

- 1) No natural selection may occur, random mating must occur, no net mutations may occur, the population must be isolated from other populations, and the population must be of a very large size. These are the five conditions that must be met for this theory of population genetics to hold true. Given by the equation  $p^2 + 2pq + q^2$ , this is, FTP, what 1908 biological theorem named after two scientists?  
Answer: Hardy-Weinberg theory or equilibrium
- 2) Tactically it was inconclusive, but strategically it was a Confederate loss. Aiming northwards towards Harrisburg, Lee halted at Frederick and sent a detachment to deal with the Union at Harper's Ferry. Unfortunately, McClellan had obtained a copy of Lee's orders, and met the Confederates at this site on September 17-18, 1862. FTP, identify this bloodiest battle of the Civil War also known as the Battle of Sharpsburg.  
Answer: Battle of Antietam (accept Battle of Sharpsburg on early buzz)
- 3) His aim was to set forth a comprehensive system that interpreted the subject matter of philosophy to be reality as a whole, a system that he addressed as the "weltgeist," or "world spirit." His most famous philosophical ideas dealt with forming ideas through triads of a thesis, antithesis, and synthesis, an idea he called the "dialectic." FTP, identify this German philosopher and author of *The Phenomenology of Mind*.  
Answer: Georg Wilhelm Friedrich Hegel
- 4) Its defining quality is its thumping, irregular beat, the result of frequent changes in time signature, as evidenced in the movement *Sacrificial Dance*. Its dissonances and asymmetrical rhythms prompted catcalls after the first few notes of its premier, causing Ravel to shout "Genius, genius!" while Debussy vainly tried to calm the audience as they began to riot. FTP, identify this 1913 ballet composed by Igor Stravinsky.  
Answer: *The Rite of Spring*
- 5) This title character dies of a terrible disease in Rome after a late-night tryst at the Colosseum. The courier Eugenio is overprotective of her, and her brother Randolph wishes to return to America. While traveling through Switzerland and Italy, she brings about her own social ruin by dating Mr. Giovanelli, much to the disapproval of jealous suitor Frederick Winterbourne. FTP, identify this focus of a short story by Henry James.  
Answer: Daisy Miller
- 6) Boron is 2.0, nitrogen is 3.0, and oxygen is 3.5. Adding the ionization potential and the electron affinity and dividing by two calculates the Mulliken value. The more common method is based on bond dissociation energies and is based on a scale in which fluorine has the highest value with 4.0. FTP, identify this quantity in chemistry studied by Linus Pauling that measures the ability for elements to gain electrons and form negative ions.  
Answer: electronegativity
- 7) This collection of five measures was alternatively known as the Omnibus Bill. The fifth measure granted Texas \$10 million for land claim settlements. The fourth divided newly acquired territory into New Mexico and Utah. The first two abolished slavery in the District of Columbia and admitted California as a free state. The third was known as the Fugitive Slave Law. FTP, name these acts created by Henry Clay in their namesake year.  
Answer: Compromise of 1850

- 8) First successfully scaled in 1889 by Hans Meyer and Ludwig Purtscheller, it is a dormant volcano that contains two peaks: Mawensi at 16,892 feet and Kibo at 19,340 feet. Kibo contains an ice cap year-round despite the fact that this mountain lies three degrees south of the equator. Forming part of the title of a short story by Ernest Hemingway, FTP, identify this peak in northeastern Tanzania, the highest mountain in Africa.  
Answer: Mount Kilimanjaro
- 9) His first job was programming binary load lifters. According to him, the chances of successfully navigating an asteroid field are approximately 3720 to one, and the chances of surviving a night on Hoth are 725 to one. His primary function as a protocol droid allows him to be fluent in over six million forms of communication, though Han Solo would still question his usefulness. FTP, identify this droid companion of R2-D2.  
Answer: C-3PO
- 10) Prokofiev made it into an opera. Its chapters alternate between vignettes of characters, battles, and themes of history during the Napoleonic Wars. Platon Karatayev is a simple peasant that preaches wisdom to Pierre Bezukhov, who is the rival of Prince Andrey Bolkonsky for the love of Natasha Rostova. Natasha is portrayed first as an innocent girl and finally as a mature woman. FTP, identify this monumental work by Leo Tolstoy.  
Answer: War and Peace
- 11) Its namesake probe can be used for the measurement of magnetic fields and in magnetically operated switching devices. Its namesake coefficient is equal to one over the number of charge carriers per unit volume times the electronic charge, and is designated by  $R_H$ . FTP, identify this law of electromagnetism that states that an e.m.f. is created whenever a strong transverse magnetic field acts on a current in a conductor.  
Answer: Hall effect
- 12) The second one was established in 377 BCE by states that feared the power of Sparta after the Peloponnesian War. The first one contained over 200 member city-states at its height, having been founded by the Athenian statesman Pericles. FTP, identify this federation of Greek city-states from 477 BCE that provided for a common defense against the Persians and took its name from an island sacred to Apollo.  
Answer: Delian League or Confederation of Delos
- 13) He is forced to leave his wife behind when fleeing his burning home city, but manages to escape with his son and many followers while carrying his father away. His shield-bearer Achates proves faithful to him throughout his adventures, and his son Iulus founds the city of Alba Longa near the city he is destined to found. The slayer of Turnus and the lover of a Carthaginian queen, FTP, identify this subject of an epic poem by Virgil.  
Answer: Aeneas
- 14) The sky is stormy and a black, shadowy forest looms on the right of the canvas. A maiden with a flowing white dress stands at the right, trying to cover the title figure with a pinkish, patterned cloth. On the left, a flying figure carrying a woman blows the title figure to shore over a green sea on a half-shell. FTP, identify this circa 1485 painting about the birth of a beautiful goddess by Sandro Botticelli.  
Answer: The Birth of Venus
- 15) It was written in response to Joyce Cary's *Mr. Johnston*, an incorrect portrayal of Igbo society. In this work, a respected tribesman called Okonkwo is ostracized from his village for an accidental death. Okonkwo goes into exile for several years and returns to find his village in complete disarray due to the British colonial influence. FTP, identify this work that takes its title from a poem by Yeats, the best-known novel of Chinua Achebe.  
Answer: Things Fall Apart

- 16) It was named after the Croatian physicist that first observed it in 1909. Below it, seismic waves undergo a sudden increase in velocity. Lying at a depth of about ten to twelve kilometers below the oceans and thirty-three to thirty-five kilometers below the continents, this boundary is an important demarcation in geology. FTP, identify this discontinuity that marks the junction between the crust and the mantle.  
Answer: Moho discontinuity (accept Mohorovicic discontinuity from smart-asses)
- 17) Its name translates as "ourselves alone," and its objectives were first outlined in 1905 by Arthur Griffith. Originally a pacifist party, it underwent a radical transformation after the Easter Rebellion and was led by the revolutionary Eamon De Valera. Closely tied with the Irish Republican Army, FTP, identify this political party that advocates an independent Northern Ireland, currently headed by Gerry Adams.  
Answer: Sinn Fein
- 18) He was the teacher of Jomo Kenyatta. His 1914 expedition to New Guinea and Melanesia started his work in anthropology with such works as *Coral Gardens and Their Magic*. He began an extensive study of the Trobriand Islands of the southwest Pacific, which led to the work *Crime and Custom in Savage Society*. FTP, identify this founder of functional anthropology, the author of *Magic, Science, and Religion*.  
Answer: Bronislaw Malinowski
- 19) The first modern one was invented by Sir John Harrington, who made one for Queen Elizabeth and called it a "water closet." Alexander Cummings improved on the design in 1775 by inventing an exit pipe that stopped odors from backing up. However, it wasn't until the late 1800s when new refinements by Thomas Crapper gave this device its modern workings and a clever euphemism. FTP, identify this bathroom implement.  
Answer: toilet
- 20) He will wear white flannel trousers and walk upon the beach, but doesn't think the mermaids will sing to him. With a bald spot in the middle of his hair and rich necktie asserted by a simple pin, people will quip how his hair, arms and legs are growing thin. Does he dare eat a peach? Does he dare disturb the universe? FTP, talk about Michelangelo and identify this title character of a poem by T. S. Eliot.  
Answer: J. Alfred Prufrock
- 21) This book is prefaced with a verse from a poet that was a character in the author's first novel. The pianist Ewing Klipspringer and the title character's employer, Dan Cody, are minor figures in this novel. All through the story, the eyes of Dr. T. J. Eckleburg stare over the ash heaps as the characters travel between East and West Egg. FTP, identify this novel about a man in love with another man's wife by F. Scott Fitzgerald.  
Answer: *The Great Gatsby*
- 22) First discovered in 1968, over 300 have been discovered inside our Galaxy. Most are radio sources, but few have been known to emit light and even X-rays. Discovered by Jocelyn Bell, these neutron stars with strong magnetic fields contain charged particles in two regions that rotate in regular intervals. FTP, identify these celestial sources of radiation that emit pulses of radiation in regular intervals.  
Answer: pulsars
- 23) It was annulled by the terms of the armistice signed in 1918, ending World War I. Trotsky, a leader of the new Bolsheviks, walked out on negotiations, while Lenin feared for Russia's stability and gave in to many demands. It decreed that Russia would cede Finland, Poland, Estonia, Livonia, Kurland, Lithuania, and the Ukraine to the Central Powers. FTP, identify this 1918 treaty that ended war between Russia and Germany.  
Answer: Treaty of Brest-Litovsk

1. Identify these lovers of Zeus from descriptions FTPE.

- a) This woman was urged by jealous Hera to ask Zeus to see him in all his divine glory.

Unfortunately, Zeus complied and she perished in his radiance. He saved his child, which became the god Dionysus.

Answer: Semele

- b) This titan, goddess of memory and thought, became the mother of the Nine Muses by Zeus.

Answer: Mnemosyne

- c) Zeus had the hots for this young lad, so he did what any god in heat would've done: he turned into a giant eagle and carried him back to Mount Olympus, where this young man served as Zeus' cupbearer.

Answer: Ganymede

2. Identify these short stories by Nathaniel Hawthorne from descriptions FTPE.

- a) In this story, Aylmer, a scientist, attempts to remove the title object from Georgiana's cheek, but ends up killing her because he tampered with perfection.

Answer: The Birthmark

- b) Reverend Hooper commits a terrible crime in this story, and imposes upon himself the penalty of wearing a black mask.

Answer: The Minister's Black Veil

- c) The title character comes upon a meeting in the midst of the forest held by Satan. Surprised, he finds many of the "sincere" townsfolk among Satan's followers, as well as his beloved Faith.

Answer: Young Goodman Brown

3. Identify the following terms about chemical bonding FTPE.

This is the term given to an ion or molecule that donates a pair of electrons to a metal atom or ion in forming a coordination complex. It is usually any molecule or atom attached to a central molecule or atom.

Answer: ligand

This is an inorganic complex in which a ligand is coordinated to a metal ion at two or more points, so that there is a ring of atoms including the metal.

Answer: chelate

This type of chemical bond is formed by the sharing of valence electrons rather than transfer of electrons, as in the ionic bond.

Answer: covalent bond

4. Identify these U.S. battles of WWII held in the Pacific theater FTPE.

This battle, fought in June 1942, is often called the turning point of the war. The U.S. lost one aircraft carrier to the Japanese's four.

Answer: Battle of Midway Island

Fought in May 1942, this battle checked the Japanese advance in the south and prevented an invasion of Australia. This was the first battle in history in which ships of both sides did not encounter each other, rather engaging via planes launched from their decks.

Answer: Battle of the Coral Sea

Fought between February and March 1945, this costly invasion of an island allowed the U.S. to gain an air base within the Japanese inner-defense system. About 6800 U.S. personnel lost their lives to more than 21,000 Japanese soldiers.

Answer: Battle of Iwo Jima



5. Identify these terms from Buddhism FTSNOP.

(5 points) This term is given to the state of enlightenment reached by followers of Buddhism. It is analogous to the Hindu term of moksha and shares its name with a great band formerly led by Kurt Cobain.

Answer: nirvana

(10 points) This is the term that designates a person who has attained nirvana, but remains bound to his or her earthly state in order to help humankind.

Answer: bodhisattva

(15 points) This is the term given to the collection of sacred writings of Buddhism. The term translates as "Three Baskets."

Answer: Tripitaka or Tipitaka

6. Identify these U.S. painters from works FTPE.

*I Saw the Figure Five in Gold*

Answer: Charles Demuth

*In the Catskills; The Course of Empire*

Answer: Thomas Cole

*Autumn Rhythm*

Answer: Jackson Pollock

7. Identify these eponymous effects in physics from descriptions FTPE.

This effect describes the change in temperature that occurs when a gas expands through a porous plug into a region of lower pressure.

Answer: Joule-Thomson effect

This effect describes the splitting of spectral lines when the source of the spectrum is exposed to magnetic fields.

Answer: Zeeman effect

This effect is observed when a thin layer of insulating material separates two superconducting materials. If such a barrier separates normal metallic conductors, it is possible for a small current to flow between the conductors by tunneling.

Answer: Josephson effect

8. Identify the following concerning the War of the Devolution FTPE.

The War of the Devolution occurred between Spain, the Netherlands, Sweden, and England on one side, and what other nation on the opposing side?

Answer: France

This man was King of France during the War of the Devolution.

Answer: Louis XIV

This treaty ended the War of the Devolution in 1668.

Answer: Treaty of Aix-la-Chapelle

9. Given a partial list of members of a grunge band, or former grunge band, identify that band FTPE.

Jeff Ament, Mike McCready, Stone Gossard

Answer: Pearl Jam

Kim Thayil, Matt Cameron, Chris Cornell

Answer: Soundgarden

Thurston Moore, Kim Gordon, Lee Ranaldo

Answer: Sonic Youth

10. Given a river, identify the body of water into which it flows FTPE.

Brahmaputra

Answer: Bay of Bengal (prompt on Indian Ocean)

Arkansas River

Answer: Mississippi River

Rappahannock River

Answer: Chesapeake Bay (prompt on Atlantic Ocean)

11. Identify these absurdist playwrights from works FTPE.

*Krapp's Last Tape; Endgame; Waiting for Godot*

Answer: Samuel Beckett

*Travesties; The Real-Inspector Hound*

Answer: Tom Stoppard

*The Bald Soprano; Rhinoceros; Exit the King*

Answer: Eugene Ionesco

12. Identify these enzymes that play a role in DNA synthesis FTPE.

This is an enzyme that works at the crotch of the replication fork, untwisting the double helix and separating the two "old" strands.

Answer: helicase

This enzyme works to join the Okazaki fragments into a single DNA strand.

Answer: DNA ligase

This is the general term for enzymes that cause the elongation of DNA at a replication fork.

Answer: DNA polymerase

13. Identify the following concerning stars FTPE.

This is a graphical representation of the absolute magnitude of stars plotted against the spectral class or color index.

Answer: Hertzsprung-Russell or HR diagram

This is the term given to an astronomical object with a mass intermediate between the mass of a planet and that of a small star. They are thought to be large enough to generate great gravitational force, but not large enough to actively sustain nuclear fusion.

Answer: brown dwarf

This is the term for the radiation emitted by black holes as a result of quantum-mechanical effects, suggested by and named after the current Lucasian Professor of Mathematics at Cambridge University.

Answer: Hawking radiation

14. Identify these terms regarding a certain school of psychology FTPE.

This is the term given to a type of illusory motion. The idea is often used in theater marquees and signs. When two adjacent stationary lights flash in quick succession, an observer sees the light move from the first location to the second.

Answer: phi phenomenon or effect

This German psychologist analyzed and explained the phi phenomenon in a 1912 paper in which he addressed the "apparent movement" effect.

Answer: Max Wertheimer

Along with Kurt Koffka and Wolfgang Köhler, Max Wertheimer was a pioneer and founder of this school of psychology, which asserted that images are perceived as a pattern or whole rather than the sum of distinct parts.

Answer: Gestalt psychology

15. Given a work of music, identify the composer and the author of the work's literary source FFPE.

*Ruslan and Ludmilla*

Answer: Mikhail Glinka and Aleksandr Pushkin

*The Barber of Seville*

Answer: Gioacchino Rossini and Pierre de Beaumarchais

*Prelude to the Afternoon of a Faun*

Answer: Claude Debussy and Stephen Mallarmé

16. Identify these pre-Socratic philosophers from brief descriptions FTPE.

This first philosopher of the Milesian school believed that the primordial substance was water. He was all wet.

Answer: Thales

Unlike his teacher Thales, this philosopher believed that air was the most basic and fundamental substance of all. What an airhead!

Answer: Anaximander

This philosopher wrote in conscientious objection to Parmenides and determined that the universe is in a constant state of flux. He also believed that fire was the prime element. Don't worry, there are no more bad jokes in this bonus.

Answer: Heraclitus

17. Identify these famous rulers of India throughout history FTPE.

This Mughal emperor is most famous for constructing the Taj Mahal in the 16<sup>th</sup> century.

Answer: Shah Jahan

Perhaps the greatest of the Mauryan rulers, this emperor embraced Buddhism and made it the state religion.

Answer: Ashoka

He instituted a strict code of Islamic law into India. He is best known as the last great Mughal emperor of India and third son of Shah Jahan.

Answer: Aurangzeb

18. Identify these Baroque composers from works FTPE.

*Goldberg Variations; St. Matthew's Passion*

Answer: Johann Sebastian Bach

*Messiah; Water Music*

Answer: George Frideric Handel

*Hamburgische Kapitolmusik; Mass in C*

Answer: Georg-Philipp Telemann

19. Identify these works of Thomas Mann FTSNOP.

(5 points) This novella traces the downward spiral of author Gustav von Aschenbach as he falls in love with a young Polish boy named Tadzio while on vacation in the titular city.

Answer: Death in Venice

(10 points) This tetralogy of novels compares a German family to a Biblical story and recounts how one of the characters becomes the savior of his people.

Answer: Joseph and his Brothers

(15 points) The title character of this Mann novel is the butt of jokes of all the blond-haired, blue-eyed children in his class. This work about a boy with mixed ancestry details his maturation and his eventual success as a writer.

Answer: Tonio Kröger

20. Identify the following pieces of U.S. legislation that have shafted Native Americans throughout history FTPE.  
 This 1887 act converted communally owned Native American reservation lands into individually owned parcels. Excess acreage was sold to white settlers. This act contributed to the decline of tribal populations, traditions, and well-being.  
 Answer: Dawes Act or General Allotment Act  
 This series of laws passed between 1790 and 1834 established federal control over all relations with Native Americans. Federal control meant that only Congress could negotiate treaties, obtain lands, or trade with Native Americans.  
 Answer: Trade and Intercourse Acts  
 This 1830 legislation provided funds to cover the cost of treaty negotiations and the transplanting of eastern tribes from Georgia to lands west of the Mississippi. This is the act that created the Trail of Tears.  
 Answer: Indian Removal Act
21. Identify these economists from descriptions FTPE.  
 A physician to Louis XV, this French economist was the principal founder of the Physiocratic school.  
 Answer: François Quesnay  
 This U.S. economist was famous for his breakthroughs in general equilibrium theory and welfare theory. He shared the 1972 Nobel Prize in Economics with Sir John Hicks.  
 Answer: Kenneth Arrow  
 He turned the study of political economy to economics. The foremost British economist of his time, this late-19<sup>th</sup> and early-20<sup>th</sup> century economist's principal contributions lay in systematizing classical theories and in developing a concept of marginal utility.  
 Answer: Alfred Marshall
22. Identify the following characters from the great Indian epic *Ramayana* FTSNOP.  
 (5 points) The *Ramayana* concerns the efforts of Rama to retrieve his wife, this woman who was born of the earth and found in a field.  
 Answer: Sita  
 (10 points) This monkey god serves as Rama's faithful companion and helps burn the city of Lanka when his tail is set on fire.  
 Answer: Hanuman  
 (15 points) Rama fights a climactic battle with this son of Ravana, who can set aflame whomever he sets his eyes upon. Rama defeats him by shooting an arrow at him that turns into hundreds of tiny mirrors, causing him to look upon himself.  
 Answer: Indrajit
23. Identify these geological terms from descriptions FTPE.  
 This is formed when a meander of a slow-flowing river is cut off from the main channel after the river, in flood, crosses the neck of land between two bends.  
 Answer: oxbow lake  
 This is a structural basin in the earth's crust in which a zone of water-bearing rock, or aquifer, is confined between impermeable beds.  
 Answer: artesian well or basin  
 This is a deposit of rock debris scoured from a valley floor by a glacier and left behind when the ice melts.  
 Answer: moraine