

NEW TRIER SCOBOL SOLO 2010

ROUND 6

Questions written and edited by David Reinstein

with assistance from Matt Bardoe, Mark Grant, Jonah Greenthal, and Mike Laudermith



1. Born in Tuckahoe in Talbot County, Maryland and later moving to New York City, New Bedford, and Rochester, this person's fame was encouraged by William Coffin. When the Seneca Falls Convention was hung up on a resolution promoting suffrage, this orator convinced them to pass it. This person's most famous enterprise used the slogan "Right is of no Sex — Truth is of no Color — God is the Father of us all, and we are all brethren." This person's fame increased from an 1845 autobiography, and he eventually pushed for the Fifteenth Amendment and oversaw the end of the Freedman's Savings Bank. Name this abolitionist who escaped from slavery and published *The North Star*.

ANSWER: Frederick Douglass [or Frederick Augustus Washington Bailey]

2. This state is near the hydrothermal vent chimney nicknamed Godzilla. It also contains Blue Basin, which is part of the John Day Fossil Beds National Monument. This state also contains Broken Top, which is near the Three Sisters and contains Bend Glacier. Many of its cities, such as Lake Oswego and Corvallis, lie along the Willamette River. This state also contains Sacajawea Peak and Mount Hood. Name this home of Crater Lake National Park whose capital is Salem, located north of California.

ANSWER: Oregon

3. One work by this writer contains the line, "I have read enough about this literature to disapprove of it," spoken by Pastor Manders. In that work, the carpenter Jakob turns out not to be the father of the maid Regina, who falls in love with Oswald. In another work by this writer, a young historian who was raised by two of his aunts after his parents died marries a general's daughter who tells Judge Brack that her husband should enter politics. In another work by this writer, Dr. Rank and Kristine Linde pay a visit to the Helmers shortly before Krogstad blackmails Nora. Identify this creator of *Ghosts*, *Hedda Gabler*, and *A Doll's House* who was a Norwegian playwright.

ANSWER: Henrik Johan Ibsen

4. Numbers from this set are multiplied to generate Beatty sequences, and Apéry's theorem states that the sum as n goes from one to infinity of one over n cubed is one of these numbers. The reals can be constructed by exploiting the fact that this set's complement lacks the least upper bound property; that procedure is known as creating Dedekind (DEH-duh-kend) cuts. A classic proof for the existence of this set constructs an example by considering the equation x squared equals two y squared, deriving a contradiction because y must be both odd and even. Examples of these kinds of numbers include e , the square root of two, and pi. Give the name of this set of numbers that cannot be written as a simple fraction of two integers.

ANSWER: irrational numbers [accept **I**]

5. This poet suggested that Spain had been murdered in his work "Curse", which appears in the collection *Spain in Our Hearts*. In another poem, he says that he will live on through a woman's marvelousness, though to survive he forged her "like a weapon". He later wrote of the same woman, "I no longer love her, that's certain, but maybe I love her," in the poem "Tonight I can write the saddest lines". This poet wrote odes to many objects, including an artichoke, salt, and his socks. One work, which ends, "Speak through my words and my blood," is "The Heights of Macchu Picchu", found in the collection *Canto General* (KAHN-toh heh-neh-RAHL). Identify this Chilean poet who wrote *Twenty love poems and a song of despair*.

ANSWER: Pablo **Neruda**

6. This monarch had a close friendship with Sarah Churchill which ended when Churchill became jealous of Abigail Masham and, with the Scottish Militia Bill, this leader became the last British monarch to use a veto. Because of the first Acts of Union, this leader was the first monarch to head the Kingdom of Great Britain. This leader was succeeded by George the First because none of her children lived to adulthood, in part because she suffered through many miscarriages, which transferred the monarchy to the House of Hanover from the House of Stuart. Name this queen who ruled during the War of Spanish Succession, the successor of William and Mary.

ANSWER: **Anne**

7. A string quintet by this composer is nicknamed *Prater*, and he also wrote twenty-five variations with a concluding fugue based on Handel's *Harpichord Suite Number One*. This composer wrote two overtures during the summer of 1880. In one of them, the second theme is started by an oboe and taken over by trombones--that is the *Tragic Overture*. The other one, which is much more upbeat, was written because of an honorary doctorate given by the University of Breslau. This composer used a Lutheran Bible as the basis for his most extensive work. Name this nineteenth century composer of *Academic Festival Overture*, *A German Requiem*, and a well-known lullaby.

ANSWER: Johannes **Brahms**

8. This quantity in two materials can be compared using the Becke line test. This quantity can take on three different values in biaxial materials, and it is related to wavelength in Cauchy's (koh-SHEEZ) equation. This quantity is almost constant in fused silica, and equals the cosecant of the critical angle of a material. This measure varies inversely with both the speed and the wavelength of light within a medium, with its lowest possible value, one, used for vacuums. Name this quantity used in Snell's Law, the ratio of the speed of light in a particular medium to the speed of light in a vacuum.

ANSWER: **index of refraction** [or **refractive index**; prompt on n before the end; prompt on a partial answer]

9. This ruler had victories over Kashtubila (kahsh-too-BEE-la), Luhi-ishan (lu-hi-i-SHAN), and Lugalzagesi (lu-gal-zah-GEE-see). This leader was, like Moses, abandoned in a basket in a river as an infant. Upon his death, this emperor was succeeded by his sons Rimush (ri-MOOSH) and then Manishtushu (ma-neesh-TOO-shoo). According to legend, he was a cupbearer to Ur-Zababa before becoming King. It is difficult to date his reign because his capital has not been found, but historians believe he came to power around 2270 BCE. Name this leader who conquered much of Sumer from his base in Akkad.

ANSWER: **Sargon** I [or **Sargon** the Great; or **Sargon** of Akkad]

10. These are the basic data structure in Lisp, and in many functional languages, are implemented via *cons* [KAHNZ] cells, each with a head and tail. They do not support efficient indexing, but do have faster insertion and deletion than arrays, and need not be contiguous in memory. These structures can be classified as “single-” or “doubly-”, and they also can be classified as “linearly” or “circularly”. Name this type of data structure in which each node contains two fields, one containing the value and the other containing the location of the next value.

ANSWER: linked lists [do not accept partial answers]

11. Named after a founding member of the Congressional Policy Advisory Board, this concept has a prohibitive range inside of which the economic effect outweighs the arithmetic effect. The supporters of this concept point to the short-term impacts of the economic policies of Coolidge, Kennedy, and Reagan, while its detractors point to the long-term impacts of the same policies. Its founder has justified it by using tax revenue projections in his home state of California, and its supporters generally argue for tax cuts. This concept was named by Jude Wanniski, who claims he first saw it at a dinner with Donald Rumsfeld and Dick Cheney drawn on a napkin. Name this graph based on the idea that no income is brought in by either a zero or one hundred percent tax rate.

ANSWER: Laffer Curve

12. Beings of this type cause the death of Svafhlami (sva-fir-LAH-mee) to avenge their slavery, and these creatures included Northri (NORTH-ree), Suthri, Austri, and Vestri, who upheld the heavenly dome and represented the four cardinal directions. Another one of these creatures is Andvari, who possesses the ring Andvarinaut that makes gold until it is taken by Loki (LOH-kee). The first two of these creatures were Mótsognir and Durinn. One of them, Alvis, was tricked by Thor and turned to stone when he was exposed to sunlight. These beings were responsible for building Odin’s spear Gungnir and Thor’s hammer Mjölhnir. Name these metal-workers who in later tales were portrayed as being shorter than humans.

ANSWER: Dwarf [or Dwarves or Dvergjar]

13. One painting by this artist has at its bottom a yellow heart in his blue hand and a yellow face and a blue face looking in opposite directions from the same head. That work, which also shows somebody parachuting near a white Eiffel Tower, is *Paris Through the Window*. Another work by this artist, in which the title figure is wearing a purple coat and has his feet on the roofs of two different houses, is *The Green Violinist*. Another work by this artist has a glowing tree at the bottom held by a hand with a ring on its index finger. The biggest faces in that work belong to a green person and a white goat. Name this artist born in what is now Belarus (beh-lah-ROOS) who created many stained glass works in addition to painting *I and the Village*.

ANSWER: Marc Chagall (shuh-GAHL) [or Moïshe Chagall]

14. This story suggests that life is made up of sobs, sniffles, and smiles, with sniffles predominating, and it imagines King Solomon as a janitor and the Queen of Sheba living in a nearby apartment. The woman in this story, who recently paid a visit to Madame Sofronie, is given objects made of pure tortoise shell, with jewelled rims that she had seen in a window display on Broadway. She receives them from James Dillingham Young, who in turn receives a platinum chain. This story begins with Della counting out one dollar and eighty-seven cents, and it ends with an exchange of Christmas presents that is ironic because Della had her hair cut. Identify this short story by O. Henry.

ANSWER: “The Gift of the Magi”

15. One lithograph by this artist, showing a butterfly on a red leaf and two on a yellow ribbon, is *Butterflies and Spiral*, and another one, showing the face of a creature with spiral eyes, is titled *Red Nose*. This artist also made several sculptures, such as Empire State Plaza's *Triangles and Arches* and an abstract red *Stegosaurus* currently located in Hartford. This artist is well known for creating works, such as a fish outlined by painted metal rods at the Hirshhorn Museum, that are capable of movement. Name this artist who, for the stairway of the Museum of Modern Art, created the mobile *Lobster Trap and Fish Tail*.

ANSWER: Alexander Calder

16. Crocodiles have two of these structures separated by a hole called the foramen of Panizza (puh-NEEZ-zuh), and fish have one in front of and one behind the lamellar lacunae (laa-KOO-nay). Women with Turner's syndrome often have coarctation (co-ark-TAY-shun) of this structure, whose wall can rupture in a usually fatal condition called dissecting aneurysm. The descending section of this structure separates into thoracic (thoh-RAA-sihk) and abdominal segments while the sinuses of Valsalva lead to its first branches, the coronary arteries. Originating from the left ventricle of the heart, name this blood vessel with a characteristic arch, the largest artery in the body.

ANSWER: aorta [do not accept or prompt on "artery"]

17. One sequence of polynomials with this property begins one, then x , then three-halves x squared minus one half; the integral of any product of two of those from negative one to one equals zero. This term also refers to a specialization of unitary matrices, namely, matrices whose transposes equal their inverses. A set with this property can be produced by recursively subtracting vector projections; that is a basis produced by the Gram-Schmidt process. This term also describes vectors whose inner product, or dot product, is zero; as well as two lines whose slopes are opposite reciprocals. Give this property which applies to adjacent sides of a rectangle.

ANSWER: orthogonality [accept perpendicularity; accept normality; accept word forms of any of the answer choices; do not accept "right"]

18. NASA has sent an X-ray absorption version of this device into space, and H. L. Callendar improved the traditional type by adding a platinum-resistance gauge. Robert Bunsen developed the standard ice version of this device, though Laplace (luh-PLAHS) and Lavoisier had used a more primitive one in 1780 to show that respiration is a form of combustion. The Atwater-Rosa type of this device proved that the human body obeys the conservation of energy, while an adiabatic jacket surrounds the most common type, containing an ignition unit, oxygen supply, and steel bomb. Easily made in the lab from a thermometer and two coffee cups, identify this device that uses change in temperature to measure the heat associated with a reaction.

ANSWER: calorimeter

19. Near the end of this war, Auguste-Alexandre Ducrot took over for Marshal Mac-Mahon. That followed French losses at the Battles of Mars-La-Tour and Gravelotte. It was started by a dispute over whether a Hohenzollern could claim the Spanish throne which came to a head upon the release of the Ems Dispatch. Culminating with the Battle of Sedan, this war was ended by the Treaty of Frankfurt, which took much of Alsace and Lorraine away from France. Name this war that ended the reign of Napoleon the Third which took place in 1870 and 1871.

ANSWER: Franco-Prussian War [or Franco-German War; prompt on 1870 War]

20. One story by this author, concerning the poisoning of Mrs. Hutton, is “The Gioconda Smile”. In a novel by this author, Everard Webley is the head of the Brotherhood of British Freemen, and one of the many affairs involves Marjorie Carling and Walter Bidlake. This author also wrote about Dr. Robert MacPhail, who gives moksha-medicine to Will Farnaby. Parts of another work by this writer are set in Malpais, which is visited by Lenina Crowne and Bernard Marx in the year of our Ford 632 and is the birthplace of John the Savage. Identify this author of *Point Counter Point*, *The Island*, and *Brave New World*.

ANSWER: Aldous **Huxley**

Read the tiebreaker questions only if there is a tie after the above 20 questions. The first correct answer wins the match.

TB 1. The best-known form of this process is equivalent to the Darboux (DAR-boo) type, while a generalization of it is named for Lebesgue (luh-BAY). Quadrature methods approximate it, and iterations of this process on well-behaved functions are independent of order according to Fubini’s Theorem. Executing this process may be made easier by decomposing a given function into the product of two simpler functions, which is called performing this process “by parts”. With polynomials, this operation involves adding one to all of the exponents and dividing by the new exponents. Name this process which, by the Fundamental Theorem of Calculus, is equivalent to antidifferentiation.

ANSWER: Riemann **integration** [or **integrals**; accept answers modified by either “definite” or “indefinite”; accept **antiderivatives** or **antidifferentiation** before the last word; do not accept or prompt on “derivative” or “differentiation”]

TB 2. A man sometimes considered the Founding Father of this country, who delivered the Tenterfield Oration in 1889, is Henry Parkes. One controversial figure from what is now this country, who narrated The Jerilderie Letter and was involved in a shootout in which three policemen were killed in 1878, is Ned Kelly. A big Gold Rush in this country during the 1850s led to the Eureka Stockade Rebellion. Its recent Prime Ministers have been Paul Keating, Julia Gillard, John Howard, and Kevin Rudd. Identify this nation whose first Prime Minister, Edmund Barton, said, “For the first time, we have a nation for a continent, and a continent for a nation.”

ANSWER: Commonwealth of **Australia**

TB 3. Name the mode of transportation that...was perfected in 1942 by Igor Sikorsky; is the title aircraft in the film *Black Hawk Down*; and uses rotating blades to achieve vertical takeoff and landing.

ANSWER: **helicopters**