

ACF Fall 2013

Packet by Haverford (Jon DeWitt, Misha Terman, Jake Bassinder)

Edited by Stephen Liu, Tanay Kothari, Ankit Aggarwal, Adam Silverman, Stephen Eltinge, Lloyd Sy, John Lawrence, and Andrew Hart

1. The School of Fontainebleau was a subgroup within one artistic movement with this name. One artist associated with this movement often included his trademark of a cardinal's hat on a skull in his paintings, such as *The Vision of Saint Jerome*. In one painting by an artist of this movement, a screaming old woman possibly representing syphilis ducks behind an embracing Venus and Cupid. Another artist associated with this movement depicted a gigantic baby Jesus being held by Mary in *Madonna of the Long Neck*. For 10 points, name this art movement situated roughly between the Renaissance and the Baroque, whose artists included Bronzino and Parmagianino.

ANSWER: Mannerism

2. In his second literary appearance, this character is targeted by Mordaunt and accidentally kills the official who had given him a life-saving endorsement. This protagonist of *The Vicomte of Bragelonne* abets the escape of a young king by getting past his former servant, Planchet. This soldier struggles to join a military unit commanded by de Tréville because Rochefort steals his letter. This Gascon eludes the murderous machinations of Milady de Winter and defeats several of Cardinal Richelieu's guards with the help of a group for which he proposes the motto "all for one, one for all." For 10 points, name this man who befriends Athos, Porthos, and Aramis in *The Three Musketeers*.

ANSWER: D'Artagnan

3. This poem declares that the world compares a "speechless babe" to a "gray-headed man." It asks the reader to "go forth under the open sky" and suggests that "thou shalt lie down / with patriarchs of the infant world." The narrator of this poem implores the reader to "take the wings / of morning, pierce the Barcan wilderness / or lose thyself in the Oregon woods." This poem instructs, "approach thy grave / Like one who wraps the drapery of his couch" and is addressed "to him who in the love of nature holds / communion with her visible forms." For 10 points, name this meditation on death by William Cullen Bryant.

ANSWER: "Thanatopsis"

4. This figure inhaled the poison from his spear to keep himself awake during one of his battles. During a hunt, this figure's hounds refused to attack a red deer, which instead followed him back home before turning into a beautiful woman. In his old age, this slayer of the fairy Aillen and husband of Sadhbh betrothed himself to a daughter of Cormac mac Airt named Grainne, who fled from him with her lover Diarmuid under the protection of Angus. This warrior gained the wisdom of the world when he accidentally sucked his thumb while cooking the Salmon of Knowledge. For 10 points, name this Irish hero and father of Ossian who led the Fianna.

ANSWER: Fionn mac Cumhaill [or Finn MacCool]

5. This composer based his third string quartet on his score for the Paul Schrader film *Mishima*, while his "Low" and "Heroes" symphonies are based on David Bowie albums. This composer has frequently collaborated with the set designer Robert Wilson. Katsurba and Mrs. Naidoo praise those who "work not seeking gain" in an opera by this man which partly takes place at the Tolstoy Farm and often utilizes chanting in Sanskrit. "Trial" and "Train" are acts in another of this composer's operas, which contains five knee plays and is named after a German physicist. For 10 points, name this minimalist composer whose Portrait Trilogy includes *Satyagraha* and *Einstein on the Beach*.

ANSWER: Philip Glass

6. During arc welding, metals often become more brittle when exposed to this molecule, which is released when superacids react with alkanes. The burning splint test detects this substance, which adsorbs to palladium-carbon. A reduction potential of zero is assigned to the production of this substance at a standard electrode. The ionized form of this molecule can be exactly solved using the Schrodinger equation because there are no electronic repulsion effects. When acids react with metals, this gas is released. For 10 points, name this flammable gas, the most abundant in the universe, composed of the lightest element.

ANSWER: hydrogen gas [or H₂]

7. During this dynasty, Prince Li Shimin ordered his brothers' deaths in the Xuanwu Gate Incident. One of its rulers' hatred of Yeon Gaesomun prompted one of its invasions of Goguryeo. This dynasty saw the appointment of *jiedishi* lords, a notable one of whom captured Luoyang in a power struggle with Yang Guozhong. The aftermath of that rebellion by An Lushan influenced Du Fu's poetry during this dynasty. One monarch of this dynasty apocryphally ordered court visitors to give oral sex and started out as one of Emperor Taizong's concubines. For 10 points, name this Chinese dynasty that succeeded the Sui and established a sprawling civil service under Empress Wu.

ANSWER: **Tang** Dynasty

8. In one novel by this author, a mechanic moves to the United States alone after his wife leaves her home to join him in Saudi Arabia. This author also wrote about the environmentalist Paul Bannerman's thyroid cancer in *Get A Life*. One of this author's title characters reunites with her adopted brother Baasie and is arrested for her part in protests similar to those of her Communist parents. Another novel by this author ends with the protagonist running toward a helicopter. That character, Maureen Smales, goes to live in the village of her black servant. For 10 points, name this South African author of *Burger's Daughter* and *July's People*.

ANSWER: Nadine **Gordimer**

9. This player lost his only college bowl game appearance as a freshman against Rutgers in the 2006 Texas Bowl. This quarterback threw the longest pass in the NFL in 2012, a 95-yarder in a game against the Saints. After he missed a team photo for oversleeping, this Kansas State alum wasn't elected team captain in a possibly rigged vote. This player is in the NFL drug rehabilitation program, a fact possibly leaked by his former coach Greg Schiano. After replacing Matt Cassel and Christian Ponder this year, this man played horribly against the Giants. For 10 points, name this current quarterback for the Minnesota Vikings who was recently released by the Buccaneers.

ANSWER: Joshua Tyler "Josh" **Freeman**

10. During this period, North America was home to an inland sea home to the ichthyosaur *Ophthalmosaurus*. The deposits and fossils left after that body of water, the Sundance Sea, dried up became this period's Morrison formation. Another of this period's fossil deposits, the Solnhofen limestone, contains the preserved feathers of an animal long thought to be the earliest bird, *Archaeopteryx*. Dinosaurs such as *Brachiosaurus*, *Allosaurus*, and *Stegosaurus* also lived during this period. For 10 points, identify this second geological period of the Mesozoic era, which took place after the Triassic.

ANSWER: **Jurassic** Period

11. Texts in this religion are called either Sruti, meaning what is heard, or Smriti, meaning a recollection. One text of this religion is the Laws of Manu. One sect of this religion is the Smarta sect, which was founded by Shankara. This religion's oldest text is divided into ten Mandalas. The accumulation of material wealth, or artha, is one of the purusharthas, the four main goals of this religion. Followers of this faith aim for release, or *moksha*, and believe in a natural law or duty called *dharma*. Members of this religion believe in a cycle called *samsara* and its religious texts include the Upanishads and Vedas. For 10 points, name this most popular Indian religion.

ANSWER: **Hinduism**

12. One model for this phenomenon considers the interactions of points which can have spins distributed uniformly around a circle. That model, the Potts model, is a generalization of a model whose two-dimensional version was solved by Lars Onsager and uses a lattice of +1 and -1 spins. This phenomenon, which is described by the Ising model, shows up as a vertical offset in a plot of the hysteresis that this phenomenon exhibits. Spontaneous symmetry breaking causes this phenomenon to arise below the Curie temperature, at which point a material's magnetic domains become aligned. For 10 points, identify this form of magnetism found in cobalt, nickel, and iron.

ANSWER: **ferromagnetism** [Prompt on **magnetism**. Do not accept "antiferromagnetism."]

13. This country's capital contains the Palace of Peace and Reconciliation, which is a giant pyramid designed by the architectural firm of Norman Foster. A blue dome adorns the Ak Orda Presidential Palace of the leader of this country, whose highest point is Han-t'eng-ko-li Peak on its Mount Khan-Tengri. The Irtysh River passes through this country, which contains the cities of Aqtau and Atyrau and Lake Balkash. This country, which owns the northern half of the Aral Sea, is bounded to the west by the Caspian Sea and shares borders with Kyrgyzstan, Uzbekistan, Turkmenistan, and Russia. For 10 points, name this central Asian country with a capital at Astana.

ANSWER: [Republic of] **Kazakhstan**

14. One of Aeschylus's earliest surviving works is heavily influenced by his participation in this battle, during which his brother was killed. The defenders at this battle were shorthanded because of their allies' refusal to march before the full moon rose at the end of the festival of Carneia. Despite this, Datis and Artaphernes' forces were defeated here due to the absence of their cavalry, and their army was slaughtered as it fled to its ships when Callimachus' deciding vote allowed Miltiades' hoplite forces to engage. For 10 points, name this decisive Greek victory in the first Persian invasion of Greece that saw Pheidippides run 26 miles back to Athens to bring the good news.

ANSWER: Battle of Marathon

15. A book by this man, which Noam Chomsky gave a savage review, provides a functional account of language based on a four-term contingency model and modifiers called autoclitics. He discussed a community led by a board of six planners and founded by T.E. Frazier in a book that proposed a utopian society based on scientific ideals. This man, who wrote *Verbal Behavior* and argued against free will and moral autonomy in *Beyond Freedom and Dignity*, invented a laboratory apparatus consisting of a lever and a food dispenser. For 10 points, name this author of and *Walden II*, a behaviorist psychologist who designed a namesake “box” used to test operant conditioning.

ANSWER: [Burrhus Frederic] B.F. Skinner

16. During the Gallican controversy, this ruler asserted money could be collected from vacant sees by the King, which was supported by his bishop Jacques Bossuet. The first phase of a conflict during this man's reign ended with the Peace of Rueil. This man agreed to the Treaty of Ryswick with Charles II, who chose this man's grandson Philip of Anjou as heir to the Spanish throne, sparking war. The Marquis de Louvois was put in charge of this king's military reforms, and his finances were managed by Jean-Baptiste Colbert. For 10 points, name this absolutist French monarch whose 72-year reign saw the War of the Spanish Succession, also known as the Sun King.

ANSWER: Louis XIV

17. One scene in this play concerns a pedant who pretends to be the father of another character to confirm a dowry. Another character in this play misinterprets a direction to knock and is derided as a “three-inch fool” by Curtis. Two men disguise themselves as music and Latin teachers in order to woo a woman in this play, which is performed for the amusement of the drunk Christopher Sly. Those men, Lucentio and Hortensio, pursue a daughter of Baptista Minola. That woman, Bianca, cannot get married before her elder sister, who is wooed by Petruchio. For 10 points, name this Shakespeare play in which the bad-tempered Katherine represents the title animal.

ANSWER: Taming of the Shrew

18. This philosopher claimed that intentional actions are the products of emotions, rather than of reason, in the section “On the Passions.” He distinguished between *a priori* “relations of ideas” and *a posteriori* “matters of fact”, which must be disproved with evidence rather than logic. He argued that our minds combine simple ideas together to understand complex ideas, an idea known as his “copy principle.” This author of *A Treatise of Human Nature* refuted his own argument by demonstrating our ability to imagine a “missing shade of blue.” For 10 points, identify this Scottish empiricist author of *An Enquiry Concerning Human Understanding*.

ANSWER: David Hume

19. An alternation between pizzicato and bowed melodies opens the “Assez vif et bien rythme” second movement of this composer's *String Quartet in G minor*. Another of his works largely consists of parallel thirds marked *con sordina*, and is part of a suite that also includes a “Menuet” and “Passepied.” Vaslav Nijinsky caused controversy by appearing to masturbate during a ballet inspired by one of this composer's pieces. His best-known short piano piece was inspired by a Paul Verlaine poem about moonlight and is part of *Suite Bergamasque*. For 10 points, name this French composer of *Prelude to the Afternoon of a Faun* and “Clair de Lune.”

ANSWER: Achille-Claude Debussy

20. Tyrosinase catalyzes the conversion of tyrosine to this compound via an ortho-quinone. The cancer of cells that make this compound is diagnosed by the symptom acronym ABCDE. Overproduction of this compound is the characteristic symptom of Addison's Disease. Thymine dimers often lead to its over-expression while deafness can result from the under-expression of this compound. Found in high concentrations in the substantia nigra, it is sometimes prefixed with “pheo” or “eu.” This compound is produced in the basal layer of the epidermis in response to UV-B radiation. For 10 points, name this compound absent in albinos, a pigment that gives skin its color.

ANSWER: melanin [Accept eumelanin or pheomelanin.]

21. This politician died shortly after giving a speech against granting swords to generals of the Mexican-American War. This man brought a petition to the House floor from twenty Washington D.C. slaves seeking freedom, part of his campaign against the gag rule. In 1841, he defended the slaves aboard the *Amistad*. While Secretary of State, this politician successfully defended Andrew Jackson's occupation of Florida, and he also signed the treaty annexing Florida with Luis de Onís. He made Henry Clay his Secretary of State as part of the "Corrupt Bargain" of 1824. For 10 points, name this sixth US president, the son of the second President.

ANSWER: John Quincy Adams [Prompt on "Adams," but do not accept or prompt on "John Adams."]

X. One poster for this program shows a windmill and the words "Whatever the weather we must move together." This program, which was extended past its original targets in the Point Four Program, was overseen by Paul G. Hoffman. This program, whose Russian analogue was named for Molotov, was partly administered by the OEEC. It distributed funds through the ECA, which was appropriated \$13 billion, and was unveiled in a 1947 speech at Harvard. For 10 points, name this 1948 financial aid package granted to Western European countries in the aftermath of World War II, named after Truman's Secretary of State at the time.

ANSWER: Marshall Plan [accept European Recovery Program or ERP]

X. One character in this novel hoards some of the money she is given in order to pay back Briggs. That incident in this novel happens while Lord Steyne hosts a dinner party. In this novel, Frederick Bullock's wife plots to marry one of her daughters off to an orphan she believes will command a large inheritance. Another character in this novel loses her husband George Osborne at the Battle of Waterloo and finally marries William Dobbin. Her counterpart in this novel fails to get the inheritance she covets when she marries Rawdon Crawley. For 10 points, name this novel about Amelia Sedley and Becky Sharp by William Makepeace Thackeray.

ANSWER: Vanity Fair

X. Two measures of this property are the logs of the distribution coefficient and the partition coefficient. Those are the "log D" and "log P" measures, respectively. Substances with this property have very high contact angles, which may cause them to exhibit the lotus effect. An interaction named for this property contributes to the stability of protein tertiary structure, as amino acids with this property are entropically favored to clump together. The fatty tails of phospholipids have this property, which is why they are found buried within double membranes. For 10 points, name this property possessed by oils, fats, and other substances that repel water.

ANSWER: hydrophobicity [Accept lipophilicity. Accept hydrophilicity before "contact angles."]

1. This man was interviewed by Alexis de Tocqueville while he was with the Cherokee Indians. For 10 points each: [10] Name this man who was the first President of the Republic of Texas and beat William Stanbery with a hickory cane for defrauding the Indians. He's the namesake of Texas' largest city.

ANSWER: Sam Houston

[10] After beating Stanbery, Houston hired this man as his lawyer. This lawyer negotiated the release of Dr. Beanes from the British before the bombardment of Fort McHenry, which he watched from a British ship.

ANSWER: Francis Scott Key

[10] Houston helped Texas establish its independence at this final battle of the Texas Revolution, in which the Mexican army was surprised during their siesta and Santa Anna was captured.

ANSWER: Battle of San Jacinto

2. One character in this play fears death at the hands of the IRA after betraying Tancred. For 10 points each:

[10] Name this play in which Jack Boyle and Joxer Daly drink away their earnings while the title woman works. The central family in this play loses out on a critical inheritance because of Mr. Bentham's sloppy legal writing.

ANSWER: Juno and the Paycock

[10] This playwright of *Juno and the Paycock* wrote another work in which Jack's death during the Easter Rebellion causes Nora Clitheroe to go crazy. That play is called *The Plough and the Stars*.

ANSWER: Sean O'Casey

[10] Sean O'Casey is a playwright from this country. Many of this nation's plays debuted in the Abbey Theatre.

ANSWER: Republic of Ireland

3. This play's central character looks down on the jazz career of his son Lyons. For 10 points each:

[10] Name this play in which Troy Maxson tells his son Cory not to accept a football scholarship because of his own exclusion from playing professional baseball.

ANSWER: Fences

[10] *Fences* is one segment of this man's *Pittsburgh Cycle*. This playwright of *The Piano Lesson* wrote a play in which Ma Rainey tries to record an album along with Cutler, Toledo, Slow Drag, and Levee.

ANSWER: August Wilson

[10] Harmond Wilkes turns against his business partners, who want to redevelop the Hill District, in a Wilson play about this kind of golf. In a Cheever story, Irene listens in on her neighbors using an enormous one of these.

ANSWER: radios

4. A black cat stands at the foot of the bed in this work, while a black maid brings in a bouquet of flowers. For 10 points:

[10] Identify this painting which caused a stir at the Paris Salon, since its title character, a prostitute, unabashedly stares at the viewer while covering her genital area.

ANSWER: Olympia

[10] Olympia is a work by this French painter, who also depicted a nude woman sitting with two clothed men having a picnic in *Luncheon on the Grass*.

ANSWER: Edouard Manet

[10] One of Manet's earliest works shows a man in a top hat and brown cloak sitting with a glass of this drink next to him. Picasso showed Angel Fernandez de Soto drinking this, and it was also the subject of a Degas work.

ANSWER: absinthe

5. This man attends a name day celebration for Tatyana, whom he rebuffs despite her heartfelt love letter. For 10 points each:

[10] Name this dandy who befriends Lensky initially, but ends up killing him in a duel that occurs because this character dances with Lensky's fiancée, Olga.

ANSWER: Eugene Onegin [Accept either underlined part.]

[10] *Eugene Onegin* was written by this Russian author, who also wrote about a statue of Peter the Great coming alive in his poem "The Bronze Horseman."

ANSWER: Alexander Pushkin

[10] In this Pushkin story, Hermann tries to find out a winning formula at playing cards from an old countess. He accidentally scares her to death and later goes insane when he sees the title card winking at him.

ANSWER: "The Queen of Spades"

6. This man ordered the construction of the great Rococo palace of Sanssouci. For 10 points each:

[10] Name this king, who in his youth tried to flee to France with Hans Von Katte because he was more interested in music and philosophy than war. He later ruled during the Seven Years' War.

ANSWER: Frederick II [or Frederick the Great]

[10] Frederick tried to establish the production of this commodity in Prussia but largely failed. This commodity drove a thriving trade network that connected Europe to China, its namesake "Road."

ANSWER: silk

[10] Frederick was a frequent correspondent of this Enlightenment thinker, who came to live in his court. This Frenchman also corresponded regularly with Catherine the Great.

ANSWER: Voltaire

7. Many of these materials of type II have a perovskite structure. For 10 points each:

[10] Name this type of material that has zero electrical resistance. Yttrium barium copper oxide, or YBCO, remains one of these materials at unusually high temperatures.

ANSWER: superconductors

[10] The Ginzburg-Landau theory of superconductors can be derived from this other theory, in which superconductivity is caused by bound pairs of electrons known as Cooper pairs.

ANSWER: BCS theory [or Bardeen-Cooper-Schrieffer theory]

[10] Perfect diamagnetism occurs in superconductors due to this phenomenon, in which they expel a magnetic field beyond the London penetration depth. It's often used in science demos to levitate frogs.
ANSWER: Meissner-Ochsenfeld effect

8. This action resulted in the deaths of Cato Neimoidia, Stass Allie, and Aayla Secura. For 10 points each:

[10] Name this order issued by the Galactic Republic ordering the killing of all the Jedi. Obi-Wan Kenobi was fired on under the orders of Commander Cody while on Utapau because of this order, but survived.

ANSWER: Order 66

[10] Order 66 was ordered by this Supreme Chancellor of the Republic, who was secretly a Sith Lord. He mentored both Count Dooku and Darth Vader.

ANSWER: Supreme Chancellor Palpatine [Accept Darth Sidious.]

[10] Palpatine was a native of this planet, which was ruled by Queen Amidala and is populated by both humans and Gungans like Jar Jar Binks and Boss Nass.

ANSWER: Naboo

9. It is unclear whether or not one man with this name was related to Tiglath-Pileser II, but he did succeed him eventually. For 10 points each:

[10] Give this name shared between a man who succeeded Shalmaneser V and a more famous ruler who founded the Akkadian Empire, the first centralized and multi-ethnic empire in history.

ANSWER: Sargon

[10] This empire was led by Sargon II. It was destroyed by the Chaldeans after the death of another of its rulers, Ashurbanipal.

ANSWER: Neo-Assyrian Empire

[10] This capital of the Assyrian Empire contained a massive library established by Ashurbanipal on the bank of the Tigris, and, according to the Bible, it was built by Ashur.

ANSWER: Nineveh

10. This work discusses the dichotomy between the orderly Apollonian and the chaotic Dionysian. For 10 points each:

[10] Name this work that blames Euripides for causing the decline of the title art form by injecting naturalism and moralism into it.

ANSWER: *The Birth of Tragedy from the Spirit of Music* [Accept *Die Geburt der Tragödie aus dem Geiste der Musik* or *The Birth of Tragedy, Or: Hellenism and Pessimism* or *Die Geburt der Tragödie, Oder: Griechentum und Pessimismus*.]

[10] *The Birth of Tragedy* is by this German philosopher who invented the idea of the “will to power”, and included many aphorisms in his *Beyond Good and Evil*.

ANSWER: Friedrich Nietzsche

[10] Nietzsche referred frequently to this concept describing the infinite repetition of the events of the universe. In *The Gay Science*, he discusses this concept in relation to an individual living the same life over and over.

ANSWER: eternal recurrence [or eternal return]

11. In this novel, the alcoholic Natsumi commits suicide after her brother-in-law breaks off their relationship. For 10 points each:

[10] Name this novel narrated by the one-eyed Mitsusaburo, who returns with his brother Takashi to a small village in Japan, where they revolt against a Korean referred to as “The Emperor of the Supermarkets.”

ANSWER: *The Silent Cry* [or *Man'en Gannen no Futtoboru*]

[10] Fifteen teenagers are sent to a plague-afflicted rural village in this author's novel *Nip the Buds, Shoot the Kids*. This Japanese Nobel Laureate also wrote *The Silent Cry*.

ANSWER: Kenzaburo Oe

[10] Sakura recovers from years of abuse to become an actress in an Oe novel titled for this character. This character lived “in a kingdom by the sea” and her love was coveted by winged seraphs in a poem by Edgar Allan Poe.

ANSWER: Annabel Lee [or *The Beautiful Annabel Lee Was Chilled and Killed*]

12. *The Passover Plot* by Hugh Schonfeld argued that this man conspired with Jesus to fake his death. For 10 points each:

[10] Name this Apostle who betrayed Jesus with a kiss in the Garden of Gethsemane.

ANSWER: **Judas** Iscariot

[10] More commonly, it's accepted that Judas betrayed Jesus for this sum of money, which was then used to purchase Potter's Field.

ANSWER: **30 pieces of silver** [Accept anything mentioning **30** things of **silver**.]

[10] This man was chosen as a replacement apostle by the other 11 apostles after Judas hanged himself. The patron saint of carpenters, he's never again mentioned in the New Testament after Acts 1.

ANSWER: St. **Matthias**

13. The Colorado River flows along the north edge of the Patagonia in this country. For 10 points each:

[10] Name this country, whose capital is located on the western shore of the Río de la Plata, is Buenos Aires.

ANSWER: [Republica] **Argentina** [accept **Argentine** Republic]

[10] The Straits of Magellan separate the main body of South America from this archipelago, divided between Chile and Argentina, whose southernmost point is Cape Horn.

ANSWER: **Tierra del Fuego** [prompt on **Land of Fire**]

[10] The three passages through Tierra del Fuego are the Strait of Magellan, the Drake Passage, and this channel, the site of a long-simmering twentieth-century conflict between Argentina and Chile that included the Snipe incident.

ANSWER: **Beagle** Channel [accept **Beagle Conflict**]

14. This hero's hairy bottom once caused a pair of mischievous creatures called the Cercopes to break out in laughter. For 10 points each:

[10] Name this Greek hero who was driven mad by Hera, resulting in his killing of his children by Megara. In penance, he was forced to serve his cousin Eurystheus in various labors.

ANSWER: **Heracles**

[10] During one of his labors, Heracles encountered a group of these animals that liked to feed on humans. He punished their owner by feeding him to these creatures, immortal examples of which include Balios and Xanthus.

ANSWER: **horses** [Accept **mares** of Diomedes.]

[10] While Heracles did not actually die, he was forced to climb onto his own funeral pyre to escape the pain caused when this centaur convinced Deianira to coat his robe with Hydra poison.

ANSWER: **Nessus**

15. Answer some questions about the turmoil experienced by the UK during the early Industrial Revolution, for 10 points each:

[10] Name this group of enraged textile artisans who protested new technology by skirmishing with the British army and destroying machinery. One of its members, George Mellor, killed William Horsfall.

ANSWER: **Luddites**

[10] The 1819 Peterloo Massacre occurred in this large city near Liverpool that was the center of the textile industry in England. Friedrich Engels focused on it in *The Condition of the Working Class in England*.

ANSWER: **Manchester**

[10] This highly contentious 1832 legislation, pushed by the Prime Minister Earl Grey, eliminated most rotten boroughs and expanded the right to vote to those with over £10 worth of property.

ANSWER: Great **Reform Act** [or First **Reform Act**; or **Representation of the People Act** 1832]

16. The Yohkoh satellite was used to study this body, and Sporer's law describes spots that appear on this body. For 10 points each:

[10] Name this star located at the center of the Solar System.

ANSWER: the **sun** [or **Sol**]

[10] If the sun were 1.44 times more massive than it is, its mass would exceed this limit, beyond which white dwarfs collapse into neutron stars or black holes.

ANSWER: **Chandrasekhar** limit

[10] One unsolved question about the sun is why this region reaches temperatures of several millions of kelvins, even though neighboring regions are typically found at around 5800 K. It extends far beyond the chromosphere.

ANSWER: **corona**

17. One work by this name shows two figures standing on a green precipice while the contrasting gold patterns of their clothing merge and is by Gustav Klimt. For 10 points each:

[10] Give this name also shared by a sculpture from *The Gates of Hell* that shows Paolo and Francesca da Rimini embracing.

ANSWER: *The Kiss* [or *Der Kuss*]

[10] This sculptor of *The Gates of Hell* included in that work a depiction of a man with his hand on his chin, *The Thinker*. This French sculptor showed six men about to die in *The Burghers of Calais*.

ANSWER: Auguste Rodin

[10] Rodin's headless sculpture *The Walking Man* is based on an earlier statue by him that depicts this figure preaching. He clasps his hands and holds a cross in Leonardo's *Madonna of the Rocks*.

ANSWER: Saint John the Baptist [Prompt on partial answers.]

18. Answer the following about motor proteins. For 10 points each:

[10] Motor proteins work by hydrolyzing this "energy currency" of the cell, produced en masse by oxidative phosphorylation in the mitochondria.

ANSWER: adenosine triphosphate [or ATP]

[10] In muscles, ATP binds to the head of this thick motor protein, which cross-links to actin in sarcomeres.

ANSWER: myosin

[10] This other motor protein is used in the movement of cilia and flagella. Unlike kinesin, this protein "walks" toward the minus end of a microtubule.

ANSWER: dynein

19. The advance of the Japanese cherry blossom front can be predicted with this equation. For 10 points each:

[10] Name this equation for predicting reaction rates dependent on temperature that is named after a Swedish chemist.

ANSWER: Arrhenius equation

[10] The Eyring-Polyani equation is highly similar to the Arrhenius equation and is based on this theory. Its major premise is that reactants are in quasi-equilibrium with activated complexes.

ANSWER: transition state theory [Prompt on "TST."]

[10] According to the Arrhenius equation, the rate constant for a reaction is equal to A times e raised to the negative this quantity divided by RT. This is the energy required to reach the transition state from the reactants.

ANSWER: activation energy [Accept E_a or free energy of activation.]

20. The cimbalon, an instrument popularized in this country, features prominently in the *Hary Janos* suite written by Zoltan Kodaly, a composer from this nation. For 10 points each:

[10] Name this home country of the composer of the *Transcendental Etudes*, Franz Liszt, who also wrote a set of "Rhapsodies" named for this nation.

ANSWER: Hungary

[10] Serge Koussevitsky commissioned this other Hungarian composer's piece *Concerto for Orchestra* after he had been diagnosed with leukemia. This man also wrote the opera *Duke Bluebeard's Castle*.

ANSWER: Bela Viktor Janos Bartok

[10] In this Bartok ballet, a girl is forced into the service of three robbers who stab the title character, a Chinese man, after he is attracted into a dark room by the girl.

ANSWER: *The Miraculous Mandarin* [Accept *The Wonderful Mandarin* or *A csodálatos mandarin*.]

X. An archaeologist who worked in this country, Flinders Petrie, discovered the "Israel Stele" in one of its ancient capitals. For 10 points each:

[10] Name this country, also studied by Ippolito Rosselli and English polymath Thomas Young.

ANSWER: Ancient Egypt [accept Egyptology]

[10] Egyptologist Francois Champollion published the first translation of the hieroglyphs on this stone that contains a decree also written in Demotic and Ancient Greek.

ANSWER: Rosetta Stone

[10] This English archaeologist excavated KV62 in the Valley of the Kings, discovering the previously unexcavated tomb of King Tutankhamen.

ANSWER: Howard Carter

X. The proof of this statement is analogous to Cantor's diagonal argument for the uncountability of the reals. For 10 points each:

[10] Name this problem from computer science, which asks for a general algorithm to determine if an arbitrary computer program will eventually terminate.

ANSWER: halting problem

[10] This British computer scientist proved in 1936 that such an algorithm cannot exist. He described a namesake machine that reads symbols off a tape and was chemically castrated in 1952 for his homosexuality.

ANSWER: Alan Turing

[10] This man developed the lambda calculus and used it to prove a result equivalent to the halting problem just before Turing's proof was published. Along with Turing, he names a thesis about calculable functions.

ANSWER: Alonzo Church

X. The campagne des banquets circumvented a law barring public assembly and contributed to the fall of this leader. For 10 points each:

[10] Name this "citizen king" of France who was deposed during the Revolutions of 1848. He was depicted as a pear in an Honore Daumier cartoon and succeeded Charles X.

ANSWER: Louis Philippe I

[10] Louis Philippe presided over a "monarchy" named after this month, during which the 1830 revolution that put him in power took place.

ANSWER: July

[10] This man led the center-left faction that favored restricting the role of the monarch during the July Monarchy. He was rivaled by the center right Francois Guizot and became president of the Republic in 1871.

ANSWER: Adolphe Thiers

X. The title figure of this poem meets a judge who wants to marry her, but then decides to marry a farmer instead. For 10 points each:

[10] Name this poem written in rhyming couplets about a woman who, "on a summer's day, / Raked the meadows sweet with hay" and notes, "For of all sad words of tongue or pen / the saddest of these: 'It might have been!'"

ANSWER: "Maud Muller"

[10] "Maud Muller" was written by this poet, who also wrote about a woman who tells Confederate troops, "Shoot, if you must, this old gray head, / But spare your country's flag" in "Barbara Fritchie."

ANSWER: John Greenleaf Whittier

[10] In this "Winter Idyl" by Whittier, members of a family trapped inside during a winter storm exchange stories and read through an almanac to pass time.

ANSWER: "Snow-Bound: A Winter Idyl"