

KICK: ASS

Washington University in St. Louis – April 15, 2000

Packet by Roger Bhan

Toss-Up Questions

1. It is described as the set of values of c that make the series $z_{n+1} = (z_n)^2 + c$ converge, where c and z are complex numbers and z begins at the origin (0,0). Producing complex similar patterns, it was originally based on the work of Gaston Maurice Julia, but it is named after its creator, who published his findings in the 1982 article *The Fractal Geometry of Nature*. It was the basis of much research at IBM's Watson Research Center and led to the discovery of many other fractals. FTP, identify this set that spawned the study of fractals, named after the Polish-born French mathematician that discovered it.

Answer: Mandelbrot set

2. Andrew Jackson appointed him attorney general of the U.S. in 1831. He helped write a speech for Jackson that announced the veto of a congressional act renewing the charter of the Bank of the United States because it centralized too much power on a federal level. He was given a recess appointment as secretary of the treasury in 1834 and as an associate justice of the Supreme Court in 1835, but he was rejected by the Senate both times. However, he did receive Senate confirmation when he was made Chief Justice in 1836. FTP, identify this Chief Justice that delivered the 1857 Dred Scott decision.

Answer: Roger B. Taney

3. The work of his peak period is characterized by evocations of man's ultimate harmony with nature. A wanderer for much of his life, he wrote travel sketches interspersed with the genre of poetry that he mastered, including *The Records of a Travel-Worn Satchel*. His best work in this genre is *The Narrow Road to the Deep North*, which outwardly describes his journey to rural areas of northeastern Japan and inwardly traces his spiritual quest for beauty and lyricism all but lost in urban life. FTP, identify this 17th century Japanese poet who is acknowledged as the master of the haiku.

Answer: Matsuo Basho

4. He defended democracy and advanced objections to the totalitarian implications of the political theories of Plato and Karl Marx in *The Open Society and Its Enemies*. His most significant contribution to philosophy, however, appeared in his *The Logic of Scientific Discovery*, in which he criticized the prevailing view that science is fundamentally inductive in nature. He proposed a criterion of testability for scientific validity and emphasized the hypothetico-deductive character of science. FTP, identify this 20th century Austrian philosopher famous for his theory of the scientific method.

Answer: Sir Karl Raimund Popper

5. He was the son of Aristaeus, who was the son of Apollo, and Autonoe, who was the daughter of Cadmus. He was trained by the centaur Chiron and became an exceptional hunter. Euripides had him anger his antagonist by boasting that he was the superior hunter, at which point she killed him. However, the myth is probably more recognizable as he was wandering through the woods when he came upon Artemis bathing. FTP, identify this hunter from Greek mythology that was turned into a stag and set upon by his own hounds.

Answer: Actaeon

6. There are at least thirteen different types are known to exist. Type 4 is a B-cell growth factor. Type 3 is involved in regulating mast-cell proliferation. Type 2 stimulates the production of other types of cytokines, including B-cell growth factor, B-cell differentiation factor, colony-stimulating factor, and

gamma-interferon. Type 1 is secreted by antigen-activated macrophages and induces activated helper T-cells to secrete Type 2. FTP, identify the term for any of several types of cytokines that act specifically as mediators between leukocytes.

Answer: interleukin

7. The Corporation Act required all municipal officeholders to take the sacrament according to the Anglican Church. The Act of Uniformity made compulsory use of the Anglican Book of Common Prayer in all places of public worship. The Conventicle Act allowed no more than four people to congregate for non-Anglican worship. Finally, the Five-Mile Act prohibited ejected ministers from going within five miles of their former parishes. FTP, identify the collective name for these acts passed from 1661-1665 that asserted the dominance of the Anglican Church over nonconformists in England.

Answer: Clarendon Code

8. The antagonists in this drama are invited to take part in a play as the villains and are murdered by the main character. In order to prevent his confederates from being disclosed, the main character kills himself at the play's end. The story revolves around the murder of Bel-Imperia's lover, Horatio, who is the son of the marshal of Spain, Hieronimo. Hieronimo goes mad with grief at his son's death and conspires with Bel-Imperia to capture her brother, the prince of Portugal. FTP, identify this 16th century English drama by Thomas Kyd.

Answer: The Spanish Tragedy

9. The highest peak in this country is Nowshak, which lies on the northeast border. Some major mountain ranges include the Safed Koh range and the Paropamisus Range. The Amu Darya forms its northern boundary and the Helmand River crosses through its southwest and ends in Iran. The Vakhn Corridor is one of the many passes that allow entry through the Hindu Kush Mountains into this country, bordered by Turkmenistan, Uzbekistan, Tajikistan, China, Kashmir, Pakistan, and Iran. FTP, identify this central Asian nation in political turmoil, with its capital at Kabul.

Answer: Afghanistan

10. It began in the 1950s with the belief that its founder was the Lord of the Second Advent and progenitor of a holy kingdom. A highly disciplined organization, this church believes that its founder and his wife will fulfill Christ's purpose and save the world from the satanic influence of Communism. While claiming over 2 million members in over 100 countries, many still find the practice of mass wedding ceremonies rather bizarre. FTP, identify this religion founded by Reverend Sun Myung Moon, also known as the "Moonies."

Answer: Unification Church or Holy Spirit Association for the Unification of World Christianity (prompt on Moonies on early buzz)

11. Vapor from a liquid rises up the column until it condenses and runs back into the vessel. The rising vapor in the column flows over the descending liquid, and eventually a steady state is reached in which there is a decreasing temperature gradient up the column. The vapor in the column has more volatile components towards the top and less volatile components at the bottom. Various fractions of the mixture can then be drawn off at points on the column, which is filled with glass beads. FTP, identify this technique used in chemistry to separate a mixture of liquids.

Answer: fractional distillation or fractionation

12. It was originally an amendment attached to an appropriations bill in the House of Representatives, proposed by a Democratic representative from Pennsylvania. The Senate rewrote the bill to exclude the amendment in 1847 due to the extreme controversy it caused, the policy of which was later adopted

by the Republicans and the Free-Soil Party. The controversy stemmed from the issue of slavery in newly acquired U.S. territories. FTP, identify this amendment that would have banned slavery in the acquired territory after the Mexican War.

Answer: Wilmot Proviso

13. Its manuscript was said to have been prepared for publication by Cicero. Written in dactylic hexameter, it is the only such poem from the Roman Republic and states its purpose as attempting to prove, by investigating the nature of the world, that all things operate according to their own laws and are not influenced by supernatural powers. In six books, this didactic poem goes on to explain that the universe is comprised of atoms, and espouses the philosophies of Epicurus and Democritus. FTP, identify this only extant work of the Roman poet Lucretius.

Answer: De Rerum Natura or On the Nature of Things

14. Dead bodies litter the ground in front of the procession. In the background, a cloudy environment obscures a city to the right, and a young man in the center raises a saber in the air ardently. In the foreground, a black-coated man wearing a top hat holds a musket and he stands next to a figure in a blue shirt on his knees, who looks up placatingly at the title character. To her left, a young lad with two pistols follows her charge. The title character stands bare-breasted at the center of the canvas with a musket in one hand and the French flag in the other. FTP, identify this best known painting of Eugene Delacroix.

Answer: Liberty Leading the People

15. Headquartered in Pawtucket, Rhode Island, this company's products undergo three tests: accuracy, maximum distance, and rate of fire. Originally, a jam ratio test was planned, but since most jams are based upon defects and flukes in weapon design, a test cannot be standardized easily. Some of its more popular products include the SuperMAXX 1500; the Lock 'N Load; the WildFire, which can shoot ten darts simultaneously; and the video game ArenaBlast. FTP, identify this division of Hasbro that specializes in dart-shooting guns.

Answer: Nerf

16. It was originally identified in 1985 in products obtained by firing a high-power laser at a graphite target. They are made today by an electric arc struck between graphite electrodes in an inert atmosphere. Large enough to hold an atom of every known element, these molecules were discovered by Kroto, Curl, and Smalley, who all received the Nobel Prize in Chemistry for their discovery in 1996. Isotopes with 70 carbons have been found, but the most common isotope by far is the carbon-60 variety. FTP, identify these geodesic dome-shaped molecules named after an American architect.

Answer: buckminsterfullerenes (accept bucky balls)

17. The site lies southeast of Lamiá, between Mount Oeta and the Malian Gulf and leading from Thessaly into Locris. It takes its name from the hot sulfur springs in the vicinity. At this battle, a Thessalian named Ephialtes, who led the invading forces up a mountain pass and attacked the Greeks from the rear, betrayed the Greeks. The Greek forces, comprised of 1400 men, 300 of whom were Spartans led by King Leonidas I, halted a large Persian advance in 480 CE. FTP, identify this battle of the Persian Wars that took place shortly after the Battle of Marathon.

Answer: Battle of Thermopylae

18. Published in two series in 1848 and 1867, they are comprised of a group of poems and prose sketches. The poems are written in dialect, while the prose remains in standard English. The first series concerns the Mexican War, while the second one concerns the Civil War. They both satirize politicians and their doctrines, the cowardice of editors, and the follies of the wealthy, North and

South. FTP, identify these two sets of writings that marked the first literary appearance of James Russell Lowell.

Answer: *The Biglow Papers*

19. He attended the Naples Conservatory at the age of seventeen and produced several operas and a cantata while in school. After graduation, his operas attracted some of the greatest singers of his day, including Maria Malibran and Giuditta Pasta, all of whom excelled in the style of bel canto, which he mastered in terms of composition. Of his eleven operas, he collaborated on six with librettist Felice Romani, and two of their collaborations became his most recognizable. FTP, identify this Italian opera composer most famous for *La Sonnambula* and *Norma*.

Answer: Vincenzo Bellini

20. While on a trip to Antwerp, he virtually liquidated his national debt by financial manipulations of the bourse, or stock exchange. His will left a provision for the establishment of a college that was named after him. While serving as Queen Elizabeth's financial agent, he found his duties difficult to execute because of the lower value of the English currency in relation to others, which he attributed to the earlier debasement of the English currency. FTP, identify this financier that gave his name to the law that states "bad money drives out good."

Answer: Sir Thomas Gresham

21. Today over 300,000 live in Algeria, Tunisia, Mali, Libya, Burkina Faso, and Niger, and speak a Berber language called Tamarshak. Their society distinguishes among nobles, vassals, and serfs. Slave-stealing expeditions have been abolished, but the black descendants of former slaves still perform menial tasks. Social status is determined through matrilineal descent, as evidenced by men wearing headdresses with a veil. FTP, identify this tribal group of the Sahara that once controlled the trans-Saharan caravan routes.

Answer: Tuareg

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Bonus Questions

1. Identify the following concerning a certain sociologist and his ideas FTPE.

- a) This proponent of social Darwinism opposed governmental interference in the free-market economy, but is better known for his ideas regarding the transmission of culture through generations. One of his most popular works is 1927's *Science and Society*.

Answer: William Graham Sumner

- b) William Graham Sumner coined this term in a 1906 work that identifies the set of social rules that prescribes behavior of individuals in a society, which, if violated, result in strong disapproval or punishment.

Answer: mores

- c) This was the work in which Sumner coined the term "mores." It is another term coined by Sumner that has come to mean the shared behavior of a society common to all.

Answer: Folkways

2. Identify the following books of the Old Testament given a description FTPE.

- a) This book opens with the title character serving as butler to the Persian king Artaxerxes I. He is appointed governor of Judah and restores the city after its destruction after the Babylonian Captivity.

Answer: Nehemiah

- b) Consisting of three books, the first is a dialogue between the title character and God. He laments the suffering of the righteous. The second book consists of five denunciations, all beginning with "Woe to..." The third is a poem of the triumph of God.

Answer: Habakkuk

- c) Attributed to a herdsman, this book is rendered in poetic language. The title character holds God to be the God of all people rather than the exclusive god of the Jews. This book also condemns the observance of ritual unaccompanied by true righteousness in all human and divine interrelations.

Answer: Amos

3. Identify the following works of German literature given a description FTPE.

- a) This work by Herman Hesse treats the artist Harry Haller as an outsider, and depicts his frustrated idealism and the inhuman nature of reality, which is characterized by philistinism and technology.

Answer: Steppenwolf

- b) This short story by Heinrich von Kleist details the story of a woman who is made pregnant without her knowledge.

Answer: The Marquise of O—

- c) This tetralogy of novels by Thomas Mann charts the development of the title character from a young artist, aware of his isolation from the world, to the enlightened and judicious savior of his people.

Answer: Joseph and His Brothers

4. Identify the following concerning a certain class of organic compounds FTSNOP.

- a) (10 points) This is any group of organic pigments characterized by the possession of a cyclic group of four linked nitrogen-containing rings, the nitrogen atoms of which are often coordinated to metal ions.

Answer: porphyrins

- b) (5 points) Perhaps the most famous of all porphyrins, this compound found in red blood cells is coordinated to iron atoms and is involved in the transport of oxygen in the bloodstream.

Answer: hemoglobin

- c) (15 points) Another type of porphyrin, this iron-containing compound plays a role in the electron transport chain. Electrons are transported between these compounds by the reversible changes in the iron atoms between the reduced Fe(II) and oxidized Fe(III) states.

Answer: cytochromes

5. Identify the following individuals that played a role in the women's suffrage movement in the United States FTPE.

- a) Raised as a Quaker, she married one of the founders of Swarthmore College. A staunch abolitionist and suffragist, she helped organize the American Antislavery Society and the Women's Rights Convention in Seneca Falls, New York in 1848.

Answer: Lucretia Mott

- b) Another organizer of the Seneca Falls Convention, she drafted a Declaration of Sentiments that declared "men and women are created equal."

Answer: Elizabeth Cady Stanton

- c) This suffragist published her views in the newspaper *Revolution*. Depicted on the U.S. one dollar coin, she is perhaps the most famous of women suffragists.

Answer: Susan B. Anthony

6. Identify these psychologists from descriptions FTPE.

- a) A pioneer in experimental psychology, this German performed important experiments on the value of repetition in memory, using nonsense syllables that he invented. He is most famous for his namesake completion tests for measuring child intelligence.

Answer: Hermann Ebbinghaus

- b) He formed his law of effect by using trial-and-error experiments with animals, realizing that the more satisfying the result of a particular action, the better that action is learned.

Answer: Edward Lee Thorndike

- c) This psychologist was the foremost of the U.S. behaviorist school and argued that human behavior is explained in terms of physiological responses to external stimuli. Among his noted works are *Walden Two* and *Beyond Freedom and Dignity*.

Answer: B. F. Skinner

7. Identify the following concerning ancient Greek sculpture FTPE.

- a) This sculpture, usually attributed to Pythokritos of Rhodes, is headless. It depicts a woman descending from the sky to rest on the prow of a ship and was commissioned after a Greek naval victory.

Answer: Winged Victory (accept Winged Nike or Nike of Samothrace)

- b) This work of Myron, circa 450 BCE, depicts an athlete rearing back to hurl an object. This sculpture was revolutionary in its rendering of action, fluid motion, and balance.

Answer: Diskobolus or The Discus Thrower

- c) One of the most famous of Greek sculptors, perhaps his most famous work is a marble of Hermes holding the infant Dionysus.

Answer: Praxiteles

8. Identify the following characters from the *Mahabharata* FTPE.

- a) He is the third of the Pandava brothers and the son of Indra. He is considered the greatest warrior in the world until his elder brother Karna bests him. His charioteer is Krishna.

Answer: Arjuna

- b) He is the eldest of the Kauravas and the main antagonist of the epic. He claims the throne of Kurujangala even though it belongs to his cousin Yudhishthira. By cheating at dice, he wins Yudhishthira's kingdom and forces him to live for twelve years in exile.

Answer: Duryodhana

- c) This Brahmin serves as tutor of war to the Pandavas and the Kauravas. He teaches Arjuna and his son Aswatthaman all the weapons of heaven and earth. He is killed by the treachery of Bhishma who lied and said his son had fallen in battle.

Answer: Drona

9. Identify the following concerning a certain method in modern physics FTPE.

- a) This method involves dividing a system into a part that is exactly calculable and a small term, which prevents the whole system from being exactly calculable. The small term may be calculated by an infinite series, and each term is a "correction term" to the solutions of the exactly calculable system.

Answer: perturbation theory

- b) An application of perturbation theory is this approximation in which the motion of atomic nuclei is taken to be so much slower than the electrons that, when calculating the motions of electrons, it is assumed the nuclei are in fixed positions. It is named after the two scientists that elucidated this principle in 1927.

Answer: Born-Oppenheimer approximation

10. Identify these rebellions from European history FTPE.

- a) This uprising during the Hundred Years' War in 1358 took its name from the collective name given to the French peasantry by the privileged classes.

Answer: Jacquerie

- b) Named after the ex-soldier that led the rebellion, this English uprising of 1381, also known as the Peasants' Revolt, forced Richard II to make several concessions, including abolition of the poll tax.

Answer: Wat Tyler's Rebellion

- c) This rebellion took place in Russia in 1921. About 15,000 sailors revolted against the Communist policies of the Bolshevik government at this naval garrison located on Kotlin Island in the Gulf of Finland.

Answer: Kronshtadt Rebellion

11. Identify these Italian philosophers F15PE.

- a) He proposed a cyclical theory of history in which human societies progress from barbarism to civilization and back to barbarism. He is best known for the work *Principles of a New Science Concerning the Common Nature of Nations*, published in 1725.

Answer: Giambattista Vico

- b) He published his most famous works in the journal *La Critica*, which he founded in 1903. His aesthetic theory was based on the belief that art, as a form of creativity, is a more revealing criterion than the sciences. He also believed in the concept of free will and defined history as philosophy in motion.

Answer: Benedetto Croce

12. Identify the following concerning the underworld in Norse mythology FTPE.

- a) Situated on the lowest level of the universe, the region lies underneath the third root of Yggdrasil close to the spring Hvergelmir. It lies next to Nastrond, where the serpent Nidhogg eats corpses and gnaws on the roots of Yggdrasil.

Answer: Niflheim

- b) Located within Niflheim, it is bordered by the river Gjoll. Not even the gods can leave this place once they enter. The monstrous hound Garm guards this entrance to this area. It is ruled by one of the offspring of Loki and Angrboda.

Answer: Helheim

- c) This giant sits at the edge of the world and overlooks Helheim. In the form of an eagle with flapping wings he makes the wind blow. His name means "corpse eater."

Answer: Hraesvelg

13. Identify these works of Herman Melville given a description FTPE.

- a) In this early novel, five men undertake a symbolic quest for Absolute Truth. They sail throughout the world on King Media's boat. Taji, the main character, searches for Yilla, a beautiful woman who disappears after he rescues her.

Answer: Mardi and a Voyage Thither

- b) Subtitled *The Ambiguities*, the story concerns the title character and his incestuous love for his half-sister Isabel. The young writer rejects his love for his mother and his fiancée Lucy Tartan. He causes the death of these three women and commits suicide in jail.

Answer: Pierre

- c) Melville's last novel, this work details the events on a Mississippi river boat called the Fidele on April Fool's Day. The theme concerns the lack of trust in people, as evidenced by the sign that hangs on the Fidele's barbershop saying "No Trust."

Answer: The Confidence Man: His Masquerade

14. Identify these serous membranes of the body FTPE.

- a) This membrane lines the abdominal cavity of vertebrates and covers the abdominal organs.

Answer: peritoneum or peritoneal membrane

- b) This double membrane lines the thoracic cavity and covers the exterior surface of the lungs.

Answer: pleura or pleural membrane

- c) This membrane holds the heart in position while allowing it to relax and contract. It consists of a fibrous layer and a serous layer.

Answer: pericardium or pericardial membrane

15. Identify the following concerning the Boxer Rebellion of 1899-1900 FTPE.

- a) The Boxers were known by this name in China.

Answer: Yihetuan or Society of Righteousness and Harmony

- b) She was the empress of the Q'ing dynasty during the Boxer Rebellion that ordered the killing of all foreign elements in Beijing.

Answer: Cixi or Tz'u-his

- c) The Boxer Rebellion culminated from economic and political exploitation by Western powers, but was mostly the result of this set of wars between China and Great Britain that lasted from 1839-1842 and 1856-1860.

Answer: Opium Wars

16. Identify these works of Johann Sebastian Bach FTPE.

- a) The popularity of Bach was revived in 1829 when Felix Mendelssohn played this piece, one of Bach's most popular today.

Answer: The *Passion of St. Matthew* (accept variants thereof)

- b) This work consists of two books of twenty-four preludes and fugues, one in every major and minor key. It was intended as a manual for keyboard playing and composition.

Answer: The *Well-Tempered Clavier*

- c) This set of thirty variations was written to cure the insomnia of Baron von Kayserling, the Russian ambassador to the court at Dresden. They are named after his harpsichordist, who played them nightly for the ambassador.

Answer: *Goldberg Variations*

17. Identify these songs by The Beatles from lyrics FTPE.

- a) "Living is easy with eyes closed, misunderstanding all you see / It's getting hard to be someone but it all works out, it doesn't matter much to me."

Answer: *Strawberry Fields*

- b) "I once had a girl, or should I say she once had me."

Answer: *Norwegian Wood*

- c) "The King of Marigold was in the kitchen cooking breakfast for the Queen, / The Queen was in the parlor playing piano for the children of the King."

Answer: *Cry Baby Cry*

18. Identify these cool places from Swift's *Gulliver's Travels* FTPE.

- a) This is the flying island that is largely inhabited by abstract philosophers. The people of this island are ill equipped to live in society as they constantly theorize and ponder without regards to technical knowledge.

Answer: Laputa

- b) This continent, with its capital at Lagado, neighbors Laputa. It contains the Academy of Projectors, where scholars spend their time in such useless projects as extracting sunbeams from cucumbers and converting ice into gunpowder.

Answer: Balnibarbi

- c) This race is visited in Gulliver's fourth voyage. They are filthy, loathsome brutes tamed by, and contrasted to, the virtuous Houyhnhnms.

Answer: Yahoo(s)

19. Identify the following concerning optical activity in compounds FTPE.

- a) Molecules will display optical activity if they contain this property, which is essentially the property of existing in left- and right-handed structural forms.

Answer: chirality

- b) If two molecules display chirality, they are said to be enantiomers, or mirror images of each other. FFPE, identify the two terms used to describe the two possible ways in which a plane of light might be rotated based on which enantiomers it comes in contact with.

Answer: dextrorotatory and laevorotatory (prompt on D and L)

- c) Identify the term used to describe a mixture that displays no optical activity because it contains an equal amount of dextrorotatory and laevorotatory molecules.

Answer: racemic mixture or racemate

20. Identify these famous forts from American history FTPE.

- a) This fort was built on the present-day site of Chicago in 1803 and was named after the U.S. secretary of war at the time. A combined British and Native American force destroyed it during the War of 1812, but was rebuilt in 1816.

Answer: Fort Dearborn

- b) This fort in east central Tennessee was the site of a massacre of 300 black Union soldiers by the Confederates under Nathan Bedford Forrest in 1864. It lies just north of Memphis.

Answer: Fort Pillow

- c) During the Creek uprising of 1813, a Native American force led by Red Eagle massacred about 250 of the settlers living at this fort in Alabama near the junction of the Alabama and Tombigbee rivers.

Answer: Fort Mims

21. Given a U.S. national park, identify the state in which it is located FTPE.

- a) Hot Springs National Park

Answer: Arkansas

- b) Wind Cave National Park

Answer: South Dakota

- c) Bryce Canyon National Park

Answer: Utah

- b) In this cycle, heat is added at constant pressure, at which water is converted in a boiler to superheated steam; the steam expands at constant entropy in the cylinder; heat is rejected at constant pressure in a condenser; the water so formed is compressed to the original pressure by a feed pump.

Answer: Rankine cycle

- c) This is the name given to a standard internal-combustion engine. This four-stroke engine uses a complex system of valves, pistons and cylinders to work, and usually uses gas as a fuel.

Answer: Otto cycle

20. Given a battle from the American Revolutionary War, identify the two opposing commanders FFPE.

- a) Battle of Camden

Answer: Horatio Gates and Charles Cornwallis

- b) Battle of the Brandywine

Answer: George Washington and William Howe

- c) Battle of Lexington

Answer: John Parker and Francis Smith

21. Given a list of three names, identify the name of the trio from various mythologies to which those three belong, FTSNOP.

- a) (5 points) Clotho, Lachesis, Atropos

Answer: Fates or Moirai or Parcae

- b) (10 points) Gyges, Cottus, Briareus

Answer: Hecatonchires or Centimanus

- c) (15 points) Shou Xing, Fu Xing, Lu Xing

Answer: Fushoulu