Tossups

1. This city's older buildings include a "red house," a "House of Dark Writing," and a "House of Deer," while the Temple of the Warriors, a great pyramid, and a ball court were built later. Irrigated only by wells, its name comes from the indigenous words for "mouths" and "wells," and from the name of the tribe which took it over in about 1200. FTP, name this city once allied with Uxmal and Mayapán which is now a major archaeological site on the Yucatán Peninsula.
Answer: <u>Chichén Itza</u>

2. This work includes lyrical reactions to such authors as Remy du Gourmont, discusses economic matters such as usury, and treats Odysseus as a man in search of a culture. Its first 16 sections were published in 1925, and some of its most admired sections, written while its author was incarcerated in a prison camp and a mental hospital, won the Bollingen Prize in 1949. FTP, name this 117-part epic poem composed over the course of 53 years by Ezra Pound.
Answer: *<u>Cantos</u>*

3. The last name is the same: Curt was an American biologist who introduced the concept of the biological clock; Sviatoslav was a prominent Russian pianist who died in 1997; Burton was a physicist who, independently of Samuel Ting, discovered the J/psi particle; Hans was a Hungarian conductor known for his performances of works by Elgar, Brahms, and Wagner. FTP, give this last name also shared by Charles, who in 1935 developed a replacement for the Mercalli earthquake scale.
Answer: <u>Richter</u>

4. She nearly died shortly after her 1972 birth, but was nursed to health by Dr. Francine Patterson, who has been a formative influence on both her and her foster-brother Michael. Her paintings, including "Bird," are widely sold, with the proceeds going toward the construction of a new, more natural home for her on Maui, where she will hopefully become a mother and expand her 2000-word vocabulary. FTP, name this first gorilla to learn sign language.
Answer: <u>Koko</u>

5. He fled his creditors to Paris under the name John Clarke and lived several years in Geneva, but he eventually returned to England, living there until his 1712 death. Much earlier, he offended army officers by making himself commander-in-chief, so the officers forced him to dismiss Parliament and called the Rump Parliament, which dismissed him. FTP, name this man who couldn't live up to his father's legacy in his eight months as Lord Protector of England.
Answer: Richard <u>Cromwell</u>

6. Males can go without this hormone for months because, after it has performed its role in sperm differentiation and the formation of the seminiferous tubules, its other functions may be taken over by testosterone. In women, it is produced most heavily at the beginning of the menstrual cycle and its levels fall off after ovulation, when it is no longer needed for the production of the graafian follicle. FTP, name this hormone, commonly abbreviated FSH.
Answer: <u>Follicle Stimulating</u> Hormone (accept <u>FSH</u> before the end of the question)

7. Considered by some to be the earliest book to anticipate the theory of continental drift, this philosophical work preceded the unfinished "Forest of Forests" and succeeded *The Advancement of Learning* in what its author hoped to be a six-part series called *The Great Instauration*. It describes a three-step method of gathering and evaluating facts relevant to natural phenomena which substantially improved the scientific method. FTP, name this work published in 1620 by Francis Bacon.
Answer: <u>Novum Organum</u> ("<u>New Instrument</u>")

8. In group theory, this term refers to the subgroup consisting of the elements of finite order of an infinite abelian group, while for a curve it refers to a factor of the dot product of the curve's binormal vector with its jerk, and measures the extent to which the curve fails to remain in a plane. In physics, it refers to the

type of force which drives catapults, using energy derived from twisted fibers. FTP, name this quantity, which Lóránt von Eötvös and Henry Cavendish have invented balances to measure in order to estimate the universal gravitational constant.

Answer: <u>Torsion</u>

9. In letters to his friend Belford, the main male character of this novel reveals that he is motivated primarily by a history of family insults and by his sense of the title character's moral superiority. After the title character, whose last name is Harlowe, dies of grief, Colonel Morden kills her suitor Lovelace in a duel, mercifully bringing an end to the longest novel in the English language. FTP, name this 1747 work by Samuel Richardson.

Answer: *<u>Clarissa</u> Harlowe* (or *<u>Clarissa</u>, or, The History of a Young Lady*; accept "Robert <u>Lovelace</u>" before the word "novel.")

10. In 1861, Roger Taney's attempt to secure the release of a prisoner from this site by issuing a writ of habeas corpus resulted in the case *ex parte* Merryman. Now a national monument, it was near this site that another American tried to secure the release of his imprisoned friend William Beanes, while Samuel Smith was defending the site from its bombardment by rockets from the ship *Erebus*. FTP, name this fort whose perseverence on September 14, 1814, inspired a poem by Francis Scott Key.

Answer: Fort <u>McHenry</u>

11. This social phenomenon occurs among such animals as honey bees and scrubwrens, and the few human societies that practice it may be found in areas with little arable land, requiring limited population growth. Ethnologist Melvyn Goldstein studied its fraternal form among the Ladakh in Tibet, where, not coincidentally, many women are nuns. FTP, name this practice in which a woman is married to two or more men.

Answer: <u>Polyandry</u>

12. In the 1970s, this artist began producing almost-monochrome paintings consisting of clusters of parallel lines which he referred to as "cross-hatchings." In his earlier works, he used the encaustic technique, in which pigments are mixed with hot wax, in order to delicately manipulate the surface texture of his paintings of such objects as maps, targets, and numbers. FTP, name this pop artist known for "Painted Bronze," a sculpture of two Ballantine Ale cans, and for paintings of American flags.

Answer: Jasper <u>Johns</u>

13. Early in his military career, he translated German infantry training manuals into his native language, and before long he rose to the rank of general, giving him the title "pasha." As his country's leader, he formed the Republican People's Party and initiated such reforms as the introduction of women's suffrage in 1934 and the Swiss civil code in 1926, the prohibition of the fez, and the abolition of the Caliphate. FTP, name this founder of the modern Republic of Turkey.

Answer: Kemal <u>Atatürk</u> (or <u>Mustafa Kemal</u> Pasa)

14. This region is home to such animals as gnus, zebras, and springboks in spite of its shortage of surface water, most of which can be found in the Boteti river and has its source in the nearby Okavango swamp. In 1849, David Livingstone and William Oswell crossed it and subsequently found Lake Ngami, and in the late 1870s 250 members of a party of Boers died on a journey through it. FTP, name this desert in South Africa, Namibia, and Botswana.

Answer: <u>Kalahari</u> desert

15. Two heavy isotopes of oxygen were discovered in the atmosphere as a result of investigations into the accuracy of this law by William Giauque. The law results from the relationship between the accessibility of energy levels in a system and the system's temperature, which causes the degeneracy of a perfect crystal to approach 1 as temperature decreases. FTP, name this law put forward in 1911 by Walther Nernst which says that the entropy of a pure substance is zero at absolute zero.

Answer: <u>Third</u> Law of <u>Thermodynamics</u>

16. Starting in 1961 when her mother became ambassador to India, this woman spent almost all of a 27-year period outside of her home country. Upon returning to her homeland, she soon found herself opposing the State Law and Order Restoration Council as leader of the National League for Democracy, whose landslide victory in the 1990 election was ignored by the successors of former dictator Ne Win. FTP, name this winner of the 1991 Nobel Peace Prize for her fight for democratic reform in Burma.

Answer: Aung San Suu Kyi

17. The name's the same: one was a 19th century German mathematician who introduced the concept of uniform continuity and has his name attached to a theorem about subsets of the real line for which any open cover has a finite subcover. The other was an author and social critic who wrote such political works as "Germany, A Winter's Tale" but is best known for a collection of poems inspired by his unrequited love for one or possibly both of his cousins and published in 1827. FTP, give this name shared by a mathematician whose name often appears next to that of Felix Borel and a poet who wrote the *Buch der Lieder*.

Answer: Heinrich Heine

18. With "his mind on fleshly lusts and his treasures," this character is told to go on a journey, so he tries to recruit his cousin to join him, but his cousin refuses because of a cramp in his toe. Having gone to confession and put on a garment of sorrow, he is joined on his pilgrimage by his Good Deeds and, temporarily, by Knowledge, who tells him, "I will go with thee and be thy guide." FTP, name this title character of the best-known of the 15th century morality plays.

Answer: Everyman (accept *Elkerlijk*, the original (Dutch) title)

19. This mythological figure appears as a village doctor in love with a gypsy in a short opera by Armand Lunel and Jacques Milhaud whose title refers to his "misfortunes." Over three hundred years earlier, he was the title character of the 1607 work which established the form of modern European opera and was the masterpiece of Claudio Monteverdi. FTP, name this figure, also the title character of an Offenbach opera dealing with his journey to the underworld to rescue his wife Eurydice.

Answer: Orpheus

20. This religious text, based partly on the story of a figure in Chapter Five of the Book of Judges who kills a Canannite general by driving a tent peg through his head, is unambiguously fictional, as it is set in the otherwise-unknown city of Bethulia and refers to Nebuchadnezzar as a king of Assyria. Nebuchadnezzar orders his general Holofernes to force submission on his Jewish subjects, but the title character kills Holofernes after he tries to seduce her. FTP, name this apocryphal book about a Jewish widow who saves her city.

Answer: Book of Judith

21. Although advocates of this school of economic thought felt that free trade would cause goods to reach a fair price, they insisted that government should fix the interest rate. They included Nicolas Baudeau and Victor Raqueti, and were allied with Jacques Turgot, who became comptroller general in 1774. FTP, name this school of economics which held that land was the source of all wealth, is considered the first scientific school of economics, and was led by Francois Quesnay.

Answer: Physiocrats or Physiocracy

Bonus Questions

1. Identify the following battles lost by the Romans, FTPE:
a) The 217 BC battle at an Italian lake at which Hannibal defeated Gaius Flaminius, killing 15,000 Romans and setting the stage for his victory at Cannae.
    Answer: Battle of <u>Lake Trasimene</u>
b) The 9 BC battle near modern-day Bielefeld, Germany, at which Germans under Arminius destroyed three Roman legions, seriously setting back Augustus' plans to annex Western Germany and Bohemia.
    Answer: Battle of <u>Teuteborg Forest</u>
c) The battle in European Turkey in 378 in which Visigoths and Ostrogoths defeated the Romans under Valens, killing 40,000 Romans and starting the trend of Roman losses to the Germans.
    Answer: Battle of <u>Adrianople</u>

2. Identify the following novels by Somerset Maugham, FTP each:
a) Maugham's 1919 novel based largely on the life of Paul Gauguin in which a stockbroker leaves his London home to go to Tahiti and become a painter.
    Answer: The <u>Moon and Sixpence</u>
b) Maugham's 1930 satire of London literary life centering on a Victorian writer named Driffield, said to be based on Thomas Hardy, and his first wife Rosie.
    Answer: <u>Cakes and Ale</u>
c) Maugham's 1944 novel in which a former World War I pilot converts to Hinduism.
    Answer: The <u>Razor's Edge</u>

3. Identify the following terms relating to special relativity, FTP each:
a) The transformation of coordinates which allows one to represent position and time in one inertial reference frame in terms of position and time in another. It is analogous to the Galilean transformation in nonrelativistic mechanics.
    Answer: <u>Lorentz</u> transformation.
b) A vector whose length is preserved under a Lorentz transformation. Examples include the one containing the coordinates for position and time, and the one containing the coordinates for energy and momentum.
    Answer: <u>Four-vector</u>
c) The length of an object as measured in its own rest frame.
    Answer: <u>Proper</u> length

4. Answer the following about the Taiping Rebellion, FTPE:
a) Identify the rebellion's leader, who proclaimed himself Heavenly King of the Heavenly Kingdom of Great Peace in 1851.
    Answer: <u>Hung</u> Hsiu-ch'uan (or <u>Hong</u> Xiuquan)
b) Name the famous figure whom Hung Hsiu-ch'uan believed to be his older brother.
    Answer: <u>Jesus</u> Christ
c) Name the city which served as the capital of the Taiping rebels from 1853-1864.
    Answer: <u>Nanking</u>

5. Identify the following figures in the Trojan War, FTPE:
a) The priest of Apollo who was crushed to death along with his twin sons by two giant sea serpents for breaking his oath of celibacy and for warning the Trojans against accepting the horse.
    Answer: <u>Laocoön</u>
b) The queen of the Amazons who fought for Troy and was killed by Achilles.
    Answer: <u>Penthesilea</u>
c) The king of Ethiopia who, like Penthesilea, was killed by Achilles late in the war.
    Answer: <u>Memnon</u>

6. Identify the following anarchists, FTPE:

a) The Russian aristocratic-born author of *The Conquest of Bread* and *Mutual Aid* whose theories of "anarchist communism" got him expelled from Switzerland at the demand of the Russian government after the assassination of Alexander II.

Answer: Peter Alekseyevich <u>Kropotkin</u>

b) The main initiator of 19th century anarchism, whose quarrels with Marx in 1872 split the European revolutionary movement and led to his work *State in Anarchy*.

Answer: Mikhail Alexandrovich <u>Bakunin</u>

c) The French libertarian who heavily influenced Bakunin and whose major works include *What is Property?*, *Warning to Proprietors*, and *The Poverty of Philosophy*.

Answer: Pierre-Joseph <u>Proudhon</u>

7. Identify the following Japanese authors from works, FTP each:
a) *Some Prefer Nettles*; *The Key*; *Diary of an Old Man*

Answer: Jun'ichiro <u>Tanizaki</u>

b) *The Woman in the Dunes*; *The Face of Another*; *Friends*

Answer: <u>Abe</u> Kobo

c) *South of the Border, West of the Sun*; *The Windup Bird Chronicle*; *A Wild Sheep Chase*

Answer: Haruki <u>Murakami</u>

8. Identify the following classic books on economics, FTPE:
a) The work published in 1817 by David Ricardo which included Ricardo's labor theory of value and his theory of distribution in which national product is categorized into wages, profits, and rents.

Answer: *Principles of Political Economy and Taxation*

b) The 1848 work by John Stuart Mill, divided into 5 books and widely regarded as the culmination of classical economics.

Answer: *Principles of Political Economy*

c) The 1958 work by John Kenneth Galbraith which criticized American economic policies for focusing too much on production and not enough on public services.

Answer: *The Affluent Society*

9. Identify the following important figures in the unification of Italy, FTPE:
a) The first king of a unified Italy.

Answer: <u>Victor Emmanuel II</u>

b) The soldier and leader of the "redshirts" who fought for independednce from Austria and whose conquest of Naples and Sicily was instrumental in Italian unification.

Answer: Giuseppe <u>Garibaldi</u>

c) The first prime minister of the kingdom of Italy, who had a longstanding reputation as a statesman and diplomat in Piedmont.

Answer: Camillo Benso, conte di <u>Cavour</u>

10. Identify the following religious musical compositions, FTP each:
a) The musical setting for the Mass for the Dead, the traditional form of which has been famously treated by Mozart, Berlioz, and Verdi. Britten wrote one about war based on the poems of Wilfred Owen, and Brahms wrote a well-known "German" one.

Answer: *Requiem* mass

b) The Latin hymn to God the Father and Christ the Son, whose English translation begins, "You are God: we praise you," supposedly improvised by Saints Ambrose and Augustine at the latter's baptism. Purcell, Vaughan Williams, Handel, and Dvorák have set it polyphonically.

Answer: *Te Deum* laudamus

c) The liturgical song about the weeping mother at the cross, notable versions of which have been composed by Pergolesi, Rossini, Verdi, and Poulenc.

Answer: *Stabat Mater*

11. Identify the following diseases caused by dietary deficiencies, FTP each:

a) The condition resulting from severe protein deficiency, common in young children weaned to high-starch, low-protein diets whose symptoms include reddish hair discoloration, dry skin, and digestive disturbances.

      Answer: <u>Kwashiorkor</u>

b) The disease resulting from niacin deficiency whose main symptoms are dermatitis, diarrhea, and dementia.

      Answer: <u>Pellagra</u>

c) The disease characterized by a loss of calcium and phosphorus from the bones which can be caused by a prolonged lack of calcium in the diet or, like rickets, insufficient vitamin D.

      Answer: <u>Osteomalacia</u>

12. Answer the following about 20th century retellings of Aeschylus' *Oresteia*:

a) FFP each, name Eugene O'Neill's 1931 trilogy based on the *Oresteia*, and name its three parts.

      Answer: *Mourning Becomes Electra*; *Homecoming*; *The Hunted*; *The Haunted*

b) FTP, name Jean-Paul Sartre's 1943 adaptation of the story of Orestes.

      Answer: *The Flies (Les Mouches)*

13. Identify the following anthropologists who studied religion, FSNOP:

a) FTP, the father of cultural anthropology who, in *Primitive Culture*, identified the earliest form of religious belief as "animism."

      Answer: Edward Burnett <u>Tylor</u>

b) FFP, the author of the classic *The Golden Bough*, who argued that modes of thought among societies evolve from the magical to the religious to the scientific.

      Answer: Sir James George <u>Frazer</u>

c) FFP, the man who, attracted to anthropology by Frazer's work, wrote such works as *Myth in Primitive Psychology* after his study of the Trobriand islanders.

      Answer: Bronislaw Kaspar <u>Malinowski</u>

d) FTP, the British anthropologist whose work among the Azande and the Nuer of southern Sudan led to such works as *Witchcraft, Oracles, and Magic among the Azande*, in which he argued that magic is an integral part of religion and culture.

      Answer: Sir Edward Evan <u>Evans-Pritchard</u>

14. Give the last name of the following families of painters on a 15-10 basis:

a) 15: Jacopo was a student of Gentile da Fabriano and is known for a pair of sketchbooks produced around 1450. Jacopo's daughter Nicolosia married Andrea Mantegna, and his son Gentile was noted for his city scenes and his portraits of doges and sultans.

10: Jacopo's other son, Giovanni, taught Titian, made Venice a major artistic center, and is known for such paintings as "The Agony in the Garden" and "The Coronation of the Virgin."

      Answer: <u>Bellini</u>

b) 15: Jan, nicknamed "Velvet," collaborated with Peter Paul Rubens on such paintings as "Adam and Eve in Paradise."

10: Jan's father is best known for "The Tower of Babel" and "Peasant Dance."

      Answer: <u>Bruegel</u>

15. Identify the following people who were impeached or censured by Congress, FTPE:

a) The Massachusetts Representative censured in 1872 for his efforts to derail the investigation of the Crédit Mobilier scandal.

      Answer: Oakes <u>Ames</u>

b) The Senator from Tennessee who was impeached and expelled from the U.S. Senate in 1797 for his involvement in a plot to turn Florida over to the British.

      Answer: William <u>Blount</u>

c) The signer of the Declaration of Independence and Supreme Court justice from 1796-1811 who was impeached on trumped up charges of malfeasance but acquitted in 1805.

      Answer: Samuel <u>Chase</u>

16. Answer the following about linear algebra, FTP each:

a) Given a vector space, this is the term for a linearly independent set of vectors which spans the vector space. The number of elements in one of these sets is the dimension of the space.

Answer: Basis

b) A basis such that the inner product of any vector in the basis with itself is 1, and with any other vector in the basis is zero, is described by this term.

Answer: Orthonormal (prompt on orthogonal)

c) Given any basis for a vector space, this process, named after two mathematicians, one Danish and the other Russian, may be used to construct an orthonormal basis.

Answer: Gram-Schmidt process

17. Identify the following organic acids, for the stated number of points:

a) FFP, the simplest carboxylic acid, with formula HCOOH. Used as a disinfectant, its name comes from its appearance in ant tissues.

Answer: Formic acid or Methanoic acid

b) FFP, the second simplest carboxylic acid. with formula CH_3COOH, whose diluted form is vinegar.

Answer: Acetic acid or Ethanoic acid

c) FTP, the acid with formula $C_2H_2O_4$, used as an acid rinse in laundries and for removing scale from automobile radiators.

Answer: Oxalic acid or Ethanedioic acid

d) FTP, the acid, also known as 1,2-benzenedicarboxylic acid, used as an ingredient in polyesters and in the manufacture of phenolphthalein.

Answer: Phthalic acid

18. Identify the following leaders of postwar France, FTP each:

a) The first president of the Fifth Republic, who served from 1958-1969 and oversaw the end of the war in Algeria.

Answer: Charles de Gaulle

b) The premier from 1962-1968 who succeeded de Gaulle as president in 1969, serving until his unexpected 1974 death. During his premiership, he negotiated an end to a student-worker revolt.

Answer: Georges Pompidou

c) The socialist who took power as prime minister in June 1997, initiating a period of cohabitation with Gaullist president Jacques Chirac.

Answer: Lionel Jospin

19. Identify the following Kurt Vonnegut novels from their main characters, FTPE:

a) Dwayne Hoover, an auto dealer

Answer: *Breakfast of Champions*

b) Paul Proteus, an engineer

Answer: *Player Piano*

c) Billy Pilgrim, an American GI

Answer: *Slaughterhouse Five*

20. Name the psychologist from works, FTPE:

a) *Escape from Freedom* and *The Sane Society*

Answer: Erich Fromm

b) *The Artist* and *The Trauma of Birth*

Answer: Otto Rank or Otto Rosenfeld

c) *Childhood and Society* and *Young Man Luther*

Answer: Erik Erikson