

NEW TRIER SCOBOL SOLO 2012

ROUND 7

Questions written and edited by David Reinstein

with Sam Donow, Tom Egan, Mark Grant, Jonah Greenthal, Tanay Kothari, and Mike Laudermith



1. This person's portrait was often painted by his neighbors Lucas Cranach the Elder and the Younger, and he married his wife after helping her escape from a nunnery in a barrel. When he thought his words were being taken too far he wrote *Against the Murderous, Thieving Hordes of Peasants*, and Frederick the Wise once staged a faked kidnapping of him to protect him from Pope Leo X [10]. Upset at the work of Johann Tetzel, he wrote a letter to Albert of Mainz which eventually led to him being brought before Emperor Charles V [5] at the Diet of Worms [VURMZ]. Name this reformer who translated the Bible into German and played a major role in starting the Protestant Reformation by writing his 95 *Theses*.

ANSWER: Martin Luther

2. This character is described by "It was as if a surplus of something so overflowed her being that it expressed itself beyond her will, now in the brightness of her glance, now in her smile." A change in her character is exemplified by her becoming closer to Betsy than her old friend Lydia. Her husband becomes suspicious of her at a horserace, where her lover makes a mistake that injures his horse. After her brother Stiva has an affair, she helps him repair his marriage with Dolly. Name this lover of Alexei Vronsky who kills herself by jumping in front of a train, a title character created by Leo Tolstoy.

ANSWER: Anna Karenina [accept either]

3. This person developed a theorem, now named for him and Hendrika Johanna van Leeuwen, stating that magnetism cannot be explained by classical and statistical physics. He is also the namesake of a constant equal to the magnitude of an electron's spin magnetic moment. Early quantum mechanics used models named for Arnold Sommerfeld and this person, based on the idea that electrons have circular orbitals. Werner Heisenberg and this person were associated with the idea that objects governed by quantum mechanics create experimental results dependent on measurement, which was known as complementarity and became known as the Copenhagen interpretation. Name this scientist known for his early quantum model of a hydrogen atom.

ANSWER: Niels (Henrik David) Bohr

4. Martial law was declared in this polity following the Twelve Three incident in 1967, which led to equal treatment of people of different nationalities. In 1849, its leader, Ferreira do Amaral, was assassinated after charging taxes and refusing to pay tributes to its large neighbor. This was soon followed by Vicente Mesquita successfully attacking Baishaling, and its status was often debated after a vague treaty was signed in 1887. Europeans first built this region up in 1542 after the Ningbo Massacre, and it became an important trading center next to a similar region administered by Britain. In 1987, an agreement was reached to transfer its sovereignty in 1999 to China from Portugal. Name this Special Administrative Region located across the Pearl River delta from Hong Kong.

ANSWER: Macau [or Macao]

5. One work by this artist has a violin and lute lying trampled on the floor along with armor and a compass under a pre-teen Cupid. His first work to show more than one person shows a boy having his ring removed by a gypsy palm reader. This artist of *Amor Vincit Omnia* [ah-MOR VIN-chit AHM-nee-ah] and *The Fortune Teller* showed a boy being cheated in a game of cards in *The Cardsharps*. He depicted Judith in the act of beheading Holofernes, and he painted multiple versions of *The Conversion of St. Paul* and *The Calling of St. Matthew*. Name this Italian artist of *Supper at Emmaus* known for his dramatic use of tenebrism.

ANSWER: Michelangelo Merisi da Caravaggio [accept either underlined name; do not prompt on “Michelangelo”]

6. In one work by this writer, Serafina learns she is pregnant from a supernatural sign on her body. In another work, Nonno is supposedly the world’s oldest poet; his granddaughter Hannah Jelkes goes on a tour led by defrocked priest T. Lawrence Shannon in Mexico. One of his other plays refers to a football player named Skipper who committed suicide after almost cheating on his best friend Brick. That work features a woman nicknamed Maggie and her father-in-law Big Daddy Pollitt. Another play about Stella, her husband Stanley Kowalski, and her sister Blanche Dubois is set in New Orleans. Name this playwright of *The Rose Tattoo*, *The Night of the Iguana*, *Cat on a Hot Tin Roof*, and *A Streetcar Named Desire*.

ANSWER: (Thomas Lanier) “Tennessee” Williams

7. The liberation of Lisbon as part of the Reconquista [ray-kohn-KEE-stah] was a part of this larger conflict, which was preceded by a war fought by southern Germans against Polabian Slavs. Its only major event was the Siege of Damascus, an utter failure that increased mistrust between Western Europe and the Eastern Roman Empire. This conflict began after the fall of the Principality of Edessa, and was prompted by the *Quantum praedecessores*, a bull issued by Eugene III. Identify this failed European encroachment in the Holy Land that began in 1145, about fifty years after a related effort launched by Pope Urban II.

Answer: Second Crusade [prompt on Crusades before “Damascus”]

8. The impact of this relationship on population density can be represented by adding positive terms to both parts of the Lotka–Volterra equations. Exemplified by Müllerian but not Batesian mimicry, it can also be observed when ants live inside a bull-horn acacia. This is also found in the Paris and Arum types of arbuscular mycorrhizal [MY-kor-HEE-zul] fungi, which increases both nutrient uptake and hexose digestion. Another example is rumen bacteria in the intestinal tracts of cows which aid in digestion and intake some digestive products. Name this type of symbiosis in which two species both benefit.

ANSWER: mutualism [accept word forms; prompt on symbiosis or word forms thereof]

9. A ballet based on this literary work includes the song “Dance of the Knights” that was used by the composer in a symphony and his *Ten Pieces for Piano*. This also inspired an oratorio sometimes classified as a *symphonie dramatique* [“symphony” drah-mah-teek] with a libretto by Émile Deschamps [ay-meel day-shahm] that is considered an inspiration for Richard Wagner’s [REEK-hart VAHG-nur’z] *Tristan und Isolde*. It also inspired an “Overture-Fantasy” directly influenced by Balakirev with a famous love theme. The ballet, which later had its choreography updated by John Cranko, was composed by Sergei Prokofiev. The oratorio, which contains a Queen Mab Scherzo, was composed by Hector Berlioz. Name this literary work which inspired Tchaikovsky to write a piece whose opening refers to Friar Laurence.

ANSWER: Romeo and Juliet [or Roméo et Juliette]

10. This synonym of stochastic describes the type of numbers that seem to be the output of the Mersenne twister. Though that algorithm does not produce an output useful in cryptography, the output of Blum Blum Shub does. Those algorithms output the “pseudo” type of these numbers, meaning that they are actually deterministic despite appearing otherwise. Walks of this type are used to simulate certain situations, including Brownian motion. Name these numbers used in Monte Carlo simulations, sequences of which can be generated by spinners or dice.

ANSWER: (pseudo)random numbers [prompt on non-deterministic]

11. This poet wrote about soldiers who “Unbelieving came home, home to a lie”. In the same work, he started with an autobiographical section that claimed “He strove to resuscitate the dead art of poetry”. In addition to that work, “Hugh Selwyn Mauberley”, he updated the Anglo Saxon poem “The Seafarer” for his *Ripostes*. He worked for much of his life on a group of 120 poems but was declared incurably insane after writing 109 of them. A group of those works written after World War II, when he was under American arrest for treason, are classified as the Pisan ones. This Imagist poet helped T.S. Eliot edit and publish his works. Name this poet of *The Cantos*.

ANSWER: Ezra (Weston Loomis) Pound

12. Irving Fisher paid money to circulate a petition against this bill, and critics associated it with Senator Grundy. Robert LaFollette called it “The product of a series of deals, conceived in secret but executed in public”, and it led to both the Senate Finance Chair and the House Ways and Means Chair being ousted in the next election. This follow-up to Fordney–McCumber lowered some industrial rates but unnecessarily increased agricultural rates, and was replaced by the Reciprocal Trade Agreements Act. It has been blamed for worsening the Great Depression and was passed after the stock market crash. Name this high 1930 tariff signed by President Hoover.

ANSWER: Smoot-Hawley Tariff Act [or Hawley-Smoot Tariff Act; accept Tariff Act of 1930 before “1930”]

13. A building in this city that used to be known as Black House became used for minting coins and now houses a museum of cultures. A castle here which used to house royalty and presidents became a history museum in 1940. Ove Arup, Frank Gehry, and Fernando Romero recently designed an art museum named after its patron’s wife, Soumaya. A column surrounded by bronze statues is topped by a bronze Nike holding a laurel and a broken chain in this city; that memorial was built in 1910 to commemorate the centennial of a war for independence, and is titled *The Angel of Independence*. This city is built on the site that was once the capital of the Nahua people and then, until it was destroyed by a Spanish invasion, the capital of the Aztec Empire. Name this North American capital city.

ANSWER: Mexico City [or Ciudad de Mexico; prompt on Tenochtitlan]

14. Recent findings that young versions of these have glitches has led to hypotheses that they have surface quakes or that their superfluid interior interacts with their crust. A plerion is a nebula that gains energy from the wind of these objects, and the best known plerion is the Crab Nebula. Many of the ones that have been discovered recently emit only gamma rays, and a small number of known examples emit only X-rays. First explained by Thomas Gold and Franco Pacini in 1968, these were discovered a year earlier by Jocelyn Bell Burnell and Antony Hewish. They are remnants of supernovas and explained by the conservation of angular momentum. Name these neutron stars that emit radiation that is detected in short periods due to their rotation.

ANSWER: pulsars [prompt on neutron stars]

15. At the end of an all-day meeting in Dresden, this person was threatened with the words “We shall meet in Vienna”. He was given positions that had been vacant since the death of Prince Kaunitz, and he negotiated with England to allow an attack against Ferdinand of Naples at the Congress of Laibach. A system named the Concert of Europe is sometimes named for him after he worked with Tsar Alexander I and Lord Castlereagh to establish a balance of power that was threatened by the Revolutions of 1848. Name this statesman who led the Austrian delegation at the Congress of Vienna.

ANSWER: Klemens (Wenzel Fürst) von Metternich

16. Niven’s theorem limits the cases for which the input and output of this function are both rational. The graph of this function of r in polar coordinates is centered at the Cartesian point zero comma one-half, and is a circle with its lowest point at the origin. This function also gives the imaginary component of a complex exponential function. The law named for this function is helpful to find an unknown side length of a triangle given one side length and the angles opposite those two sides. It is equal to plus or minus the square root of the quantity one minus cosine squared of x , and it gives the y -coordinate of points on the unit circle. Name this function that in right triangles is expressed as “opposite over hypotenuse”.

ANSWER: sine function [accept sine (of) x, where “ x ” is any Greek, Roman, or other letter]

17. This artist used a cascading set of spirals to represent a patron in his depiction of *Mademoiselle Pogany*. One work by this artist features seventeen rhomboidal shapes stacked upon one another and is part of a war memorial he built in his hometown of Târgu Jiu [TIR-goo ZHEEW]. At that same site, this sculptor created twelve stone chairs around the titular *Table of Silence*. This sculptor’s most famous works, created from bronze or marble, emphasized the elongated forms of the title creatures, which were depicted without wings or feathers. Name this Romanian sculptor of *The Kiss* and the *Bird in Space* series.

ANSWER: Constantin Brâncuși [bran-KOOSH]

18. The isolation of this element was cheapened significantly by Henri Deville, who used sodium instead of the potassium that had been used by Friedrich Wöhler [VOH-lur]. In addition to stainless steel and alloys of copper, alloys of this element are susceptible to stress corrosion cracking but not hydrogen embrittlement. An oxide of this element is used in the Verneuil [vair-nool] process to create several gemstones, turning corundum into ruby or sapphire. It is commonly separated using electrolysis from the sodium and fluorine in cryolite with the Hall–Héroult [air-ohl] process, and the Bayer process is used to get an oxide of this metal from bauxite. Name this silvery white metal often used in soft drink cans.

ANSWER: aluminum

19. This novel asks “But what after all is one night?” and in it the wind asks “Will you fade? Will you perish?”. Augustus Carmichael stays up late at night reading Virgil during its short middle section. One of the protagonists in this work helps Charles Tansley learn philosophy and eventually takes a boat ride with two of his children, James and Cam, guided by Macalister. The first two sections of this novel are “The Window” and “Time Passes”, and much of it takes place on the Isle of Skye. In it, Lily Briscoe paints a picture of Mr. and Mrs. Ramsay. Name this stream-of-consciousness work by Virginia Woolf.

ANSWER: To the Lighthouse

20. This writer's first philosophical work was based on Plutarch's [PLOO-tark's] conversation between Pyrrhus and Cineas over the justification of action. That work was followed by a work in support of existentialism and influenced by experiences opposing Nazis, *The Ethics of Ambiguity*. This thinker's best known work downplays the importance of economic independence and voting rights in favor of ending the myth of "the other" so that everyone can be both a subject and object. That 1949 work states "One is not born but becomes a woman." Name this writer, buried next to Jean-Paul Sartre, who wrote *The Second Sex*.

ANSWER: Simone **de Beauvoir** [prompt on **Beauvoir**]

TB1. Chemicals with this molecular geometry can undergo nitrogen inversion and include phosgene and formaldehyde. This shape exists in molecules in which carbon has a double bond and single bonds, and in most molecules with sp^2 ["S P two"] hybridization. It is similar to bent geometry but includes no lone pairs. This is the shape of ions such as nitrate in addition to the molecules boron hydride and sulfur trioxide. Name this shape associated with molecules that have more than two atoms around the center and that are positioned in two dimensions.

ANSWER: **trigonal planar** [prompt on **planar**]

TB2. A triarchic theory of this concept has been proposed by Robert Sternberg, and recent theories such as those by Cattell, Horn, and Carroll have differentiated between fluid and crystallized types. A 1969 article by Arthur Jensen claimed that this value is difficult to change and cited research done by Cyril Burt on twins. One measure of this developed by Charles Spearman is the g factor, and Louis Leon Thurstone and Howard Gardner developed independent theories of multiple types of this concept. Alfred Binet [bih-nay] was one of the first people to try to measure it, and it commonly is placed on a scale such that 100 is an average score. Name this quality defined as the ability to learn, reason, and apply knowledge to novel situations.

ANSWER: **intelligence** [accept **intelligence quotient** or **IQ**; accept **cognitive ability**]

TB3. This is the birth month of Jerry Seinfeld, Thomas Jefferson, and Adolph Hitler. Name this month featuring Patriot's Day and Tax Day that follows March.

ANSWER: **April**