

# Round 6

## Bee Playoff Round 1

(1) Henry Cavendish used this object in a torsion balance to calculate Earth's density. When compressed, this object applies a restoring force to expand. When attached to a mass, it acts as a simple harmonic oscillator modeled by Hooke's law; in that law, the stiffness factor  $k$  indicates how well it can absorb changes in motion. These objects can be used to model longitudinal waves by releasing one coil, and transverse waves by moving it back and forth. For the point, name these helical metal coils used in mousetraps and as Slinkys.

ANSWER: spring

(2) The first author from this country to win a Nobel in Literature wrote about a man spending time in a resort town in *Snow Country*. The novels *Confessions of a Mask* and *The Temple of the Golden Pavilion* are set in this country. An author from this country wrote a story set outside the Rashomon gate, and another story in which a group of people give testimony about the death of a samurai. For the point, name this country whose authors include Yasunari Kawabata and Ryunosuke Akutagawa.

ANSWER: Japan (accept Nippon-koku or Nihon-koku)

(3) Ken Mattingly was prevented from participating in this program due to German measles. Ed White, Roger Chaffee, and Gus Grissom died in what was retroactively deemed the first mission of this project. James Lovell commanded another mission in this program that suffered an oxygen tank explosion, less than a year after this program's goal was achieved by Buzz Aldrin and Neil Armstrong. For the point, name this NASA program that brought humans to the Moon.

ANSWER: Apollo program (accept Apollo 13; accept Apollo 1 after "Ed White" is said; accept Apollo 11 after "Buzz Aldrin" is said)

(4) In this building's nut room, squirrels have been trained to determine whether nuts are "good" or "bad." In this building, a piece of technology turns extra large objects into regular sized objects which can be taken from a television screen. A character visiting this location is taken to a room to be juiced after a piece of gum turns her into a large blueberry. Small humanoid creatures called Oompa-loompas work in this location, which contains a chocolate river. For the point, Charlie Bucket visits what location run by Willy Wonka?

ANSWER: Willa Wonka's Chocolate Factory

(5) Pablo Picasso painted a series of 58 paintings based on this work, including studies of the central child with her mother. The artist depicted himself with the red cross of the Order of Santiago, and he stands next to a gigantic easel. In this painting, a portrait of King Philip IV of Spain hangs in the background as the artist paints a large dog and a dwarf with a young princess and her attendants. For the point, name this painting of the Infanta Margarita and her title "maids of honor" by Diego Velázquez.

ANSWER: Las Meninas

(6) No bridge crossed this river until 1957, and during its country's civil war in 1945, 800 people died when a ferry across this river collapsed. The banks of one of its tributaries are the site of the "Bund" district. Once the home of the baiji dolphin, this river is the site of the world's largest power station, the Three Gorges Dam. For the point, name this river flowing through Nanjing and Shanghai, the longest in China.

ANSWER: Yangtze River (or Cháng Jiang)

(7) A process that amplifies this compound was developed by Kary Mullis. A single-stranded relative of this compound replaces this compound's thymine with uracil; that relative features ribose instead of deoxyribose. Thymine is one of this element's four nucleotides, along with cytosine, guanine, and adenine. This molecule's double helix structure was analyzed by Watson and Crick. For the point, name this biological molecule, a nucleic acid that encodes genetic information within chromosomes.

ANSWER: DNA (accept deoxyribose nucleic acid until "nucleic acid" is said)

(8) A plane that intersects a pair of these solids, one balancing upside-down on top of the other, will generate a hyperbola, while if the plane only intersects one of these, it may form a circle, ellipse, or parabola. Given equal dimensions of height and radius, this solid has exactly one-third the volume of a corresponding cylinder. For the point, name this three-dimensional solid with a circular base, unlike the polygonal base that generates the otherwise-similar pyramid.

ANSWER: cone

(9) After Philip Fabricius survived an event in this city, he was given the title von Hohenfall. A period in this city attempted to spread "Socialism with a Human Face," which resulted in an invasion of this city by troops sent by the Warsaw Pact. Alexander Dubcek attempted to liberalize this city in a period known as its "Spring." An event in this Bohemian city sparked the Thirty Years War. For the point, name this city where two defenestrations took place, the capital of the Czech Republic.

ANSWER: Prague

(10) Moogles are a race that appear in this video game series, whose upcoming installment centers on the character of Noctis. Characters from this franchise appear in the non-Disney areas of *Kingdom Hearts*. In the first installment of this series, the four heroes of light face off against Chaos. Its seventh installment features the final boss Sephiroth, and stars Cloud Strife. For the point, name this Square Enix series of role-playing video games.

ANSWER: Final Fantasy (accept any integer from 1-15 added to the end)

(11) To find electric flux, create a Gaussian surface enclosing objects with this quantity. The magnetic field exerts a force on moving particles with this quantity. It is transferred between objects in the triboelectric effect, and its sign can be measured with an electroscope. Quarks have a value of this quantity of either two-thirds or one-third. Coulomb's law governs the force between points with this quantity, and opposite ones attract while similar ones repel. For the point, name this quantity of electric poles that can be positive or negative.

ANSWER: charges

(12) This woman ages one year every time she is asked a question. This person frequently mentions the “Russian smell” of those who visit her hut, and is referred to as “bony-legged.” This woman makes Vasilisa the Beautiful perform some tasks. She flies around on a mortar and pestle, sweeping away her tracks with a broom, and also allegedly eats children. For the point, name this crone from Russian folklore who lives in a hut with chicken’s legs.

ANSWER: Baba Yaga

(13) Shortly after posing this statement, its speaker notes that “no ground of doubt” from the skeptics could shake it. This statement, first written in *Discourse on the Method*, arose from its author’s attempt to doubt everything; the author then realized that, by being capable of doubt, at least *something* could be said to exist. For the point, give this statement that established the beginning of Rene Descartes’ philosophy, stated in Latin as “Cogito ergo sum.”

ANSWER: I think, therefore I am (or je pense, donc je suis; accept cogito ergo sum before it is read)

(14) A five-movement work by this composer includes sections for “Peace” and “Rejoicing,” as it was written to celebrate the end of the War of the Austrian Succession. One work by this composer includes a still-popular “Bouree” and was played on regular journeys to Chelsea aboard barges on the River Thames, for the listening pleasure of King George I. For the point, name this composer of *Music for the Royal Fireworks* and *Water Music*, as well as the oratorio *Messiah*.

ANSWER: George Frederick Handel

(15) The treaty ending this war was negotiated by the maverick Nicholas Trist, who blatantly ignored his instructions. The justification for this war was questioned by the “Spot Resolutions,” in which a Congressman demanded to know whether American blood was shed on American soil or foreign soil, as President Polk had claimed. The Treaty of Guadalupe Hidalgo ended, for the point, what 1846-1848 war between the United States and a former owner and current neighbor of Texas?

ANSWER: Mexican-American War

(16) Ants carried grains of wheat to this man’s mouth when he was an infant. For believing that Pan’s music was better than Apollo’s, this man was given the ears of a donkey. This man was told to bathe in the river Pactolus to remove his most famous ability, which he was given by Dionysus after finding Silenus. That ability of this man’s prevented him from eating, or touching his daughter. FTP name this Phrygian king who turned everything he touched into gold.

ANSWER: King Midas

(17) The Dickey-Wicker amendment bans federal funding of research involving certain types of these objects created via in vitro fertilization. They can be multipotent or pluripotent, unlike progenitor cells, which are limited to a few tissue types. Adult ones come from blood, adipose tissue, and bone marrow, while blastocysts can controversially provide embryonic ones. For the point, name these undifferentiated cells that can divide into specialized cells.

ANSWER: stem cells

(18) This author wrote about a six year old deaf mute boy who wanders around a civil war battle in his story “Chickamauga.” This man wrote about an Alabama farmer who has his daydream of escaping from his captors interrupted by the feeling of a “stunning blow upon the back of his neck” as he is hung. That protagonist is a Confederate supporter who attempted to burn down the title structure. For the point, name this author who wrote about Peyton Farquhar in “An Occurrence at Owl Creek Bridge.”

ANSWER: Ambrose Gwinnett Bierce

(19) One resident of this state, Natalie Keepers, recently described herself as a “sociopath in training” after assisting in the kidnapping and murder of 13-year-old Madison Lowell. In April, the governor of this state restored the voting rights of 200,000 convicted felons. John McCain joked with a senator from this state calling him “Vice President Tim Kaine.” In the 2017 gubernatorial, Ed Gillespie hopes to unseat governor Terry McAuliffe. For the point, name this Mid-Atlantic state which is governed from its capital in Richmond.

ANSWER: Virginia

(20) This actress starred opposite Jeremy Jordan in the film adaptation of the musical *The Last Five Years*. She played the gossipy sister of Scott in *Scott Pilgrim vs. the World*, as well as Bella’s friend Jessica in the *Twilight* saga. This actress had a top-10 hit with a song played with drinkware, “Cups,” which she performed in her character’s audition to join the Barden Bellas in a 2012 film. For the point, name this actress who played Cinderella in *Into the Woods* and Beca in *Pitch Perfect*.

ANSWER: Anna Kendrick

(21) The narrator of this story blames alcohol for his irritability, but is not drunk when he, raging, kills his wife with an axe to the head. Earlier in this story, the title character has an eye gouged out and is hanged by the narrator, after which the narrator’s house mysteriously burns to the ground with the title character’s pawprint left in the ruins. For the point, name this Edgar Allan Poe short story whose title character, Pluto, is a common feline symbol of unluckiness.

ANSWER: The Black Cat

(22) Large amounts of ritual bronzes were found in the tombs of early rulers of this modern day country. The belly portion of a turtle shell and ox scapulae were used in a divination method from this country. Rulers of this modern day country justified their overthrow of previous dynasties with the Mandate of Heaven. Several empires in this country defended its territory against Mongol invasion by maintaining a large stone wall. For the point, name this country which was ruled by the Shang, Zhou, and Qin chin dynasties.

ANSWER: China (or Zhongguo)

(23) Goldbach’s conjecture suggests that the sum of exactly this many primes can be used to express every even integer greater than this number. Mersenne primes are of the form “one less than a power of this number.” Twin primes are groups of prime numbers separated by this value, which is the first value used in the Sieve of Eratosthenes to eliminate composite numbers from the list of integers. For the point, name this only even prime number.

ANSWER: two

(24) Portions of the intertropical convergence zone responsible for these phenomena are called a namesake “trough.” In sub-Saharan Africa, these phenomena interrupt the harmattan and provide most of the precipitation for the Sahel. These phenomena occur due to a seasonal reversing wind, which creates a dry season and a rainy season. For the point, name these phenomena which bring torrential rains to India and East Asia.

ANSWER: monsoons

(25) This author’s play *The Mousetrap* is the longest running play of all time. The nursery rhyme “Ten Little Indians” parallels deaths that occur on an island in this author’s novel *And Then There Were None*. She created the Belgian Hercule Poirot and the crafty Miss Marple, the former of whom investigates a grisly *Murder on the Orient Express*. For the point, name this female author of many detective stories and murder mysteries.

ANSWER: Dame Agatha Mary Clarissa Christie

(26) After this man’s party refused to offer anything like their opponents’ National Health Service, they lost in a staggering upset to Clement Attlee’s Labour Party. Earlier in his career, this man resigned as First Lord of the Admiralty after the disastrous Gallipoli Campaign. As Prime Minister, he declared “We shall fight on the beaches” shortly before his ally, France, fell to the Germans under Hitler. For the point, name this British Prime Minister during World War II.

ANSWER: Sir Winston Churchill

(27) After one of this author’s protagonists is assaulted by Alec, her husband flees to Brazil. In another novel by this author, the protagonist’s affair with Sue Bridehead ends after his son, Little Father Time, hangs himself and his half-siblings. That work is partially set in Christminster, a city in the fictional English county of Wessex. For the point, name this author of *Jude the Obscure* and *Tess of the D’Urbervilles*.

ANSWER: Thomas Hardy

(28) This tribe’s longest-serving chief was John Ross. A silversmith who did not know English created these people’s writing system. One missionary to these people, Samuel Worcester, was the defendant in a Supreme Court case that failed to stop its removal to Oklahoma. This tribe was originally based in Georgia and the Carolinas before Andrew Jackson forced their removal on the Trail of Tears. For the point, name this member of the Five Civilized Tribes whose syllabary was written by Sequoyah.

ANSWER: Cherokee

(29) The author of these works ordered the creation of an acacia box topped with a “mercy seat” to hold them. Writing these works gave their transcriber a “shining face” that was misinterpreted as “horns,” and the first draft of these laws was destroyed when their recorder discovered that Aaron had created a golden calf idol at the base of Mount Sinai. For the point, name these orders from God recorded on two tablets by Moses, which include “thou shalt not kill.”

ANSWER: ten commandments (accept Decalogue; accept Tablets of the Law; accept Tablets of Stone or Stone Tablets; accept Tablets of Testimony; accept Luchot HaBrit)

(30) This country's city of Angostura was renamed for its founder in 1846. Eight white stars in a semicircle distinguish this country's yellow-red-blue flag from that of two others to its west. Sitting just seven miles south of Trinidad, this country has the largest proven oil reserves of any nation. For the point, name this largest South American member of OPEC, the site of Lake Maracaibo and the Orinoco River, which was once ruled by Hugo Chavez.

ANSWER: Bolivarian Republic of Venezuela

(31) Paintings of this location feature the clown Cha-U-Kao [chah-oo-KOW] and La Goulue [lah goh-LOO], a red-haired dancer who appears in Henri de Toulouse-Lautrec's posters for this place. This club is the subject of a Baz Luhrmann musical film, in which Satine falls for Christian and can-can dancers perform to songs like "Lady Marmalade." For the point, name this Parisian cabaret theater named for the red windmill on the roof.

ANSWER: Moulin Rouge

(32) A gland that sits on top of this organ secretes aldosterone, which regulates sodium reuptake. The glomerular capillaries are adjacent to the Bowman's capsule of this organ. Nephrons perform the basic function of this organ, which is connected by ureters to the bladder. Patients with renal failure, or the failure of these organs, may undergo dialysis. For the point, name these bean-shaped organs that are used to remove waste products.

ANSWER: kidney

(33) Jasper More and his three siblings were passengers on this ship, which was to sail with the *Speedwell*. Poor conditions forced this ship to land not in Virginia, but at Cape Cod, where 41 of its passengers agreed to "combine[...] together into a civil body politic," signing a Compact named for this ship. William Bradford and Miles Standish were among the passengers of, for the point, what ship that brought the first Pilgrims to North America in 1620?

ANSWER: the Mayflower

(34) In this novel, the blind Pew goes to the Admiral Benbow inn and gives Billy Bones a black spot. Dr. Livesey gives another character in this novel, Ben Gunn, some cheese. A shanty in this novel contains the line "Yo-ho-ho, and a bottle of rum," and a mutiny on the *Hispaniola* led by the ship's cook is witnessed by a young boy named Jim Hawkins. For the point, name this Robert Louis Stevenson novel in which the pirate Long John Silver attempts to find buried riches.

ANSWER: Treasure Island

(35) This compound is typically produced using a vanadium oxide catalyst in the contact process. This substance was historically called the oil of vitriol. In a common demonstration, this substance is added to sugar, forming a dark column of carbon. In the standard list of strong acids, this is the only diprotic strong acid. Carbonic acid, nitric acid, and this compound are the compounds that provide the acidity of acid rain. This substance makes up battery acid. For the point, name this strong acid with formula  $H_2SO_4$ .

ANSWER: sulfuric acid (or  $H_2SO_4$  before mention)

## Extra Question

Only read if moderator botches a question.

(36) Ictinus and Callicrates were the architects of this building, which housed a chryselephantine statue that held a winged Nike in its right hand. Phidias designed that statue of a Greek goddess in this building. This building was damaged due to the Ottomans using it to store gunpowder. For the point, name this ancient temple, partially standing today, whose distinctive columns make it a symbol of Athenian culture.

ANSWER: Parthenon