

NEW TRIER VARSITY 2008

Questions and Editing by Jonah Greenthal and David Reinstein

contributions from Buley, Meade, Price, Server, Sido, Slack, Sorice, Taylor, and Thomas
editing assistance from Angiuli, Cohen, and Gauthier



Round 9: A Packet Is a Bleeping Valuable Thing, You Don't Just Give It Away Tossups

1. (JG) Upon receiving the Torchbearer award in 2003, she gave a speech entitled "Truth, Fear, and War" about the fall of America as a prestigious nation under the Bush administration. Her first major job in her field was at the Department of Justice in 1955, but she started covering the beat for which she is most famous after accompanying JFK on a vacation shortly after his election. She left United Press International in 2000 after a change in ownership, and was the only print reporter to go to China with Richard Nixon. More recently, she cooperated with Stephen Colbert in the video he presented at the White House Correspondents' Dinner. Identify this journalist, who until recent years asked the first question at every press conference and ended them with "Thank you, Mr. President."

ANSWER: Helen Thomas

2. (DR) Early in his career, he wrote a novel about Arvid Falk titled *The Red Room*. Soon after that, he wrote a play set in the 16th century, titled *Master Olof*. His most famous play is about a woman who has broken off her engagement and features a religious cook named Kristin. This writer had three horrible marriages, and many critics claim that his portrayals of women were affected by them. Name this Swedish writer of *Miss Julie*.

ANSWER: August Strindberg

3. (JG) The metallic ion in this substance is complexed with citrate ions, and its namesake stabilized it and decreased its corrosivity. Generally, it is positive for nonaromatic aldehydes, and is often used in place of Fehling's solution. A quantitative version of its test uses titration until a white precipitate forms. Medically, it was once used in urine tests for pregnant women, and now is often used as a preliminary test for diabetes mellitus. In general, it is an indicator for reducing agents. Name this solution mainly of sodium hydroxide and copper two sulfate that, on heating, changes from blue to red in the presence of fructose or glucose.

ANSWER: Benedict's solution (accept clear knowledge equivalents like "reagent" for "solution")

4. (MS) One piece by this composer began as a thirteen-composer collaboration for which he wrote a "Libera me" [LEE bare uh MAY] and was dedicated to Rossini, but that *Requiem* was initially performed at the funeral of Manzoni. One familiar theme by him is "Va', pensiero" [VAH pen-see-AIR-oh] for a chorus of Jews, while another is the aria "La donna é mobile" [la don-uh eh MOH-bee-lay] for the Duke of Mantua; those songs are from his operas *Nabucco* and *Rigoletto*, respectively. Name this Italian composer best known for *La traviata* and *Aida* [i EE duh].

ANSWER: Giuseppe Fortunino Francesco Verdi

5. (JP) Computational — pencil and paper ready. Ignore units. Find the length of a lateral edge of this square-based pyramid, which is the length from the apex to one of the corners of the base. It has a perimeter of 56 units around the base and an altitude of 24 units. You can use the fact that the base is a square to easily figure out the length of one edge. If you cut that in half, you have the distance from the midpoint of a base edge to the foot of the altitude. A quick Pythagorean triple will give you the slant height. With the slant height and half of the length of one edge acting as right triangle legs, you can now determine the length of a lateral edge if you treat it as a hypotenuse when executing the Pythagorean Theorem. Thirty seconds.

ANSWER: the square root of 674 units

6. (AS/JG) This led to a Charter Oath with five articles, the last of which stated that knowledge would be sought throughout the world. The leader put in charge was a teenager who ruled for the next forty-five years. It was facilitated by the formation of the Satcho alliance and its victory in the Boshin War. The catalyst for this event was the arrival of the *Saratoga* and the *Susquehanna* along with two other ships at Uraga Harbor, the so-called "Black Ships" commanded by Matthew Perry. This event led to a program of land reform and abolition of the old feudal system, including the Samurai class. Name this group of events in Japanese history in which oligarchs overthrew the Tokugawa Shogunate to make way for a new emperor.

ANSWER: Meiji restoration

7. (DR) An author from this country wrote a novel about Gyuri (JEW-ree) Koves, a teenager in concentration camps, titled *Fatelessness*. A scientist from this country worked with Fermi on the first nuclear chain reactions and wrote the letter signed by Einstein warning President Roosevelt about its uses, and a mathematician from this country co-authored a huge number of papers on number theory. One composer from this country wrote "Romanian Folk Dances", "Kossuth", and "The Miraculous Mandarin." During World War Two, it joined the Axis Powers, though its Regent Miklos Horthy maintained national independence until he was replaced by a group sympathetic to the Nazis. It is between Slovakia and Serbia, and its language is similar to Finnish. Name this home of Magyars whose capital is Budapest.

ANSWER: Hungary or Hungarians

8. (JG) Amartya Sen criticized many of his economic theories in *Collective Choice and Social Welfare*. This philosopher wrote about sensation and association in *Psychological Theory of the Belief in an External World*, and placed a high importance on societal ethics and their breakdown in a work that elaborated on and slightly modified a book by his father James. He was one of the first philosophers to treat human nature as a science, a study he called "ethology", noting that unlike physical phenomena, human actions were not dependent simply on their present state. Give the name of this nineteenth-century British philosopher and economist known for utilitarianism and his book *On Liberty*.

ANSWER: John Stuart Mill

9. (JG) According to this, blue stragglers are separate from their clusters, and the Hess diagram reflects the density of this. The canonical horizontal axis is difficult to develop analytically and is so sometimes replaced by B–V color, an easier quantity to measure than spectral class. The y-axis is usually drawn logarithmically and can be labeled with either luminosity or absolute magnitude. Name this doubly-eponymous astronomical diagram that features a central line for the main sequence and plots several characteristics of stars.

ANSWER: Hertzsprung-Russell diagram

10. (TB) Computational — pencil and paper ready. Find the function y of x passing through the points (0,0) and (1,2) that satisfies y double-prime of x equals $6x$. You have thirty seconds.

ANSWER: y of x equals x cubed plus x or y of x equals x to the third power plus x or y of x equals x plus x cubed or y of x equals x plus x to the third power

11. (CA) Emacs uses a variant of this as a scripting language. Every object in this language is either an atom or a cons pair. It was the first homoiconic language, because its program code is represented in its primary data structure, lists. For this reason, REPLs [REH pulz] are commonly implemented in this language itself, because its s-expressions can be directly parsed as data. Its most common dialects are Scheme and Common, and it uses exclusively prefix notation, with procedure calls enclosed within nested parentheses. Name this programming language based directly on the lambda calculus.

ANSWER: Lisp

12. (TM) In one of this author's short stories, Cazeau is a planter who marries the titular woman, Athenaise. In addition to writing that story and the semi-autobiographical novel *At Fault*, this author wrote about Armand Aubigny, who is surprised to learn that his son has black blood. In addition to writing "Desiree's Baby", this author wrote *Bayou Folk* and a short story in which Mrs. Mallard's husband dies in a train accident, entitled "The Story of an Hour". Identify this author, best known for writing about Edna Pontellier in her novel *The Awakening*.

ANSWER: Kate **Chopin**

13. (JG) His first job in the industry for which he's famous was at Atari, from which he hoped to save money for a spiritual journey to the East. After a decade with his famous company, he was exiled, but continued to hold exactly one share of that company. He returned in 1996, replacing Gil Amelio as CEO, from NeXT Computer. Since then, he has remained with the company, which has enjoyed its greatest success, dominating the personal media player market. He himself has become a well-known presence at industry conferences, making epic speeches to introduce such products as the iPhone, and false rumors that he had cancer swirled in the fall of 2008. Identify this turtleneck-clad co-founder and chairman of Apple Computer.

ANSWER: Steven Paul **Jobs**

14. (JG) This situation resulted in the indictments of over 200 people, and Thomas Nast commented on it with a picture of Uncle Sam looking at some wooden objects while a quotation from the man who broke it looms overhead. That man, secretary of the treasury Benjamin Bristow, made the discovery because he found that the government was missing a substantial portion of the revenue it was due. In fact, some of that money was being diverted to President Grant's reelection fund, allegedly at the direction of Grant's private secretary, Orville Babcock. However, Babcock was acquitted of diverting the IRS's revenue from spirit taxes. Name this scandal in the Grant administration concerning a tax on alcoholic beverage distillers.

ANSWER: **Whiskey Ring** scandal (accept "affair" or other reasonable equivalents for "scandal")

15. (JG) The analogue to this in quantum field theory is the Reeh-Schlieder [REE SCHLEE-dur] Theorem, and the entropy of mixed states may be interpreted as a measure of this. It cannot violate causality, but might be caused by retrocausality. A major application of this is in quantum cryptography, making sure that any interference in the transmission of a message can be detected. Bell's inequalities describe particles with this condition, giving different results from particles described by local realism. If particles have this condition, one must be spin-up and the other spin-down. Einstein referred to this as "spooky action at a distance". Name this condition that the EPR paradox relies on, in which spatially distant particles can affect each other's state.

ANSWER: quantum **entanglement**

16. (DT) The Hippocrene was created by this figure, which was captured while drinking from a well on the Acrocotinth, and it may have been the brother of Chrysaor. Residing on Mount Helicon, shortly after its birth, Zeus employed it to carry his thunderbolts. Assisting Bellerophon in the slaying of the Chimera, it was stung with a gadfly when Bellerophon tried going up Mount Olympus. Name this creature that sprung forth from the neck of Medusa, a winged horse.

ANSWER: **Pegasus**

17. (JG) Some of his lesser-known works include *Undiscovered Country* and *Professional Foul*. His father, a doctor, was killed in the German invasion of Singapore, and his mother raised him in England. He also wrote *On the Razzle* and *Hapgood*. One of his more recent works is set alternately in the early 1800s and 1989, and explores the interactions between the past and future, invoking particle physics to study Lord Byron and the certainty of knowledge. This play is named for a quote that also titles a Poussin painting, *Arcadia*. He was born in Czechoslovakia with the name Straussler. His best-known play is probably still his first, which opens with two characters from another work flipping a coin. Identify this British playwright of *Rosencrantz and Guildenstern Are Dead*.

ANSWER: Sir Thomas "Tom" **Stoppard** (accept Tomáš **Straussler** before mentioned)

18. (JG) It was based partly on the Propylaea, and was restored in the first years of this century. After Napoleon was defeated, it regained its top part, which he had stolen as a spoil of war, and an iron cross was added to it to symbolize Prussian power. That top part consists of four horses led by the Roman victory goddess, Victoria, driving a chariot. This structure had been commissioned by King Frederick William the second, and is located where Ebertstrasse meets the Unter den Linden at the end of the Pariser Platz [PAIR-iss-ur PLAHTZ]. Name this structure in Berlin near the Reichstag [RIKH stahg] at which Reagan demanded the tearing down of the Berlin Wall.

ANSWER: **Brandenburg Gate** or **Brandenburg Tor**

19. (TB/JG) His identity gives solutions' Wronskians [RAHN skee unz] in terms of the original equation's coefficients, and his namesake transformation simplifies series and is analogous to integration by parts. The inequality named for him establishes a bound on inner products. In 2002, Norway established a prize in this man's honor given to an outstanding mathematician each year by the King. His namesake groups are commutative. His most famous work was contained in "Memoir on Algebraic Equations". Identify this mathematician who in a theorem named for him and Ruffini [roo FEE nee] proved that quintic equations do not have a general solution in radical form.

ANSWER: Niels Henrik **Abel**

20. (HT) Because the specific oligonucleotide sequence can be selected, this procedure can be applied with great specificity, leading to its usefulness across many areas, such as detection of cancers. In rough terms, the process is brought about by thermal cycling, resulting in a progression of three steps, namely denaturation, annealing, and elongation. Without the contributions of organisms such as *Thermus aquaticus*, this procedure would not be possible. It is because of the relatively high temperatures involved with the first step that special heat-tolerant enzymes had to be found before this method could be applied. Name this recombinant DNA technology whereby DNA is replicated in a manner so that the outputs of one iteration become the inputs of the next.

ANSWER: **p**olymerase **c**hain **r**eaction