

# New Trier Scobol Solo 2013

## Round 5



1. Testing this substance for vascular endothelial growth factor can be used to detect cancer. Along with many enzymes, the sphincter of Oddi allows this substance to travel through the ampulla of Vater. This substance is used to remove another substance often responsible for jaundice in infants. Taurocholic and glycocholic [GLY-koh-KAH-lik] acids are major components of the acids, or salts, in this substance and are used to remove cholesterol from the body. This substance is secreted by hepatocytes in the liver and released into the duodenum of the small intestine from the gallbladder. Name this substance that digests fats and can be dark yellow or green.

Answer: bile

2. One painting by this man shows cloudy sky through a closed window and darkness through the space left by a half-open window. This painter of *The Telescope* made another work which shows one man with a net and another man with a club on opposite sides of a man between a gramophone and a dead woman, *The Menaced Assassin*. In another work by him, a clock and two candlesticks are on a mantle over a fireplace with a train coming out of it. This painter of *Time Transfixed* also showed a man with an apple in front of his face in *The Son of Man*. Identify this painter of *The Treachery of Images*, whose text translates as "This is not a pipe."

Answer: René (François Ghislain) Magritte

3. Near the beginning of this play, a note-taker figures out that a man is from Selsey and a woman is from Lisson Grove after he is accused of being a copper's narc. One character in this play has been made "a consort for a king" while another character in this play receives money from Ezra Wannafeller for giving lectures. At the end of this play, the protagonist marries Freddy Eynsford Hill. This play is about a bet between Colonel Pickering and phonetics professor Henry Higgins concerning the flower girl Eliza Doolittle. Named after a legendary Greek sculptor, identify this George Bernard Shaw work that inspired the musical *My Fair Lady*.

Answer: Pygmalion(: *A Romance in Five Acts*)

4. According to a Donald Knuth [k'-NOOTH] conjecture, this function along with the square root and floor functions and the number 3 can generate any natural number. The Pochhammer [POHK-hah-mer] symbol is used to represent its rising or falling types. A horizontal shift changes this function into the integral of  $t^{x-1}e^{-t} dt$  [" $t$  to the  $x$  minus one power, times  $e$  to the negative  $t$ ,  $dt$ "], which is the gamma function. This function appears in the denominators of Taylor series terms, and two of these functions are divided to evaluate permutations. Give this function equal to the product of all natural numbers up to and including its input, represented by an exclamation point.

Answer: factorial

5. In this play, one character refuses to sit on a sofa because it is vivid green and she is wearing pale blue. Another character in this play offers to be that character's "lark-mirror" and tell her everything that she sees. Another character in this play doesn't have eyelids and has an uncle who is the head valet. Near the end of this play, a woman who drowned her child attempts to stab another woman, and the last line of this play is "Well, let's get on with it." The adulteress Estelle Rigault [reeg-awl] and the postal clerk Inès Serrano appear in what play in which Joseph Garcin claims "Hell is other people", a work by Jean-Paul Sartre?

Answer: **No Exit** [or **Huis Clos** or **Dead End** or **In Camera** or **No Way Out**]

6. This man was the two-time brother-in-law of Rudolf of Rheinfelden, who died soon after defeating this person at the Battle on the Elster. This leader passed his crown on to his younger son after being deserted by his oldest living son, Conrad. This person convoked a synod that selected Guibert of Ravenna as pope, though Guibert is now known as Antipope Clement the Third. In what is known as the Walk to Canossa, this leader supposedly traveled barefoot as penance towards Pope Gregory the Seventh. Name this Holy Roman Emperor who was involved in the Investiture Controversy.

Answer: **Henry IV**, Holy Roman Emperor [or **Heinrich IV**]

7. One of this politician's proposals is to end housing subsidies for people under the age of 25 so that they are all "earning or learning". Greg Clark told this person to give Andrew Mitchell his job back after an incident now known as Gategate or Plebgate. Though this leader announced the creation of the Leveson Inquiry in 2011, he did not support all of its recommendations, disappointing several members of Hacked Off. After a negative profile of Ed Miliband, this person and his deputy Nick Clegg criticized the *Daily Mail*. Name this leader of the Conservative Party who succeeded Gordon Brown as the prime minister of the United Kingdom.

Answer: David (William Donald) **Cameron**

8. 95% of objects that emit ultraviolet excess can be described using this term, which also names a type of nova that is also called a U Geminorum [jeh-mih-NOH-rum] star. The closest galaxy to the Milky Way, Canis [KAY-nis] Major, is labeled with this term that, along with "brown", labels objects too low in mass to sustain hydrogen fusion. The most numerous type of star in the Local Group are known as the red *these*, and the Chandrasekhar limit is an upper mass boundary for the stable white type of these dense stars. Eris, Ceres, and Pluto are now called this type of planet. Give this term used to describe relatively small objects in astronomy.

Answer: **dwarf** [or **dwarves**]

9. Though he was not allowed to participate directly, this person repeatedly met with delegates of the 1991 Madrid Conference who flew to Tunis to meet with him. He took power from Yahya Hammuda soon after the Battle of Karamah, and thirty years later gained territory through the Wye River Memorandum. He spent most of his final years in Ramallah and was criticized for not ending terrorism after the Oslo Accords, an agreement that led to him sharing a Nobel Peace Prize with Shimon [shee-MOHN] Peres and Yitzhak [YITZ-hahk] Rabin [rah-BENE]. Name this leader who in 2004 was replaced by Mahmoud Abbas as head of the Palestinian Liberation Organization.

Answer: Yasser Arafat

10. This writer's best known work states that "There are three classes of intellects: one which comprehends by itself; another which appreciates what others comprehended; and a third which neither comprehends by itself nor by the showing of others." This person also wrote a work discussing the actions in another writer's book *Ab urbe condita*, a history of Rome. This person wrote it is safer to be feared than loved, and he described different ways for leaders to gain and maintain power. Name this thinker who worked for Piero Soderini, was fascinated by Cesare [chay-ZAR-ay] Borgia, and wrote a dedication to Lorenzo di Piero de' Medici in his book *The Prince*.

Answer: Niccolò (di Bernardo dei) Machiavelli

11. The inability to explain the extremely small but nonzero size of the field with this name is the hierarchy problem. The mechanism with this name involves the absorption of Nambu-Goldstone bosons and includes the process of spontaneous symmetry breaking. This mechanism explains why the weak force has a short range, because the weak force carriers have mass. The particle with this name was the 17<sup>th</sup> and final elementary particle found in the Standard Model. Give this name for a boson that was confirmed to exist by recent experiments at the Large Hadron Collider at CERN.

Answer: Higgs [accept more specific answers; accept **gravity** or **gravitational** until the 2<sup>nd</sup> sentence is completed]

12. This role could not be properly fulfilled by the Aztec deity Tezcatlipoca [TEZ-caht-lee-POH-kah] because Cipactli had eaten his foot. In Polynesian mythology, Maui [MAO-ee] responded to his mother Hina's complaints by attacking one of these gods, which in Norse mythology constantly flees from the wolf Skoll. The Shinto deity over this realm was harassed by her brother Susanoo [soo-SAH-noh-oh] into hiding in a cave, while this type of Egyptian deity is aided by Set in his nightly fights with the serpent Apep and became syncretized with Atum and Amun. Name this celestial body represented in Shinto mythology by Amaterasu [ah-mah-teh-rah-soo] and in Egyptian mythology by Ra.

Answer: sun or solar deities [accept similar answers mentioning an underlined term]

13. The second part of this poem describes a figure “whose love is endless oil and stone” and “whose name is the Mind!”. The third section of this poem tells of a place “where the faculties of the skull no longer admit the worms of the senses”. This poem was judged to be not obscene when its publisher, Lawrence Ferlinghetti, was put on trial. “Mohammedan angels staggering on tenement roofs” appear in this poem dedicated to Columbia Psychiatric Institute patient Carl Solomon, whom the poet repeatedly tells “I’m with you in Rockland.” Name this poem that describes Moloch, and opens “I saw the best minds of my generation destroyed by madness”, written by Allen Ginsberg.

Answer: **“Howl”**

14. This compound combines with chloramine [KLOR-uh-meen] to create hydrazine [“HIGH”-druh-zeen] and hydrochloric acid. Passing sodium chloride through this compound and then carbon dioxide to get sodium bicarbonate is the beginning of the Solvay process, which is sometimes named for this compound and soda. Replacing a hydrogen atom from a molecule of this compound with an organic group gives an amine [uh-MEEN], and this compound is combined with oxygen and then water in the Ostwald process to create nitric acid. Name this compound produced industrially by the Haber process and naturally by nitrogen fixation, a combination of nitrogen and hydrogen.

Answer: **ammonia** [prompt on **NH<sub>3</sub>**; do not accept “ammonium”]

15. This river is fed by the Bill Williams River at the southern end of Lake Havasu. It is fed near its origin by the Gunnison River and is then fed by the Green River soon after flowing past Moab. This river also flows close to the terminus of the Gila River near Yuma. This passes through Glen Canyon, the location of Lake Powell, and through the Black Canyon, which is the location of Hoover Dam and Lake Mead. This river eventually flows into the Gulf of California after entering Mexico. Name this river that goes through the Grand Canyon and goes through Grand Junction in its namesake state.

Answer: **Colorado** River

16. John Hynes served as the acting mayor of this city when its elected mayor James Curley was in prison in 1947, and Hynes then defeated Curley in the next election. This city had large demonstrations in favor of Anthony Burns when he was tried under the Fugitive Slave Act. After the passage of the Stamp Act, the home of Thomas Hutchinson in this city was attacked, and Hutchinson later removed troops from this city after an incident involving five deaths, including Crispus Attucks. Name this home of Paul Revere, where Samuel Adams supported forcefully boarding English ships and destroying their tea.

Answer: **Boston**, Massachusetts

17. A symphony by this man was composed in honor of the 400<sup>th</sup> anniversary of the printing press. This composer of “Lobgesang” composed a work that was inspired after a visit to the Holyrood Palace and another that was influenced by a visit to the Fingal’s Cave. The “Dresden Amen” is included in the third movement of his fifth symphony, which, because it was written in honor of the 300<sup>th</sup> anniversary of the Augsburg Confession, is nicknamed “Reformation”. Like Wagner [VAHG-nur], this composer wrote a commonly used wedding march, which was part of his incidental music to *A Midsummer Night’s Dream*. Name this composer of the *Italian* and *Scottish* Symphonies.

Answer: (Jakob Ludwig) Felix Mendelssohn (Bartholdy)

18. The protagonist of this work is described as “undefeated, inscrutable to the last”, and is laughed at for saying “puppy biscuit”. That protagonist of this story claims to have been able to shoot Gregory Fitzhurst though he is wearing his right hand in a sling. A “pocketa-pocketa-pocketa” noise is made by three machines in this work. This short story’s protagonist appears as a surgeon, a pilot, and a defendant. This story is set in Waterbury, where the protagonist is driving with his wife, and it ends with the protagonist facing a firing squad. Name this James Thurber story about a daydreaming title character.

Answer: “The Secret Life of Walter Mitty”

19. This person made a portrait of Cardinal Montoya, who is believed to have commissioned this artist’s pair of works showing a woman looking skyward and a man with his mouth wide open, works known as *Blessed Soul* and *Damned Soul*. One of this artist’s works showing Pluto seizing a woman is known as *The Rape of Proserpina*. The slingshot is stretched out and about to be used in this person’s portrayal of David. Name this 17<sup>th</sup>-century Italian sculptor who created a work in the Santa Maria della Vittoria showing an angel aiming a golden arrow at the heart of a nun, *The Ecstasy of Saint Teresa*.

Answer: Gian Lorenzo Bernini [or Giovanni Lorenzo Bernini]

20. Alfred Gaselee led the expedition that ended this conflict. In its early days, one side lost control of the Dagu forts and ambushed Edward Seymour’s men, who took refuge in an abandoned fort. Claude MacDonald led one side’s defense of the Tartar Wall during this conflict, in which Clemens von Ketteler was murdered and skinned by a group of Muslims called the Kansu Braves, who also torched the Hanlin Academy. This conflict pitted the Eight-Nation Alliance against forces backed by the Empress Dowager Cixi [TSEE-shee], including the Righteous Harmony Society. Name this 1899 to 1901 revolt that failed to expel foreigners from China.

Answer: Boxer Rebellion [accept answers mentioning the Society of Righteous and Harmonious Fists or Righteous Harmony Society before “Righteous Harmony”; accept Yihetuan or Ihot’uan or I Ho Chuan; accept synonyms for “Rebellion”]

TB. The temperature named for this person is the value at which the van der Waals equation is closest to the ideal gas law. This person discovered his namesake law by pouring different amounts of mercury into U-shaped containers and by using an air pump he developed with Robert Hooke. This person's law gives the relationship between two quantities whose product equals two-thirds of total kinetic energy. His law, which concerns the two values that are modified in the van der Waals equation, can be combined with Charles's law to form the ideal gas law. Name this Irish chemist who stated that pressure and volume vary inversely.

Answer: Robert **Boyle**

TB. Charles Marie-Widor wrote eight symphonies for this instrument, and Francois Poulenc wrote a concerto featuring strings, timpani and this instrument. The baroque composer Dietrich Buxtehude composed several works for this instrument, as did the composer of *Variations and Fugue on a theme of Mozart*, Max Reger. Camille Saint-Saens' [saan sawn] third symphony is named for this instrument. Bach's *Toccat and Fugue in D Minor* is one of the most famous pieces composed for this instrument. Name this instrument that is often played in churches and creates sound using pipes.

Answer: pipe **organ**

TB. Identify the color that is the surname of Jimmy Carter's Secretary of Defense, names the Ivy League university located in Rhode Island, and is the color of UPS delivery trucks.

Answer: **brown**