

1. Following a test run beginning in May 2005, that November it made its official debut, helped by a \$3.5 million investment from Sequoia Capital. Its founders were Chad Hurley and Steve Chen, two former Paypal employees. After reaching deals with such potential content providers as Warner Music and NBC, it recently reached a deal to be acquired for \$1.6 billion in Google stock. FTP name this website, known primarily for its enormous cache of internet video ranging from anti-drug ads to lonelygirl15.

Answer: youtube.com

2. After being excommunicated from Lantern Yard over accusations of being a thief, the protagonist's religious faith wavers and mirrors the author's own internal struggle. Failing to integrate himself into society, he works tirelessly for the sake of earning gold until one night Dunsey sneaks into the protagonist's home to steal money for killing his brother's dead horse. Lamenting the loss of his money, he awakens to find the young Eppie, whom he adopts and allows to restore his faith. FTP, name this novel by George Eliot.

Answer: Silas Marner

3. Started by Ram Das in 1604, this structure is set in the center of a lake called the Amrita Saras, or the Pool of Immortality. It has entrances on all four sides to symbolize its openness to people of all faiths and castes. Arjun Dev continued its construction, although it was soon repeatedly destroyed by Afghan raiders until maharaja Ranjit Singh restored it to glory with marble, copper and its namesake substance. FTP name this building, the home of the Guru Granth Sahib and the Akal Takht, Sikhism's centralized religious authority.

Answer: Golden Temple or Harimandir

4. Experimental evidence leading to the formulation of this theory included an exponentially increasing heat capacity for vanadium near a certain temperature. A measured bandgap was discovered equal to seven-halves times k times the critical temperature, which is itself dependent on isotopic mass. This showed that the crystal lattice was involved through phonon interactions with electron pairs that had condensed near the Fermi level into boson-like Cooper pairs. FTP name this theory of Type I superconductivity that earned its three namesakes the 1972 Nobel Prize.

Answer: BCS theory (prompt on "superconductivity" I suppose)

5. It cemented its trading and military dominance in 1368 after defeating Waldemar IV, and it established kontors or permanent centers with factories in cities like London and Novgorod. As a political entity, it had a diet that only began meeting regularly after 1356, and through its decision making authority determined policy on finance, military, and competition. First founded in 1159, Henry the Lion rebuilt the city of Lubeck as its first true center. FTP, name this Northern German trading alliance that was dissolved following the Thirty Years War.

Answer: Hanseatic League or Hansa

6. This class of compounds is fairly inert, but allyl aryl types can undergo the Claisen Rearrangement into an alkylated phenol, and most examples can be cleaved by strong acids such as hydrobromic. They can be formed by reacting an alkene with an alcohol in the presence of mercuric acetate, followed by reduction, but their more common method of synthesis involves an alkoxide ion reacting with an alkyl halide in an SN2 mechanism, known as the Williamson synthesis. Also coming in crown and cyclic varieties, FTP name this class of organic compounds defined by the presence of an oxygen atom between two carbon groups.

Answer: ethers

7. This composer depicted a revival meeting in "The Rockstrewn Hills" movement of his Second Orchestral Set. He wrote pieces for pianos tuned to quarter notes, and the organ sounds a low C for the entirety of his *Psalm 90*. He depicted America in works such as *Central Park in the Dark* and *Holidays*, though he is better known for a work describing The "Saint Gaudens," Putnam's Camp, and The Housatonic at Stockbridge, as well as for a solo piano piece whose movements are entitled "Emerson," "Hawthorne," "The Alcotts," and "Thoureau." Also the composer of *The Unanswered Question*, FTP name this part-time composer of *Three Places in New England* and *Concord Hymn*.

Answer: Charles Ives

8. Likely retold as propaganda for the First Crusade, Einhard lists the protagonist among the minor nobility. However, the actual antagonists were likely the Gascons. The Twelve Peers, who include Oliver and Turpin the battling archbishop, in the rear, are ambushed by enemy army of epic proportions. As the Saracens approach, the protagonist refuses to blow Oliphant to call reinforcements and slays scores of Saracens with his mighty Durendal. FTP, name this story about Charlemagne's nephew at the battle of Roncesvalles.

Answer: The Song of Roland or Chanson de Roland

9. A category is called "concretizable" if there exists a faithful functor from that category into the category of these objects. The collection of all of them is denoted V , an object which exists in the von Neumann-Godel-Bernays theory but not in the more standard Zermelo-Fraenkel theory. They were first studied by Cantor, and Russell found a flaw in their initial axiomatization by considering the collection of all of these objects which are not members of themselves. FTP, name these mathematical objects, on which one can perform the operations of Cartesian product, union, and intersection, and which are often represented by Venn diagrams.

Answer: sets

10. Politicians in the nation it affected most were violently opposed to it, but it managed to gain a 2/3 majority in the legislature to ensure its passage. Although it called for the withdrawal of troops from the coal rich Ruhr region by French and Belgian forces, it resulted in greater revenues that were used to pay for French reparations. Moreover, the German national bank was subject to outside influence as part of its provisions. Eventually replaced by the Young Plan, FTP name this economic plan based on American loans to help German debt after World War I.

Answer: Dawes Plan

11. They divide the Dzungarian and Tamir basin, and their major rivers include the Syr Darya, Ili, and Chu. The Alatau and Alai mountain ranges are two of its primary constituents that provide water for irrigated farmland from surrounding glaciers. Geologic activity during the Paleozoic created this natural boundary for Kazakhstan, Kyrgyzstan, and China where the three countries meet. FTP name this mountain range whose highest point is Victory Peak and whose name is Chinese for "Heavenly Mountains."

Answer: Tian Shan or Tien Shan

12. (MR) Taking a film of a cup falling off of a table allows us to see the Second Law of Thermodynamics and Murphy's Law in action as a postulate of the Arrow of Time. The analogy of cards is used to depict spin, and the concept of three symmetries—C, P, and T—is also discussed. In September 2005, a collaboration with Leonard Mlodinow [*MLO-din-ow*] produced an even shorter work based on it, though the author, in hopes of increasing readership, kept it short and limited the equations to $E=mc^2$. FTP name this 1988 work of scientific nonfiction containing an introduction by Carl Sagan, the masterpiece of Stephen Hawking.

Answer: *A Brief History of Time: From the Big Bang to Black Holes*

13. During his reign, his empire used a complex bureaucratic system to administer an empire that encompassed India, Pakistan, and Afghanistan, and incorporated a system of edicts carved into rocks and pillars that remain today. Following his conquest of Kalinga, he abandoned warfare in favor of preaching Buddhism and acquiring territory through nonviolent means. Following his death in 232 BC, his empire quickly disappeared. FTP, name this grandson of Chandragupta and third ruler of the Mauryan dynasty.

Answer: Ashoka or Asoka

14. Created at the General Forge and Foundry Company, it was originally conceived by a Marine general as a means to reduce the difficulty of troops fighting in the mud. A bluish white substance composed of hydrogen and oxygen, it has a melting point of 114.4 degrees Fahrenheit, and its creator, atomic bomb developer and Nobel Prize winner Felix Hoenikker, said contact with moisture must be avoided. It works by altering the crystalline structure of liquid atoms when they lock. FTP, name this apocalyptic substance used in San Lorenzo in Kurt Vonnegut's *Cat's Cradle*.

Answer: Ice 9

15. Although its title references Philippians 2:12, the work concerns one early Biblical account and the author's argument to combat Hegel's paramount belief in the ethical. To illustrate these ideas, the author contrasts the knight of faith and the tragic hero, whose infinite resignation prevents escape from ultimate despair because leaps of faith require the strength of the absurd in the religious life. FTP, name this work by Soren Kierkegaard based on Abraham's near sacrifice of Isaac.

Answer: **Fear and Trembling**

16. Freedom of the seas, freedom from fear, and freedom from want were among the principles that it emphasized. Its affirmation in January 1942 at a conference in Washington helped lead to the creation of the United Nations and united the Allied cause to establish a post-war order around disarmament and self-determination. Conducted aboard the USS Augusta, FTP, name this joint declaration announced by Winston Churchill and Franklin D. Roosevelt that outlined British and American objectives for World War II.

Answer: **Atlantic Charter**

17. At the age of 17, the central female character of this work rejected the lovelorn protagonist, having returned from a long journey that her father, Lorenzo, initiated. However, the novel begins with the successful Doctor Urbino finding his friend Jeremiah Saint-Amour after his suicide. Taking place mostly in the twilight of the characters' lives following Urbino's accidental death, the novel examines love rekindled between Florentino Ariza and Fermina Daza fifty years after they first met. In the end, the elderly couple can only be together by quarantining themselves aboard a cruise. FTP, name this infectious Gabriel Garcia Marquez novel.

Answer: **Love in the Time of Cholera**

18. According to his views, society is divided into two parts: the "predator" class controlling business and enterprise, and the "industrious" class," which creates goods. He believed that correcting the abuses of the "predator" class could be achieved by controlling production and distribution since he postulated that price fluctuations controlled the economy. However, he is better known for his antagonism for pecuniary values and his *The Theory of Business Enterprise*. FTP, name this economist of the New School best known for *The Theory of the Leisure Class* and for his rejection of acquiring goods to compete for social status or conspicuous consumption.

Answer: Thorstein **Veblen**

19. He first truly gained prominence in the 19th century, but earlier Joshua Reynolds noted the power of his *Kitchen Maid*, where he relied on camera obscura to create naturalistic colors. He is better known for his work overlooking the Schie River across from the Rotterdam River as citizens stand on the shore and face the skyline, as well as one depicting an artist painting the portrait of a woman in a blue dress holding a trombone. FTP, name this Dutch artist famous for his *View of Delft* and *The Art of Painting*.

Answer: Jan (or Johannes) **Vermeer**

20. (MR) Members of this phylum are placed in such orders as tricladida, catenulida, and proseriata. They are characterized by a single-opening digestive tract, integumentary exchange, and either asexual reproduction by transverse fission or hermaphroditism. Many possess flame cells and eyespots which serve excretory and sensory purposes respectively. The largest class is now called turbellaria, though was originally planaria. FTP name this phylum containing flukes, roundworms, and flatworms.

Answer: **Platyhelminthes**

21. The novel begins as the protagonist has realized success and seeks to reminisce on his upbringing with his best friend. After the titular character rebuffs the hero's romantic advance, he attends the theater with Lena Lingard, while he remains faithful to their friendship until leaving Lincoln for Harvard. Earlier the two characters developed a deep bond as he taught her English, saved her from snakes, and consoled her following her father's suicide as she weathers acculturation and homesickness. FTP, name this Willa Cather novel about Jim Burden and the Shimerda family.

Answer: **My Antonia**

22. During his imprisonment at the Hague, he recently noted his hatred for “Eurocentric” blends of prison food. After training under Qaddafi, he collaborated with the RUF in Sierra Leone and undermined government in his home nation by arming anti-Western rebels. In 2003, he surrendered as the opposing LURD and MODEL forces occupied 2/3 of the country. The arrival of a Marine contingent prompted his Nigerian exile until Ellen Johnson Sirleaf sought his extradition to the Special Court for Sierra Leone. FTP, name this warlord and former president of Liberia.

Answer: Charles **Taylor**

23. Giuseppe Mazzini is in control of Young Italy and works to establish a Roman republic. Louis Kossuth inspires an insurrection in Hungary, while Metternich loses power in Austria. Louis Blanc is instrumental in the removal of King Louis Phillipe, and later this year Louis Napoleon is elected president. FTP, name this phenomenon that saw a failed implementation of democratic reforms throughout the world in the same year that Lewis Cass lost to Zachary Taylor in the US Presidential Election.

Answer: **Revolutions of 1848** (accept obvious equivalents)

1. Answer the following related questions about astronomy FTPE.

[10] When the core of a star is exhausted and its mass exceeds this number, 1.44 times the mass of the sun, it will collapse under its own weight.

Answer: Chandrasekhar limit

[10] The Chandrasekhar limit is the upper mass limit for this kind of star characterized by electron state degeneracy, as they are unable to continue to fusing particles.

Answer: white dwarf

[10] If a star's mass exceeds the Chandrasekhar limit, it can collapse into this kind of very dense star with strong magnetic fields.

Answer: neutron star

2. Answer the following about the Theater of the Absurd FTPE.

[10] Better known today as first president of the Czech Republic, this dramatist found great success with his first play *The Garden Party*, but his *Memorandum* brought him his greatest recognition as a playwright.

Answer: Vaclav Havel

[10] One of the title characters of this Ionesco work is first seen while Jean and Berenger meet to have a drink at the local bar. Eventually, they fill the streets and citizens yearn for their beauty and power as they stampede through the town.

Answer: Rhinoceros

[10] In this Beckett play, Vladimir and Estagon are roadside travelers. As the action progresses, they are joined by Pozzo and his slave Lucky, who entertains the three until a messenger boy arrives with about the delayed arrival of a friend.

Answer: Waiting for Godot

3. Answer the following questions related to the English Civil War FTPE.

[10] In 1640 Charles I called this Parliament to raise money to combat the Scottish troops in northern England. It wound up reducing royal power, abolishing the Star Chamber, and executing chief advisor Thomas Wentworth.

Answer: Long Parliament

[10] Led by the forces of Oliver Cromwell, Pride's Purge polarized Presbyterians against the rest of Parliament and led to their removal and the creation of this body, which ended the House of Lords and orchestrated the execution of King Charles I.

Answer: Rump Parliament

[10] Created in 1645, this army was led by commander in chief Thomas Fairfax and was notable for its removal of members of Parliament from command positions with the exception of Oliver Cromwell who led them to victory at the battle of Naseby.

Answer: New Model Army

4. Answer the following question about Jungian psychology FTPE.

[10] This complex is defined as the opposite of the Freudian ego and a manifestation of the unconscious mind. It is described as irrational and instinctive but not necessarily destructive.

Answer: Shadow

[10] The Shadow, Self, Animus, and Anima are the four main types of these images that are inherited from our ancestors. They link commonality in mythology and folklore and describe the manifestations that are usually seen.

Answer: Archetypes

[10] The archetypes are contained within this Jungian concept, an idea that experiences exist before birth because humans share a common ancestry representing the aggregate knowledge of all humans.

Answer: collective unconscious

5. Answer the following related questions about modern architecture FTPE.

[10] This architectural style focused on function and rationalization in place of ornamentation. It received its name from its simultaneous post World War I rise in Holland, France, and Germany, and was notably practiced by Philip Johnson.

Answer: **International** Style

[10] He succeeded Gropius as director of the Bauhaus, and his famous belief that “less is more” characterized his style in works like the Seagram Building and the German Pavilion at the Barcelona Exhibition.

Answer: Ludwig **Mies Van Der Rohe**

[10] His reliance on stilts first appears in the Swiss Pavilion. He once said that his houses were “machines for living in,” and the Villa Savoye exemplifies his belief in International style structure.

Answer: **Le Corbusier** or Charles-Edouard Jeanneret-Gris

6. Answer the following questions about the Presidential campaign of 1948 FTPE.

[10] Although Dewey gained the nomination in 1948, he received a strong challenge during the primary from this Ohio politician and son of a former president who had also run in 1940 and crafted the Labor-Relations Act.

Answer: **Robert Taft Sr.**

[10] Senator Strom Thurmond and other Southerners bolted from the Democratic Party following the adoption of a civil rights platform at the convention and campaigned under this party label.

Answer: **Dixiecrats** or **States Rights'** Party

[10] This former vice president of FDR and Secretary of Commerce ran on the Progressive Party ticket. He suffered from political attacks of being Communist because of his opposition to Truman's policy against the USSR .

Answer: **Henry Wallace**

7. Answer the following questions about solution chemistry FTPE.

[10] This law says that the vapor pressure of a solution of a non-volatile solute is equal to the vapor pressure of the pure solvent at that temperature multiplied by its mole fraction.

Answer: **Raoult's** Law

[10] If a solution obeys Raoult's Law, it is said to be this. In this kind of solution, solute particles do not interact with each other and solute-solvent interactions are energetically equivalent to solvent-solvent interactions.

Answer: **ideal**

[10] This other law says that, at a constant temperature, the amount of gas dissolved in a solvent is proportional to the partial pressure of the gas above the liquid.

Answer: **Henry's** Law

8. Answer the following questions about a poem FTPE.

[10] Set in Plymouth, it details a colonial love triangle. Although involving actual people, the poem describes a prominent leader's fictional search to obtain the affection of a comely colonist through the entreaties of his best friend, John Alden.

Answer: The **Courtship of Miles Standish**

[10] This author wrote *The Courtship of Miles Standish*, along with the collection *Tales of a Wayside Inn*, featuring the famous "Paul Revere's Ride."

Answer: Henry Wadsworth **Longfellow**

[10] This woman serves as the center of the love triangle in *The Courtship of Miles Standish* that causes a rift between John and Miles. In the end she marries Alden and they live happily ever after.

Answer: **Priscilla** and/or **Mullens** (accept either)

9. Identify the following medieval Middle Eastern philosophers FTPE.

[10] His commentaries on Aristotle heavily influenced Scholasticism, and this author of *Incoherence of the Incoherence* is known for the “double truth” theory that Christians often used to reconcile his beliefs.

Answer: **Averroes**

[10] Referred to as the “father of modern medicine” for his *Canon of Medicine*, he supposedly read Aristotle's *Metaphysics* forty times, which he tackles in his best known philosophical work *The Book of Healing*.

Answer: **Avicenna**

[10] Opposing Avicenna, this orthodox Muslim philosopher rejected the corruption of Socratic and Neo-Platonist ideas and believed that all events are based on the immediate will of God as seen in his *Incoherence of the Philosophers*.

Answer: Abu Hamid Muhammad ibn Muhammad at-Tusi **al-Ghazali**

10. FTPE answer the following questions about some offseason personnel moves in the NFL.

[10] Although he announced his retirement before the start of the 2006 season, this former Chargers and Dolphins linebacker decided to return to action after AFC East rival Bill Belichick offered him a spot on the Patriots roster.

Answer: Junior **Seau**

[10] Plagued by an injury to the sternum, this former Tennessee Titans quarterback was traded to the Baltimore Ravens after they had barred him from using training facilities.

Answer: Steve **McNair**

[10] This two-time first team Pro Bowl offensive guard was offered 49 million dollars by Minnesota, preventing the Seahawks from offering a matching offer. The deal makes him the highest paid guard in NFL history.

Answer: Steve **Hutchinson**

11. Answer the following about African geography FTPE.

[10] The birthplace for the Mali and Ghana civilizations, this 3rd longest river in Africa discharges into the Oil Rivers delta and the largest coastal delta in Africa, the Gulf of Guinea.

Answer: **Niger** River

[10] Stanley Livingstone crossed this ancestral home of the bushmen covering Mozambique, Namibia, Angola, and most of Botswana. However, on the trek to Transvaal, many Boers died crossing this desert located between the Okavango and Orange Rivers.

Answer: **Kalahari** Desert

[10] Richard Burton and John Speke discovered this world's longest freshwater lake and the second deepest on their quest to find the source of the Nile. It is bounded by Burundi, Tanzania, the Democratic Republic of the Congo, and Zambia.

Answer: Lake **Tanganyika**

12. Identify the following 16th century monarchs FTPE.

[10] His unwillingness to accept the Augsburg Confession or silence Protestant princes seeking to expand their autonomy led to the creation of the Schmalkaldic League. Later he abdicated in favor of his brother Ferdinand I.

Answer: **Charles V** of Holy Roman Empire (**Charles I** or **Carlos I** of **Spain** doesn't really make sense here but is the same guy, so acceptable)

[10] This Valois rival of Charles V often struggled with him for domination over Italy, but is perhaps better known for defeat at the battle of Pavia and for his patronage of Leonardo da Vinci.

Answer: **Francis I** of France

[10] Francis I tried to complete an alliance with this English monarch once called the Defender of the Faith, but he is better known for creating the Anglican Church.

Answer: **Henry VIII**

13. Given lines, name the poem FTPE, or if you need the author you will get 5 points.

[10] Gather ye rosebuds while ye may/ Old Time is still a-flying/
And this same flower that smiles to-day/ To-morrow will be dying.

[5] Robert Herrick

Answer: **To the Virgins to Make Much of Time**

[10] Far from the madding crowd's ignoble strife / Their sober wishes never learn'd to stray;
Along the cool sequester'd vale of life / They kept the noiseless tenor of their way.

[5] Thomas Gray

Answer: **Elegy Written in a Country Courtyard**

[10] If they be two, they are two so/ As stiff twin compasses are two/
Thy soul, the fixed foot, makes no show/ To move, but doth, if th' other do/

[5] John Donne

Answer: A **Valediction: Forbidding Mourning**

14. Answer the following questions about the types of volcanoes FTPE.

[10] The largest type of volcano, this group is characterized by nonexplosive eruptions, and its lava flows drain down its sides. They also produce large amounts of pyroclastic debris and some have summit caldera.

Answer: **Shield** Volcanoes

[10] Mounts Fuji, Rainier, and St. Helens are members of this most destructive type of volcano, which have explosive eruptions and gain their large size from accumulated eruptions over volcanic vents.

Answer: **Composite** volcanoes or **stratovolcanoes**

[10] A smaller class of volcanoes, they typically occur near larger volcanoes or along faults, and they usually becomes extinct after one fairly weak eruption.

Answer: **cinder cones**

15. Identify the following prominent Japanese authors FTPE.

[10] His intense Japanese traditionalism led him to commit ritual suicide just after finishing his *Sea of Fertility* tetralogy. He is also known for *The Temple of the Golden Pavillion* and the autobiographical *Confessions of a Mask*.

Answer: Yukio **Mishima**

[10] Although he believes his greatest work was *The Master of Go*, his *Snow Country*, about a businessman and a loyal geisha, brought him acclaim in the West. In 1968, he became the first Japanese winner of the Nobel Prize.

Answer: Yasunari **Kawabata**

[10] This 1989 Japanese winner of the Booker Prize won the award for his *Remains of the Day*, a novel about the English butler Stevens. Most recently, he published the Booker Prize finalist *Never Let Me Go*.

Answer: Kazuo **Ishiguro**

16. Answer the following about human bones FTSNOP.

[10] Hematopoiesis, the formation and maturation of blood cells, occurs in this substance in the center of bones.

Answer: **marrow**

[10] These cells distributed throughout bones are responsible for depositing matrix to form new bone. When they get entrapped in the matrix they become osteocytes.

Answer: **osteoblasts**

[5,5] Based on the amount of mineralized vs. soft tissue, these are the two primary classifications of bone. One is most often found in the shaft, while the other is typically found at the end of bones.

Answer: **compact** and **spongy** [or **cancellous** or **trabecular**]

17. Answer the following about the Peloponnesian War FTPE.

[10] An Athenian general, he failed to arrive in time to save Amphipolis from assault by the Spartans. Consequently, he was exiled, but he is best known for his objective account of the war in *History of the Peloponnesian War*.

Answer: **Thucydides**

[10] This Spartan general gained fame at Methone, but he rose to prominence as a shrewd and skillful warrior with successes at Pylos and Amphipolis, though the latter effort cost him his life like his Athenian counterpart Cleon.

Answer: **Brasidas**

[10] This 421 BC treaty ended the first half of the Peloponnesian War and saw most conquered areas returned to their respective owners. It lasted for six years before fighting resumed.

Answer: Peace of **Nicias**

18. Identify the following choral works of Mozart FTPE.

[10] Mozart died after getting partway through the Lacrymosa section of this massive choral and orchestral work. His student Franz Sussmayr was primarily responsible for finishing it.

Answer: **Requiem** in D Minor

[10] This piece in C Major, K317, was originally written for Easter during Mozart's time as court organist in Salzburg, but it gained its more famous nickname when it was performed at the crowning of Leopold II.

Answer: **"Coronation" Mass**

[10] In this 1781 opera seria, the title character is the King of Crete on his way home from the Trojan War. After a storm, Neptune grants him his life in exchange for sacrificing the first person he sees on land, who of course is his son.

Answer: **Idomeneo**

19. Answer the following questions about Lebanese politics prior to the recent Israeli-Lebanese conflict FTPE.

[10] Following the assassination of this Lebanese prime minister in February 2005, this popular politician resigned his post in protest over the extension of the term of President Emile Lahoud, an ally of the Syrian government.

Answer: Rafik **Hariri**

[10] UN reports appeared to implicate this world leader in the assassination of Rafik Hariri because he wanted to ensure that Syrian influence remained strong within its neighbor since President Lahoud was his chosen candidate.

Answer: Bashar **Assad**

[10] This independence movement began in March 2005 and sought to remove the pro-Syrian influences within government, end the Syrian military occupation, and reveal those behind the assassination of Rafik Hariri.

Answer: **Cedar** Revolution

20. Answer the following questions about Islam FTPE.

[10] During a lonely sojourn on Mount Hira, this angel appeared before Mohammed during the Night of Power to reveal the prophetic mission to recite divine messages from God.

Answer: **Gabriel**

[10] Because of their closeness to the Prophet and assumed strict adherence to Islamic ways, the first four caliphs are known by this name among Sunni Muslims.

Answer: **Rashidun** or **rightly guided** caliphs

[10] Distinct to Saudi Arabia, this doctrinal form of Islam believes that Muslims must return to a purist form relying on the Quran and sunnah. It is considered to be a type of salafi Islam because of the importance of pious ancestors.

Answer: **Wahhabi**

21. Answer the following about subatomic particles FTPE.

[10] This elementary class of spin $\frac{1}{2}$ particles comes in three massive, charged flavors, each with an associated neutrino. All six have antiparticles as well.

Answer: **leptons**

[10] Besides leptons, this is the other major class of fermions. They are the only class of elementary particles to be governed by all four fundamental forces, and they can have plus $\frac{2}{3}$ or negative $\frac{1}{3}$ charge.

Answer: **quarks**

[10] This theory, part of the Standard Model, describes the strong interaction between quarks and gluons in nuclei.

Answer: **Quantum Chromodynamics** or **QCD**

22. Given works, name the art style associated with it FTPE.

[10] *Raft of the Medusa, Hay Wain, Death of Sardanapulus.*

Answer: **Romanticism**

[10] *Gross Clinic, Stone Breakers, The Gleaners*

Answer: **Realism**

[10] *Oath of the Horatii, Maria Paulina Borghese, The Grand Odalisque*

Answer: **Neoclassicism**