

# NEW TRIER SCOBOL SOLO 2011

## ROUND 5

Questions written and edited by David Reinstein

with assistance from Matt Bardoe, Tom Egan, Brad Fischer, Mark Grant, Jonah Greenthal,  
Mike Laudermith, and Sharon Lorinskas



1. This major battle might have ended very differently if the General who was shown Special Order 191 did not suspect a trap. That general would have been successful anyways had not a Light Division under the command of A.P. Hill not arrived quickly after abandoning their job of processing prisoners at Harpers Ferry. This battle began with fighting at the Miller Cornfield, and for several hours the defenders held Rohrbach's Bridge, which is now known as Burnside's Bridge. Soon after this battle, McClellan was replaced by Burnside, Lincoln issued the Emancipation Proclamation, and Lee withdrew back to Virginia. Name this deadly 1862 Maryland battle.

ANSWER: Battle of Antietam [or Battle of Sharpsburg]

2. When writing about this topic, Joseph Schumpeter supported the work of Nikolai Kondratiev but disagreed with Simon Kuznets. These have been blamed on the Accelerator Principle, a form of positive feedback. Saltwater economists like the Keynesians advocate government action to counteract them, while freshwater economists claim they are a series of short-term phenomena that can be exacerbated by government action. Some economists claim that these are timed politically with troughs following elections and peaks leading into elections. These deviations from long-term growth alternate between expansions and contractions. Name this phenomenon that consists of booms and busts.

ANSWER: business cycles [accept economic cycles; prompt on boom and bust]

3. This author wrote one story about Pietro Missirilli, who is disguised as Clementina and held captive by the father of Vanina Vanini. A novel by this author begins in Milan in 1796; in that work Aunt Gina and Count Mosca try to free the main character from the Farnese (fahr-NAY-say) Tower. In another novel by this author, the protagonist is given a lock of hair when he leaves town. The maid Elisa tries to marry that protagonist and later tries to expose him to Valenod when he has an affair with Madame de Rênal. Name this author who wrote about Fabrice del Dongo in *The Charterhouse of Parma* and Julien Sorel in *The Red and the Black*.

ANSWER: Stendhal [or Henri Beyle]

4. This mathematician names the theorem that Noetherian [nur-THAIR-ee-un] rings have Noetherian polynomial rings, and provided the first solution to Waring's problem. With Richard Courant, he wrote the textbook *Methods of Mathematical Physics*, and on his own, wrote *Foundations of Geometry*. Like Peano, this mathematician names a square plane-filling curve, and he used an analogy to explain infinite cardinal numbers with his paradox of the Grand Hotel. His namesake spaces, generalized by Hadamard spaces, are complete inner product spaces. Name this mathematician who challenged the 1900 International Congress of Mathematicians with a list of 23 unsolved problems.

ANSWER: David Hilbert

5. The KAAP version of this reaction uses a ruthenium catalyst to allow for lower pressure, and Gerhard Ertl received the 2007 Nobel Prize in part for determining its molecular mechanism. An early stage of this reaction needs a methanator to prevent the build up of carbon monoxide, and its namesake first investigated this process because of the scarcity of Chilean saltpeter. This generally requires an iron catalyst and pressures above 200 atmospheres. Syngas provides one of the reactants for this process, which in turn provides the synthetic fertilizer that grows food for about half of the world's population. Name this chemical process in which nitrogen and hydrogen gases are combined to make ammonia.

ANSWER: Haber-Bosch process

6. People who held this position for less than a year were called *suffects*, and there were 25 such people in the year 190 CE under Commodus and Cleander. People had to be at least forty-two years old to be eligible for this position, and some military tribunes were given the power of this office during the Conflict of the Orders. Eventually, the praetors assumed the judicial powers of the holders of this office, which was first assumed by Lucius Junius Brutus and Lucius Tarquinius Collatinus in 509 BCE. Only holders of this office could propose laws, and each of these was given command over an army, though their powers decreased with the rise of Augustus. Name this office which was held by two people each year during the Roman Republic.

ANSWER: consuls

7. This person worked with David Himmelstein on a study which claimed that half of personal bankruptcies follow medical problems. This former chair of the Congressional Oversight Panel that investigated the Troubled Asset Relief Program was passed over in favor of Richard Cordray to head the new Consumer Financial Protection Bureau, which she worked to implement. She recently gained press attention for stating, "There is nobody in this country who got rich on his own." Name this Harvard Law professor now campaigning to replace Scott Brown as US Senator from Massachusetts.

ANSWER: Elizabeth Warren

8. Edgar Lee Masters wrote a poem named for this writer, one of whose own works is narrated by somebody without fame, power, love, or leisure and is entitled "Stanzas Written in Dejection Near Naples". This poet also wrote about "The awful shadow of some unseen Power" in "Hymn to Intellectual Beauty" and about "the trumpet of a prophecy" in another poem. This poet also wrote "To Wordsworth" and an elegy on the death of John Keats titled "Adonais". This poet of "Ode to the West Wind" claimed in one work that he "met a traveller from an antique land" who saw "two vast and trunkless legs of stone" in the desert. Name this English Romantic poet of "Ozymandias".

ANSWER: Percy Bysshe Shelley

9. This organ is the major site of epidermal growth factor production, and its enlargement is diagnostic for Sjogren's syndrome. A specialized type of this organ named for von Ebner assists in the hydrolysis of lipids, and though it is not the kidney, the Wharton's and Stenson's ducts leading from it can become blocked with stones. Theophilus Painter was the first to note the ease of extracting chromosomes from the large cells of this gland in the fruit fly, and swelling of these glands is the classic symptom of mumps. Including the parotid, submandibular, and sublingual, name these glands that secrete a mixture of water, mucus, and amylase (AAM-ih-"lace") enzyme into the mouth to begin digestion.

ANSWER: salivary glands

10. One of the last works by this architect was an Esso gas station and three apartment buildings on Nuns' Island, which is part of Montreal; those were completed at about the same time as his Neue Nationalgalerie in Berlin. He sparked architectural debates with his designs for a Friedrichstrasse Skyscraper and a Glass Skyscraper. His tallest work is the Toronto-Dominion Centre, and his tallest building in the United States was known as the IBM Building and is located in downtown Chicago. This architect worked with Philip Johnson to design the Seagram Building in Manhattan. Name this International Style architect associated with the sayings "God is in the details" and "Less is more".

ANSWER: Ludwig Mies (MEES) van der Rohe [prompt on van der Rohe]

11. Inspired by Walter Scott, this composer wrote *Intrata di Rob Roy Macgregor* and a grand overture titled *Waverley*. Nicoló Paganini refused to play at the premier of this composer's second symphony, even though it included a Viola Obbligato written so Paganini could use his new viola. A cantata by this composer, which begins Allegro vivace (vi-VAH-chay) con impeto, is *The Death of Cleopatra*. Another work by this composer was accompanied with program notes that describe a person haunted by the image of a beautiful woman and dreaming about his own execution. That work ends with the section "Dreams of a Witches' Sabbath". Name this French Romantic composer of *Harold en Italie* and *Symphonie fantastique*.

ANSWER: Hector Berlioz

12. Along with wind, rain, obscurity, and brightness, this concept rounds out the heavenly influences which form the life force. Faith in this concept often was associated with faith in the Five Phases, and it was often used by the Fangshi in numerology and a form of astrology. The first written record of this concept refers to looking for it while looking at a hill, and it was used in many place names to signify which side of a hill they were on. This concept distinguishes between lines with and without gaps in the *I Ching*. Name this Taoist concept symbolized by the Taijitu, which includes an S-curve in a circle separating black and white sections.

ANSWER: yin and yang [accept Taiji before "Taijitu" and prompt thereon afterwards; prompt on Wuji]

13. This President unsuccessfully tried to pass the Lodge Bill, which would have made it easier for minorities to vote. His Secretary of State hosted the First International Conference of American States but was unable to be selected as its leader. Though this President's election was seen as a mandate for higher tariffs, he pushed for the inclusion of reciprocity provisions in the McKinley Tariff, which he eventually signed. This President also signed the first US bill limiting monopolies, the Sherman Antitrust Act. Name this President who brought back Secretary of State Blaine, served between the terms of Grover Cleveland, and was the grandson of another President.

ANSWER: Benjamin Harrison [prompt on Harrison]

14. One novel by this author ends with people in a car that looks like it was made in a junkyard yelling at a Senator, while another novel by this author ends with the narrator asking if, on the lower frequencies, he speaks for you. The Senator, who was raised with the name Bliss by Reverend Hickman, is known as Adam Sunraider. The narrator of this author's other novel gets in trouble for going to the Golden Day with Mr. Norton, a major supporter of his college. This follows a Battle Royal of African American teens fighting to entertain wealthy white men. Name this author of *Juneteenth* and *Invisible Man*.

ANSWER: Ralph Ellison

15. If the central structure of this problem is Euclidean, then the Christofides algorithm can be applied to it. The Lin-Kernighan heuristic is used on this problem, and solutions can be improved using the 3-opt or 2-opt algorithms, a refinement of which is simulated annealing. In general, one method to find good, if not optimal, solutions is based on insects depositing pheromones as they walk; in addition to the ant colony optimization, one can start with a random cycle and trade adjacent pairs. Name this NP-hard problem of finding a minimum-total-weight Hamiltonian cycle on a weighted graph, analogized to a certain type of person visiting many cities while going the least distance.

ANSWER: traveling salesman problem [accept shortest tour problem]

16. Two early works by this painter show three men at a square table with a white tablecloth; those works are *The Lunch* and *The Farmers' Lunch*. One work by this artist got a nickname from the lances in its upper right quadrant and depicts Justin Nassau giving a key to Ambrosio Spinola. Another work by this artist was given a nickname due to the house in Yorkshire where it was displayed and shows Cupid holding up a mirror for Venus. Another work by this artist shows him working behind the entourage of five-year-old Infanta Margarita in the palace of Philip the Fourth. Name this artist of *The Surrender of Breda* and *Las Meninas*.

ANSWER: Diego Velázquez

**17.** This character has a dream in which a man descends from a great black cloud and threatens him with a spear for not repenting. That dream reminds him of a recent earthquake and comes just after he discovers a barrel of gunpowder. This character has a brother who died fighting the Spanish and lets a widow hold on to his two hundred pounds. He eventually travels to Lisbon and learns that his land in Brazil has brought in a lot of money. He got that land after selling the slave Xury to a Portuguese Captain. This character is thought to be based on the real-life Alexander Selkirk, and he converts a cannibal to Protestantism after saving his life. Name this companion of Friday created by Daniel Defoe who lived for twenty-eight years on a remote island.

ANSWER: Robinson Crusoe [accept either or both names]

**18.** This is the path of the centers of circles in a Pappus Chain, and when different magnitudes are used this is the simplest Lissajous (LEE-suh-zhoo) Curve. This shape can be graphed parametrically by using different amplitudes for each variable, with one of them graphing the sine of the parameter and the other one graphing the cosine. This is defined as the locus of all points whose distance to a fixed point divided by distance to a fixed line is less than one or as the locus of all points whose distances to two fixed points sum to a constant. Name this conic section equivalent to a circle stretched along one axis.

ANSWER: ellipses

**19.** Before the one suggested by Teddy Roosevelt, this leader proposed a conference at The Hague which supposedly outlawed air bombing and chemical weaponry. Before assuming power, this person went on a trip around Eurasia called the Eastern Journey; he was almost assassinated on that trip near Kyoto. While he was in power, his Minister of the Interior Vyacheslav von Plehve was assassinated and there was an uprising on the Battleship Potemkin. This leader's only son suffered from hemophilia, which may have led his wife Alix of Hesse to become dependent on her advisor Rasputin. Name this father of Anastasia and son of Tsar Alexander the Third who was killed in 1918.

ANSWER: Tsar Nicholas II Alexandrovich Romanov [accept Nikolai II; prompt on a partial answer]

**20.** Potassium-argon dating uses the emission of this particle, which is often created when an up quark bonded with an up and down quark decays into a down quark. A neutrino and this particle are formed when deuterium is created by the proton-proton chain, and this particle was first invented to account for the negative energy states predicted by the Dirac equation. This particle was discovered by putting a lead plate in a cloud chamber while cosmic rays passed through; that experiment involved converting protons into neutrons and was carried out in 1932 by Carl Anderson. Used to generate gamma rays in a PET scan, name this subatomic particle with a plus-one charge, the antiparticle of the electron.

ANSWER: positron [accept antielectron before "electron"]

**TB1.** In a short story by this writer, a woman repeatedly says the word 'Free' after hearing that her husband, Brently Mallard, has died in a railroad disaster. Another story by this writer ends with Armand reading a letter written by his mother and begins with Madame Valmondé remembering when her husband found a baby. In a novel by this author, Mademoiselle Reisz and Adèle Ratignolle give advice to a woman who has an affair with Alcée Arobin. Name this author of "The Story of an Hour", "Desiree's Baby", and her novel about Edna Pontellier, *The Awakening*.

ANSWER: Kate Chopin

**TB2.** In two dimensions, this quantity can be given by the Jordan measure or the Lebesgue (luh-bay) measure, and for three dimensional figures expressed parametrically, this quantity can be calculated using the magnitude of the cross product of the two partial derivatives. Given a set of ordered pairs, this quantity can be calculated using the shoelace formula, and this quantity "under a curve" is found by integration. Name this quantity that for a trapezoid equals its median times its height, and for a circle equals pi times the radius squared.

ANSWER: area

**TB3.** Which animal...is “of Tuonela” in a Finnish tone poem by Jean Sibelius; is the true identity of the Ugly Duckling in a fairy tale by Hans Christian Andersen; and is played by dancers in white and black costumes in a Tchaikovsky ballet set on its Lake?

ANSWER: swan