travel from the sun to the Earth?

ANSWER: 9-1/2 MINUTES (accept: 9 to 10 minutes)

GENR-92; Short ANSWER: Wmong well-known examples of this formation are Grindelwald in Switzerland, Bossons in France, Dinwoody in the United States, and Wilson Piedmont in Antarctica. Identify these cool formations.

ANSWER: GLACIERS

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Short Answer: Name the branch of medical science which is concerned with the study of disease as it appears in its natural surroundings, and as it affects a community of people rather than a single individual.

ANSWER: EPIDEMIOLOGY

GENR-92; Multiple Choice: The study of poisons is called:

- w) oncology
- x) toxicology
- y) phrenology
- z) ergonomics (pron: ur - go - no - mics)

ANSWER: X -- TOXICOLOGY

GENR-92; Short Answer: What vitamin complex includes thiamine, niacin, and riboflavin?

ANSWER: VITAMIN B

GENR-92; Multiple Choice: What range of frequencies are usually referred to as audio frequencies for humans?

- w) 0 to 20 Hertz
- x) 20 to 20,000 Hertz
- y) 200 to 200,000 Hertz
- z) 10,000 to 30,000 Hertz

ANSWER: X -- 20 TO 20,000 HERTZ

GENR-92; Multiple Choice: What range of frequencies are usually referred to as the UHF Band?

- w) 3 to 30 Megahertz
- x) 30 to 300 Megahertz
- y) 300 to 3,000 Megahertz
- z) 30,000 to 300,000 Megahertz

ANSWER: Y -- 300 TO 3,000 MEGAHERTZ

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: A device used to measure the amount of moisture in the atmosphere is called a:

- w) hydrometer (pron: high-dro-me-ter)
- x) hygrometer (pron: high-gro-me-ter)
- y) anemometer
- z) barometer

ANSWER: X -- HYGROMETER

GENR-92; Short Answer: What is the principal liquid used in automotive antifreeze?

ANSWER: ETHYLENE GLYCOL

GENR-92; Short Answer: What are the names of the cycles in a 4-stroke gasoline engine?

ANSWER: COMPRESSION; IGNITION; POWER; EXHAUST (take in any order)

GENR-92; Multiple Choice: What power cycle is used in jet engines?

- w) Stirling
- x) Rankine
- y) Otto
- z) Brayton

ANSWER: Z -- BRAYTON

GENR-92; Multiple Choice: The half life of tritium is about:

- w) 3,500 years
- x) 40 years
- y) 12.3 years
- z) 3.7 years

ANSWER: Y -- 12.3 YEARS

## ***Science Bowl***

## GENERAL SCIENCE

GENR-92; Multiple Choice: One of the potential health effects of exposure to high levels of noise is called tinnitus (pron: ti - NI - tes), which means:

- w) a permanent loss of hearing.
- x) a persistent ringing or hissing in the ears after exposure.
- y) a temporary loss of hearing, especially of upper frequencies.
- z) abdominal discomfort from low frequency noise.

ANSWER: X -- A PERSISTENT RINGING OR HISSING IN THE EARS AFTER EXPOSURE.

GENR-92; Short Answer: If an individual is suffering from emphysema, what organ of the body is primarily affected?

ANSWER: LUNGS

GENR-93; Short Answer: Who was known as "The Wizard of Menlo Park"?

ANSWER: EDISON

GENR-93; Multiple Choice: Plants get their nitrogen from:

- w) rain
- x) the soil
- y) the air
- z) the bedrock

ANSWER: X -- THE SOIL

GENR-93; Short Answer: Which vitamin is called ascorbic acid, meaning "no scurvy"?

ANSWER: VITAMIN C

GENR-93; Short ANSWER: Wt what Celsius temperature is water the densest?

ANSWER: 4 DEGREES CELSIUS

GENR-93; Short Answer: What household heating fuel also powers jet planes?

ANSWER: KEROSENE

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Short Answer: Who discovered the method of destroying disease-producing bacteria in beer and milk by heating the liquid properly?

ANSWER: (LOUIS) PASTEUR

GENR-93; Multiple Choice: Which of the following elements was unknown to ancient civilizations?

- w) tin
- x) aluminum
- y) mercury
- z) sulfur

ANSWER: X -- ALUMINUM

GENR-93; Short Answer: In which US state do the most bald eagles live?

ANSWER: ALASKA

GENR-93; Short Answer: What is the name denoting plants that seasonally shed all their leaves?

ANSWER: DECIDUOUS

GENR-93; Short Answer: What material found in bogs is the oldest fossil fuel used by man?

ANSWER: PEAT

GENR-93; Short Answer: What is meant by the statement that an animal is oviparous?

ANSWER: IT LAYS EGGS

GENR-93; Short Answer: Name the tropical American tree which produces the least dense wood known?

ANSWER: BALSA

GENR-93; Short Answer: What is the distinction shared by Marie Curie and Linus Pauling?

ANSWER: THEY BOTH RECEIVED TWO NOBEL PRIZES



## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: In the early 17th century, based on his observations with a telescope, Galileo Galilei attacked a belief espoused by the church. That belief was:

- w) that the earth was flat.
- x) the sky was a large dome with holes through which heaven could be seen.
- y) that the earth was at the center of the universe.
- z) there are no other planets.

ANSWER: Y -- THAT THE EARTH WAS AT THE CENTER OF THE UNIVERSE.

GENR-93; Short Answer: What is the mass in grams of one cubic centimeter of water?

ANSWER: ONE GRAM

GENR-93; Short Answer: What is the name of the first atomic-powered submarine?

ANSWER: NAUTILUS

GENR-93; Short Answer: What three elements besides iron make up the alloy alnico, used for making magnets?

ANSWER: W LUMINUM, NICKEL, AND COBALT

GENR-93; Short Answer: What exploded on Bikini Island in 1954?

ANSWER: W HYDROGEN BOMB

GENR-93; Multiple Choice: A barn is a unit of

- w) length
- x) area
- y) volume
- z) weight

ANSWER: X -- AREA

GENR-93; Multiple Choice: A light-year can be converted into

- w) astronomical units
- x) hours
- y) foot-candles
- z) ergs

ANSWER: W -- ASTRONOMICAL UNITS

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: Which is the longest?

- w) a kilometer
- x) a centimeter
- y) a dekameter
- z) a terameter

ANSWER: Z -- A TERAMETER

GENR-93; Multiple Choice: You use a hydrometer to check the condition of the electrolyte in your car battery. It is actually measuring what property of the fluid?

- w) charge
- x) density
- y) temperature
- z) surface tension

ANSWER: X -- DENSITY

GENR-93; Multiple Choice: What is the major visible constituent of the exhaust plume from a natural gas-fired power plant?

- w) carbon dioxide
- x) carbon monoxide
- y) smoke
- z) water

ANSWER: Z -- WATER

GENR-93; Multiple Choice: Of the following answers, which is closest to the percentage of electricity generated by nuclear power plants in the U.S. in 1987?

- w) 5%
- x) 10%
- y) 20%
- z) 40%

ANSWER: Y -- 20%

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: High-temperature superconductors have been in the news lately. These materials become superconductive at temperatures around

- w) 200 degrees Fahrenheit
- x) 100 degrees Fahrenheit
- y) -150 degrees Fahrenheit
- z) -350 degrees Fahrenheit

ANSWER: Z -- -350 DEGREES FAHRENHEIT

GENR-93; Multiple Choice: If a scuba diver suffers from the "bends", this means that which gas is being rapidly released from the blood and tissues?

- w) oxygen
- x) hydrogen
- y) nitrogen
- z) CO<sub>2</sub>

ANSWER: Y -- NITROGEN

GENR-93; Multiple Choice: The principle behind a breeder reactor is:

- w) U-235 undergoes fission.
- x) U-238 is converted to Pu-239, which undergoes fission.
- y) Deuterium undergoes fission.
- z) Cobalt-60 undergoes fission.

ANSWER: X -- U-238 IS CONVERTED TO Pu-239, WHICH UNDERGOES FISSION.

GENR-93; Multiple Choice: Steel is composed of a number of elements. The two essential elements are iron and

- w) aluminum
- x) carbon
- y) nickel
- z) silicon

ANSWER: X -- CARBON

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: Which of the following is an important element of stainless steel.

- w) chromium
- x) magnesium
- y) copper
- z) nickel

ANSWER: W -- CHROMIUM

GENR-93; Multiple Choice: When petroleum is refined it is subject to a number of processes including cracking. During the cracking process

- w) lighter hydrocarbons are combined to form heavier ones
- x) heavy hydrocarbons are broken up into lighter ones
- y) lighter hydrocarbons are separated by distillation
- z) oxygen is used to burn the heavier hydrocarbons

ANSWER: X -- HEAVY HYDROCARBONS ARE BROKEN UP INTO LIGHTER ONES

GENR-93; Multiple Choice: A psychrometer (pron: si-'kro-me-ter) is used to measure humidity. It consists of two thermometers, one of which is wetted. The water is allowed to evaporate. Which thermometer reads the higher temperature.

- w) the wet one
- x) the dry one

ANSWER: X -- THE DRY ONE

GENR-93; Multiple Choice: One metal dissolved in another is called

- w) an alloy
- x) an assay
- y) a mineral
- z) a ceramic

ANSWER: W -- AN ALLOY

GENR-93; Multiple Choice: An alloy consisting mainly of tin and lead is called:

- w) brass
- x) bronze
- y) pewter
- z) chrome

ANSWER: Y -- PEWTER

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: It is a common observation that naturally occurring processes have a particular direction associated with them. For instance, heat flows from a hot body to a colder body. The property of a system that is used to quantitatively describe this natural direction of events is called

- w) energy
- x) entropy
- y) enthalpy
- z) equilibrium

ANSWER: X -- ENTROPY

GENR-93; Multiple Choice: Which of the following is believed to be responsible for the hole in the ozone layer over Antarctic?

- w) carbon dioxide
- x) compounds containing sulfur
- y) radioactivity
- z) compounds containing chlorine

ANSWER: Z -- COMPOUNDS CONTAINING CHLORINE

GENR-93; Multiple Choice: Which of the following is not a major pollutant from automobiles.

- w) carbon monoxide
- x) unburned hydrocarbons
- y) nitrous oxide
- z) sulfur dioxide

ANSWER: Z -- SULFUR DIOXIDE

GENR-93; Multiple Choice: The most serious environmental pollution from a nuclear reactor is:

- w) radioactivity
- x) particulate formation
- y) thermal pollution
- z) noise pollution

ANSWER: Y -- THERMAL POLLUTION

## ***Science Bowl***

## GENERAL SCIENCE

GENR-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) is effective in only certain regions of the United States

ANSWER: W -- FORMED THROUGH PHOTOSYNTHESIS

GENR-93; Short Answer: What is the technique of detecting the position of objects by producing very high frequency sound waves and listening to the echos?

ANSWER: SONAR

GENR-93; Multiple Choice: A thermocouple is used to measure

- w) pressure
- x) current
- y) strain
- z) temperature

ANSWER: Z -- TEMPERATURE

GENR-93; Short Answer: What metal is obtained from the mineral malacite?

ANSWER: YOPPER

GENR-93; Multiple Choice: The most suitable motor oil for use in a car in cold weather is:

- w) a high viscosity oil
- x) a low viscosity oil
- y) a medium viscosity oil

ANSWER: X -- A LOW VISCOSITY OIL

GENR-93; Multiple Choice: The process by which a substance absorbs moisture upon exposure to the atmosphere is called:

- w) efflorescence
- x) deliquescence
- y) dehydrogenation
- z) desalination

ANSWER: X -- DELIQUESCENT

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: A temperature of 295 K is equivalent to approximately:

- w) 0 degrees Fahrenheit
- x) 32 degrees Fahrenheit
- y) 72 degrees Fahrenheit
- z) 97 degrees Fahrenheit

ANSWER: Y -- 72 DEGREES FAHRENHEIT

GENR-93; Multiple Choice: Only one tree is known to live longer than the Giant Sequoia. Is this tree:

- w) Bristlecone pine
- x) Grey Oak
- y) Japanese Chestnut
- z) Ponderosa pine

ANSWER: W -- BRISTLECONE PINE

GENR-93; Multiple Choice: The first animal launched into orbit was a:

- w) mouse
- x) monkey
- y) chimpanzee
- z) dog

ANSWER: Z -- DOG

GENR-93; Short Answer: Name the first man-made space craft to orbit the Earth?

ANSWER: SPUTNIK (ACCEPT SPUTNIK I)

GENR-93; Short Answer: Who was the first test pilot to break the sound barrier and survive?

ANSWER: YHUCK YEAGER

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: How many time zones are there in the CONTIGUOUS United States?

- w) 3
- x) 4
- y) 5
- z) 6

ANSWER: X -- 4

GENR-93; Multiple Choice: In the United States, coal is the energy source that produces the highest percentage of our electricity. Second is:

- w) hydropower
- x) oil
- y) nuclear energy
- z) solar energy

ANSWER: Y -- NUCLEAR ENERGY

GENR-93; Multiple Choice: The first controlled nuclear chain reaction took place in what year?

- w) 1895
- x) 1910
- y) 1942
- z) 1945

ANSWER: Y -- 1942

GENR-93; Multiple Choice: The radioactive element most commonly detected in humans is:

- w) potassium-40
- x) cobalt-60
- y) iodine-131
- z) plutonium-238

ANSWER: W -- POTASSIUM-40



## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: "Fool's gold" is a common name for this mineral:

- w) halite
- x) cinnabar
- y) magnetite
- z) pyrite

ANSWER: Z -- PYRITE

GENR-93; Short Answer: If it is 5:00 p.m. Greenwich Mean Time, what time is it in Washington, DC in December?

ANSWER: 12 NOON

GENR-93; Short Answer: What science deals with the structure of the universe and its origin?

ANSWER: COSMOLOGY

GENR-93; Multiple Choice: Which two gases are used to disinfect water in sewage treatment facilities?

- w) helium and nitrogen
- x) ozone and chlorine
- y) oxygen and hydrogen
- z) nitrogen and chlorine

ANSWER: X -- OZONE AND CHLORINE

GENR-93; Short Answer: What naturally occurring radioactive substance present in indoor air is suspected as the second leading cause of lung cancer?

ANSWER: RADON

GENR-93; Short Answer: If the time between a lightning flash and the resulting thunder is five seconds, approximately how far away was the lightning?

ANSWER: ABOUT ONE MILE (ACCEPT 5300-5800 FEET)

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: Which of the following building materials has the HIGHEST thermal conductivity?

- w) Southern pine wood
- x) common brick
- y) aluminum
- z) gypsum board or drywall

ANSWER: Y -- ALUMINUM

GENR-93; Multiple Choice: Thermal insulation is used to:

- w) stop the flow of heat.
- x) reduce the flow of heat.
- y) absorb heat.
- z) reverse the heat flow direction.

ANSWER: X -- REDUCE THE FLOW OF HEAT.

GENR-93; Multiple Choice: The region of the United States with the lowest pH values found in rainwater (acid rain) is:

- w) Mid West
- x) North West
- y) North East
- z) South East

ANSWER: Y -- NORTH EAST

GENR-93; Multiple Choice: The specific gravity of mercury at Standard Temperature and Pressure is:

- w) 0.75
- x) 4.0
- y) 13.6
- z) 19.3

ANSWER: Y -- 13.6

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: Consider efficiencies of hydro-turbines and generators. If the efficiency of a hydro-turbine is 80% and the efficiency of a generator is 90%, what is the overall efficiency of the unit?

- w) 85%
- x) 72%
- y) 90%
- z) 70%

ANSWER: X -- 72%

GENR-93; Short Answer: Name this much publicized group of compounds, of which there are 209 congeners. It was first discovered as an environmental pollutant in 1966, and its widespread use in electrical transformers has spread these compounds into the food chain to such an extent that most adults have small concentrations in their fatty tissue.

ANSWER: PCB's (Accept POLYCHLORINATED BIPHENYL'S)

GENR-93; Multiple Choice: Recent discoveries of ancient cratering near the Yucatan Peninsula support the theory that a meteor or cometary impact may have resulted in mass extinctions of species on Earth about 65 million years ago. During which geologic period is that impact thought to have occurred?

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

ANSWER: Z -- CRETACEOUS

GENR-93; Multiple Choice: In the United States the average number of gallons per person of fresh water used per day for personal (non-industrial) use such as bathing, laundering, drinking, and the like is approximately:

- w) 10 gallons
- x) 30 gallons
- y) 60 gallons
- z) 90 gallons

ANSWER: Z -- 90 GALLONS

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Short Answer: "Hard" water is related to the presence of high concentrations of primarily four metal ions in water supplies. Calcium and magnesium ions are the most common of the four. Name one of the other two ions.

ANSWER: IRON AND MANGANESE

GENR-93; Short Answer: When the fuel economy of a 20 miles per gallon car is averaged with that of a 40 miles per gallon car and both cars are driven the same number of miles per year, the resulting average, in miles per gallon, is:

ANSWER: 26.7 (MILES PER GALLON) (Accept 25.7 TO 27.7)

GENR-93; Multiple Choice: Taxol is a drug currently being used to treat cancer, particularly resistant forms of breast cancer. A natural source of Taxol is:

- w) bark and leaves of the yew tree
- x) apricot pits
- y) periwinkle flowers
- z) ginkgo leaves

ANSWER: W -- BARK AND LEAVES OF THE YEW TREE

GENR-93; Multiple Choice: About what percent of the electricity used in the United States is currently being produced by nuclear power plants?

- w) 5 percent
- x) 10 percent
- y) 20 percent
- z) 30 percent

ANSWER: Y -- 20 PERCENT

GENR-93; Multiple Choice: Some physicians suggest that women supplement their diets with antacids to supply additional amounts of a certain element thought to reduce the risk of osteoporosis. The ingredient in antacids which provides this element is:

- w) calcium carbonate
- x) aluminum hydroxide
- y) magnesium hydroxide
- z) simethicone

ANSWER: W -- CALCIUM CARBONATE

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: If you started with 100 grams of each of the materials below and they all vaporized inside of an inflatable balloon, which of them would produce the largest volume balloon, assuming they were all at the same temperature?

- w) water
- x) gasoline
- y) ethanol
- z) butane

ANSWER: W -- WATER

GENR-93; Short Answer: In 1976, Congress enacted the Resource Conservation and Recovery Act designed to protect public health and the environment from improper management of hazardous waste. The Resource Conservation and Recovery Act categorizes hazardous wastes into four groups. Identify three of the four groups.

ANSWER: TOXIC (POISONOUS), REACTIVE, IGNITABLE, AND CORROSIVE

GENR-93; Multiple Choice: The estrogen and androgen hormones which regulate sexual development and function are structurally related to:

- w) beta carotene
- x) ethanol
- y) adrenaline
- z) cholesterol

ANSWER: Z -- CHOLESTEROL

GENR-93; Multiple Choice: The most abundant organic molecule on the surface of the Earth is:

- w) cellulose
- x) chitin
- y) DNA
- z) hemoglobin

ANSWER: W -- CELLULOSE

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: The heat exhaust of an automobile with an internal combustion engine represents approximately what percent of the energy of the original fuel?

- w) 10 %
- x) 50 %
- y) 35 %
- z) 5 %

ANSWER: Y -- 35 %

GENR-93; Multiple Choice: In a precise diet and nutrition study, you need to determine the average weight and average height of a group each to a precision of 1%. The minimum sample size required is

- w) 10
- x) 100
- y) 1000
- z) 10,000

ANSWER: Z -- 10,000

GENR-93; Multiple Choice: Liquid fuels can be used to generate electricity in a variety of ways. Which of the following technologies converts liquid fuel directly to electricity without a combustion step?

- w) turbine
- x) battery
- y) fuel cell
- z) Stirling engine

ANSWER: Y -- FUEL CELL

GENR-93; Multiple Choice: A color television set employs a 25,000 volt electron accelerator to produce the picture and potentially harmful radiation which must be shielded against. The main component of this radiation consists of

- w) electrons which penetrate the picture tube
- x) soft x-rays
- y) microwaves
- z) ultraviolet radiation

ANSWER: X -- SOFT X-RAYS

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Short Answer: What is the neurotoxic organometal that caused even more injuries in Iraq in 1971-72 than it did in the 50's and 60's at Minamata Bay, Japan?

ANSWER: METHYLMERCURY

GENR-93; Multiple Choice: What is the approximate weight in pounds of the atmosphere on a 1 sq. ft. surface at sea level?

- w) 15 lbs.
- x) 1500 lbs.
- y) 2100 lbs.
- z) 20,000 lbs.

ANSWER: Y -- 2100 LBS.

GENR-93; Short Answer: What common flavoring comes from the long slender fruit of a climbing orchid?

ANSWER: VANILLA

GENR-93; Multiple Choice: What form of radiation most closely resembles X-rays?

- w) alpha
- x) beta
- y) gamma
- z) neutron

ANSWER: Y -- GAMMA

GENR-93; Multiple Choice: In the Tyndall Effect, the intensity of scattered radiation is inversely proportional to the fourth power of the wavelength. Which one of the following colors of light would exhibit the most intense Tyndall scattering?

- w) yellow
- x) green
- y) orange
- z) violet

ANSWER: Z -- VIOLET

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: One trillion is 1 followed by 12 zeros. What is 1 followed by 18 zeros?

- w) 1 quadrillion
- x) 1 quintillion
- y) 1 septillion
- z) 1 octillion

ANSWER: X -- 1 QUINTILLION

GENR-93; Multiple Choice: In daylight the human eye is most sensitive to which color?

- w) Green
- x) Red
- y) Blue
- z) Orange

ANSWER: W -- GREEN

GENR-93; Multiple Choice: Which of the following people is credited as being the father of mass production?

- w) Thomas Edison
- x) Otto Graham
- y) Henry Ford
- z) Eli Whitney

ANSWER: Z -- ELI WHITNEY

GENR-93; Multiple Choice: A homeowner replaces a 65 watt incandescent bulb with a 15 watt compact fluorescent lamp. The light is on 2000 hours a year. If electricity cost 10 cents a kilowatt-hour, how much money is saved on the electric bill in one year?

- w) \$50.00
- x) \$10.00
- y) \$5.00
- z) \$1.00

ANSWER: X -- \$10.00



## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: A radio station is broadcasting at 3750 khz (kilohertz). This station would be found in which radio band?

- w) 20 meter
- x) 40 meter
- y) 80 meter
- z) 160 meter

ANSWER: Y -- 80 METER

GENR-93; Multiple Choice: Approximately what percentage of the electricity produced in the United States is consumed by residential appliances?

- w) 20%
- x) 33%
- y) 50%
- z) 66%

ANSWER: X -- 33%

GENR-93; Multiple Choice: Compared to terrestrial environments, aquatic environments are more stable in:

- w) temperature range
- x) producer consumer distribution
- y) sunlight absorbed
- z) number species

ANSWER: W -- TEMPERATURE RANGE

GENR-93; Multiple Choice: TCDD (2,3,6,7-tetrachlorodibenzo(p)dioxin) is a toxic synthetic chemical. The most consistent adverse effect observed in exposed humans is:

- w) liver cancer
- x) birth defects
- y) disfiguring skin eruption
- z) an exaggerated sense of well-being

ANSWER: Y -- DISFIGURING SKIN ERUPTION (CHLORACNE)

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: The U.S. EPA recently concluded that environmental tobacco smoke should be considered (quote)

- w) "a possible human teratogen"
- x) "a priority air pollutant"
- y) "a known human carcinogen"
- z) "a possible human carcinogen"

ANSWER: Y -- A KNOWN HUMAN CARCINOGEN

GENR-93; Multiple Choice: What power cycle is used in jet engines?

- w) Stirling
- x) Rankine
- y) Otto
- z) Brayton

ANSWER: Z -- BRAYTON

GENR-93; Short Answer: What is the name for the metric unit of pressure defined as 1 Newton per meter squared?

ANSWER: PASCAL

GENR-93; Short Answer: In the human body, what tendon attaches the gastrocnemius muscle to the calcaneus bone?

ANSWER: ACHILLES TENDON

GENR-93; Multiple Choice: Which of the following is considered a renewable resource?

- w) Coal fired power plant
- x) Hydroelectric dam
- y) Combustion turbine facility
- z) Nuclear fission power plant

ANSWER: X -- HYDROELECTRIC DAM

GENR-93; Short Answer: If a quiet whisper is 10 decibels, then what is the average pain threshold in decibels for humans?

ANSWER: 120 DECIBELS (ACCEPT 110 TO 130)

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: What range of frequencies are usually referred to as the Ultra High Frequency (UHF) Band?

- w) 3 to 30 Mega Hertz
- x) 30 to 300 Mega Hertz
- y) 300 to 3,000 Mega Hertz
- z) 30,000 to 300,000 Mega Hertz

ANSWER: Y -- 300 to 3,000 MEGA HERTZ

GENR-93; Multiple Choice: Who was the first scientist credited with pointing out that certain gases could cause a greenhouse effect?

- w) John Tyndall
- x) Charles Darwin
- y) Roger Tory Peterson
- z) Stephen Jay Gould

ANSWER: W -- JOHN TYNDALL

GENR-93; Multiple Choice: Deforestation is not a major environmental problem in

- w) the Amazon
- x) Borneo
- y) Oregon
- z) West Germany

ANSWER: Z -- WEST GERMANY

GENR-93; Short Answer: Name a component of gasoline that has been classified by the U.S. EPA as a "known human carcinogen".

ANSWER: XENZENE

GENR-93; Multiple Choice: The sun makes up approximately what percent of matter in our solar system?

- w) 17%
- x) 50%
- y) 85%
- z) 99%

ANSWER: Z -- 99%

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: What is the phase relationship between the voltage and current in a capacitor?

ANSWER: X -- CURRENT LEADS BY 90 DEGREES

GENR-93; Short Answer: Movement exhibited by plants toward the "center of the Earth" is called?

ANSWER: GEOTROPISM

GENR-93; Multiple Choice: In 1991, the frozen body of a late stone age man was found amazingly intact in the Alps near the Italian-Austrian border. Its age was determined to be about:

- w) 2,200 years
- x) 5,300 years
- y) 12,800 years
- z) 30,000 years

ANSWER: X -- 5,300 YEARS

GENR-93; Multiple Choice: Who is known as the Father of the Atomic Bomb?

- w) Albert Einstein
- x) J. Robert Oppenheimer
- y) General Leslie Groves
- z) Edward Teller

ANSWER: X -- J. ROBERT OPPENHEIMER

GENR-93; Multiple Choice: Dante is the name of an eight-legged robot designed to repel into the crater of Erebus. This volcano is located in

- w) Italy
- x) the Hawaiian chain
- y) Antarctica
- z) Japan

ANSWER: Y -- ANTARCTICA

## ***Science Bowl***

## GENERAL SCIENCE

GENR-93; Multiple Choice: For a DC motor, what major component in addition to the field winding and the armature winding is necessary?

- w) a commutator
- x) a stator
- y) a battery
- z) a rotor

ANSWER: W -- A COMMUTATOR

GENR-93; Multiple Choice: Evaporation from water surfaces exposed to air is not dependent of the:

- w) velocity of the wind
- x) humidity
- y) temperature
- z) depth of the water

ANSWER: Z -- DEPTH OF THE WATER