

WIT 2002

Round 6

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1 Tossups

The transmembrane conductance regulator, a molecule that transports sodium chloride in and out of cells, malfunctions as a result of a defective gene on chromosome seven. Symptoms can include liver disease, which causes five percent of deaths, poor functioning of the pancreas, and increased susceptibility to *Pseudomonas*, *Hemophilus*, and *Streptococcus* bacteria. FTP, name this fatal genetic disease whose most prominent symptom is a buildup of mucus in the lungs.

Answer: cystic fibrosis

Their language, now almost extinct, is a member of the Tungus branch of the Altaic family. Early records describe them as the I-lou, a group of fishers, hunters, and gatherers, or as the Tung-ihu, "eastern barbarians." In the 12th century a group of them known as the Jurchen drove the Sung out of northeastern China, where they established a dynasty that was soon destroyed by the Mongols. They forced the Chinese to adopt their tribal custom of braiding their hair into pigtails when in 1644. FTP—name this ethnic group drove out the Ming to establish the Qing dynasty.

Answer: Manchu

One of his forms is the wind-god Ehecatl [eh-heh-CAHTULL], and his twin brother Xolotl [pron. show-LOW-tull] guides the dead down to Mict-

lan. He presided over the fifth sun, and was identified with the Mayan god Kukulcan [coo-cool-CAHN]. A son of the goddess Coatlicue [coh-AT-lih-cue], he was driven out by his rival Tezcatlipoca [tez-cat-lih-POH-cah], but promised he would return. Since he was described as light-skinned and bearded, the Aztecs believed that Cortez was, FTP, what Feathered Serpent god? Answer: Quetzalcoatl

He called the unification of Germany "a juvenile prank which the nation committed in its old age" and lamented its destructive consequences, such as misdirected aims in World War I. After the armistice he participated in the creation of a new constitution. Meanwhile, he published a study on *Rejections of the World* arising from his work on eastern religions and the ancient Israelites. FTP, name the German sociologist whose most famous work was 1905's *The Protestant Ethic and the Spirit of Capitalism*.

Answer: Max Weber

Increase Mather changed his mind in 1671, abandoning his earlier connection with John Davenport. Mather's decision and a series of natural disasters induced a majority of New England congregations to adopt this policy by the beginning of the 18th century. Despite an increase in church membership, the doctrine was abandoned during the fervor of the first Great Awakening. FTP, name the policy first articulated in 1662 which allowed the Puritan congregations of New England to admit the children of the unsaved to partial communion with the church.

Answer: the Half-Way Covenant

The narrator praises the title object's youth, contrasting it with the world "where men sit and hear each other groan...where but to think is to be full of sorrow." He wishes for an "easeful Death:" "to cease upon the midnight with no pain" listening to the nocturnal song of "a vision, a waking dream," and an "immortal bird" in-FTP-what 1819 ode by John Keats?

Answer: Ode to a Nightingale

In Einhard's *Life of Charlemagne*, his companions are Anshelm, count of the Palace, and Eggihard, "who was in charge of the king's table." In a later text, his enemies the Basques are replaced by thousands of screaming worshippers of Apollo, who are cut down by the minutely described jeweled

weapons of his companions, Bishop Turpin and Oliver. His refusal to blow the horn that will summon the army of Charlemagne leads to the death of, FTP, what hero of the oldest of the chansons de geste?

Answer: Roland

Material regions undergoing this process generally remain close to the adiabatic gradient. It dominates radiative diffusion in low mass stars. The Prandtl number characterizes its regime, and its onset is characterized by a critical Rayleigh number. Driven by compositional or thermal buoyancy, FTP name this process of heat transport by fluid motion.

Answer: thermal or free convection (do not accept forced convection)

Isoporic charts plot contours of constant secular variation in its value. Most modern models of it involve a dynamo mechanism operating in the outer core. William Gilbert modeled it with a spherical lodestone. Records of its reversals are preserved in oceanic crust, providing evidence of seafloor spreading. Helping shield the Earth's surface from cosmic rays and solar wind, FTP name this important feature of the Earth which was exploited by explorers using compasses.

Answer: Earth's magnetic field or geomagnetic field

His effect states that an electromotive force will be observed when heat flows across magnetic field lines. Independently of J. J. Thomson, he explained why compounds ionize easily in water. His heat theorem, which states that as temperature approaches absolute zero all bodies approach the same entropy, is also known as the third law of thermodynamics. FTP, name this German chemist whose equation relates the voltage of an electric cell to its properties.

Answer: Hermann Walther Nernst

For a vector field, it corresponds to taking the exterior derivative of the associated 1-form, and thus its divergence is always zero, and it is always zero for path-independent vector fields. With a magnitude given by the limiting value of circulation per unit area, FTP name this vector derivative, written

del cross and often visualized using tiny paddlewheels.

Answer: curl or rot or rotation (accept del cross before mention in question)

It begins with eight solo cellos playing the theme of a hymn, "God preserve Thy people." A long passage for full strings marks the turn of the tide, followed by the hymn-tune, then a folk theme in counterpoint with "God save the Czar." The French troops at Borodino are symbolized with fragments of the Marseillaise. Associated with Fourth of July Boston Pops concerts, FTP name this overture that includes cannons firing, written by Tchaikovsky.

Answer: 1812 Overture or Festive Overture: 1812 or The Year 1812

His 1789 painting *Lictors Bringing Back to Brutus the Bodies of his Sons* shows many similarities to his most famous work: the subject is taken from early Roman history, men on the left engage in the title action, and women mourn on the right. He also painted *Intervention of the Sabine Women*, which inspired the *Romulus Victor over Acron* of his pupil Ingres. His most famous painting shows an old man clutching three swords in front of three young men. FTP name this painter of *Oath of the Horatii*.

Answer: Jacques-Louis David

Like Bartemious Crouch, he has the same first name as his dad, whom he killed. Originally known as Tom Marvolo Riddle, he speaks Parseltongue. His supporters, known as Death Eaters, include Wormtail and Lucius Malfoy. His first attempt to return was possessing the body of Professor Quirrell, but he was thwarted in his effort to steal the Sorcerer's Stone. FTP, name this greatest Dark wizard of all time, the nemesis of Harry Potter.

Answer: Lord Voldemort (accept Tom Marvolo Riddle before mention in the question; prompt on He-Who-Must-Not-Be-Named or You-Know-Who or The Dark Lord)

In the novel *Main Street*, Carol tries to get the women's study club of this name to actually read literature. The poem of this name, written by a boy of seventeen, begins, "To him who in the love of Nature holds / Com-

munion with her visible forms, she speaks / A various language." The poet also observes that "All that tread / The globe are but a handful to the tribes / That slumber in its bosom." Inspired by reading the British "graveyard poets", FTP name this "view of death" written by William Cullen Bryant.

Answer: Thanatopsis

It is a reworking of the author's earlier failed play *The Wood Demon*. Dr. Astrov, once an idealist, has become a self-hating drunkard. He and the title character are both in love with Elena, the young second wife of a hypochondriac professor. Serebryakov decides to sell the estate, leading the title character to try unsuccessfully to shoot him. The title character's niece Sonya convinces him to stay and continue working in, FTP, what Chekov play?

Answer: Uncle Vanya or Dyadya Vanya

Born in a cave on Mount Cyllene, he performed the first flesh-sacrifice ever, including his own portion as the twelfth god. He fashioned cow shoes to hide the tracks of a herd that he stole on the day of his birth. His duties included summoning the dying by laying his caduceus on their eyes. He also killed the giant Argos, freeing Io. FTP name this messenger of the gods in classical myth.

Answer: Hermes Mercury

Along with his bishops, he did public penance at Attigny for the blinding and death of Bernard of Italy. Eleven years later, his clergy, led by Ebbo of Rheims, turned the tables on him and forced him to give up his arms and royal insignia at Soissons. While the symbols of his power were returned in 834 at St. Denis, his yearlong imprisonment in a monastery started the conflict among his sons, Lothar, Charles the Bald, and Louis the German. FTP, name this religiously inclined emperor, the son and heir of Charlemagne.

Answer: Louis the Pious

A form of dissimilation called Grassmann's Law removes aspiration from stops in certain positions in this language. Karl Verner used the evidence

of its accent to formulate his namesake law explaining certain fricatives in Proto-Germanic. Sir William Jones, in a famous 1786 paper, called it "more perfect than the Greek, more copious than the Latin" and discovered its relationship to those other Indo-European languages. FTP, name this language of the Vedas, the classical language of ancient India.

Answer: Sanskrit

Dinaric, along the border between Bosnia and Croatia. Julian, making up the western half of Slovakia. Carnic, forming the southern boundary of the province of Carinthia. Oetztal, glacial site of the 1991 discovery of the Neolithic "Iceman." All are smaller sections of, FTP, what European mountain range crossed by the Simplon and Great St. Bernard Passes?

Answer: the Alps

Frustrated by the intransigence of the second one, Stolypin introduced the "arbitrary and complicated" electoral law of 1907 to reduce the influence of workers and peasants. It had its intended effect, as the third, the only one to meet for its full five-year term, contained a much greater proportion of right-wing National Unionists and Octobrists. FTP, name this body introduced as a response to the Revolution of 1905, a Russian legislative assembly that lacked the power to resist the ministers of Nicholas II.

Answer: the Duma

He bypassed the Senate to accept the will of Attalus III of Pergamum himself, distributing the late king's lands and property among the citizens of Rome. His other attempt at land reform formed a commission (including his younger brother) that would confiscate surplus land from estate owners and distribute it as small private farms. Such actions angered the mob of senators that killed him on the steps of the capitol. FTP, name this tribune of 133 BC, the elder brother of Gaius.

Answer: Tiberius (Sempronius) Gracchus

The author of theoretical treatises on fortifications and human proportions, a great deal is known about his life from his detailed diary and numer-

ous self-portraits. A native of Nuremburg, he supported Luther's new ideas as evidenced by his painting *Four Apostles* in which he emphasizes the Bible and places John before Peter. He also painted the botanically correct *The Great Piece of Turf*, but is better known for another medium. FTP name this engraver of *The Fall of Man*, *Saint Jerome in His Study*, and *Knight, Death and the Devil*.

Answer: Albrecht Durer

2 Bonuses

Items from high medieval Spain, FTPE.

10) The pilgrimage center in the far northwest that drew thousands of travelers from all over Christendom to see the relics of Saint James.

Answer: Santiago de Compostela

10) The series of military campaigns that succeeded in expelling the Moors from Spain by the end of the medieval period.

Answer: Reconquista

10) Epic poetry glossed over this warrior's service to the Muslim ruler of Zaragoza; in the century after his death in 1099, he became the national hero of Spain.

Answer: Rodrigo Diaz de Vivar or El Cid

Name the South American country, given a list of cities, FTPE.

10) Arica, Antofagasta, Valparaiso

Answer: Chile

10) Recife, Bahia, Belem

Answer: Brazil

10) Cuenca, Esmeraldas, Guayaquil

Answer: Ecuador

Name the following from the economic history of England, FTPE.

10) This 1733 act, inspired by Robert Walpole, protected West Indian sugar planters against their foreign competitors. Its extension by Grenville thirty years later enraged the American colonists.

Answer: the Molasses Act

10) The practice of eliminating or limiting the ancient rights of the villagers to exploit the common lands. Some historians credit it with a rise in agricultural productivity during the eighteenth century.

Answer: enclosure movement

10) Opposed by Richard Cobden and John Bright, these pieces of legislation banning the import of foreign grain were repealed in 1846.

Answer: the Corn Laws

Name the following about the organizations that helped end European dominance Africa FTPE.

10) This nation's independence was achieved after years of guerilla warfare by SWAPO, the South West African People's Organization.

Answer: Namibia

10) Banned by the apartheid government in 1960, its leaders were soon banished to Robben Island off the Cape of Good Hope. They would return to govern South Africa after the collapse of the racist regime.

Answer: ANC or African National Congress

10) The Popular Front For The Liberation Of Saguia El Hamra And Ro De Oro, a.k.a. Polisario, made peace with Mauritania but is still fighting

against the nation that occupies this territory.

answer: Western Sahara

Bloody battles from ancient Greece, 5-5-10-10.

5) 490: Athenians and their allies scatter an invading host of Persians.

Answer: Marathon

5) 480: The Persians avenge themselves by annihilating the three hundred Spartans of Leonidas.

Answer: Thermopylae

10) 418: Spartans crush the Athenian army, impelling the Athenians to the desperate recourse of a naval expedition against Sicily.

Answer: Mantineia

10) 168: Roman general Lucius Aemilius Paulus smashes the native dynasty of Macedonia and loots its royal treasures.

Answer: Pydna

Name these collections of short stories by American authors FTPE.

10) This Herman Melville collection contains the stories "Benito Cereno" and "Bartleby the Scrivener".

Answer: Piazza Tales

10) This Nathaniel Hawthorne collection contains "The Celestial Railroad," "The Birthmark," "Rappaccini's Daughter," and "Young Goodman Brown."

Answer: Mosses from an Old Manse

10) This Ernest Hemingway collection contains "Hills Like White Elephants" and "The Killers." The title refers to guys lacking females.

Answer: Men without Women

Plays with title animals, FTPE.

10) In this Eugene O'Neill play, the disillusioned stoker Yank releases the title hirsute simian from its cage, and is promptly killed by it.

Answer: The Hairy Ape

10) In this Aristophanes play, Dionysus goes down to Hades to bring back Euripides, but ends up bringing back Aeschylus instead.

Answer: The Frogs or Batrachoi

10) It concerns a strike in prison filled with people, but you knew from the title that they weren't birds. The author of this play recently rediscovered after 60 years wrote another with an avian title, *Sweet Bird of Youth*.

Answer: Not About Nightingales

10)

Identify the type of topological space from its defining property FTPE:

10) Every cover by open sets has a finite subcover; if the space is a complete metric space, it is the same as being both closed and bounded.

Answer: compact

10) The space cannot be expressed as the union of two disjoint nonempty closed subsets; equivalently, it has no subset which is both closed and open.

Answer: connected

10) Any loop based at some basepoint can be contracted to a point, i.e. its fundamental group is trivial.

Answer: simply connected or 1-connected

Name these things associated with the phenomenon of dispersion, FTPE.

10) For a wave packet, a dispersion relation gives the angular frequency as a function of this quantity, given by 2π over the wavelength.

Answer: angular wavenumber

10) Dispersion of a wave packet can be expressed as a difference between the group velocity and this velocity, given by the angular frequency over the angular wavenumber.

Answer: phase velocity

10) Variation in this quantity with frequency describes dispersion of light in a medium. It appears in Snell's law, and is the ratio of the speed of light in free space and in the medium.

Answer: index of refraction

Name these things from models of the behavior of gases, FTPE.

10) This useful model of gas behavior has the simple equation of state $PV = nRT$.

Answer: ideal gas law or model or behavior

10) This gaseous equation of state introduces two coefficients describing corrections to ideal behavior due to reductions in the effective volume available per molecule and the pressure.

Answer: van der Waals equation of state

10) Typically symbolized z , this factor given by PV/nRT measures deviations from ideal behavior.

Answer: compressibility factor

Name these Italian architects FTPE.

10) This Florentine discovered scientific perspective. He lost the competition for the first Baptistery doors to Ghiberti, but beat him in the competition for the Cathedral dome.

Answer: Fillippo Brunelleschi

10) The Villa Rotonda closely follows the theories he espoused in his *Four Books of Architecture*. His works greatly influenced the English architect Inigo Jones.

Answer: Andrea Palladio

10) This sculptor-architect designed the collonade and oval piazza in front of the faade of St. Peter's Cathedral in Rome. He also designed the Cornaro Chapel, which contains his Ecstasy of St. Theresa.

Answer: Gianlorenzo Bernini

Name these Indian goddesses FTPE.

10) The patroness of speech, writing and learning, and of the arts and sciences, this goddess of fertility and wealth is the consort of Brahma.

Answer: Sarasvati or Saraswati

10) Also known as Sri, she is the goddess of good fortune and beauty. She is the consort of Vishnu, and is his wife during each of his incarnations.

Answer: Lakshmi

10) This grim consort of Shiva wears a belt of dismembered arms and a chain of severed heads. Her other aspects include Uma, Durgha and Parvati.

Answer: Kali

Answer the following on this year's Nobel prize in Physiology or Medicine FTPE. 10) Three men shared the prize for their work on programmed cell death, a process also given this nine-letter name. Answer: apoptosis 10) The prize-winning research on apoptosis was done on this simple round-

worm, which has 959 somatic cells at maturity. Answer: C. Elegans or Caenorhabditis elegans 10) *C. elegans* is a member of this primitive phylum of roundworms. Answer: Nematoda or nematodes

Name the Tom Lehrer song from lyrics FTPE. 10) "...I press it to my lips./ I take a healthy bite/ from your dainty fingertips./ My joy would be complete, dear,/ if you were only here." Ans: I Hold Your Hand In Mine 10) When they see us coming, the birdies all try an' hide,/ But they still go for peanuts when coated with cyanide. Ans: Poisoning Pigeons in the Park 10) Por-/ Nographic pictures I adore./ Indecent magazines galore,/ I like them more/ If they're hard core. Ans: Smut

Answer the following on German art, FTSNOP.

10) Hospital patients at a certain abbey of Saint Anthony could look at this altarpiece's gruesome depiction of the Crucifixion when it was closed, or at the Annunciation, Nativity, and Resurrection if its first set of wings were opened.

Answer: Isenheim Altarpiece

5) This man painted the Isenheim altarpiece.

Answer: Matthias Grnewald or Gothardt

10) In this opera, the titular painter is tempted by the demons of the Isenheim altarpiece in a dream vision in which he imagines himself to be St. Anthony. He is modelled on Matthias Grnewald.

Answer: Mathis der Maler or Mathis the Painter

5) This man composed the opera Mathis der Maler.

Answer: Paul Hindemith

Name these psychologists who had different multi-stage theories of human development, FTSNOP.

5) He theorized five psychosexual stages of development including oral and anal.

Answer: Sigmund Freud

10) He theorized eight stages of psychosocial development extending over the whole lifespan, including trust vs. mistrust and identity vs. role confusion.

Answer: Erik Erikson

5) He theorized four stages of cognitive development in children, including sensorimotor and pre-operational.

Answer: Jean Piaget

10) He theorized 3 stages of moral development, with 6 substages including Punishment Concern. His model was criticized by his student Carol Gilligan.

Answer: Lawrence Kohlberg

Given lines from the poetry of the First World War, name the poet, FTPE.

1. "My friend, you would not tell with such high zest/ To children ardent for some desperate glory,/ The old Lie: Dulce et decorum est/ Pro patria mori."

Answer: Wilfred Owen (*Dulce et decorum est*)

2. "To turn, as swimmers into cleanness leaping,/ Glad from a world grown old and cold and weary"

Answer: Rupert Brooke(textit1914 1. Peace)

3. "I have a rendezvous with Death/ On some scarred slope of battered hill"

Answer: Alan Seeger (*I Have A Rendezvous with Death*)

Give the shared name, 30-20-10.

30) It appears in the original title of the 1938 Howard Spring novel published in the US as *My Son, My Son!*

20) He represents the Duke of Monmouth in a 1681 satire by John Dryden.

10) William Faulkner took the title for his novel about the Sutpen family from the 19th chapter of *2 Samuel*.

Answer: Absalom

Name these workers for women's suffrage, FTSNOP.

10) She was imprisoned on a dozen separate occasions in 1913 alone, under a law that allowed hunger-striking prisoners to be released and re-arrested after regaining their health. Her daughter Christabel had fled to France to avoid such treatment.

Answer: Emmeline Pankhurst

5,5) Name the two American leaders who organized the Seneca Falls Convention in 1848.

Answers: Elizabeth Cady Stanton and Lucretia Mott

10) Her husband signed a prenuptial agreement giving her four months a year to work for women's suffrage. The "winning plan" of this successor to Susan B. Anthony at the National American Woman Suffrage Association resulted in the 19th amendment.

answer: Carrie Chapman Catt (née Lane)

Name these terms from cellular respiration, FTPE.

10) In the first stages of both aerobic and anaerobic respiration, glucose is broken down into this three-carbon molecule.

Answer: pyruvate

10) Ubiquinone, the b-c 2 complex, and cytochrome c are three major elements of this structure, embedded in the cristae of the mitochondrial membrane, which conserves the energy later used to produce ATP.

Answer: the electron transport chain

10) The first complex of enzymes in the electron transport chain is a dehydrogenase that strips a proton and two electrons from this molecule, one of the end products of the Krebs cycle.

Answer: NADH or hydrogenated nicotinamide adenine dinucleotide

Name these wacky Christian heresies, FTPE.

10) The emperors Zeno, Justinian, and Heraclius promoted a variety of theological positions in desperate attempts to unify the empire by conciliating these Egyptian and Syrian Christians, who had been condemned by the Council of Chalcedon.

Answer: Monophysites

10) They opposed the ordination of Caecilian, a fourth-century bishop of Carthage, because he and his supporters had shown weakness during the persecution of Diocletian. They were suppressed largely due to the vigorous opposition of Augustine of Hippo.

Answer: Donatists or Donatism

10) The Spanish bishops Elipandus of Toledo and Felix of Urgel preached this view that Christ was not the natural son of God; it was denounced by the church reformers gathered around the court of Charlemagne.

Answer: Adoptionism

Name these African novelists from works FTPE. 10) This Nigerian novelist's works include *Things Fall Apart*. Answer: Chinua Achebe 10) This Egyptian novelist's Cairo Trilogy includes the novel *Palace Walk*. Answer: Naguib Mahfouz 10) This South African novelist's works include *Ah But*

Your Land Is Beautiful and *Cry, the Beloved Country*. Answer: Alan Stewart Paton

Bonus: Identify these people who died in 2001 FTPE.

1. A Mexican born actress, he won Oscars for *Viva Zapata* and *Lust for Life* but is best known for his portrayal of *Zorba the Greek*.

Answer: Anthony Quinn.

2. This South African surgeon performed the first successful heart transplant in 1967. He died in Sept 2001 at the age of 78.

Answer: Christian Barnard.

3. This creator of Dennis the Menace died of natural causes at age 81 on June 1, 2001.

Answer: Hank Ketchum.