

Round 11

HEINRICH BOLL IV at GEORGIA TECH - 1999

TOSSUPS – Washington U. in St. Louis

1. The use of these tools in perturbation-theory calculations gives an agreement between theory and experiment on the order of  $10^9$  (ten to the ninth power), making the theory with which they are associated the most accurate currently accepted in the physical sciences. The tool is a simple visual representation in which each picture represents an integral describing the scattering effect that particles exert on each other due to photon exchange. Sin-Itiro Tomonaga and Julian Schwinger used them in their explanation of Quantum Electrodynamics, but, FTP, what are these diagrams named for the Cal Tech physicist who shared the 1965 Nobel Prize with Tomonaga and Schwinger?

Answer: Feynman Diagrams

2. He abandoned his first love, mathematics, when he decided to enter the ministry, becoming pastor of the First Baptist church in Montgomery, Alabama in 1951. In 1968, he led the Poor People's Campaign from Memphis to Washington D.C. FTP, name this right hand man of Martin Luther King, Jr., with whom he had organized the bus boycott of Montgomery and then the SCLC, which he presided over after King's assassination.

Answer: Ralph David Abernathy

3. Now called Slavkov in the Czech Republic, it was here that a feint by Napoleon led the Russian General Grand Duke Alexander to commit his reserves. Napoleon and his troops then stormed the Pratzen Heights and the trap led to the complete rout of the Russian and Austrian forces. FTP, name this December 2<sup>nd</sup>, 1805 battleground.

Answer: Battle of Austerlitz

4. He entered Oxford at the age of 14, studying mathematics and astronomy. Although he didn't really want the job, at the age of 29 he was appointed by the government to assist the surveyor general in the upkeep of public buildings, in spite of his education. Afterwards, he pursued much more than just repair. FTP, identify this 17<sup>th</sup> century Englishman whose work includes the design of the Sheldonian theatre and Chelsea Hospital as well as the restoration of St. Paul's Cathedral.

Answer: Sir Christopher Wren

5. Twenty-two members make this one of baseball's more exclusive clubs. Among the greats who don't belong are Joe DiMaggio, Mickey Mantle, Babe Ruth, and Ted Williams. The first member, Honus Wagner, achieved this mark on June 9, 1914. Other members include Rod Carew, Hank Aaron, Stan Musial, Paul Molitor, and Willie Mays. FTP, name this exclusive club, to which Pete Rose could be considered the president.

Answer: 3,000 Hit Club

6. When this author was five, he saw a hatter shot in the back on the street outside his home in the town of Grenoble. He considered it the first blood of the revolution. His characters consider themselves "superior beings" on the Napoleonic model. This won over fellow authors like Honoré de Balzac, who wrote praise for a novel that the author wrote in only 53 days, *The Charterhouse of Parma*. FTP, name this author, also known as Henri Marie Beyle, whose masterpiece is the 1830 work *The Red and the Black*.

Answer: Stendhal (accept Henri Marie Beyle on an early buzz)

7. Trained as a mining engineer and later Professor of Chemistry at the Paris School of Mines, he worked on specific heats of gases at high temperatures, and devised an optical pyrometer for measuring temperatures beyond the range of mercury thermometers. FTP, identify this chemist whose principle states that any change in the pressure, temperature, or concentration of a component in a state of equilibrium has little effect, being compensated for by an automatic adjustment in the other components of the equilibrium.

Answer: Henri Louis Le Châtelier

8. Not a political party and not controlling a majority in Congress, nonetheless, this nonpartisan group eventually got one of their members, Henry Clay, elected as speaker of the house. Formed in response to the Orders in Council and angered by raids by Indians in the west and impressment of American sailors

into the British fleet, FTP, what 19<sup>th</sup> century political alliance of southern and western congressmen eventually convinced President Madison to start the War of 1812? Answer: War Hawks

9. This company merged with Pratt & Whitney in 1929 and formed the United Aircraft and Transport Company, but was forced to split in 1934 due to new federal anti-trust guidelines. It was very active in World War II, designing planes such as the B-17. Currently, it is known for its commercial aircraft, but is also an important military and NASA contractor. FTP, name this company, known best for its 490 person transcontinental "jumbo jet."

Answer: Boeing

10. She was born in 1922, with the name Frances Gumm in Grand Rapids Minnesota. She first acted at the age of 2 in her father's theater. With her sister, she formed a vaudeville act that toured the U.S. from 1927-1935. Her film debut was in 1936, but quickly escalated. She won a special academy award in 1939. FTP, name this actress who has starred in such films as *Meet Me in St. Louis*, and *The Wizard of Oz*.

Answer: Judy Garland

11. After meeting some of the greatest minds of his generation at Columbia University, this Massachusetts-born author began writing the novels that comprised his *Legend of Duluoz*. This was a sprawling autobiography whose chapters were composed of entire novels, like *The Subterraneans*. FTP, identify this author that coined the term "Beat Generation," the creator of such works as *The Dharma Bums* and *On the Road*.

Answer: Jack Kerouac

12. Individuals must select mates randomly. No genotype can be favored in such a way that it will increase in frequency in the population over time. No new alleles can be introduced into the population, including changes by mutation. Finally, the number of individuals and genotypes in the population must remain high. After these conditions are met, the equation  $p^2 + 2pq + q^2$  describes, FTP, what rule of genetics formed by a British mathematician and German physician in 1908?

Answer: Hardy-Weinberg equilibrium

13. It was founded on December 8, 1991 with only three members. It expanded to add eight others two weeks later. Although Estonia, Latvia, and Lithuania gained independence in 1991, they declined to join this organization. Georgia was officially the last to join this group in 1993. FTP, identify this organization of nations that is considered to be the successor to the USSR.

Answer: Commonwealth of Independent States or CIS

14. He was born in 1723 in Kirkcaldy, Scotland, and educated at the Universities of Glasgow and Oxford. He developed a close friendship with David Hume, which apparently influenced some of his ideas. In 1751 he was appointed Professor of Logic at the University of Glasgow and in 1752, the Professor of moral philosophy. However, he is best known for a work of economics that influenced the downfall of mercantilism. FTP, name this man, whose most famous work, *Wealth of Nations*, was published in 1776.

Answer: Adam Smith

15. Based on events during the French Revolution, it concerns the unjust imprisonment of Florestan, husband of Leonore, who attempts to free him by disguising herself as a man and entering the service of Pizarro, the prison governor. Pizarro tries to have Florestan executed before Don Fernando, head of state, can arrive, but Leonore foils his plans. Don Fernando arrives and reunites Florestan with Leonore. FTP, this serves as the plot for what opera, the only one composed by Ludwig van Beethoven?

Answer: Fidelio

16. It is the diary of an academician who frequents cafés. He begins the novel with the inability to doubt things, but before long he suffers the kind of malaise characteristic of the author's philosophical work. At the end, the academician, Antoine Roquentin intends to write a novel. FTP, what is this 1938 Jean-Paul Sartre work, which could also be considered a precursor to vomiting?

Answer: Nausea (prompt on *The Diary of Antoine Roquentin*)

17. He purportedly once resolved an argument between two of his pupils by calculating a number to the 50<sup>th</sup> decimal place in his head. He attempted to solve Fermat's Last Theorem for  $n$  equals three and his constant, represented by gamma, is approximately 5.772. His equation states that cosine of  $x$  plus  $i$  times the sine of  $x$  equals  $e$  raised to the quantity  $i$  times  $x$ . FTP, identify this Swiss mathematician, a student of Jacob Bernoulli, and contributor to the fields of optics, celestial mechanics, and calculus.

Answer: Leonhard Euler

18. Excavation of this site began in 1931 and was supervised by James Henry Breasted. Its ruins are located at Takht-I Jamshid. The palace and audience hall, or Apadana, contain sculptured reliefs depicting Achaemenid court ceremonies. Plundered and burned by Alexander the Great in 330 BCE, it was eventually abandoned. FTP, identify this ancient city located in present-day Iran, first used as the capital of the Persian Empire by Darius I.

Answer: Persepolis

19. Its creator viewed it as an injunction to be obeyed as a moral duty, regardless of an individual's impulses, to produce a humanitarian society based on reason and thus created by free will. In other words, moral choices are only valid if they are choices that everyone should hold to at all times. FTP, identify this two-word philosophical doctrine created by the German philosopher Immanuel Kant.

Answer: categorical imperative

20. After four years as a New York State assemblywoman, she was elected to the U.S. House of Representatives in 1968. She served on the House Education and Labor Committee and instituted such programs as day care and minimum-wage increases to help her predominately Black constituency. FTP, name this person who, in 1972, became the first woman and first African-American to seek a major party's nomination for the presidency.

Answer: Shirley Chisholm

21. This day in the Sikh tradition celebrates Guru Hargobind's release from prison. On this day in the Hindu tradition, traders close their old accounts, debts are settled, and puja is offered to Lakshmi, the goddess of wealth and good fortune. It also celebrates the return from exile of Rama and Sita. This holiday is the only mutual holiday between Hindus and Sikhs. FTP, identify this holiday, the celebration of the new year and the festival of lights in Hinduism.

Answer: Diwali (accept Deepawali)

22. Defined as "the interdisciplinary study of why man has acted the way he has in history, prominently utilizing psychoanalytic principles," an international association has been founded on this science. However, it is better known as a fictional field of almost psychic study founded by Hari Seldon to predict the downfall of the Galactic Empire. FTP, what is the name of this science, coined in Isaac Asimov's *Foundation Series*?

Answer: psychohistory

23. Among its important minerals are diaspore and gibbsite. Its value on the Mohs scale ranges from 1 to 3 and it varies in color from white to brown, aggregating in pea-size lumps. Formed from the weathering of granite rocks in warm, humid climates, it is mined in large quantities in Australia, Guinea, and especially Jamaica. FTP, identify this commercially important ore that is the primary source for the element aluminum.

Answer: bauxite

If you have heard the audio tossup, stop. If you have not, read #24.

24. The cross of St. Andrew rests on a white background on this state's flag. Its motto is "We dare defend our rights." Cultural attractions in this state's 67 counties include the Ave Maria Grotto in Cullman County, Dauphin Island, and the DeSoto Caverns, located near Sylacauga. FTP, name this state, which had Cahaba and Tuscaloosa as capitals in the early 19<sup>th</sup> century, before it was changed to Montgomery.

Answer: Alabama