

# New Trier Scobol Solo 2014

## Championship Phase I



1. Adding one of these groups to homocysteine [HOH-moh-SISS-teen] results in methionine [meh-“THIGH”-uh-nin]. The enzyme MutH [“mute-H”] specifically targets regions without the presence of this modification, and the enzyme Dam performs this modification on GATC sites. The formation of tightly packed and transcriptionally inactive hetero-chromatin is associated with adding two or three of this group to the lysine at the ninth position on histone [“HISS-tone”] H3. Barr bodies have large amounts of this modification. In bacteria, this group prevents restriction enzymes from digesting their hosts’ DNA. Name this modification that attaches a group with formula CH<sub>3</sub>.

Answer: methylation [accept answers mentioning the addition of a methyl group]

2. A painting by one of the founders of this artistic movement shows a woman getting up from the lap of a reclining man at a piano. Elizabeth Siddal was used as a model for several painters in this movement, including one work in which she is on her back singing before she drowns in a river. The ideas of this movement were published in *The Germ*, and the founders were critical of Joshua Reynolds. In addition to *The Awakening Conscience* by William Holman Hunt and *Ophelia* by John Everett Millais, this movement included the writings and paintings of Dante Gabriel Rossetti. Name this 19<sup>th</sup>-century English movement that praised works of the early Renaissance before paintings such as *The School of Athens*.

Answer: Pre-Raphaelite Brotherhood [or Pre-Raphaelites; accept PRB]

3. This Supreme Court justice wrote a unanimous decision that a state court could not issue a writ of *habeas corpus* to annul a conviction by a federal court, *Ableman v. Booth*. When this person was Chief Justice, Joseph Story wrote a unanimous opinion later overturned by *Erie Railroad Co. v. Tompkins* that differentiated between statutory law and common law, *Swift v. Tyson*. This justice also wrote the majority decision in *Luther v. Borden*, a case that arose from the Dorr Rebellion. One of his first major decisions as Chief Justice, which decided in favor of narrow contract interpretation, was *Charles River Bridge v. Warren Bridge*. Name this Chief Justice who wrote the *Dred Scott v. Sandford* decision.

Answer: Roger B(rooke) Taney

4. This person and his second wife wrote a book on child raising that advised “Never hug and kiss them, never let them sit on your lap.” That book was titled *Psychological Care of Infant and Child*. After spending several years experimenting on animals, this person wrote an article saying that he “recognizes no dividing line between man and brute”, and that he and his followers are interested in “the prediction and control of behavior”. This person’s most famous experiment showed that loud sounds could influence reactions to furry objects. Name this early behaviorist who used an 11-month-old boy in his Little Albert experiment.

Answer: John B(roadus) Watson

5. In one movie by this director, a high wire artist known as “The Fool” has a deadly rivalry with a strongman played by Anthony Quinn. In another movie by this director, the main character dreams he is asphyxiated but pulled down from the sky by his associates, and that character later ends up in a spa town with his wife, mistress, and associates from work. In that film, Marcello Mastroianni plays Guido, a director who is supposed to make a science fiction movie but is out of ideas. Later in his career, this director portrayed Fascist Italy in *Amarcord*. Name this director of the movies *La Strada* and *8 1/2*.

Answer: Federico Fellini

6. For a string with constant tension, the speed of a wave varies inversely with the square root of this quantity. Dynamic pressure is calculated by multiplying half of this quantity times speed squared. Pressure plus dynamic pressure plus this quantity times gravitational acceleration times height is constant according to Bernoulli’s principle. This quantity is the reciprocal of specific volume. This quantity is constant for incompressible flows of liquids, and under normal conditions, osmium and iridium have the highest values for this quantity among stable elements. Name this quantity equal to mass divided by volume.

Answer: density [accept linear density before “specific volume”; accept (volumetric) mass density after “specific volume”]

7. This composer’s only piano sonata was a one-movement work influenced by his teacher’s *First Chamber Symphony*. For that teacher’s 50<sup>th</sup> birthday, this composer spelled out the name of that teacher, a colleague, and himself in German in his *Kammerkonzert* [KAHM-mur-“concert”], or *Chamber Concerto for piano and violin with 13 wind instruments*. His teacher directed the *Skandalkonzert* [SKAHN-dall-“concert”], which broke out into fighting during a performance of this composer’s *Five Orchestral Songs on Picture-Postcard Texts by Peter Altenberg*. This composer also wrote the operas *Lulu* and *Wozzeck*. Name this colleague of Anton Webern who was a student of Arnold Schoenberg.

Answer: Alban Berg

8. One character created by this writer, who was described as a feminine Hercules and worked as a servant for a former cooper named Felix, was Nanon [nah-naw]. Felix's daughter eventually marries Cruchot des Bonfons [kroo-shoh day bawn-fawn]. Another character created by this author is Lucien de Rubempré [roo-bem-pray], who kills himself after revealing that Abbé Carlos Herrera is actually Jacques Collin [zhahk koh-laen], a criminal who had previously gone by the name Vautrin [voh-traan]. This author also wrote about Eugène de Rastignac [oo-zhehn d' rah-steen-yak], who is one of a handful of people who shows up at the funeral of Père Goriot ["pair" gor-yoh]. Name this author who wrote about Eugénie Grandet [oo-zeh-nee grahn-day] and many other residents of Paris in *The Human Comedy*.

Answer: Honoré de Balzac

9. This country is the only home of the Johnston's river frog, which lives on the Mulanje Massif. Chisi Island is located in this country's Lake Chilwa. The first president of this country was born near its town of Kasungu and belongs to its most populous ethnic group, the Chewa. This country contains a large man-made forest, Viphya, which is located near the city of Mzuzu. Michiru Mountain is located near this country's city of Blantyre. The southern half of this country is surrounded by Mozambique, and it also borders Tanzania and Zambia. Name this country, formerly known as Nyasaland, that shares its name with its large lake.

Answer: (Republic of) Malawi [or (Dziko la) Malawi]

10. A women's club in Sinclair Lewis's novel *Main Street* takes its name from this poem. This poem's speaker urges the reader to "go forth under the open sky" when the "last bitter hour comes like a blight" over the reader's spirit. The reader is also urged to "be a brother to th' insensible rock." This poem describes hills that are "rock-ribb'd and ancient as the sun" and brooks that "make the meadows green". The readers of this poem are urged to join the "innumerable caravan" and "go not like the quarry slaves at night." This poem is addressed "To him who in the love of Nature holds / Communion with her visible forms." Its title combines the Greek words for "death" and "sight". Name this poem by William Cullen Bryant.

Answer: "Thanatopsis" [thaa-nuh-"TOP"-siss]

11. Clayton Vogel and James E. Jones supported the formation of this group, the idea for which came when Philip Johnston read a newspaper article. This group first served under Major General Alexander Vandegrift during the Guadalcanal campaign, and they played a major role in the Battle of Iwo Jima. This group was not publicly recognized by the U.S. government until 1992, and they were disbanded during the Vietnam War. The original 29 members were tasked with creating a phonetic alphabet. Identify this group of southwestern Native Americans who successfully used their indigenous language to transmit messages, foiling Japanese decryption attempts.

Answer: Navajo code talkers [accept similar answers containing Navajo and the concept of speaking in code; prompt on partial answers]

12. The hormone DHEA usually is connected to this ion, and a test measuring their level together is used to monitor adrenal gland function. Turpentine with this ion is generated by the Kraft process, which is sometimes named for this ion. This ion combines with magnesium to form Epsom salt, or with calcium to form gypsum. This ion combines with barium to form barite, and that same combination is used as an X-ray contrast agent. The most common iron supplements combine iron with this ion. Acids with this ion have become a problem in many lakes due to acid rain. Name this ion that combines with hydrogen to form sulfuric acid.

Answer: sulfate ion [accept  $\text{SO}_4^{2-}$  or  $\text{SO}_4^{-2}$ ; do not accept “sulfur” or “sulfite”]

13. This author wrote about a family that moved from Barrier Street in the Ramsey Hill neighborhood of St. Paul to Washington, D.C. That work by this author is about a woman who marries an environmentalist who works for the coal mining industry. This author also wrote about a ping-pong table that had a television on it that is covered by issues of *Good Housekeeping*. That novel is set in St. Jude, where a retired railroad engineer suffers from Parkinson’s disease. Much of that work takes place at Christmas when the Lambert family gets back together. Name this author of *Freedom* who in 2001 finished *The Corrections*.

Answer: Jonathan Franzen

14. This eponymous process can be represented by the Chapman–Kolmogorov equation. Bayesian probabilities are used with these processes to get a result similar to the Viterbi algorithm, which is a max-sum algorithm. These eponymous processes, comparable to having no memory, are used by the Google PageRank algorithm. These processes use arrangements of nonnegative numbers whose columns add to one, called transition matrices. These processes are used to solve problems in which probability plays a role in moving from one state to the next, which are called stochastic processes. Name these processes that are also called chains.

Answer: Markov processes [or Markov chains; prompt on stochastic processes]

15. The independence of this country and the withdrawal of foreign troops in a civil war north of this country were agreed to at the New York Accords, also known as the Tripartite Accord, in 1988. Efforts by the Herero people to end colonization in what is now this country were brutally put down by Germany. Its first president, who worked with Andimba Toivo ya Toivo to form the Ovamboland People’s Organization and the SWAPO Party, was Sam Nujoma. There is currently a secession movement in the part of this country located between Zambia and Botswana. Name this modern-day country that was controlled by South Africa after it was called German South-West Africa.

Answer: (Republic of) Namibia

16. This character states “Ships are but boards, sailors but men”, and he later justifies his actions by stating “The villany you teach me, I will execute.” This character’s late wife Leah gave him a turquoise ring that is stolen by his daughter and traded for a monkey, according to a report from Tubal. That daughter of this character, Jessica, eloped with Lorenzo, who is a friend of Bassanio. Portia rules that he is not allowed to remove any of Antonio’s blood, foiling his belief that he is owed a pound of flesh. Name this moneylender from *A Merchant of Venice* who asks “Hath not a Jew eyes?”.

Answer: Shylock

17. An attempt to burn this building down was made by Denis Michael Rohan, an Australian, in 1969. After World War I, Mimar Kemaleddin supervised the restoration of this building, for which the Second Intifada is sometimes named. When the history of this building was misunderstood, it was the headquarters of the Knights Templar. This building is claimed to be the destination of the Night Journey of Muhammad, and it is the place from which Muhammad ascended to heaven. Name this third holiest site in Islam, located next to the Dome of the Rock on the Temple Mount in Jerusalem.

Answer: al-Aqsa Mosque [or Bayt al-Muqaddas]

18. One ruler in this royal house teamed with the English for the Siege of Lingem [LEEN-gun] during his Ten Glory Years. Another ruler in this royal house, who died crossing Moerdyk in a ferry boat, was John William Friso. A queen of this house used a radio station named for it to broadcast encouragement to her country’s resistance during World War II from London. In addition to being the line of Maurice and Wilhelmina, this is the house of the newly installed King Willem-Alexander. A member of this house became the King of England after the Glorious Revolution. Name this royal house that has led the Netherlands.

Answer: House of Orange-Nassau [accept either underlined name]

19. Bredt’s rule concerns the placement of double bonds in structures with a certain arrangement of these entities. Molecules containing these entities can display pi-stacking. Degrees of unsaturation can be used to determine the number of double bonds, triple bonds, and number of these structures in a molecule. Aromatic compounds are defined by being planar, having a delocalized pi system, satisfying the  $4n + 2$  rule, and containing one of these structures. These structures prefer to consist of five or six atoms to minimize a namesake strain. Name these structures found in benzene, which when found in aliphatic compounds cause their names to be prefixed with “cyclo-”.

Answer: rings [accept cyclic molecules or cycles or similar answers containing an underlined term]

20. This politician's top aide, Larry Schwartz, has been accused of stopping a subpoena against a media company that this person hired, Buying Time. That subpoena was issued by a commission started by this person and his state's attorney general Eric Schneiderman, called the Moreland Commission. This person is expected to beat Rob Astorino in an upcoming election after he defeated Zephyr Teachout in the Democratic primary. This Democrat has worked with Chris Christie to oversee their state's combined Port Authority. Name this politician who at the beginning of 2011 replaced David Paterson as the Governor of New York.

Answer: Andrew Cuomo