

**Tossups**

1. In his adventures, he is bought by a doctor and partially dissected after an attempted hanging by the Spanish Inquisition. This character manages to trace back his venereal diseases all the way back to Columbus's expedition, but he justifies it saying that without Columbus we would be without chocolate. By the end of the novel, this master of metaphysico-theologo-cosmolonigology still outwardly maintains, but has trouble believing, that this is the best of all possible worlds. FTP, identify this philosopher and mentor of Voltaire's *Candide*.

Answer: Dr. **Pangloss**

2. His last role was as the voice of Unicron in the animated *Transformers: The Movie* in 1986. It was recently announced that his only Oscar would be put up for auction. A short marriage to Rita Hayworth which ended in divorce during their filming of *The Lady from Shanghai* and studio refusal to support his films *The Magnificent Ambersons* and *It's All True* were among his struggles during the 1940's. At the age of 23, he caused a sensation with his realistic radio play of *War of the Worlds*. FTP, name this embattled writer, director, and star of *Citizen Kane*.

Answer: Orson **Welles**

3. Its previously impassable northwestern border was opened when a road between Gilgit and Kashgar across the Karakoram Range was built. In the 1960s a new capital city was built near the military headquarters in Rawalpindi to the north of the country, between the cities of Peshawar and Lahore. The former sits near the Khyber Pass, while the latter is the capital of this country's share of the Punjab region. FTP, name this Islamic Republic whose eastern half rebelled to become Bangladesh, whose largest city is Karachi and whose capital is Islamabad.

Answer: **Pakistan**

4. The Lindenmayer System can be used to describe some of them, despite originally being designed to model algae and plants. The coastline paradox is an instance where the coastline is considered one and slope of the line plotted on log paper of the ruler length versus the length of the coastline gives the "dimension" of the coastline associated with these constructs. Some examples include the Sierpinski sieve and those arising from the Julia set. FTP identify these objects that show self similarity, a famous example of which comes from the Mandelbrot set.

Answer: **Fractal**

5. This author's sea stories include *The Pilot*, *The Waterwitch*, and *The Two Admirals*. He is best remembered for a five-part series about the American frontier. Beginning with *The Pioneers*, his books follow that frontier and its heroic protagonist from New York to Kansas in books like *The Prairie* and *The Deerslayer*. FTP, name this author responsible for characters like Chingachgook, Natty Bumppo, the protagonist of the Leatherstocking Tales, and Uncas, the title character of *The Last of the Mohicans*.

Answer: James Fenimore **Cooper**

6. This work assumes a primordial “war of all against all,” which mankind only emerged from through covenants. These mutual agreements protect every individual’s right to life and property, but any deviation from the covenant is the definition of injustice. The second section of this work offers conclusions on the all-encompassing power of the Christian Commonwealth’s Sovereign. FTP, identify this work defining mankind’s progression from a “nasty, brutish, and short” state of nature to rule of law, by Thomas Hobbes.

Answer: Leviathan, or The Matter, Forme and Power of a Common Wealth Ecclesiasticall and Civil

7. This effect was noted by Konrad Lorenz, who defined the concept of a critical period in its action. While it seems to exert a negative influence on sexual attraction in humans as the Westermarck Effect, it explains why many species of birds can only learn to sing at certain ages, and will learn other species’ songs if exposed to them first. FTP, name this aspect of animal learning, which can be used to teach birds raised in captivity their species’ migration routes by, in effect, tricking them into thinking humans in gliders are their mothers.

Answer: imprinting (accept filial imprinting until “Westermarck”)

8. This man’s failure as Chancellor of the Exchequer in the late 1920s led to his exclusion from government in the next decade. His military efforts often backfired, like his defense of Greece and attack of the “under-belly of Europe,” or most famously the disaster at Gallipoli. Coining phrases such as “blood, toil, tears and sweat,” and “never was so much owed by so many to so few,” FTP, name this British politician who served as Prime Minister during World War II.

Answer: Winston Churchill

9. This book helped define the modern conception of Robin Hood, and introduced his oft-repeated achievement of splitting a competitor’s arrow with his own in a contest. Focusing on the struggle between the Normans and the Saxons, including Robin Hood and the title character, who is estranged from his father due to his love for a lady promised to Lord Athelstane. FTP, name this book about a Sir Wilfred’s love for Rowena, by Walter Scott.

Answer: Ivanhoe

10. Set in 1960, it places the protagonist in the ruin of a community that was the brainchild of the wealthy Andrew Ryan, whose vision of a utopian self-sufficient isolated city had degenerated into an underwater hell with few surviving sane inhabitants. Some of the survivors include “Little Sisters,” young girls whose bodies harvest powerful plasmids that can bestow superhuman abilities onto residents of Rapture, the underwater metropolis. FTP, identify this 2007 video game which is widely considered to be the spiritual successor to 1999’s System Shock 2.

Answer: BioShock

11. This author’s writing career began with a translation of a Spanish work, Natural Theology, some six years after the death of his greatest friend, Etienne de la Boétie. Work on his greatest book was interrupted by the Journal and by two terms as mayor of Bordeaux. “I am myself the matter of my book,” he stated, yet other topics in its 107 sections include an ironic look at witches and torture and a heartfelt plea for religious tolerance in “Of Cannibals.” FTP, name this French author who gave an entire genre of writing its name with his magnum opus, Essais.

Answer: Michel de Montaigne

12. Identify the year in which the following list of events occurred. Pope Paul VI officially condemns birth control. Apollo 8 is the first manned craft to orbit the moon. Student protests in May cause the fall of Charles de Gaulle's government in France. Sirhan B. Sirhan assassinates Robert F. Kennedy. The Tet Offensive occurs in Vietnam. Finally, FTP, riots sweep America after the assassination of Martin Luther King.

Answer: **1968**

13. This empire's later years with its capital at Luoyang, after the brief interruption of Wang Mang's rule, were a period of decline. During its reign, Cai Lun is said to have invented paper, while negative events included the Yellow Turban Rebellion. Emissaries were sent as far as the Parthian and Roman Empires. Its great leaders included its founder, Liu Bang, and Emperor Wudi. FTP, identify this Chinese dynasty which succeeded the Qin [chin] in 206 BCE and fell in 280 CE, from which the largest ethnicity in China takes its name.

Answer: **Han** Dynasty

14. It is usually quantified with the dimensionless Reynolds number, which takes the ratio of inertial forces to viscous forces. Depending on the fluid medium, a Reynolds number\* above a certain value will determine whether this condition exists or not; for a circular pipe, the benchmark Reynolds number is usually between 2000 and 2500. FTP, identify this flow condition, the opposite of a laminar flow, which is characterized as a chaotic regime with rapidly varying pressure and velocity conditions.

Answer: **Turbulent** flow (or **Turbulence**) (prompt on "laminar flow" before asterisk)

15. It is its author's only published novel, which fuels rumors that it was ghostwritten by childhood friend Truman Capote. The main character, her friend Dill, and her brother Jem are children, witnessing the unfair trial that leads to the death of Tom Robinson. FTP, name this novel, released during the height of racial strife in the United States, about the unjust trial of a black man in Maycomb and the inability of Atticus Finch to stop it, by Harper Lee.

Answer: **To Kill a Mockingbird**

16. This author of *On Guerilla Warfare* came to power at the Zunyi Conference. He barely escaped execution as leader of the Autumn Harvest Uprising, and he started the Anti-Rightist Movement to squash the Hundred Flowers Campaign. His third wife once said "Whoever he asked me to bite, I bit" and was a member of the Gang of Four. A leading figure in the Cultural Revolution of the late 1960s, he led the Long March and initiated the Great Leap Forward. FTP, name this Chinese Communist leader.

Answer: **Mao Zedong** (or **Mao Tse-Tung**) (accept either part of either name)

17. Pencil and paper ready, 15 seconds. The New York Mets, New York Jets, and New Jersey Nets are each underdogs in their upcoming road games; the pundits place their chances at victory at 40%, 20%, and 25% respectively. Leo is betting on these games and has set things up so that if at least one of the teams wins, he will come out ahead. Now, one cannot calculate the odds of Leo winning money by just adding or multiplying the ratios together – the only way to do so is to find the complement of the product of the three probabilities of each team **losing**, which will result in the probability of at least one team winning. FTP, what are the odds that Leo wins some money?

Answer: **64%** or **64/100** or **.64** //  $1 - (1-.4)(1-.2)(1-.25) = 0.64$

18. In his early career he argued against Guillaume de St. Amour, an enemy of the mendicant friars' intrusion into the University of Paris, where this man studied and taught. This Dominican scholar's most famous arguments, however, were those for the presence in the natural world of a *logos* which allowed an understanding of religion through naturalistic investigation. He continued the reconciliation of theology and natural philosophy espoused by his teacher Albertus Magnus. FTP, name this 13<sup>th</sup>-century Doctor of the Church who wrote the *Summa Theologica*.

Answer: Saint Thomas Aquinas

19. Founded in 1949 by two men named Robert, it initially served as an industrial supplier of metal brackets, before switching to its current product. One regional branch was consolidated into another in the past year and a new company website was recently launched. FTP, name this fictional company, which employs Michael Scott and Dwight Schrute, whose Scranton, Pennsylvania, branch is the main setting of *The Office*.

Answer: Dunder-Mifflin

20. Some attribute this sculpture's fame to a French propaganda effort elevating it over a similar work owned by the Medici. Originally publicized as a work of Praxiteles, a plinth attributing it to Alexandros of Antioch on the Maeander mysteriously disappeared before it was placed in the Louvre. Discovered in 1820, it depicted the titular goddess admiring the golden apple she won from Paris of Troy. FTP, identify this Hellenistic sculpture of the goddess of love, which during a battle to recover it from Greek pirates had both its arms broken off.

Answer: Venus de Milo or Aphrodite of Milos

21. She authored, with James Baldwin, *A Rap on Race*, but most of her work was done in Oceania. Her book *Sex and Temperament in Three Primitive Societies* outlined examples of societies where women were dominant, but most of her later work recapitulated her first book's argument, that South Pacific islanders are less traumatized than Americans during adolescence because of less competitiveness and fewer sexual restrictions. FTP, name this author of *Coming of Age in Samoa*.

Answer: Margaret Mead

**Bonuses**

1. Given an important historical leader and related clues, identify the South American country he ruled FTPE:

Emperor Dom Pedro II, the only native-born monarch of this only post-colonial American empire.

Answer: **Brazil**

Juan Perón. His second wife Isabel also presided over this country, but his first wife, "Evita," held no elected office.

Answer: **Argentina**

Augusto Pinochet. He was president of this nation between 1974 and 1990 after seizing power in a military coup. He is responsible for numerous human rights abuses.

Answer: **Chile**

2. FTPE, name these famous compositions of classical music.

This George Gershwin composition for solo piano and jazz band begins with a clarinet glissando, which was inspired by a train leaving a station.

Answer: **Rhapsody in Blue**

The dancer Ida Rubinstein asked Maurice Ravel to create this piece of music, which repeats the same melody and countermelody eighteen times.

Answer: **Bolero**

"The Great Gate of Kiev" is the last movement of this Modest Mussorgsky suite.

Answer: **Pictures at an Exhibition**

3. FTPE, answer the following about a Russian author and his works.

Works by this dramatist include *The Lady with the Dog*, *Uncle Vanya*, and *The Seagull*.

Answer: Anton **Chekhov**

This Anton Chekhov play ends with the title characters, Olga, Masha, and Irina, listening to a marching band and clinging to the hope for a better life.

Answer: *The* **Three Sisters**

This Chekhov play ends with the sound of an axe chopping down the title object.

Answer: *The* **Cherry Orchard**

4. FTPE, answer the following questions about German writer Johann Wolfgang von Goethe [GUR-tuh].

This 1774 novel, Goethe's most famous work, told the story of a man's unrequited love for Lotte.

Answer: **The Sorrows of Young Werther**

Werther is an example of a work from this movement, characterized by extreme emotion.

Answer: **Storm and Stress** or **Sturm und Drang**

Goethe died in this city, where the constitution of the German Republic was drafted after World War I.

Answer: **Weimar**

5. Answer these questions about Balkan geography, FTPE.

Name this current nation at the northwestern tip of the former Yugoslavia, with capital at Ljubljana [LYOO-blee-ah-nuh]. The first to declare independence in 1991, it borders Italy and Austria.

Answer: **Slovenia**

Containing the semiautonomous provinces of Vojvodina [VOY-voh-dee-nuh] and Kosovo, this nation which once dominated Yugoslavia recently lost its last satellite republic, Montenegro.

Answer: **Serbia**

This region is divided between Greece, Bulgaria, and Turkey, the last of which holds its Eastern region with cities like Edirne and Istanbul.

Answer: **Thrace** or **Trakya**

6. Identify these authors important in Victorian English literature, FTPE.

Six of his best-known novels are collectively called The Chronicles of Barsetshire, another group is the Palliser Novels, and he also wrote the satire The Way We Live Now.

Answer: Anthony **Trollope**

The work of this author rests in the genre of literary nonsense. The heroine in his best-known works is supposed based on Alice Liddell.

Answer: Lewis **Carroll**

This author of *Middlemarch*, whose real name was Mary Anne Evans, used this male pen name to publish her novels.

Answer: George **Eliot**

7. Identify the noble gas from clues FTPE.

This element, discovered spectrographically in the Sun, was the last noble gas discovered in the atmosphere. It is the smallest noble gas in terms of atomic mass.

Answer: **Helium**

This heaviest naturally occurring noble gas can accumulate in mines and residential basements and is considered a health hazard.

Answer: **Radon**

This is the most common noble gas on earth, making up almost 1% of the Earth's atmosphere. It is the second most commonly used gas in so-called neon signs, after neon itself.

Answer: **Argon**

8. Answer the following about a succession of rulers in Rome, FTPE.

This is the common name for 69 CE, when the fall of Nero threw Roman Imperial politics into chaos.

Answer: Year of the **Four Emperors**

FTPE, name two of the four men who ruled as Roman Emperor that year.

Answer: Servius Sulpicius **Galba**, Marcus Salvius **Otho**, Aulus **Vitellius** Germanicus, and/or Titus Flavius **Vespasianus**

9. Identify some people and things related to representing numbers in terms of smaller numbers FTPE.

This conjecture states that every even integer greater than two can be represented as the sum of two prime numbers. For example  $12 = 7 + 5$ .

Answer: **Goldbach** conjecture

The idea that every positive integer can be represented as the sum of the squares of at most four numbers was first put forth by this writer of *The Arithmetica*.

Answer: **Diophantus**

While Fermat proved Diophantus's idea, it was this man better known for his work on the 3-body problem who published a proof of the four square theorem.

Answer: Joseph Louis **Lagrange**

10. FTPE, given characters from American literature, identify the novel they appear in.

Edward Tudor, Tom Canty, and Miles Hendon

Answer: **The Prince and the Pauper**

Nick Carraway, Tom and Daisy Buchanan

Answer: **The Great Gatsby**

Rose of Sharon, Jim Casy, Tom Joad

Answer: **The Grapes of Wrath**

11. FTPE identify these works of Gustav Mahler.

Written for 171 members of the orchestra, 8 soloists, and an 850 member chorus, this symphony's first section is an adaptation of the hymn *Veni, Creator Spiritus*.

Answer: Symphony **No. 8** or **Symphony of a Thousand**

This song cycle is based off Chinese poems translated into German with a final movement entitled *The Farewell*.

Answer: The **Song of the Earth** or **Das Lied von der Erde**

Dedicated to Johanna Richter, this early song cycle containing such songs as *Wenn mein Schatz Hochzeit macht* is in part inspired from a poem from *Des Knaben Wunderhorn*.

Answer: **Songs of a Wayfarer** or **Lieder eines fahrenden Gesellen**, accept equivalents such as Songs of a Companion

12. FTPE, given clues name these European soccer clubs.

They dominated the English Premier League in the 1990s with players like Eric Cantona and David Beckham, and are reigning English champions. Current players include Cristiano Ronaldo and Wayne Rooney.

Answer: **Manchester United** FC

This Spanish club from Catalunya are the bitter rivals of Real [ray-AL] Madrid. Having won the Champions League two years ago, they recently picked up Thierry Henry [on-REE].

Answer: Futbol Club **Barcelona** or FC **Barcelona**

The 2007 Champions League winners over Liverpool, their city rivals Internazionale beat them out for the Italian league championship. Players include Dida and Kaká.

Answer: Associone Calcio **Milan** or **AC Milan**

13. Answer these questions about an event 540 million years ago, FTPE.

This so-called “explosion” named after the earliest period of the Paleozoic Era during which it occurred saw almost all of the phyla that characterize modern life appear, along with the first hard body parts and the earliest reefs.

Answer: **Cambrian** Explosion

This Canadian site, the subject of Stephen Jay Gould’s book *Wonderful Life*, contains the most fossils from the Cambrian Explosion period of any location on Earth.

Answer: **Burgess Shale**

This aquatic animal emerged in the Cambrian explosion and existed throughout the Paleozoic era. Their closest living descendants may be the horseshoe crabs. Common in the fossil record, they are notable by their large armored head, multi-segmented thorax, and small tail section, making a small, round body plan.

Answer: **Trilobites** or **Trilobita**

14. FTPE, name these scientific equations named after people.

Named for a Swiss scientist, this equation relates the pressure, kinetic energy, and potential energy at one point in a fluid to the same values at another point in the fluid.

Answer: **Bernoulli's** Equation

This equation states the standard reference potential of an electrochemical cell is equal to the kinetic temperature divided by the total charges times the logarithm of the reaction quotient.

Answer: **Nernst** equation

This equation from quantum mechanics, named for an Austrian physicist, describes how the electron matter-wave changes in space around the nucleus.

Answer: **Schrödinger** Equation

15. Answer these questions about disgruntled Chinese people FTPE.

Hung Hsiu-ch'üan became disgruntled after failing the civil service exam and therefore decided he was Jesus's brother. After the Manchu government cracked down on his Kingdom of Heavenly Peace, this rebellion began.

Answer: **Taiping** Rebellion

These advocates of democracy, led by Sun Yat-sen, overthrew the Qing Dynasty and then were overthrown themselves by the Communists, sending Chiang Kai-Shek and this party to Taiwan.

Answer: **Koumintang** or reasonably close pronunciations (“G” for “K”, “D” for “T”, etc.)

This general of Turkic-Persian descent seized cities such as Chang'an and therefore helped start the revolt that toppled the Tang Dynasty.

Answer: **An Lu-shan**

16. Name these terms or persons related to classical conditioning FTPE.

Winning a Nobel Prize in 1904 regarding his work with digestion, this Russian physiologist noticed that his dog began to salivate every day at the time of feeding.

Answer: Ivan P. **Pavlov**

This man’s “puzzle boxes,” from which cats could eventually learn to escape, led to his Law of Effect, which essentially described operant conditioning.

Answer: Edward **Thorndike**

Founded in research on drug abusers, overdose is usually caused by this type of conditioned response in which the body prepares its system by raising defenses in anticipation of the drug.

Answer: **Compensatory** response



17. FTPE identify these anatomical terms pertaining to the eye.

This surface at the back of the eye contains rods, cones, and other photoreceptors.

Answer: **Retina**

This term designates the space-filling liquid in the eye. It exists in vitreous and aqueous forms.

Answer: **Humor**

This spot, whose name means “pit” in Latin, is a depression in the retina containing the highest concentration of cone photoreceptors. It forms the center of our vision, the area with the most acuity.

Answer: **Fovea**

18. Identify some things about an Indian god FTPE:

This blue throated god is sometimes seen as a destroyer deity, but is also the lord of the dance among other things.

Answer: **Shiva**

This consort of Shiva gained his attention by performing austerities. She is also the mother of Ganesha.

Answer: **Parvati**

Shiva rides this faithful bull.

Answer: **Nandi**

19. Name these historical astronomers from descriptions of their work FTPE.

He wrote two treatises, the Almagest and the Tetrabiblos, the former dealing with the Grecian theory of planetary motion and the latter explaining astrology.

Answer: **Ptolemy** or **Claudius Ptolemaeus**

He developed the first modern astronomical model placing the sun in the middle of the universe with the planets, including earth, orbiting it.

Answer: Nicolaus **Copernicus**

From his estate on the island of Hven, this Danish astronomer attempted to prove that the Sun and Moon orbit the Earth while all other planets orbit the Sun, but his assistant Johannes Kepler used the data they collected to prove the heliocentric model.

Answer: **Tycho Brahe** (accept either) or Tyge Ottesen **Brahe**

20. Given a song, name the movie or series of movies with which it is most commonly associated FTPE.

“Eye of the Tiger.” Remember, you don’t have to worry about the specific movie, just the series.

Answer: **Rocky** III or the **Rocky** series

“Danger Zone”

Answer: **Top Gun**

“My Heart Will Go On”

Answer: **Titanic**