

## Minnesota Undergraduate Tournament 2013

Questions by Rob Carson, Mike Cheyne, Andrew Hart, Gaurav Kandlikar, Matt Menard, and Bernadette Spencer  
Round 11: Huge Slam on Anteaters

### Tossups

1. One poem in this collection laments how “the manuscripts of a lifetime of sermons” were burned as waste-paper by a “grog-keeper”. The speaker of another poem in this collection cries “Look at my moulds! My architectonics!” The speaker describes wounding, then caging, a hawk for whose soul he now searches in its poem “The Unknown”. It ends with an “Epilogue” in which Loki and Yogarindra watch Beelzebub create men out of clay, while its penultimate poem is a fragmentary epic supposedly written by Jonathan (\*) Swift Somers. Another of its poems quotes Lincoln’s second inaugural address and is attributed to Anne Rutledge. It opens with a poem that asks “Where are Elmer, Herman, Bert, Tom, and Charley?” and responds “All, all are sleeping on the hill”. For 10 points, name this collection of epitaphs for and delivered by the dead of an Illinois town, written by Edgar Lee Masters.

ANSWER: Spoon River Anthology

2. One statute of this type includes a Section 7a reporting requirement modified by the Hart-Scott-Rodino Improvements Act. For another statute of this type, courts may conduct a “quick look” analysis when violations of that statute are evident. The important civil procedure case about one law of this type, *Bell Atlantic v. Twombly*, held that “parallel conduct” absent further evidence was insufficient to sustain a complaint alleging a conspiracy to violate one law of this type. A 1911 case established the “rule of reason” for one law of this type, which was amended by the (\*) Robinson-Patman Act. A Section 1 action for a law of this type requires an agreement, and an unreasonable restraint that affects interstate commerce. For 10 points, name this type of law exemplified by the Clayton and Sherman Acts.

ANSWER: antitrust statutes/laws

3. A politician in this country was mocked by appearances of a puppet alter ego known as “Super Liar.” An election here used the slogan “vote for the crook, not the fascist.” A riot in this country began when two youths were electrocuted while hiding from the police in a substation. After the 1986 elections, it had a government system known as (\*) “cohabitation” with the Prime Minister and President from different parties. This country bombed the *Rainbow Warrior*, a Greenpeace ship that was protesting nuclear tests in the Pacific. This country’s experienced 1968 protests sparked by a series of student strikes. In 2005, it endured a series of riots blamed on North African immigrants. This country has a right wing movement led by Marine Le Pen. For 10 points, name this European country recently led by Jacques Chirac.

ANSWER: France [or the French Fifth Republic; or Republique francaise]

4. Inability to regulate these structures is the cause of dyskeratosis congenita. These structures are often studied using Flow-FISH, and iPSCs achieve one of their hallmark characteristics due to the consistent presence of these structures. The enzyme complexes that give rise to these structures uniquely do not require extrinsic primers for (\*) DNA synthesis; those enzymes are a class of reverse transcriptases. Repeated cell division causes the shrinking of these structures, which causes cells to approach their Hayflick limit. Cancer cells can achieve replicative immortality by replicating these structures, which in humans are tandem repeats of the sequence TTAGGG. For 10 points, name these sequences located at the tips of chromosomes.

ANSWER: telomeres

5. This philosopher denies that he is constructing useless “castles in the sky” in a work that uses gold to illustrate the importance of language in bridging the gap between real and nominal essences. Another book by this man claims that slavery is never possible when following the laws of nature. That work described how money has circumvented the usual limits of man’s (\*) ownership of resources. This man wrote a book that distinguishes between simple ideas of sensation and complex ideas of the mind and primary and secondary qualities of the external world. This philosopher refuted Hobbes’ negative state of nature in a book that argues civil society’s duty was to protect man and his possessions. For 10 points, name this author of *An Essay Concerning Human Understanding* who claimed that man was entitled to life, liberty, and property in *Two Treatises of Government*.

ANSWER: John Locke

6. Gavin Prout currently stars for a Colorado NLL team that is inexplicably named for a singular one of these

creatures. Kate Walker helps Hans Voralberg achieve his dream of riding these creatures in the adventure game *Syberia*. An Ice/Ground-type Pokemon that resembles a cross between a boar and one of these animals evolves from Piloswine, while in *Skyrim*, they are often found being herded by giants. Another fictional animal of this type has a Keke Palmer-voiced daughter named Peaches with the Queen Latifah-voiced Ellie in one movie and, in an earlier movie, rescues the baby Roshan with the help of Diego and Sid. That one, the Ray Romano-voiced Manny, appears in the *Ice Age* films. For 10 points, identify these now-extinct prehistoric animals noted for their thick fur and huge tusks.

ANSWER: woolly mammoths [or Mammuthus primigenius; accept the Colorado Mammoth; prompt on "Mamoswine"]

7. This person is credited with writing the poem "Oh Death Rock me Asleep." Both she and her daughter were served by her personal chaplain, Matthew Parker. This woman pushed for more charitable distribution of funds, much to the dismay of her husband's chief minister, Thomas Cromwell. She was originally betrothed to Henry Percy although (\*) Cardinal Wolsey broke the engagement. Her brother George was executed after charges of committing incest with her. This woman's downfall came after musician Mark Smeaton admitted to being her lover and she was unable to produce a male heir. Thomas More was executed for failing to reject the Catholic Church and recognize her as queen. For 10 points, name this second wife of Henry VIII and the mother of Elizabeth I.

ANSWER: Anne Boleyn

8. This composer wrote a four-movement piece that contains a first movement *Andante tranquillo* fugue and a third-movement with timpani glissandi and a xylophone solo based on the Fibonacci sequence. A one-act pantomime ballet by this composer includes three "seduction games," after which the title character chases the girl. This man, who pioneered a dissonance-rich style known as (\*) "night music," wrote a piece that includes the movements "Intermezzo interrotto" and "Game of Pairs." This composer wrote *The Miraculous Mandarin* and *Music for Strings, Percussion, and Celesta*. For 10 points, name this man who wrote the *Concerto for Orchestra*, a twentieth-century composer from Hungary.

ANSWER: Bela Bartok [or Bela Viktor Janos Bartok]

9. The absolute value of any cofactor of a graph's Laplacian matrix is equal to the number of a certain type of this object. That theorem is a generalization of Cayley's theorem, which says there are  $n^{n-2}$  to the  $n$  minus two of these objects on  $n$  vertices. An algorithm that uses the union-find data structure to merge these objects in increasing order of edge weights is known as Kruskal's algorithm and, like Prim's Algorithm, finds the (\*) minimum weight one of these that spans a set of vertices. Syntax analysis in a compiler involves the parser building one of these structures. The red-black and AVL variations of this data structure are both self balancing binary search examples of these structures. For 10 points, name this data structure in which each node can have a number of children and childless nodes are called leaves.

ANSWER: tree [accept minimum spanning tree or spanning tree early, accept specific types]

10. One story tells of how this character causes Ettarre to die of sorrow upon being refused by Pelleas. Launceor of Ireland dies while attempting to avenge this character's death, which occurs when a long-held kin feud results in this character's decapitation by Balin. King Ban's death at the hands of Claudas directly leads to this character raising Ban's sons, including Lionel, Bors, and their brother. After the Battle of Camlann, a dying wish results in this character being visited by either Griflet or (\*) Bedivere. This figure is often identified with a student of Merlin who used magic to trap Merlin in a cave or tree. This character's most important appearance comes after another character loses a jousting match to Pellinor, breaking his old sword in the process. For 10 points, identify this foster mother of Lancelot, sometimes known as "Viviane" or "Nimue", who gave King Arthur the sword Excalibur.

ANSWER: the Lady of the Lake [accept Nimue or Viviane before they are read; accept Niniane, Nivian, Nyneve, Evienne, or other close linguistic equivalents; prompt on "Elaine"]

11. In the prefatory section "Before the Curtain", the "puppet" representing this character is said to be "uncommonly flexible in the joints". This character appears in the role of Clytemnestra in a game of charades held at Gaunt House. In a memorable scene, this character heaves copy of Samuel Johnson's dictionary out the window of a moving carriage, horrifying Miss Jemima. She wastes the life savings of both the servant Briggs and the landlord Raggles and carries on an adulterous relationship with Lord (\*) Steyne. Earlier, she'd attempted to finagle her way into an inheritance by marrying Sir Pitt's son Rawdon Crawley. The novel opens with this character graduating from Miss Pinkerton's Academy for Young Ladies alongside her friend Amelia Sedley. For 10 points, identify this anti-heroine of William Makepeace Thackeray's *Vanity Fair*.

ANSWER: Becky Sharp [accept either underlined portion; also accept Rebecca Sharp; prompt on “Mrs. Rawdon Crawley”; accept Vanity Fair: A Novel Without a Hero before “this character” is read]

12. A type of these particles named for Majorana are their own antiparticle and are contrasted with ones named for Dirac. The average number of these particles in a given state is given by a distribution whose denominator is one plus the quantity  $e$  raised to a function of the energy of that state. These are particles with wave functions anti-symmetric under exchange, according to the spin-statistics theorem. All (\*) quarks and leptons are members of this class of particles, unlike mesons and photons. The Pauli exclusion principle applies to these particles, but not to bosons. For 10 points, name these particles with half-integer spin, which obey the statistics of Dirac and their namesake, the Italian physicist who built the first nuclear reactor.

ANSWER: fermions [anti-prompt on “neutrinos”]

13. After being stood up by the protagonist, one character in this opera is not allowed to enter the town church and sings the aria *Voi Lo Sapete*. The music from this opera’s intermezzo is played at the finale of *The Godfather, Part III*. The mother of one of this opera’s protagonists runs a wine shop at which one character accepts a challenge by biting the challenger’s ear. At this opera’s beginning, one character returns from a war to find that his fiancé has since (\*) married another man, after which he decides to flirt with another girl. At the end of this opera, Lucia comforts Stanuzza after her brief lover, Turiddu, gets killed in a duel by Alfio. For 10 points, name this *verismo* opera often performed paired with Leoncavallo’s *I Pagliacci*, composed by Pietro Mascagni.

ANSWER: Cavalleria Rusticana [or Rustic Chivalry]

14. This general lost one battle when his subordinate, Adam Stephen, was intoxicated during it. He was sent to Fort Le Boeuf by Robert Dinwiddie. This man dramatically put on his spectacles while squeaking the Newburgh Conspiracy. He was the senior American aide to Edward (\*) Braddock on that man’s ill-fated expedition and had previously been forced to surrender Fort Necessity. This man improved the skills of his troops by bringing in Baron von Steuben to train them. He made a dramatic evacuation after losing the Battle of Long Island. For 10 points, name this American general who led his troops to capture Hessians at Trenton after crossing the Delaware River on Christmas Day, 1776.

ANSWER: George Washington

15. Six equivalents of this compound are added to six equivalents of zinc and arsenic trioxide in the Marsh test. To minimize inefficiencies in the production of this compound, the DCDA process is used. In one synthesis of this compound, the reactants are passed through Glover towers and Gay-Lussac towers. This compound is now produced in a process that requires a (\*) vanadium-based catalyst. The removal of water by this compound is demonstrated adding it to sugar to form a dark mass of elemental carbon, and it can be synthesized by the lead chamber and contact processes. For 10 points, name this diprotic acid which has chemical formula  $H_2SO_4$ .

ANSWER: sulfuric acid [accept H<sub>2</sub>SO<sub>4</sub> until mentioned]

16. According to one story, this man went to a market after hearing a voice at St. Damien’s directing him to repair a local church. This figure was assisted in his most notable task by Bernard of Quintavalle. This man gave away all the merchandise he had brought to a market to a beggar, after which this figure’s father practically disowned him. Followers of this figure abide by his namesake “Primitive Rule.” Along with Catherine of (\*) Siena, this man is a patron saint of Italy. This saint praised God for the creation of things like “brother Fire” and “sister Water” in the *Canticle of Sun*. Pope Innocent III authorized this man’s creation of the Order of St. Claire and a namesake “Third Order.” For 10 points, name this patron saint of animals and namesake of the current pope.

ANSWER: Saint Francis of Assisi [or San Francesco d’Assisi; or Giovanni di Pietro di Bernardone]

17. In one of this man’s stories, a gray cat escapes and becomes feral, causing Pulkheria to fall into a depression and die, which then causes Afanasy to break down and die as well. One work by this author is split into a narrative about Lieutenant Pigorov and a story in which a dark-haired woman turns out to be a prostitute, disappointing the romantic painter Piskaryov. The nearly-identical potbellied landowners Bobchinsky and Dobchinsky appear in a work by this author of (\*) “Old World Landowners”; that work ends with a scene in which a letter arrives from the gambler Khlestakov, revealing that he was not the title bureaucrat. The Very Important Person fails to help Akaky Akakievich recover the title item in another of his stories, leading to Akaky freezing to death. For 10 points, identify this Ukrainian author of “Nevsky Prospekt”, *The Inspector General*, and “The Overcoat”.

ANSWER: Nikolai Vasilievich Gogol

18. During this event, one man was derisively nicknamed “Clemency Canning” for his treatment of participants. During it, William Hodson shot three people at “Bloody Gate” and stripped them of their swords and rings. One reason for this event was Governor Dalhousie’s push to annex lands. It was kicked off when Mangal Pandey began firing at men near a parade ground. During it, Colin Campbell led a dramatic relief of the siege of (\*) Lucknow. This event was partially caused by the usage of rifle cartridges that were greased with animal fat, including pork. After this event, Bahadur Shah II was exiled to Rangoon and the British Raj was formed. For 10 points, name this 1857 revolt against the East India Company, led by the namesake Indian soldiers.

ANSWER: Sepoy Mutiny [accept Indian Rebellion of 1857 until “1857,” prompt on partial answers]

19. At one point in one of this man’s novels, the protagonist is prevented by locked doors from storming out of a meeting with Farodia Rasool, Aram Hakim, and Elaine Winter. That character created by this man gets into a fight at a party hosted by Petrus and has sex with Bev Shaw on the floor of an Animal Welfare clinic after earlier being set on fire and forced to watch home invaders shoot his daughter Lucy’s dogs. Essays typed by Anya for the protagonist’s collection *Strong Opinions* take up the top half of one of this man’s novels. This author of *Diary of a (\*) Bad Year* penned a novel whose protagonist has “solved the problem of sex” through a weekly tryst with Soraya but loses his job after an affair with his student Melanie Isaacs. For 10 points, name this South Africa-born author who wrote about David Lurie in *Disgrace*, which like his novel *The Life and Times of Michael K* won him the Booker Prize.

ANSWER: John Maxwell Coetzee

20. In a depiction of one of these events by Francisco Goya, a crowd making its way to the banks of the Manzanares carries a banner bearing the huge grinning face of the King of the Carnival. Father Aubry and Chactas flank the title character in a depiction one of these events from a Chateaubriand novel painted by Anne-Louis Girodet. Two men hurry down a winding path out of Athens in a Nicolas Poussin painting of one involving (\*) Phocion. An 1850 painting portraying of one of these events is over 20 feet long and features a landscape broken only by a crucifix mounted atop a tall pole. Two anachronistically-dressed clergymen appear in the middle of that painting, the right side of which contains a white dog and several rows of commoners in mourning. For 10 points, identify this type of event, which occurs in a Gustave Courbet painting set in his hometown of Ornans.

ANSWER: burials [accept equivalents, especially “entombments” or “funerals”; accept *The Burial of the Sardine* or *The Burial (or Entombment) of Atala* or *The Burial (or Funeral) of Phocion* or *The Burial at Ornans*; be generous and prompt on “death” or equivalents]

21. This process is conducted by ABC class proteins which confer cells MDR. In one form of this process, the electrochemical potential difference of secondary compounds are used instead of ATP phosphorylation; that is the “secondary” form of this process. Enzymes that conduct this process include the Calcium ATPase and (\*) sodium-potassium ATPases, which conduct this process when they move compounds from a low concentration area to a high concentration area. For 10 points, name this process in which membrane proteins use energy to move compounds against their concentration gradient, which is contrasted with its “passive” form.

ANSWER: active transport [prompt on answers only indicating “things moving into or out of cells,” accept answers indicating “things moving into or out of cells against a concentration gradient” until “low”]

## Bonuses

1. In one section of this novel, the main narrative is halted to present three journalists' advice on how to write a successful newspaper column. For 10 points each:

[10] Identify this novel in which the lawyer Galip searches for his missing wife Ruya and begins adopting the identity of the columnist Celal, only to find the latter two characters murdered in a store called Aladdin's.

ANSWER: *The **Black Book*** [or ***Kara Kitap***]

[10] In this novel by the same author, Kadife, the leader of the "head-scarf girls", accidentally shoots and kills Zaim during a television production of *The Spanish Tragedy*. Its protagonist is a formerly-exiled poet named Ka.

ANSWER: ***Snow*** [or ***Kar***]

[10] *The Black Book* and *Snow* were written by this Turkish author of *My Name is Red*, the winner of the 2006 Literature Nobel.

ANSWER: Orhan **Pamuk** [or Ferit Orhan **Pamuk**]

2. This man collaborated with landscape architect Roberto Burle Marx to design Ibirapuera Park. For 10 points each:

[10] Name this architect who designed the JK Memorial and the National Congress for a planned city co-designed with his friend Lucio Costa.

ANSWER: Oscar **Niemeyer** [or Oscar Ribeiro de Almeida **Niemeyer** Soares Filho]

[10] Niemeyer and Costa co-designed this planned capital city of Brazil.

ANSWER: **Brasilia**

[10] This Brazilian president of Czech descent provides his initials to Niemeyer's JK Memorial and his name to Brasilia's international airport, and a bridge with offset arches.

ANSWER: Juscelino **Kubitschek** de Oliveira

3. Only atoms whose nuclei have an odd mass number can be studied with this technique. For 10 points each:

[10] Name this technique, from whose spectra the chemical shifts are recorded. Spin spin coupling causes the splitting of peaks from this technique's readout, and it is most often done on protons.

ANSWER: **NMR** spectroscopy [or **nuclear magnetic resonance** spectroscopy]

[10] This element's isotope 13 can also be studied by NMR. Because buckeyballs are entirely made up of atoms of this element, their NMR spectra only have one peak.

ANSWER: **carbon** [or **C**]

[10] This adjective describes the impact of the magnetic field induced by the electrons surrounding a proton. Because of oxygen's electronegativity, protons in hydroxyl groups experience the opposite form of this process.

ANSWER: **shielding** [accept **deshielding**; accept word forms]

4. These works include one in which the subject's body is replaced by an arrow-riddled deer's body, one in which a cracked column replaces the subject's exposed spine, and a double one in which the two subjects' hearts are both visible and connected by an exposed blood vessel. For 10 points each:

[10] Identify these paintings by a Coyoacan-born artist, another of which depicts her with a cat and a monkey.

ANSWER: **self-portraits** by Frida **Kahlo** de Rivera [accept equivalents; accept Magdalena Carmen Frieda **Kahlo** y Calderón for the artist's name]

[10] Kahlo's other portraits include a 1937 depiction of this fellow Mexican artist of *Man, Controller of the Universe* and the *Detroit Industry* murals, her husband.

ANSWER: Diego **Rivera** [or, of course, Diego María de la Concepción Juan Nepomuceno Estanislao de la **Rivera** y Barrientos Acosta y Rodríguez]

[10] Rivera's corpulence is on display in a 1914 portrait painted by this Italian artist of *Nude Sitting on a Divan* ("*La Belle Romaine*"), whose many paintings of his contemporaries featured elongated bodies and monochrome almond-shaped eyes.

ANSWER: Amedeo Clemente **Modigliani**

5. If you can't correctly answer these bonus parts about Deucalion and Pyrrha, you will be washed away in a flood. For 10 points each:

[10] After surviving the flood, Deucalion and Pyrrha repopulated the earth by performing this action on the advice of an oracle, who'd initially confused them with a cryptic reference to "the bones of their mother".

ANSWER: **throwing stones** over their shoulders/behind them [accept synonyms for either word]

[10] The oracle they consulted was a servant of, or was herself, this Titaness who ruled over divine law. Her children include the Hours and the Fates.

ANSWER: **Themis**

[10] Pyrrha was the daughter of the titan Epimetheus and this first human woman, who accidentally opened a *pithos* containing all the world's evils. Way to go.

ANSWER: **Pandora** [or **Anesidora**]

6. This man was the first president of the United Arab Republic. For 10 points each:

[10] Name this man who founded the Free Officers Movement in this country. He succeeded Muhammad Naguib as president of his country and was active in the Non-Aligned Movement.

ANSWER: Gamal Abdel **Nasser** Hussein

[10] Nasser led this country after overthrowing King Farouk. Nasser also nationalized the Suez Canal Company in this country.

ANSWER: Arab Republic of **Egypt**

[10] At this April 1955 meeting in Indonesia, also known as the "Afro-Asian Conference," Nasser and other African and Asian leaders met to promote economic cooperation. It helped lay the foundation for the Non-Aligned Movement's official beginnings.

ANSWER: **Bandung** Conference

7. This man choked a protester in the infamous Shawinigan Handshake. For 10 points each:

[10] Name this Canadian Prime Minister; a Liberal whose longtime rival was Paul Martin. During his ministry, Canadian airspace was shut down in Operation Yellow Ribbon during the 9/11 attacks. He supported the war in Afghanistan, but not Iraq.

ANSWER: Jean **Chretien** [or Jean Joseph Jacques **Chretien**]

[10] Paul Martin succeeded Chretien as PM, but was himself succeeded as Prime Minister by this man, the current Prime Minister and the leader of the Conservative Party.

ANSWER: Stephen Joseph **Harper**

[10] In 1993 elections, the Progressive Conservative Party, at the time led by this politician, ran attack ads against Chretien which were criticized for continually presenting images of Chretien's face. Seen as mocking Chretien's Bell's palsy, the ads helped lead to defeat for this politician's party.

ANSWER: Kim **Campbell** [or Avril Phaedra Douglas "Kim" **Campbell**]

8. This book contains a thought experiment about Robinson Crusoe in order to illustrate the possibility of private languages. For 10 points each:

[10] Name this work that proposes a "family resemblance" between sets of rules and introduces the concept of language games.

ANSWER: **Philosophical Investigations** [or **Philosophische Untersuchungen**]

[10] *Philosophical Investigations* was written by this German-British man who outlined his picture theory of language in *Tractatus Logico-Philosophicus*.

ANSWER: Ludwig **Wittgenstein** [or Ludwig Josef Johann **Wittgenstein**]

[10] *Philosophical Investigations* was translated by this philosopher, one of Wittgenstein's students. This woman introduced the term "consequentialism" to ethics and wrote *Intention*.

ANSWER: G.E.M. **Anscombe** [or Elizabeth **Anscombe**; or Gertrude Elizabeth Margaret **Anscombe**]

9. Identify the following authors who spent some time in California, for 10 points each.

[10] This man wrote about his wife Mary's supposed telepathic abilities in his book *Mental Radio* and unsuccessfully ran for governor of California in 1934, though he's better known for the meatpacking-industry expose *The Jungle*.

ANSWER: Upton Beall **Sinclair** Jr.

[10] This founder of Stanford University's creative writing program described Joe Allston's affair with the Danish countess Astrid in *The Spectator Bird*, while Lyman Ward relates stories of his frontier-era ancestors in his novel *Angle of Repose*.

ANSWER: Wallace Earle **Stegner**

[10] Attempting to cope with her husband's sudden death is the subject of this author's 2005 memoir *A Year of Magical Thinking*. Her other famous works include the essay collection *Slouching Towards Bethlehem*.

ANSWER: Joan **Didion**

10. In this experiment, *E. coli* were grown for several generations in N15 ("N-15") rich media, after which they were switched into an N14 medium. DNA from those cells was then spun down a density gradient. For 10 points each:

[10] Name this experiment in which showed that DNA replication is semi-conservative.

ANSWER: **Meselson-Stahl** experiment

[10] Hershey and Chase showed that DNA is the genetic material by using bacteriophages, which are these type of organisms. These types of organisms can have RNA or DNA genomes, and are exemplified by Herpes simplex one.

ANSWER: **viruses**

[10] This earlier scientist infected mice with one virulent and one non-virulent strain of *Streptococcus pneumoniae* to show that bacteria are able to transfer genetic information via transformation.

ANSWER: Frederick **Griffith**

11. This author of "PowerPoint is Evil" created the sparkline and invented the term chartjunk. For 10 points each:

[10] Name this Yale computer scientist and pioneer of data visualization who wrote the influential 1979 work *The Visual Display of Quantitative Information*.

ANSWER: Edward [Rolf] **Tufte**

[10] Early data visualization pioneer Charles Joseph Minard created a document of this type visualizing the costs of Napoleon's invasion of Russia. Martin Waldseemüller and Gerardus Mercator also created documents of this type.

ANSWER: **maps** [accept more specific answers like **world maps**]

[10] "Human factors" are an important consideration in Christopher Wickens's thirteen principles of display design, which are axioms describing how to make these machines easier to use through graphical user interfaces.

ANSWER: **computers**

12. This man is sometimes said to be the first casualty in the Cold War. For 10 points each:

[10] Name this man, a military officer and Baptist missionary killed by Chinese Communists in 1945. His name was later adopted by Robert Welch to name a group opposed to such things as "one world" government and water fluoridation.

ANSWER: John Morrison **Birch** [accept **John Birch Society**]

[10] Welch notoriously called this president a "tool of the Communists." This man was elected in 1952 after promising to end the Korean War and had previously been Supreme Allied Commander in World War II.

ANSWER: Dwight David "Ike" **Eisenhower**

[10] The sons of one of the founding John Birch Society members are these two brothers, who run a Kansas based conglomerate. They give lots of money to libertarian and conservative groups - particular, they were major donors to Scott Walker's campaign in Wisconsin.

ANSWER: **Koch** Brothers [or Charles and David **Koch**]

13. These particles are usually created following the annihilation of a particle and its antiparticle. For 10 points each:

[10] Name these particle which have nonzero momentum despite being massless, the quantum of light.

ANSWER: **photon**

[10] This theory predicts that all interactions between charged particles are due to photons. This theory was developed in part by Richard Feynman, and it predicts the difference between hydrogen's 2S<sub>1/2</sub> and 2P<sub>1/2</sub> orbitals, called the Lamb shift.

ANSWER: **quantum electrodynamics** [or **QED**]

[10] This process is used in quantum electrodynamics to remove infinities that appear in calculations of mass and charge. It notably preserves the Ward-Takahashi identity.

ANSWER: **renormalization**

14. Identify the following about poetry written in heroic couplets, for 10 points each.

[10] This Alexander Pope poem mocks such lazy rhyme-pairs as "the cooling western breeze" and "whispers through the trees", and advises the reader to "drink deep, or taste not the Pierian spring" after famously noting "A little learning is a dangerous thing".

ANSWER: "An **Essay on Criticism**"

[10] This English poet wrote that "A thing of beauty is a joy for ever" in "Endymion", which like his poem "Lamia" was written in heroic couplets. He also wrote "Ode on a Grecian Urn".

ANSWER: John **Keats**

[10] This lengthy John Dryden poem was written in 1687, shortly after Dryden's conversion to Catholicism. Its title, like the first part of the poem, allegorically contrasts the Catholic Church and the Church of England.

ANSWER: "The **Hind and the Panther**"

15. This piece, whose reliance on spirituals led to its horribly racist original nickname, incorporates a theme based on the song of the scarlet tanager. For 10 points each:

[10] Name this piece for chamber ensemble written while its composer was living in Spillville, Iowa.

ANSWER: **American** string quartet

[10] This Czech composer of the *New World Symphony* wrote the *American* string quartet.

ANSWER: Antonin [Leopold] **Dvorak**

[10] Dvorak's *New World* is his symphony of this number, also the number of Mahler's last completed symphony.

ANSWER: **ninth** [or **nine**]

16. This man penned the hymn "A Mighty Fortress is Our God" For 10 points each:

[10] Name this man who wrote *Ninety-Five Theses* objecting to the Catholic Church, resulting in his excommunication and the beginning of the Protestant Reformation.

ANSWER: Martin **Luther**

[10] The tenth pope with this name was pope when Luther introduced the theses. This pope, a Medici, condemned Luther with the bull *Exsurge Domine* and directed Charles V to take actions against heresy.

ANSWER: **Leo**

[10] This French monarch, also known as "Big Nose," began persecuting Protestants after the alarming Affair of the Placards. He set up an important alliance with the Ottomans to fight Charles V, which caused quite a tizzy.

ANSWER: **Francis I** [or **Francois I**; prompt on **Francis** or **Francois**]

17. Answer the following about fictional presidents of the United States for 10 points each.

[10] This television show began with CTU agent Jack Bauer saving future president David Palmer from assassination. Its shtick involved real-time episodes.

ANSWER: **24**

[10] In *The Simpsons Movie*, this real-life actor is implausibly the president. He was "elected to lead, not to read," and compares a mutant squirrel to "Christmas at the Kennedy compound."

ANSWER: Arnold **Schwarzenegger**

[10] This author of political fiction created such fictional presidents as Harley Hudson, Orrin Knox, and the question writer's favorite, a president known as "Mr. President," in such books as the Pulitzer-winning *Advise and Consent*.

ANSWER: Allen Stuart **Drury**

18. This sect's evolution is explained in the metaphor of the three turns of the dharma wheel. For 10 points each:

[10] Name this gigantic sect of Buddhism that urges its followers to become bodhisattvas to help others achieve nirvana.

ANSWER: **Mahayana** Buddhism [or **Greater Vehicle**]

[10] The second-turn evolution of Mahayana Buddhism includes the developments of this man, who founded the Madhyamaka school. This man doctrine of two truths distinguishes between conventional and ultimate reality.

ANSWER: **Nagarjuna**

[10] Nagarjuna claimed that nirvana was best attained through *sunyata*, or emptiness, a process that involves rejecting this part of oneself. This entity is the pure essence, or soul, of a human being.

ANSWER: **atman**

19. In one instance, this phrase is spoken shortly after one character describes suddenly feeling relieved and "AP-PALLED", while in another instance it follows the observation that "the essential doesn't change". For 10 points each:

[10] Identify this phrase, delivered most famously as the first line of a 1953 play, while its speaker Estragon is struggling mightily to remove his boot.

ANSWER: **"Nothing to be done."** [or **"Rien a faire."**; do not accept any other answers]

[10] That 1953 play, *Waiting for Godot*, was written by this Irish playwright of *Endgame* and the trio of novels *Molloy*, *Malone Dies*, and *The Unnamable*.

ANSWER: Samuel Barclay **Beckett**

[10] Harold Pinter, John Hurt, and its originator Patrick Magee are among the actors who have played the title role of this Beckett play. Its title character spends most of the play listening to his own recorded monologues.

ANSWER: **Krapp's Last Tape**

20. Cones of depression form when the substance held in these structures is removed. For 10 points each:

[10] Name these underground formations which hold a lot of water. Prominent examples of these structures include the Floridan and Ogallala systems.

ANSWER: **aquifers**

[10] This law equates the volume of water flow out of aquifers to the product of hydraulic conductivity, cross section



area and hydraulic gradient.

ANSWER: **Darcy's** Law

[10] Water is also stored in lakes, which can experience this phenomenon when an excessive amount of fertilizer-ridden water runs into them. In this phenomenon, algal blooms cause lakes to turn green.

ANSWER: **eutrophication**

21. The largest one of these institutions in the United States is the one at the New York Botanical Garden. Other important ones include those at the Missouri Botanic Gardens. For 10 points each:

[10] Name these institutions within museums of natural history, that house specimens of plants mounted onto acid-free paper to be studied by plant taxonomists.

ANSWER: **herbariums** [or **herbaria**; prompt on **collections**, I guess]

[10] The world's biggest herbarium is housed in the National Museum of Natural History of this European Capital city. The herbarium was set up by King Louis XIII.

ANSWER: **Paris**, France

[10] Paris' museum of natural history was spearheaded by Buffon, who was a major influence on this biologist, who developed a theory of inheritance of acquired traits.

ANSWER: Jean-Baptiste Pierre Antoine de Monet, Chevalier de **Lamarck**