

Round 9

Packet by Cornell: Matt Colvin, Ahmad Rahgab, Anwar Kashem, Evelyn Browne, and Rathin Yagnik
and MIT: Ronojoy Chakrabarti, Ahmed Ismail, Archit Shah, Josh Thompson, Amy Tyszkiewicz

TOSSUP 1 (Philosophy – Religion)

Split into Four Books, this 1690 work argues that knowledge must come from sensation or reflection, but the author later admitted that mathematics and morals are a priori. Although Book 1 is called (*) "Innate Ideas," it is largely devoted to refuting innate knowledge. FTP name this seminal work, which describes the mind at birth as a 'tabula rasa,' written by John Locke.

Answer: Essay Concerning Human Understanding

TOSSUP 2 (History - US)

His brother John said of him, "I have no doubt that masturbation and self-abuse is at the bottom of his mental imbecility." In fact, he contracted syphilis from a prostitute and his wife divorced him in 1874. A wild-eyed Stalwart, on July second, 1881, (*) he fired two shots in a Washington, D.C. railroad station. FTP, name this assassin of President Garfield.

Answer: Charles Guiteau

TOSSUP 3 (Literature – Short Fiction)

Born in Cuba in 1923, he left for Italy in his teens. He joined the Italian Resistance during World War II and after the war settled in Turin, obtaining his degree in literature while working for the Communist periodical *L'Unità*. (*) FTP name this Magical Realist writer of such short stories as "Invisible Cities," "The Black Sheep," "The Cloven Viscount," and "Numbers in the Dark."

Answer: Italo Calvino

TOSSUP 4 (Science – Biology)

The tip of a micropipette filled with conducting solution is applied to a neuron or muscle cell membrane, forming a tight seal. The amplitude and direction of (*) small electric currents caused by the movement of ions across a concentration gradient are then measured. Erwin Neher and Bert Sakmann won the 1991 Nobel Prize for its discovery. FTP, name this laboratory technique that enabled investigators to conclusively establish the presence of ion channels in cell membranes.

ANSWER: Patch-clamp technique

TOSSUP 5 (Literature)

An epistolary novel, its main characters are members of the French aristocracy shortly before the Revolution. Supposedly written in order to prove that "true happiness is found only in the family," it depicts the Marchioness of (*) Merteuil and her accomplice, the Vicomte de Valmont as they wreck the lives of others, and finally themselves. FTP, name this 1782 novel by Choderlos De Laclos, lately imitated by "Cruel Intentions," and made into an earlier movie starring John Malkovich and Glenn Close.

Answer: Dangerous Liaisons or Les Liaisons Dangereuses

TOSSUP 6 (Fine Arts – Music)

He abandoned playing the piano after 1927 to devote himself to composition. His Symphony No. 1, premiered in 1925, marked the beginning of his renown as a composer—before he was twenty. (*) Although known for his criticism of Communist leaders, he attempted to appease them with settings of patriotic hymns in his Second and Third Symphonies, subtitled "To October," and "The First of May," respectively. FTP, name this Soviet composer of fifteen symphonies, fifteen string quartets, and the opera "Lady Macbeth of Mtsensk."

ANSWER: Dmitri Dmitriyevich Shostakovich

TOSSUP 7 (Geography)

Although its source is less than 400 kilometers from the Atlantic Ocean, this river flows eastward for nearly 4200 km and empties into the Gulf of Guinea. (*) It forms a the largest delta in Africa at 36,000 sq. km and also forms an interior delta in Mali. FTP name this principal river of West Africa which flows through Guinea, Mali, Nigeria, and the country with which it shares a name.

Answer: Niger River

TOSSUP 8 (Social Science)

Criticized by Jacques Derrida, who favored the deconstruction of metaphysics to its scientific reconstruction (*) of reality, it has been used widely in linguistics and in the study of kinship systems across societies in anthropology. It uses culturally interconnected signs to rebuild systems of relationships rather than studying isolated, material things in themselves. FTP, name this theory associated with Edward Titchener, Ferdinand de Saussure and Claude Levi-Strauss.

ANSWER: structuralism

TOSSUP 9 (Current Events)

José Alexander Gusmao led a guerrilla army under the name "Xanana" against the government which has occupied it since (*) 1972. José Ramos-Horta and Bishop Carlos Ximenes Belo shared the 1996 Nobel Peace Prize for their efforts towards peace in this territory. FTP, name this region recently granted autonomy by the Indonesian government.

ANSWER: East Timor

TOSSUP 10 (Science – Chemistry)

Among his discoveries were glycerine and the toxic gases hydrogen sulfide, hydrogen cyanide, and hydrogen fluoride. Perhaps it was one of these that killed him, since he had a penchant for tasting his discoveries. A pharmacist in Koping, he wrote the 1777 work "Chemical Observations and Experiments on Air and Fire." (*) FTP, name this man, the first to isolate tartaric acid, who probably discovered oxygen two years before Priestley.

Answer: Carl Wilhelm Scheele

TOSSUP 11 (History)

Influenced by the lectures of Francois Guizot, he was a close friend of Gustave de Beaumont, traveling with him to America, England, and Algeria. The July Revolution of 1830 caused him to break with the old liberals, whom he criticized in *The Old Regime and the French Revolution*. Intending to study (*) prison reforms, he set out for America, and produced *Marie, or Slavery in the United States*. FTP, name this political theorist, the author of *Democracy in America*.

Answer: Alexis de Tocqueville

TOSSUP 12 (Religion)

Followers of this sect believe not only in the Four Noble Truths, but also in the bodhisattva doctrine, placing compassion on equal footing with wisdom. Its Sanskrit name translates literally as greater (*) vessel or vehicle, and that it has been, spreading to China by 520 AD and Japan by the 12th century. FTP, name the sect of Buddhism related to tendai and zen, which is not Theravada.

ANSWER: Mahayana

TOSSUP 13 (Science – Physics)

First observed in 1896 as a broadening of spectral lines of sodium in a flame, it splits spin degeneracy by lowering the energy of the electron whose spin is aligned with the external (*) field. Analogous to the Stark Effect, its most widely used modern application is to determine the magnetic field of stars. FTP name this effect, named for its discoverer, the co-winner of the 1902 Nobel Prize in Physics.

Answer: Zeeman Effect (pronounced "ZAY-mon")

TOSSUP 14 (History - Euro)

He resigned his diplomatic office after the treaty of Brest-Litovsk, which he bitterly opposed, and after the election of Hitler, he called for a Fourth International. Exiled to Alma-Ata in 1928, (*) and later to the island of Prinkipo, controlled by Turkey, he was rumored to have had an affair with Frida Kahlo. A machine gun attack on his house failed before Ramon Mercader nailed him with an ice pick. FTP, name this Bolshevik leader, born Lev Davidovich Bronshtein.

Answer: Leon Trotsky

TOSSUP 15 (Literature)

As editor of various newspapers, including the partisan National Gazette, he was involved in several heated editorial battles, but none of his publications posted a profit. His collections of (*) lyric poems include such works as "The Indian Burying Ground," "The Wild Honeysuckle," and "Eutaw Springs." FTP, name this "poet of the American Revolution."

ANSWER: Phillip Freneau

TOSSUP 16 (Fine Arts – Sculpture)

This marble sculpture sits in the Cornaro Chapel in the northern transept of the church Santa Maria della Vittoria in Rome. An angel stands on the left holding an (*) arrow pointing to the titular figure lying below him. That figure is a Spanish nun swooning in heavenly rapture. FTP, name this sculpture by Gianlorenzo Bernini.

ANSWER: Ecstasy of Saint Teresa

TOSSUP 17 (Sports)

In his first full season in 1911 he had an astonishing .408 hitting average, though he did not win the batting title. (*) He is 3rd all-time with a lifetime batting average of .356 behind Ty Cobb and Rogers Hornsby. Ted Williams and Iowa Senator Tom Harkin are both vocal supporters of his reinstatement, citing that he was never convicted of any wrongdoing, and that he did bat .375 during the 1919 World Series. FTP, name this great banned for his involvement in the Black Sox scandal.

Answer: "Shoeless" Joe Jackson

TOSSUP 18 (Science)

A simple case of adiabatic transport, its rate of rotation is equal to the rate of rotation of the earth times the sine of the latitude, (*) such that its period was 32 hours in Paris where it was first demonstrated. One of the first of these was constructed from a 28 kilogram iron sphere suspended on a 70 meter wire from the dome of the Pantheon. FTP name this device used to give direct evidence of the rotation of the earth.

Answer: Foucault Pendulum

TOSSUP 19 (Pop Culture)

Chicken Pox, Summer Sucks, Chicken Lover, the Mexican Staring Frog of Southern Sri Lanka, (*) City on the Edge of Forever, Cow Days, Gnomes, Damien Conjoined Fetus Lady. FTP, these are all episodes of what show which also includes classics as Sexual Harassment Panda, and Mr. Hankey the Christmas Poo, and spawned the "Bigger, Longer, and Uncut" movie?

Answer: South Park

TOSSUP 20 (History - US)

Until 1840, he served as commanding officer of the first U.S. steamship, the Fulton. In 1843, he led a squadron to Africa to suppress the slave trade. President Fillmore gave him his most famous command, (*) which resulted in the signing of the treaty of Kanagawa and the eventual decline of the Tokugawa Shogunate. FTP, name this commander of the fleet that sailed into Edo Bay in 1854.

Answer: Matthew Perry

TOSSUP 21 (Misc)

The introduction of this scleromorph allowed Ethiopia to establish a fixed capital, by ensuring a steady fuel supply. In California, its oil was touted as a malaria cure, and growing them was a favorite get-rich-quick scheme; Jack London sunk everything he had into planting them. Unfortunately, the oil was expensive to extract and their wood proved impossible to work. (*) But it was the dry leaves, twigs, and other litter which caused the real problem everywhere it was introduced; these are highly flammable, as to encourage the forest fires necessary for the propagation of, FTP, what tree native to Australia, the habitat and sole food source of the koala?

Answer: Eucalyptus

TOSSUP 22 (History – US)

While working on a machine, his hand slipped, and he nearly lost an eye. Stunned by the incident, he vowed to look at nature every day of his life thereafter. (*) Walking from the midwest to the Gulf of Mexico, he kept a journal. He was the first to attribute Yosemite's spectacular rock formations to glacial erosion, and in 1903, was accompanied by Theodore Roosevelt on a camping trip there. FTP, name this conservationist, the father of the American National Park system.

Answer: John Muir

TOSSUP 23 (Current Events)

His Nobel Prize citation reads "for his analysis of monetary and fiscal policy under different exchange rate regimes and his analysis of optimum currency areas." His work in macroeconomic stabilization policy has become the seminal work behind the theory which dominates policy considerations of monetary and fiscal policy in open economies and is often credited for the development of a well-known economic growth model, bearing his name. (*) FTP name this Columbia University economist who was recently awarded the 1999 Nobel Prize in Economic Sciences.

Answer: Robert A. Mundell

TOSSUP 24 (Myth)

Like Daedalus, he fashioned wings to escape from imprisonment, and the modern Icelandic word for labyrinth comes from his name. Another scene from his story appears on the 8th century Anglo-Saxon jewel-case the Franks Casket, where the bodies of King Nidud's two sons can be clearly seen buried under his anvil. FTP, name this smith of Germanic legend, who Beowulf names as the maker of his chain mail. (*)

Answer: Weland or Vohlund

TOSSUP 25 (Misc – perhaps Science)

The lightest known solid, this substance, with a density only 3 times that of air, was developed by NASA (*) and has 20 times the insulating power of glass. FTP name this substance which will be used to capture material from Comet Wild-2.

Answer: Aerogel

Round 9: Cornell and MIT

BONUS 1 (Lit/Phil)

Name these works of Jean-Paul Sartre from descriptions FTSPNO.

A) [5] This play is a literary expression of the idea that "Hell is other people." Three unfortunate dead people are brought together in a room and locked there for all eternity.

Answer: No Exit or Huis Clos

B) [10] This is Sartre's retelling of the story of Orestes. The title characters represent the Eumenides.

Answer: The Flies or Les Mouches

C) [5] This novel in diary form tells of the revulsion that Roquentin (ro-con-TAN) feels when confronted with the world of matter.

Answer: Nausea or La Nausée

D) [10] Sartre relates the loneliness and isolation of his childhood years in this 1963 autobiography.

Answer: (The) Words or Les Mots

BONUS 2 (Science — Physics)

FTPE, identify these quantities from physics.

A) This quantity is defined as the difference between the minimum potential energy in a binding potential and the lowest possible energy of a particle in that potential. It is never zero, meaning that a quantum particle always has some kinetic energy.

ANSWER: Zero-point energy

B) For a wave polarized perpendicular to the plane of incidence, this quantity is defined as the angle of incidence for which no reflection occurs. It is equal to the inverse tangent of the ratio of the indices of refraction.

ANSWER: Brewster's angle (accept polarizing angle)

C) Proportional to the mass of a particle, this type of relativistic energy remains even when a particle has no momentum.

ANSWER: Rest energy (or rest mass)

BONUS 3 (Fine Arts – Music)

Name the composer from works on a fifteen-five basis.

A) [15] The Little Organ Book

[5] The St. Matthew Passion; The Art of Fugue

Answer: J.S. Bach

B) [15] Stabat Mater in 1842; The Italian Girl in Algiers

[5] The Barber of Seville; William Tell

Answer: Gioacchino Antonio Rossini

BONUS 4 (Social Science)

FTPE, identify the following terms from linguistics.

A) What case is Mary assigned in the following sentence: John saw Mary.

ANSWER: accusative

B) What case is Mary assigned in the following sentence: John gave Mary the ball.

ANSWER: dative

C) If the node immediately dominating X dominates Y, and X does not dominate Y, then what syntactic relationship exists between X and Y?

ANSWER: c-command

BONUS 5 (Religion)

Identify these heresies FTPE.

A) Named for a bishop of Constantinople, it claims that Mary was only mother of the human aspect of Jesus.

ANSWER: Nestorianism

B) This heresy, vigorously attacked by Augustine, held that sacraments performed by a "fallen" minister were not valid sacraments.

ANSWER: Donatism (or Donatist heresy)

C) This early heresy became a staple of Gnostic thought. It held that Christ's body was only apparent and not real.

ANSWER: Docetism (or Docetist, etc.)

BONUS 6 (Science – Chemistry)

It's now time to talk about the Electrical Engineer's favorite element, Silicon. Identify the following FTSNOP.

- A) [5] For five points, name the process where small amounts of atoms from Group III or V are added to introduce free charge carriers.

Answer: **Doping**

- B) [5] For another five points give the name of the positive charge carriers, which are really an absence of an electrons.

Answer: **Holes**

- C) [10] Now that we have our doped silicon, we need to do something useful with it. FTP name the process of printing designs on silicon, where light is shone through a mask onto a wafer.

Answer: Projection Optical **Lithography** (also accept **E-beam** or **EUV Lithography**)

- D) [10] For a final 10 points, name the substance which makes Optical Lithography possible, a magical concoction which reacts with light and becomes soluble in a base.

Answer: **Photo Resist**

BONUS 7 (Literature)

Given a brief description of a Eugene O'Neill play, name it FTPE.

- A) Billy Brown, a mediocre architect, and Dion Anthony, a talented artist, are both in love with Margaret, who, in turn, is in love with a suit of clothes.

ANSWER: The **Great God Brown**

- B) Ephraim Cabot leaves his farm and three sons and returns with a new wife. But the new wife Abbie soon becomes pregnant with the child of Cabot's eldest son; she kills the child when she realizes it is unwanted.

ANSWER: **Desire Under the Elms**

- C) This four-act drama was the sequel to Long Day's Journey Into Night and is about the adventures of the Tyrone and Hogan families.

ANSWER: A **Moon For the Misbegotten**

BONUS 8 (Fine Arts – Music)

Answer the following questions about musical frequencies, for ten points each.

- A) This term is given to the tuning system in which an octave is divided into twelve equal semitones, which allow keyboard instruments to play in any key.

ANSWER: **Equal temperament** or **equal tempering** [Do not accept **well** temperament]

- B) Usually regarded as the most dissonant interval of size smaller than an octave, this name is given to two notes which are six semitones apart; their frequencies differ by a factor of the square root of 2.

ANSWER: **augmented fourth** or **diminished fifth** or **tri-tone**

- C) The A above middle C is assigned, according to modern pitch convention, to be 440 Hertz. Baroque music, on the other hand, was played as low as A above middle C equal to 395 Hertz. In modern pitch convention, which note corresponds most closely to 395 Hertz?

ANSWER: **G-sharp** or **A flat** above middle C

BONUS 9 (Science – Math)

FTPE, answer these questions about linear algebra.

- A) What is the term for a set of mutually perpendicular vectors of length 1 that span a space?

ANSWER: **orthonormal basis** (prompt on partial answer)

- B) Given a linear transformation T from vector space X to space Y, what is the term for the subspace of X which is mapped to the zero vector of Y?

ANSWER: **kernel**

- C) Let A be a square matrix with n rows. Then the statements that A has a zero eigenvalue, that the rank of A is less than n, and that A has determinant zero are all equivalent ways of saying what related matrix to A does not exist?

ANSWER: the **inverse** of A (grudgingly accept "reciprocal")

BONUS 10 (Social Science)

Given a brief description of the economist, name him FTPE.

A) The first American to win the Nobel Prize in Economics, this MIT professor was credited with developing static and dynamic economic theory and for raising the level of analysis in economic science. His *Economics* is the best-selling economics textbook of all time.

ANSWER: Paul Anthony Samuelson

B) Often considered an adversary of Samuelson, he is the leading proponent of monetarism and came under fire for his support of the Chilean coup in 1973, three years before he was awarded the Nobel Prize.

ANSWER: Milton Friedman

C) Educated in Leningrad, he emigrated to the United States in 1931 and became a professor at Harvard in 1946. He is credited with creating the Input-Output model.

ANSWER: Wassily Leontief

BONUS 11 (Geography)

Given the highest mountain in a US state, name the state FTSNOP.

A) [5] Mount Whitney

ANSWER: California

B) [5] Gannett Peak

ANSWER: Wyoming

C) [10] Brasstown Bald

ANSWER: Georgia

D) [10] Backbone Mountain

ANSWER: Maryland

BONUS 12 (History – US)

Given the third party presidential candidate, name the party FTP each.

A) [10] John Anderson, 1980

Answer: American Independent

B) [10] Henry Wallace, 1948

Answer: Progressive

C) [10] William Wirt, 1832

Answer: Anti-Masonic

BONUS 13 (Fine Arts – Painting)

Name the painter, 30-20-10.

30) An exhibit at Boston College this past spring was devoted to his newly found work, *The Taking of Christ*. It exhibits his typical use of tumultuous action and stark contrast between color and darkness.

20) In 1607 this Baroque artist fled Rome after having killed a man in a heated argument over a tennis match.

10) This painter of *Basket of Fruit*, and *Young Bacchus* was born with the name Michelangelo Merisi.

Answer: Michelangelo Merisi da Caravaggio

BONUS 14 (History – Euro)

Please, Hammer, don't hurt 'em! It's time to answer these questions about Charles "The Hammer" Martel FTSNOP.

A) [5] For 5, the Hammer was the grandfather of what Holy Roman Emperor?

Answer: Charlemagne or Charles the Great or Charles I

B) [5 and 10] The Hammer's offspring were also well known. For five points name Charlemagne's father, and for 10 name his other son, Charlemagne's uncle.

Answer: Pepin (Pippin) II (or the Short) and Carloman

C) [10] For 10, Chaz laid the hammer on the Muslims in what Battle near Poitiers in 732?

Answer: Battle of Tours

BONUS 15 (Science – Biology)

Answer these questions related to genetics FTPE.

A) This form of non-chromosomal DNA is found in prokaryotes. It consists of a circular strand of DNA.

Answer: plasmids

B) This tenet of molecular biology holds that DNA codes for RNA, which codes for protein. It also includes the notion that there is no information encoded in proteins.

Answer: the central dogma of molecular genetics

C) Although it has since been learned that not all DNA codes for protein synthesis, these organisms are the only ones to directly violate the central dogma, using reverse transcriptase to synthesize DNA from RNA.

Answer: retroviruses

BONUS 16 (Current Events)

Answer the following about the recent Indian election FTSNOP:

A. For 5 points each, what were the two main parties vying for control of the Indian parliament?

ANSWER: Congress and Bharatiya Janata Party

B. For 5 points each, name the leader of the losing Congress party, an Italian-born woman, and the leader of the BJP who will remain prime minister of India.

ANSWER: Sonia Gandhi (prompt on partial answer), and Atal Behari Vajpayee

C. For a final 10 points, what was the name of the now-ruling party alliance of which the BJP was a part?

ANSWER: National Democratic Alliance

BONUS 17 (Myth)

30-20-10, give the common name.

30) One is the personification of the renunciation of religious faith. As one of the Daevas, he is a follower of Ahriman and fights the Amesha Spentas and Ahura Mazda.

20) The other is the leader of a different set of Devas. He rides an elephant named Airavata and killed the dragon Vritra.

10) He is god of thunder and storms, and is the supreme Vedic god.

ANSWER: Indra

BONUS 18 (Literature)

Stephen Crane was fond of including a color in the titles of his works. FTSNOP name these works from a brief description.

A) [5] The 1895 novel which focuses on Harry Fleming's internal conflicts of fear and heroism

Answer: The Red Badge of Courage

B) [10] Crane's first book of verse, which was inspired by Emily Dickinson and was titled from a boyhood dream he had of watching mounted horses rising out of the sea

Answer: The Black Riders

C) [10] The 1898 short story that deals with the changing times out west when men no longer always carried guns

Answer: The Bride Comes to Yellow Sky

D) [5] The 1899 short story published in The Monster and Other Stories, which concerns a Swede's violent self-provoked death in Nebraska

Answer: The Blue Hotel

BONUS 19 (Misc)

Answer the following questions about two possibly related holidays, 15-5

A) [15] It's the holiday now celebrated in the U.S. on the date of Candlemas, or the Feast of the Purification of the Virgin Mary.

B) [5] In France, it was traditionally a bear that would see his shadow on this day, but that honor now goes to a smaller and cuddlier animal.

Answer: Groundhog Day

C) [15] This holiday is celebrated every October 23rd, from 6:02 A.M. to 6:02 P.M.

D) [5] The date and time are appropriate to the honoree, an SI unit that the high school chemistry teacher who invented the holiday thought needed more attention.

Answer: Mole Day

BONUS 20 (Geography)

Given the Capital name the Country FTPE.

A) Windhoek

Answer: Namibia

B) Bairiki

Answer: Kiribati (pronounced "kiribosh")

C) Suva

Answer: Fiji

BONUS 21 (History – Non Western)

Answer these questions about ancient Egypt FTPE.

A) [10] The fourth dynasty is better known by a name similar to an ancient Egyptian capital city

Answer: Memphite Dynasty

B) [10] What was the Egyptian name of the second Memphite Pharaoh, who is probably the best known?

Answer: Khufu

C) [10] What was Khufu's Greek name, best known for the pyramid that bears his name.

Answer: Cheops

BONUS 22 (Soc Sci)

Answer the following related questions FTPE:

In 1911, a Native American man, the last survivor of his tribe, wandered into Oroville, California, desiring to see human faces again before he died, though he expected that white people would kill him on sight, as they had killed almost all of his tribe over twenty years before.

A) [10] Name *either* him or his tribe.

Answer: Ishi or the Yahi tribe

B) [10] Give the last name of the anthropologist, a student of Franz Boaz, who learned Ishi's language and story, and of his wife, who wrote about him in *Ishi In Two Worlds*.

Answer: Alfred and Theodora Kroeber

C) [10] Name the Kroebers' daughter, a well-known science fiction writer whose protagonists are often anthropologists, as in *Rocannon's World* and *The Left Hand of Darkness*.

Answer: Ursula K. Le Guin

BONUS 23 (Current Events – Politics)

If you aren't sick of hearing it yet, the year 2000 is approaching!! With that, the 2000 Presidential Campaign will be soon underway and the politicians will be up to their usual tricks, if they haven't started doing that already. FTPE, name the political party that each of the following candidates is affiliated with. For example, if I were to say Donald Trump, the correct answer would be the Reform Party.

A) [10] Ralph Nader

Answer: Green Party

B) [10] Warren Beatty

Answer: Democratic Party

C) [10] Alan Keyes

Answer: Republican Party (or GOP)

BONUS 24 (Literature – Poetry)

30-20-10 Name the poet.

A) [30] He published his "Precocious Autobiography" at the age of 30 in 1963.

B) [20] His spotlighted anti-Semitism in his poem "Babi-Yar."

C) [10] He was a voice of the youth in 1950's Russia after refusing to subscribe to the state mandated style of socialist realism.

Answer: Yevgeny Yevtushenko (YEV-tuh-SHANK-o)