

**Test:** 2021-22 National Science Bee ORQE

### Question 1 of 50

Our solar system is found in what spiral-shaped galaxy?

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- A) Hoag's Object
- B) Eye of Sauron
- C) Milky Way
- D) Andromeda

### Question 2 of 50

What organ pumps blood throughout the body?

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- A) Brain
- B) Lungs
- C) Heart
- D) Stomach

### Question 3 of 50

Which of these things was invented during the 20th century?

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- A) Smallpox Vaccination
- B) Aqueduct
- C) Thermometer
- D) Atomic Bomb

### Question 4 of 50

Which diagram displays chemical elements and was invented by Dmitry Mendeleev?

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- A) Punnett Square
- B) Periodic Table of the Elements
- C) Hertzsprung-Russell Diagram
- D) Histogram

**Question 5 of 50**

Which state of matter is the least dense of the four listed and will always fill its container?

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- A) Solid
- B) Gas
- C) Liquid
- D) Plasma

**Question 6 of 50**

What metabolic process uses enzymes to change a substance, like using brine to turn cucumbers into pickles?

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- A) Fermentation
- B) Grilling
- C) Cooking
- D) Freezing

**Question 7 of 50**

What ancient supercontinent was surrounded by the superocean Panthalassa?

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- A) Micronesia
- B) Africa
- C) Valles Marineris
- D) Pangaea

**Question 8 of 50**

Nebraska, Kansas, and Oklahoma sit in an "alley" named for what weather phenomenon?

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- A) Tornado
- B) Cold Front
- C) Earthquake
- D) Hurricane

**Question 9 of 50**

What type of eclipse occurs when the moon blocks the sun in Earth's sky?

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- A) Martian Eclipse
- B) Orbital Eclipse
- C) Solar Eclipse
- D) Lunar Eclipse

**Question 10 of 50**

What base-2 numeral system of 1s and 0s is used by most modern computers?

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- A) Tertiary
- B) Trinary
- C) Quaternary
- D) Binary

**Question 11 of 50**

Cumulus, cumulonimbus, and stratus are all types of what?

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- A) Clouds
- B) Rocks
- C) Trees
- D) Teeth

**Question 12 of 50**

Rosalind Franklin's photographs developed our understanding of the double-helix structure of what molecule?

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- A) Neon
- B) Carbohydrates
- C) Protein
- D) DNA

**Question 13 of 50**

Kangaroos, opossums, and bandicoots belong to what infraclass of mammals that often sport pouches?

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- A) Primates
- B) Marsupials
- C) Chiroptera
- D) Cetaceans

**Question 14 of 50**

Shoemaker-Levy 9 and Halley's are examples of what kind of icy solar body?

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- A) Comets
- B) Planets
- C) Stars
- D) Astroids

**Question 15 of 50**

A runaway greenhouse gas effect makes what second planet from the sun have the hottest surface in the solar system?

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- A) Mercury
- B) Mars
- C) Venus
- D) Saturn

**Question 16 of 50**

Hoover Dam produces what type of power?

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- A) Hydroelectric
- B) Natural Gas
- C) Nuclear
- D) Solar

**Question 17 of 50**

Which of these animals is an example of an invertebrate?

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- A) Eagle
  - B) Iguana
  - C) Honeybee
  - D) Gorilla

**Question 18 of 50**

What organelle found in eukaryotes contains a cell's genome and serves as its control center?

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- A) Endoplasmic Reticulum
  - B) Golgi Bodies
  - C) Nucleus
  - D) Chloroplast

**Question 19 of 50**

What dwarf planet in the Kuiper Belt was long-considered the ninth planet from the sun?

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- A) Mars
  - B) Pluto
  - C) Ceres
  - D) Jupiter

**Question 20 of 50**

Fjords are created by what large accumulations of ice that cover landmasses like Greenland?

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- A) Glaciers
  - B) Mesas
  - C) Taiga
  - D) Deserts

**Question 21 of 50**

Zooxanthellae live symbiotically with what cnidarians that form reefs?

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- A) Sharks
- B) Dolphins
- C) Coral
- D) Anemones

**Question 22 of 50**

Which of these is not a part of an atom?

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- A) Plankton
- B) Electron
- C) Proton
- D) Neutron

**Question 23 of 50**

What term is described in Newton's First Law of Motion and refers to an object's resistance to change in velocity?

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- A) Inertia
- B) Torque
- C) Impulse
- D) Speed

**Question 24 of 50**

What common mineral, a 7 on the Mohs hardness scale, is widely used to make crystal objects?

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- A) Feldspar
- B) Quartz
- C) Gypsum
- D) Talc

**Question 25 of 50**

Which planet often appears red and has two moons named Phobos and Deimos?

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- A) Mercury
- B) Jupiter
- C) Neptune
- D) Mars

**Question 26 of 50**

What term in classical physics describes any substance that has mass and takes up space?

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- A) Energy
- B) Light
- C) Graviton
- D) Matter

**Question 27 of 50**

What mathematical constant is defined as the ratio of a circle's circumference to its diameter, and is approximately 3.14?

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- A)  $e$
- B)  $\pi$
- C)  $\tau$
- D) 0

**Question 28 of 50**

What lightest element is found alongside oxygen in water?

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- A) Carbon
- B) Xenon
- C) Hydrogen
- D) Fluorine

**Question 29 of 50**

Giraffes lives in the wild exclusively on what continent?

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- A) Australia
- B) Asia
- C) Africa
- D) South America

**Question 30 of 50**

What highly malleable metal is measured on a purity scale that ranges up to 24 karats?

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- A) Silver
- B) Ambergris
- C) Mercury
- D) Gold

**Question 31 of 50**

What term describes an inferential argument made to determine the truth of a mathematical statement?

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- A) Postulate
- B) Proof
- C) Theory
- D) Axiom

**Question 32 of 50**

What group of large reptiles are believed to have gone extinct due to an asteroid impact in the Yucatán peninsula?

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- A) Dinosaurs
- B) Homo Erectus
- C) Woolly Mammoths
- D) Megalodons

**Question 33 of 50**

What fundamental force in common practice causes objects to fall toward the ground?

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- A) Quintessence
- B) Gravity
- C) Strong Nuclear Force
- D) Electromagnetism

**Question 34 of 50**

Wilhelm Röntgen discovered what type of radiation now commonly used in hospitals to examine the human skeleton?

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- A) X-Ray
- B) Gamma Ray
- C) Microwaves
- D) Visible Light

**Question 35 of 50**

Which organ produces bile that is stored in the gallbladder?

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- A) Heart
- B) Brain
- C) Liver
- D) Lungs

**Question 36 of 50**

Which of these shapes has four sides?

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- A) Torus
- B) Trapezoid
- C) Nonagon
- D) Dodecahedron

**Question 37 of 50**

Which of these inventions was not invented in China?

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- A) Gunpowder
- B) Airplane
- C) Paper
- D) Compass

**Question 38 of 50**

What simple machine, commonly represented by wheelbarrows and seesaws, consists of a beam and a fulcrum?

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- A) Pulley
- B) Lever
- C) Wedge
- D) Screw

**Question 39 of 50**

What term describes the habit of such animals as bears and rodents to lower their metabolic activity and sleep for extended periods?

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- A) Migration
- B) Hibernation
- C) Predation
- D) Food Chain

**Question 40 of 50**

Which organ system in the human body includes the pancreas and the small intestine?

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- A) Digestive
- B) Circulatory
- C) Lymphatic
- D) Integumentary

**Question 41 of 50**

Which scientist, who was born in Germany and died in the United States, developed theories of special and general relativity?

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- A) Galileo Galilei
  - B) Jonas Salk
  - C) Bill Nye
  - D) Albert Einstein

**Question 42 of 50**

What force resists the relative motion of solid objects between two surfaces?

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- A) Stress
  - B) Friction
  - C) Mass
  - D) Thrust

**Question 43 of 50**

What constellation includes the stars Rigel and Betelgeuse and contains a namesake "belt"?

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- A) Scorpio
  - B) Big Dipper
  - C) Gemini
  - D) Orion

**Question 44 of 50**

What sedimentary rock is often burned as a fuel and provides a quarter of the world's energy and over 40% of greenhouse gas emissions?

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- A) Obsidian
  - B) Shale
  - C) Coal
  - D) Pumice

**Question 45 of 50**

What large ruptures in earth's crust spew lava and ash?

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- A) Volcanoes
- B) Icebergs
- C) Rift Valley
- D) Moho Discontinuity

**Question 46 of 50**

In which of the following places do parrots naturally occur in the wild?

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- A) Rainforest
- B) Tundra
- C) Ionosphere
- D) Rhode Island

**Question 47 of 50**

What kind of event involves the violent explosion of a star, sometimes resulting in the formation of black holes?

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- A) Star Nursery
- B) Nebula
- C) Event Horizon
- D) Supernova

**Question 48 of 50**

What rectangular array of numbers or symbols is used to represent a single mathematical object?

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- A) Spectrum
- B) Transformation
- C) Function
- D) Matrix

**Question 49 of 50**

What geometric term refers to the quantity of 3D space held within an enclosed surface, such as the amount of water in a glass?

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- A) Air Pressure
- B) Volume
- C) Area
- D) Weight

**Question 50 of 50**

What planet, the largest in the solar system, contains a giant storm called the Great Red Spot?

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- A) Uranus
- B) Earth
- C) Jupiter
- D) Mercury