

1998 Princeton Buzzerfest II
Semifinals Tossups

1. Begin with a suspension of solid particles, perhaps silica, in a gel solvent. Heat up the suspension under pressure so that the solvent transforms supercritically to a vapour and dissipates without the phase change that would disrupt the fine solid network left behind. A solid skeleton remains, with a porosity of over 75% and a surface area of as much as a thousand square metres per gram. FTP, identify this class of materials often nicknamed "solid smoke" which might eventually serve as transparent window insulation or high surface area catalysts.

AEROGELS

2. He was born in Vienna in 1874 and died in LA in 1951. He began as a violinist, and began composing small pieces before the age of nine. His early years were spent as a bank clerk and a composer, composing mostly pieces for strings. For ten points, name this composer of many string quartets and the Gurrelieder, who is mainly known as the creator of atonality.

Arthur SCHOENBERG

3. This painter, featured in the short story "Skin" by Roald Dahl, was born as the tenth child in a poor Jewish family in Lithuania. He moved to France in 1913 at age 16, where he became close friends with Amedeo Modigliani. He is most popularly associated with his studies of choirboys and cooks and his series of pageboys. FTP, name this Expressionist artist who is also well-known for his paintings of hung poultry and carcasses of beef, which convey the colour and luminosity of putrescence.

Chaim SOUTINE

4. Most of the northern border of this republic is not clearly defined, since the border lies in a mostly uninhabited desert which happens to be the largest continuous area of sand in the world. Though it is currently a unified country with its capital at Sanaa, as recently as 1990 it was divided into two countries with another capital at Aden. FTP, name this Arabian nation which borders on Saudi Arabia and the sultanate of Oman.

Republic of Yemen (or Al Jumhuriyah al Yaman iyah)

5. Also called As-Siddiq or "the upright," he suppressed the tribal and religious uprisings known as the riddah or "apostasy". Purportedly the first male convert to Islam, Mohammed married his daughter, and he accompanied Mohammed on the Hegira. FTP, name this closest companion and adviser to Mohammed who, upon the prophet's death in 632, became the first "deputy of the Prophet of God," or caliph.

ABU BAKR

6. Best known for producing Heisman Trophy-winning running backs, this University's favorite son may now be a former pitcher/first baseman and 1984 Olympian. The football program is now headed by Paul Hackett, a onetime assistant under the man he replaced. For ten points, name this alma mater of Mark McGwire and O.J. Simpson, which in the last two decades has won twice as many Rose Bowl games as crosstown rival U.C.L.A.

U.S.C.

7. Hit the sample with a radiofrequency pulse and knock everybody into line. Pulse the sample again and flip some spins. Pulse a few more times if you want, to flip more nuclear spins. Then pause a time "tau" to let the spins precess, and listen for radio signals from the sample. Then you can turn off your big magnet. FTP, this is a rough description of what technique of analytical chemistry associated with proton and carbon chemical shifts and spin-spin coupling, and similar to the medical technique MRI.

NMR or _Nuclear Magnetic Resonance_ (accept early PMR or _Proton Magnetic Resonance_)

8. Richard Nixon only became "Tricky Dick" after calling former actress Helen Gahagan a "pink lady" on his way to winning a Senate seat in 1950. Only two years later, however, Nixon found himself in hot water -- not because of papers in pumpkins but because of other "gifts" he had received. Accused of financial misdealings, Presidential nominee Eisenhower asked Nixon to step aside. To defend himself, he insisted would keep his children's dog that a well-wisher had given him. For 10 points, name that dog, whose name became the title of a memorable 1952 speech.

CHECKERS

9. He was elected as a Social-Democrat member of the Duma in 1912 and became Minister for War following the March Revolution of 1917. Lenin and Trotsky's October Revolution forced him to flee to France, though he later died in the United States (1946). FTP, identify this prime minister of Russia's provisional government.

Alexander _KERENSKY_

10. This French artist never meant his wax figures to be actually cast in bronze. The waxes were simply part of his studies of the human figure and of motion. Whether his subjects were horses, women in the bath or ballet dancers, they generally came to life in brightly colored oils or pastels instead of bronze. FTP, name this artist who created the bronze sculpture _The Little 14-year-old Dancer_

Edgar _DEGAS_

11. It flows from its source in the Karawanken range of Slovenia to form much of the border between Croatia and Bosnia. For ten points, name the river that flows through both Zagreb and Belgrade.

SAVA

12. This country is in the midst of a political crisis brought on by the communists removing support from the government coalition. Crisis might be too extreme of a word, though, as this country is not exactly a stranger to switching governments quickly, having done it over 50 times since WW2. Name this country, home of Roberto Baggio who missed a penalty shot in the 1994 world cup finals.

ITALY

13. Favored sites for scientific bases in the early part of this century, they often "carve" large chunks from their edges. What Antarctic features have names such as Filchner, Ronne, Larsen, and Ross?

ICE SHELVES

14. Under this chemist's direction, the chemical laboratory at the University of Berlin rose to world prominence. Three of his major contributions were extensive research on purines; a synthesis and degradation in 1907 of an 18-amino-acid polypeptide; and his laborious elucidation of nearly all 16 stereoisomers of glucose. FTP, identify this father of sugar chemistry who won the 1902 Nobel Prize in chemistry for his work on sugars and purines.

Emil Hermann _FISCHER_

15. He rose to power through the spoils system, but the political machine he built in New York City became so disreputable that President Hayes had him removed from his post. As President, however, he became something of a reformer, vigorously prosecuting the Star Route frauds, vetoing the Chinese Exclusion Act and many pork-barrel bills and pushing through the 1883 Pendleton Act. For ten points, name this president born in 1830 in Fairfield, Vermont.

Chester A. _ARTHUR_

16. Playing alongside his brother Judd, he won league player of the year honors and set an all-time NCAA Division 1-AA record for completion percentage, all during the year after* Superman Dean Cain graduated. Though not drafted by an NFL team, he signed on with the Dallas Cowboys, for whom his father Jim worked as a scout. For ten points, name this Princeton graduate, history major and injury replacement for Cowboys' starter Troy Aikman.

Jason (J.D.) _GARRETT_

17. Everything in his career was overshadowed by his 1952 decision to name names before the House Un-American Activities Committee. For one year in the 1930s this

man of Greco-Turkish extraction became a Communist. Then he became very successful, espousing the struggle against anti-semitism in his "Gentleman's Agreement" and against racism in "Pinky" who For Ten Points is this director of "On the Waterfront"?

Elia _KAZAN_

18. In botany it is the recess between two lobes of a leaf. In zoology it can be the expanded vein found in elasmobranchs. It can also be the air filled space within certain bones of the face, linked by mucous membrane with the nasal cavity. For Ten Points, what is this part of the body that feels really bad when allergy season comes around?

SINUS

19. This novel's protagonist, a typical shiftless and amoral Georgian mountaineer, has set aside 160 square rods of land to go to the church, but constantly shifts the location of the land according to his own momentary needs and plans. That is the plot of, For Ten Points, what Erskine Caldwell novel?

GOD'S LITTLE ACRE

20. Considered the father of modern organic chemistry, he discovered the quadrivalency of carbon and its ability to form long chains. He is most famous, however, for initiating structural organic chemistry with his inference of the structure of benzene (the benzene ring). For ten points name the famous dreamer of the likely apocryphal vision of a snake swallowing its tail.

Friedrich August _KEKULE_ Von Stradonitz

21. Under the simplest conditions, its value is 2.46 planetary diameters. Dying stars may occasionally expand past this limit and fling materials into space. For ten points, what is this distance inside which a satellite cannot orbit without being torn apart by tidal forces?

The _ROCHE_ Limit

22. Originally a dictionary of the arts and sciences edited by William Smellie, it added history and biography to its second edition, and many more editions followed under several publishers. Since 1929, however a system of continuous revision has replaced the issuance of new editions. For ten points, name this now 32-volume reference work first published in 1768 by a "society of gentlemen in Scotland".

ENCYCLOPEDIA BRITANICA

23. Born in 1872, he made a 1910 move to Paris which exposed him to cubism, leading to the development of a unique style which he named neoplasticism. For ten points, name this Dutch artist who collaborated with Theo van Doesburg in the publication of a magazine titled De Stijl.

Piet_MONDRIAN_

1998 Princeton Buzzerfest II
Semifinals Bonus Questions

1. Given a brief description, name the type of painting:

i. This style emphasizes a particular clarity of light that was characteristic of the works of a group of independent American painters of the third quarter of the 19th century, directly influenced by the Hudson River School.

LUMINISM

ii. This group of artists settled after 1889 in the north German village of Worpswede, near Bremen, in order to paint the local landscape. They depicted the heaths, meadows, forests, streams, bridges, windmills, and peasants of the area in a romantic and sentimental style, somewhat reminiscent of the earlier 19th-century Barbizon school in France.

WORPSWEDE School

2. Identify the following functions or classes of functions for fifteen points each.

A. The solutions for the partial differential equation defining the vibrations of a circular stretched drum are represented in terms of these functions, which look like decaying sinusoids in the real plane and are represented by the letters J and K.

BESSEL FUNCTIONS

B. A generalization of the factorial function to non-integer values, this function is calculated as a function of x by the integral from $t=0$ to $t=\infty$ of e^{-t} times t^{x-1} , dt .

GAMMA FUNCTION or _EULER'S INTEGRAL OF THE SECOND KIND_

3. Name the following M.C. Escher works from descriptions:

i. This lithograph portrays a pond with a fish swimming in it. Autumn leaves are floating on the water, and bare trees are seen reflected on its surface.

Answer: Three Worlds

ii. This lithograph shows a continuous cycle in which the title creatures crawl out of an illustration into the real world, and then back again into the picture from whence they came.

Answer: Reptiles

4. Given the following description of the American author, name the author.

A. FTP, This man's last letter, sent from Chihuahua, Mexico in 1913, read, "If you hear of my being stood up against a Mexican wall and shot to rags, please know that it is a pretty good way to depart this life. It beats old age, disease, and falling down the cellar stairs." It is still unknown whether this author of "Occurance at Owl Creek Bridge" was indeed executed alongside Pancho Villa's freedom fighters, or whether he was simply ambushed by bandits.

AMBROSE _BIERCE_

B) FTP, In 1969, in despair over his inability to find a publisher for his A Confederacy of Dunces, this 32 year old American writer committed suicide.

JOHN KENNEDY _TOOLE_

C) FFPE, In keeping with the morbid tone of this bonus, these two American confessional poets, once schoolmates, died by their own hands as well. One, the author of "The Bell Jar", died at age 30 after sticking her head in her gas oven. The other, the author of All My Pretty Ones, gassed herself in her garage at age 46.

SYLVIA _PLATH_ and ANNE _SEXTON_

5. Name the South American island for the stated number of points.

(5) Magellan saw fires lit by the natives of this island split between Argentina and Chile.

TIERRA DEL FUEGO

(10) This group of islands off the west coast of Chile includes the Isla Robinson Crusoe.

JUAN FERNANDEZ Islands

(15) This island is the largest in the delta of the Amazon.

MARAJO Island

6. Name these women from Roman history FTP apiece.

A. This wife of Augustus procured the deaths of Marius, Gaius, and Lucuis to secure the succession of her son, Tiberius. She may have killed Augustus by poisoning his figs.

LIVIA Drusilla.

B. She was wise to poison, so Nero arranged for his domineering mother to have an "accident" at sea. A lead-weighted canopy collapsed on her, but her high-sided couch

saved her; her ship was deliberately capsized, but she swam to shore; finally, soldiers tracked her down at her villa and finished her off.

AGRIPPINA

C. The wife of the late Prasutagus, king of the Iceni, she raised a rebellion throughout East Anglia in A.D. 60. After burning the mart of Londinium and massacring 70,000 Romans and their allies (including the Roman 9th Legion), her revolt was defeated by Paulinus.

BOUDICCA

7. With the Braves and Yankees dominating their respective leagues for much of this season, 1998 looked like it might be a repeat of 1996. Name the winners of the following 1996 Major League Baseball Postseason Awards for ten points each, or five points if you need the player's team and position.

10: American League Cy Young Award

5: Toronto Blue Jays pitcher

Answer: Pat _HENTGEN_

10: National League Most Valuable Player

5: San Diego Padres third baseman

Answer: Ken _CAMINITI_

10: American League Rookie of the Year

5: New York Yankees shortstop

Answer: Derek _JETER_

8. Given the description, name which Edward, King of England, meets it.--i.e. give his appropriate number, for 10 points apiece, for a possible 30 points.

A. This Edward increased the law-giving role of Parliament and expelled the Jews from England.

Edward _I_

B. This Edward, a boy-king, according to Thomas More's story, was suffocated in the Tower of London.

Edward _V_

C. This Edward, a relatively peaceful monarch, was forced to flee to France in the middle of his reign, by the Earl of Warwick. The next year this Edward returned and defeated Warwick.

Edward _IV_

9. Stereochemical purity has taken center stage in drug development in recent years. Complex drug molecules often have more than one stereogenic center, resulting in many stereoisomers of a given molecule.

A) First, FTP, what name is given to two non-superimposable, non-mirror image stereoisomers of a given molecule with multiple stereogenic centers.

DIASTEREOMERS or _DIASTEREOISOMERS_

B) Next, for five points each plus a bonus five for all three, identify these drugs for which stereochemical purity has been an issue of safety or commercial importance: a 1950's morning sickness drug, a popular over the counter painkiller, and the most popular antidepressant.

THALIDOMIDE, _IBUPROFEN_, _PROZAC_

10. Answer these questions about the recent rescue of one of the largest hedge funds, FTPE

A) What is the name of this fund, among whose partners were nobel laureates Robert Merton and Myron Scholes?

LONG-TERM CAPITAL

B) Who was the founder of the fund, whose control has been significantly reduced following the bail-out.

John _MERIWETHER_

C) All or none, name any two of the five banks who infused cash into Long-Term Capital to allow it to meet margin requirements.

GOLDMAN SACHS

MERRILL LYNCH

MORGAN STANLEY DEAN WITTER

TRAVELERS Group

UBS Securites

11. Identify these Beethoven works by their common nickname. Five each, plus a bonus five for all five.

A. His ninth symphony _CHORALE_

B. His fifth piano concerto _EMPEROR_

C. His ninth sonata _KREUTZER_

D. His third symphony _EROICA_

E. His sixth symphony _PASTORAL_

12. Logically enough, the Central African Republic is located in Central Africa. However, what five countries border the Central African Republic for five points each, and five points extra for naming them all.

ZAIRE, _CONGO_, _CAMEROON_, _CHAD_, _SUDAN_

13. In this monster of a bonus, you must identify the monsters of Greek mythology with which Heracles interacted, ten points each.

A. He was the three bodied giant, living in the extreme west, whose cattle Heracles had to steal and drive back to Greece

GERYON

B. Heracles had to bring him back from hell this three headed dog which guarded the underworld

CERBERUS

C. It was the many headed monster, living by Lake Lerna, that Heracles had to destroy

HYDRA

14. Identify these SI units of measurement for ten points each ...

A. It is the MKS unit of magnetic flux; the flux which, linking a circuit of one turn, produces in it an EMF of one volt as it reduces to zero at a uniform rate in one second.

WEBER (not Maxwell)

B. It is the MKS unit of force necessary to accelerate a one kilogram mass one meter per second per second.

NEWTON (not Dyne)

C. It is The Reciprocal ohm; a unit of conductance it is calculated as the ratio of the electric current flowing through a conductor, measured in amperes to the potential difference between the ends of the conductor, measured on volts.

SIEMANS (not Mho)

15. Rome had many Emperors, but only seven Kings according to tradition. Romulus was the first, ten points each for any other three you can name.

Numa Pompilius

Tullus Hostilius

Ancus Martius

Tarquinius Priscus

Servius Tullius

Tarquinius Superbus

16. Identify this family on a 30-20-10 basis

(30) When first heard of in the tenth century, they were obscure counts ruling a castle and a tiny territory just north of the Swiss border. In the eleventh century they became burgraves of Nuremberg, which prospered under their rule.

(20) They were chosen by the Holy Roman Emperor in 1415 to become margraves of Brandenburg, and built that sparsely populated province into an important European power.

(10) From their capital at Berlin, they ruled the region known as Prussia from the fifteenth century to the twentieth.

HOHENZOLLERNS

17. The Tertiary Period of the Cenozoic Era began about 65 million years ago and lasted 62 million years, seeing the development of the first primate and ending with the rise of man. The Tertiary Period is divided into five epochs: you will receive five points for each of these epochs you can name, plus an additional five points if you give them in

correct order from earliest to latest:

PALEOCENE, _EOCENE_, _OLIGOCENE_, _MIOCENE_, _PLIOCENE_

18. Identify this dramatist on a 30-20-10 basis.

(30) He was born in 1867. Lack of recognition and concern over his wife's insanity, may have contributed to the pessimistic tone of his works, which are frequently concerned with the intangible nature of reality.

(20) Excellent examples of existential drama are found in plays such as "The Pleasure of Honesty", "As You Desire Me", and "Right You Are If You Think You Are".

(10) This Sicilian was awarded the 1934 Nobel Prize for Literature, but donated the medal to the Italian government to be melted down for the Fascist cause. Name this writer of "Six Characters in Search of an Author"

Luigi _PIRANDELLO_

19. Between its founding in 1886 and its merger with the CIO, the American Federation of Labor had three Presidents. Name those three men, five points for one, fifteen for two, and thirty for all three:

Samuel _GOMPERS_

William _GREEN_

George _MEANY_

20. Identify this device on a 30-20-10 basis

(30) Early versions of this common laboratory implement were designed by Desaga and Faraday, among others

(20) It is most usually credited, however, to a German chemist who collaborated on the discoveries of cesium and rubidium.

(10) It is a metal tube with separate air and gas inlets designed to produce a hot efficient flame

BUNSEN BURNER

21. The area acquired by the United States in the Louisiana Purchase today makes up part, but not all, of the area of Louisiana, New Mexico, Wyoming, Montana, South Dakota, and Minnesota. Six states lie completely within the boundaries of the Purchase. Name these six states for five points apiece.

ARKANSAS

MISSOURI

NEBRASKA

IOWA

OKLAHOMA

KANSAS

22. Name this Greek Philosopher 30-20-10

(30) In order to reduce man's anxiety, he posited a materialistic physics, in which the universe consisted of Democritean atoms and void. He sought to eliminate superstition and the dread of death

(20) Only fragments remain of his work, but his biographer, Diogenes Laertius, gives the texts of 3 epistles and 40 maxims. Serenity is best achieved through virtue and simple living.

(10) His school at Athens was known as the Garden. He said that pleasure (by which he meant freedom from pain) is the highest good in life

EPICURUS