

**Minnesota Undergraduate Tournament 2016: A Vat of Ranch Dressing or a Bullet to the Head**  
**Questions by Sam Bailey, Rob Carson, Mike Cheyne, Akhil Garg, Carsten Gehring, Andrew Hart, Ike Jose, Shan Kothari, Cody Voight, Najwa Watson, and NOT Cory Haala**  
**Packet 1: Tossups**

1. **The MEG experiment at CERN currently searches for flavor changes in charged versions of these particles, replacing the MEGA and SINDRUM experiments. The mass operator in the seesaw mechanism causes the number of these particles to be off by two units compared to what is predicted by the Standard Model. Double beta decays in which a Majorana fermion is an intermediate particle violate the (\*) conservation of these particles, which includes three subtypes whose numbers are generally also conserved. A consequence of the conservation of these particles is that a neutrino or antineutrino has to be produced during beta decay. The tauon, muons, and electrons are members of, for 10 points, what family of particles that, unlike quarks, do not experience the strong interaction?**

ANSWER: lepton [accept lepton number] <Garg>

2. **Upon receiving the score to this piece, E. T. A. Hoffman wrote a glowing review of its composer's "Instrumental Music", which appears in *Kreisleriana*. This piece's first 21 bars end with a half-cadence onto a short G-major chord, though the violins hold a longer G under a fermata. The first movement's development contains an odd decrescendo passage where strings and winds trade ascending half-notes, and its recapitulation has a brief oboe cadenza. "La Folia" is quoted in the second movement, a set of (\*) double-variations in A-flat major. The final movement reprises the main theme of the third movement scherzo before the recapitulation. This symphony's final movement ends with 29 bars of C major chords. For 10 points, name this C minor symphony whose opening bars carry a unison short-short-short-long theme of "fate knocking at the door".**

ANSWER: Symphony No. 5 by Ludwig van Beethoven [accept "Fifth" for "5", obviously; prompt on partial answer] <Kothari>

3. **A minister affected by this event dramatically met with Robert A. Lewis on an episode of *This Is Your Life*. Norman Cousins helped twenty five "maidens" affected by this event obtain needed surgery. This event, along with a later one, was opposed by the Franck Report, which was signed by men such as Glenn Seaborg and Leo Szilard. This event, the first chronicled in the documentary (\*) *White Light/Black Rain*, occurred a few days after the Potsdam Declaration threatened "complete destruction" of enemy forces. This event began when Colonel Paul Tibbets unleashed an object code-named "Little Boy". For 10 points, name this August 6, 1945, event in which the *Enola Gay* destroyed a Japanese city, an attack that was followed by the destruction of Nagasaki.**

ANSWER: atomic bombing of Hiroshima [prompt on "atomic bombing of Japan"; do not accept "the bombing of Nagasaki"] <Cheyne>

4. **This author created a half-Korean, half-Russian prostitute named Louise, who powders her whole body in an attempt to appear Turkish, in a novel whose protagonist begins to understand the appeal of traditional practices after bathing in a clove-scented tub at his father-in-law's house. The protagonist of that novel by this author titillates himself by reading scenes from an unexpurgated copy of the *Arabian Nights*. The protagonist idolizes his father-in-law's mistress O-hisa and watches *The (\*) Love Suicides at Amijima* in a novel by this man that was originally titled for bugs that eat water peppers. Kaname is the protagonist of a novel by this author, who created the siblings Yukiko, Sachiko, Taeko, and Tsuruko in another novel. For 10 points, name this Japanese author of *Some Prefer Nettles* and *The Makioka Sisters*.**

ANSWER: Jun'ichiro Tanizaki [accept names in either order] <Hart>

5. The story of this figure, which is described in book 2 of Pseudo-Apollodorus's *Bibliotheca*, inspired the verse novels *Red Doc* and *Autobiography of Red* by Anne Carson. A poisoned arrow causes this figure's body to droop like a "poppy that spoils its delicate shapes, shedding its petals all at once", according to the "song" of this figure that was written by Stesichorus. In Book 17 of the *Inferno*, Virgil and Dante get on the back of this creature, which has the face of an honest man and the tail of a scorpion, and represents fraud. This resident of the island (\*) of Erytheia is reached using Phaethon's chariot, after which both his herdsman, Eurytion, and his two-headed guard dog, Orthrus, are clubbed to death. Heracles's tenth labor involved stealing the cattle of, for 10 points, what three-headed giant?

ANSWER: Geryon [or Geryone] <Hart>

6. This non-aromatic functional group forms in the Fritsch-Buttenberg-Wiechell rearrangement. Treating this functional group with a strong base results in a namesake zipper reaction. The simplest type of compound with this functional group can undergo cyclic polymerization to form benzene. An aldehyde reacts with an ylide (ill-id) and lithium bromide in the Corey-Fuchs reaction to make this moiety. Ozonolysis cleaves this functional group to form (\*) carboxylic acids, but never ketones. Terminal types of these compounds can react with sodium amide to form acetyl•ide anions. In these compounds, overlapping unhybridized p orbitals form two pi bonds between two carbon atoms. For 10 points, name this unsaturated class of compounds with carbon-carbon triple bonds whose simplest compound is acetylene, or ethyne.

ANSWER: alkynes (AL-kines) [do not accept "alkenes" or "alkanes"] <Garg>

7. A character in this novel wakes from a "six-year slumber" while staring at a Khmer statue and smelling the perfume from Mercier's beard. Its protagonist becomes enraged while listening to another character explain how he became a humanist during his time as a prisoner of war, prompting the abrupt end of an awkward lunch. A character in this novel gets punched in the face by a Corsican who reveals him as a pederast, thus prematurely ending a plan to (\*) read all the books in a library in alphabetical order. This novel is set in Bouville, where the protagonist has an affair with the owner of a cafe called the "Railwaymen's Rendezvous", researches the Marquis de Rollebon, and chats with the Self-Taught Man, until he is overcome by a powerful sense of alienation. For 10 points, name this Jean-Paul Sartre novel in which Antoine Roquentin (roh-ken-tahn) suffers from the title "sweetish sickness".

ANSWER: Nausea [or *La Nausée*] <Carson>

8. In a 2006 Chris Adrian novel titled for one of these institutions, one of them becomes a floating ark that is home to the only remnants of humanity. Kareem Abdul-Jabbar's high school, Power Memorial Academy, is located on the former site of one of these specialized institutions in New York City where William Carlos Williams trained before working at a more general institution in Passaic, New Jersey. In the third season of a TV show set in one of these institutions, two characters leave one of them and walk through the streets of Brazil in search of churros. The show *Newsreaders* spun off that show, which stars Lake Bell, Henry Winkler, and (\*) Malin Akerman as people who work in an institution of this type. An Adult Swim show starring Rob Corddry wearing disturbing clown makeup is set in, for 10 points, what type of medical institution that employs many pediatricians?

ANSWER: children's hospitals [accept any answer mentioning hospital and children or kids or equivalents; prompt on "hospitals"] <Hart>

9. This system adopted Sprague-Thomson stock in the wake of a disastrous 1903 fire. Late-80s renovations to parts of this system were known by a name meaning “Hearsay” and featured the addition of scythe-shaped brackets for light housings. Two inaccessible and never-used parts of this system are called Haxo and Porte Molitor. This system connects in several places with the RER and the SNCF. After the death of Abdelbaki Sahraoui, the GIA carried out a series of attacks on this system in 1995. Tiles spelling out the text of the (\*) *Declaration of the Rights of Man and the Citizen* decorate a part of this system that inspired Ezra Pound to write a poem describing the “apparition of these faces in the crowd”. This system features a number of Art Nouveau-styled cast iron entrances designed by Hector Guimard. Its 303 stations include two serving Orly and Charles de Gaulle airports. For 10 points, name this French public transit system.

ANSWER: the **Paris Métro** [prompt on partial answers; accept **Paris Métropolitain** or **Métro de Paris**; prompt on “**Métro**” or “the **Paris subway**” or equivalents] <Carson>

10. This man thrice visited a northeastern island and sent two sea voyages led by a court sorcerer in search of an elixir of life. A strongman ordered to throw a metal cone at a carriage, a blind musician using a lead-tipped lute, and a man bearing a dagger wrapped in a map all attempted to assassinate this man. This man's reign saw the introduction of the banliang, the promulgation of the seal script, and the construction of the Lingqu (ling-chu) Canal. This ruler's chancellor (\*) Li Si promoted legalism by ordering the burning of many books and, supposedly, the live burial of Confucian scholars. In an effort to repel the northern Xiongnu (shee-ONG-noo) tribes, he began construction on what became the Great Wall of China. For 10 points, name this man who was buried with an army of terracotta soldiers after unifying China as the first emperor of the Qin dynasty.

ANSWER: Qin **Shi Huangdi** [commonly given variants include **Qin Shi Huang** or **Shi Huangdi**; also accept **Ying Zheng** or **Zhao Zheng** or King **Zheng** of Qin] <Carson>

11. In a Giorgio de Chirico painting titled for this man, he is represented as a red mannequin with a fan- or shell-like codpiece who is embracing a marble statue. An Albrecht Dürer engraving shows this man kneeling in a rustic village among a herd of swine, and he is touched by a “masculine” and a “feminine” hand in another work. This man, whose depiction is a self-portrait of the artist, wears a red coat and holds up a foot-long glass of beer while a woman modeled on the artist's wife Saskia sits in his lap, in a painting alternately titled for this man “in the brothel” or “in the tavern”. The Hermitage holds a painting in which this man's left foot has slipped from its (\*) sandal as he kneels and his father lays two hands on his shoulders, while his brother stands judgmentally. For 10 points, name this wayward biblical character whose “return” is depicted in a Rembrandt painting.

ANSWER: **prodigal son** [accept **lost son** or *The Return of the **Prodigal Son*** or *The **Prodigal Son** in the Tavern* or *The **Prodigal Son** in the Brothel*] <Hart>

12. Representation theory treats finite groups as these kinds of objects by mapping a given group to the general linear group. If these objects are over an algebraically closed field, they can always be expressed in Jordan canonical form, even if they are not normal. Linear regression software frequently uses the QR algorithm on these objects, as the QR algorithm is faster and more stable than other methods that find their (\*) inverses. These objects can be used to solve systems of linear equations with methods like Cramer's rule and, more generally, to represent linear transformations on vector spaces. An inverse will exist if and only if the determinant of one of these objects is non-zero. Tensors are a generalization of these objects, which have two dimensions, unlike vectors. For 10 points, name these arrays of numbers.

ANSWER: **matrices** [or **matrix**] <Bailey>

13. While responding to the protest of a king of this country, Andrei Vyshinsky allegedly yelled, "Yalta? What is Yalta? I am Yalta!" A woman who served as the foreign minister for this country following World War II led the Muscovite faction and was named Ana Pauker. Some ethnic Hungarians in this country called Szeklers have pushed for autonomy, which existed in the 1950s when this country created the Magyar Autonomous Region. A rigged 1946 election that gave power to the Bloc of Democratic Parties over the National Peasants' Party led to the 1947 abdication of this country's king (\*) Michael. The communist government of this country started a secret police force called the Securitate. A leader of this country was captured and executed with his wife Elena after ruling for 24 years following the death of Gheorge Gheorgiu-Dej (GYOR-gay GYOR-g"you" dezsh). For 10 points, name this Eastern Bloc country that had its communist government toppled in 1989 in a revolution against the rule of Nicolae Ceausescu (nick-oh-LIE chow-SHESH-koo).

ANSWER: Romania <Gehring>

14. Victor Rios criticized a study of people in this city for making use of the "Jungle Book" trope in the study's depiction of minorities. A book about a neighborhood in this city claimed that the police routinely checked maternity ward visitors to pick up wanted people. A sociologist working in this city denied that she was an accessory to attempted murder in 2015. A linguist at a university in this city studied how New York salespeople adapt their accents when working in more prestigious department stores. William (\*) Labov's stepdaughter, Alice Goffman, wrote about residents of its Sixth Street neighborhood in her book *On the Run*. Goffman attended the same university where W.E.B. Du Bois was working when he wrote his study of this city's African-American population. For 10 points, name this city that contains the University of Pennsylvania.

ANSWER: Philadelphia, Pennsylvania <Bailey>

15. In 2005, David Hare introduced a videotaped speech in which this other author accused the U.S. of supporting every right-wing dictatorship since World War II and condemned the invasion of Iraq. In that speech, this man contrasted political speech with the theatrical language of his plays *Mountain Language* and *Ashes to Ashes*. This deliverer of the speech "Language, Truth, and Politics" wrote of the famous author Hirst and three hangers-on named Briggs, Foster, and Spooner in *No Man's Land*, which deconstructs his country's genre of "well-made plays". Irving Wardle used the phrase "comedy of (\*) menace" to describe this man's early plays, one of which centers on McCann and Goldberg, who interrupt Stanley Webber's attempts to celebrate the title event. For 10 points, what Nobel Prize-winning British playwright of *The Birthday Party* wrote about two hit men in a basement in *The Dumb Waiter*?

ANSWER: Harold Pinter <Hart>

16. These non-mythical people were frequently said to practice "Thyestean banquets". A story about these people, the "Forty Wrestlers", describes a group of them that ends up on a frozen lake. One of these people seems to be looking at a donkey-headed figure in the crudely drawn Alexamenos graffito. Eusebius wrote that these people enjoyed a forty-year "little peace" during the reign of (\*) Gallienus. Edward Gibbon was widely attacked for arguing that these people were indirectly responsible for the title event in his most famous history. A massive persecution of these people began during the reign of Diocletian and was formally ended with the Edict of Milan signed by Constantine. For 10 points, what religious minority of Rome was legendarily blamed for causing the Great Fire by Nero?

ANSWER: Christians in Rome [prompt on martyrs] <Cheyne>

17. Frank Lentricchia contrasts the subjects of this poem with the more “ominous”, “irresponsive” subjects of the first stanza of its author's poem “Into My Own”. Some editions of this poem include the parenthetical question “Now am I free to be poetical?” after describing how “Truth broke in / with all her matter-of-fact”. This poem describes a situation where “you'd think the inner dome of heaven had fallen” and compares its subjects to “girls on hands and knees that throw their (\*) hair / before them over their heads”. This poem asserts that “Earth's the right place for love” while describing a desire to “get away from Earth awhile / then come back to it again”, an activity the speaker compares to climbing “black branches up a snow-white trunk / Toward heaven”. For 10 points, name this Robert Frost poem that claims that “one could do worse than be a swinger of” the title trees.

ANSWER: “Birches” <Carson>

18. This man's surprise at finding his mentor reading silently in his study is often and wrongly thought to be the earliest documentation of silent reading. A passage in which this man describes how he first learned to identify utterances with objects is targeted in Ludwig Wittgenstein's *Philosophical Investigations*. This man was inspired by Cicero's *Hortensius*, and to fulfill an arranged marriage, he left the unnamed mother of his son Adeodatus. This man first posited that (\*) evil is just a privation of good, and expressed shame at relishing the sin of stealing pears. Upon hearing a child's voice repeating “take up and read”, he opened a Bible to Romans 13, which aided his conversion from half-hearted Neoplatonism to Christianity, the religion of his mother Monica. For 10 points, name this student of St. Ambrose and bishop of Hippo Regius who wrote the *Confessions*.

ANSWER: Saint Augustine of Hippo [or Saint Augustinus; or Saint Austin; or Blessed Augustine; or Aurelius Augustinus Hipponensis] <Kothari>

19. An unnamed insane character in this movie is based on actor Errol Flynn's son, Sean, who disappeared in 1970. In its early scenes, the protagonist is briefed by a character named after George Lucas who is played by Harrison Ford. A previously deleted scene set at a rubber plantation is featured in the 2001 “redux” release of this movie. In an early scene in this movie, an unnamed man gives the order (\*) “terminate with extreme prejudice”. This film's protagonist meets surfing buff Lieutenant Colonel Kilgore, who plays Wagner's “Ride of the Valkyries” during a helicopter attack. It begins with Captain Willard's assignment to kill the insane Colonel Walter E. Kurtz. For 10 points, name this Francis Ford Coppola film, an adaptation of *Heart of Darkness* set in Vietnam.

ANSWER: Apocalypse Now <Cheyne>

20. One organism produces one of these things when proteins called KinA (“kin-A”) and KinB (“kin-B”) initiate a phospho•relay mechanism in response to nutritional stress. These things can be detected in soil using the element terbium, which stains the dipi•colinic acid in them. Small acid-soluble proteins, or SASPs, may play a role in their heat resistance, which necessitates a special process called Tyndall•ization to destroy them. Many organisms in the Firmicute phylum can produce these things, which help them survive (\*) desiccation. Microbial cysts perform an analogous function to these things, whose presence results in the bulged appearance at one end of the rod-shaped *Bacillus subtilis*. The organisms causing tetanus and anthrax can lie dormant for many years because they can form, for 10 points, what kind of hardy casing that protects a bacterium?

ANSWER: bacterial endospores <Hart>

Tiebreaker. **This man met a boy prostitute who may have inspired him to write a lost gay novel that provides the subject matter of Edmund White's novel *Hotel de Dream*. This author of the lost manuscript *Flowers of Asphalt* tackled similarly gritty subject matter in an account of Bowery life entitled *George's Mother*, which contains some of the same characters as his first book, in which the title character is followed to the edge of the river by a man whose body quivers like a "dead jelly fish". In that novella by this author, a bartender named Pete dates the title character, who eventually becomes a (\*) prostitute. This author created Scratchy Wilson, who decides not to shoot a Texas marshal named Jack Potter after seeing Potter's new wife, in his story "The Bride Comes to Yellow Sky". For 10 points, name this author of *Maggie: A Girl of the Streets* who created Henry Fleming in *The Red Badge of Courage*.**  
ANSWER: Stephen Crane <Hart>

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**Packet 1: Bonuses**

1. This painting was created with the intent that its artist's patron, Edward James, would hang it at the base of a staircase in order to "stab" guests headed to the ballroom. For 10 points each:

[10] Name this 1938 painting whose sparse details include a mirror, two candlesticks, and a clock showing 12:43 atop a fireplace mantel..

ANSWER: Time Transfixed [or *La Duree Poignardee*]

[10] *Time Transfixed* is one of the most famous paintings by this Belgian surrealist, whose painting *The Treachery of Images* depicts a pipe above the legend "Ceci n'est pas une pipe", or "This is not a pipe".

ANSWER: Rene Magritte [or Rene Francois Ghislain Magritte]

[10] Edward James served as the model for this Magritte portrait, in which he stands in front of a mirror that, rather than reflecting him properly, simply replicates the observer's view of the back of his head.

ANSWER: Not To Be Reproduced [or *La reproduction interdite*] <Carson>

2. This empire's culture and religion were documented in the Florentine Codex. For 10 points each:

[10] Name this empire that fought enemies during the Flower Wars. It succeeded in killing numerous outsiders during La Noche Triste, which proved to be only a temporary victory.

ANSWER: Aztec Empire [or Aztec Triple Alliance]

[10] This large Aztec city was built on an island in Lake Texcoco. Its ruins are now located in downtown Mexico City.

ANSWER: Tenochtitlan

[10] In 1519, Hernan Cortes massacred numerous warriors and leaders of this Aztec city and partially burned it, perhaps to send a message to the Aztecs. Cortes vowed he would build a Christian church for every destroyed native temple in this city.

ANSWER: Cholula <Cheyne>

3. Answer the following about an 1898 production at the Moscow Art Theatre, for 10 points each.

[10] The production, co-directed by Vladimir Nemirovich-Danchenko, was of this Anton Chekhov play, which had a lukewarm premiere in St. Petersburg two years earlier. The playwright Konstantin Treplev shoots the title bird in this play.

ANSWER: *The* Seagull [or *Chayka*]

[10] The other co-director of the Moscow Art Theatre production of *The Seagull* was this Russian acting teacher, whose "system" was adapted by Lee Strasberg into the system of "method acting".

ANSWER: Konstantin Stanislavsky [or Konstantin Sergeyevich Stanislavsky or Konstantin Sergeyevich Alexeyev]

[10] Stanislavsky himself played this character in *The Seagull*. This middlebrow writer becomes the lover of Nina and muses on the dead seagull as a symbol for a woman who is destroyed by a man "out of sheer boredom" in act II of the play.

ANSWER: Boris Alexeyevich Trigorin [accept either underlined name] <Hart>

4. In an economy with a continuum of agents, these scenarios are identical to the core of the economy. For 10 points each:

[10] Name these allocations where aggregate excess demand is zero. The first welfare theorem gives conditions for when they are Pareto optimal.

ANSWER: competitive **equilibria** [or market **equilibria**; accept, but DO NOT REVEAL, Walrasian **equilibria**; accept word forms such as **equilibrium**]

[10] An equilibrium may fail to be Pareto optimal if the private costs or benefits of a good do not match its social costs or benefits, a situation described by this term. Pollution is an example of a “negative” one.

ANSWER: **externalities** [or **externality**]

[10] This early general equilibrium theorist showed that, in an economy of  $n$  markets, if  $n-1$  (“**n-minus-one**”) markets clear, the last one must also clear. His “law” states that the price values of excess demand in every market must sum to zero.

ANSWER: Léon **Walras** [or Marie-Esprit-Léon **Walras**] <Bailey>

5. Under two-species Lotka-Volterra competition, this phenomenon is possible when each species inhibits its own growth more than it inhibits the other. For 10 points each:

[10] Name this outcome that is possible under Chessonian theory when niche differences exceed fitness differences. In R-star two-resource competition, it occurs when the supply point is between the extensions of the optimal consumption vectors.

ANSWER: stable **coexistence**

[10] Over evolutionary timescales, similar coexisting species may undergo character displacement, a term coined by William Brown and this Harvard ant biologist and socio•biologist who developed island bio•geography with Robert MacArthur.

ANSWER: E. O. **Wilson** [or Edward Osborne **Wilson**]

[10] Some of the best evidence for character displacement comes from Jonathan Losos's work on *Anolis*, a genus of this broad group of reptiles that form the order Squamata with snakes. They include basilisks and Gila (**HEE-luh**) monsters.

ANSWER: **lizards** [or **Lacertilia**] <Kothari>

6. This book contains an incident in which a monk is told that he is enlightened after eating his meal and being asked to wash his bowl. For 10 points each:

[10] Name this text compiled by Wumen Huikai consisting of 48 specific cases. Along with the *Blue Cliff Record*, it is a key text in the Rinzai School.

ANSWER: *The* **Gateless Gate** [or *The* **Gateless Window**]

[10] The Rinzai school is a sect of this school of Buddhism extremely popular in Japan that advocates rigorous meditation.

ANSWER: **Zen** Buddhism [or **chan**]

[10] *The Gateless Gate* consists of 48 of these questions or statements, sometimes inaccurately called meaningless or unanswerable. A famous example of these questions is “what is the sound of one hand clapping?”

ANSWER: **koans** <Cheyne>

7. George Shearing pioneered locked-hands voicings of block chords for this instrument, which was also played by the composer of “Round Midnight”. For 10 points each:

[10] Name this instrument played by Vijay Iyer, Thelonious Monk, and Duke Ellington.

ANSWER: **pianoforte**

[10] On his album *Historicity*, Iyer covered “Somewhere”, a song from this musical that begins with a rising major seventh. This musical’s song “Maria” is unusually in the Lydian mode.

ANSWER: **West Side Story**

[10] “This other jazz pianist was riffing on Leonard Bernstein’s “Some Other Time” when he began improvising over the one-bar C major ostinato of his “Peace Piece”. This pianist on *Kind of Blue* also wrote “Waltz for Debby”.

ANSWER: William John “Bill” **Evans** [do not accept “Gil Evans”] <Kothari>



8. This man was fighting against the Holy League of Cognac when his forces sacked Rome in 1527. For 10 points each:

[10] Name this Habsburg king of Spain and Holy Roman emperor who spent many years fighting the French king Francis I.

ANSWER: **Charles V** [or **Charles I of Spain**; prompt on **Charles**]

[10] Charles V defeated Francis I at this battle, during which Francis was captured and after which he was forced to sign the harsh Treaty of Madrid.

ANSWER: Battle of **Pavia**

[10] This woman, Charles's aunt who served as regent for Charles in the Netherlands for nearly 20 years, helped orchestrate the so-called Ladies' Peace, or Treaty of Cambrai, with Louise of Savoy, who was this woman's sister-in-law and Francis's mother.

ANSWER: **Margaret** of Austria <Gehring>

9. The most common salt of this anion is often used as an indicator in redox titrations, as a disinfectant in water treatment, and as an antiseptic, primarily due to its properties as a strong oxidant. For 10 points each:

[10] Name this five-atom anion whose potassium salt produces brilliant pink or purple solutions.

ANSWER: **per•manganate** [or **MnO<sub>4</sub><sup>-</sup>**; accept potassium **per•manganate** or **KMnO<sub>4</sub>**]

[10] In the per•manganate ion, manganese has a value of plus seven for this quantity, while oxygen is its usual minus two. This value, which is to be confused with formal charge, is the hypothetical charge an atom would have if all of the atom's bonds to different atoms were purely ionic.

ANSWER: **oxidation state** [or **oxidation number**]

[10] These constructs are used to compare the stability of a given substance's various oxidation states by plotting them against relative free energy. They are often used in tandem with the more quantitative Latimer diagrams.

ANSWER: **Frost** diagrams [or **Frost**-Ebsworth diagrams] <Carson>

10. This author collected eight "rhythms" and five drawings into *The Book of Repulsive Women*. For 10 points each:

[10] Name this American author, who lived for most of the 1920s in Paris and wrote the modernist lesbian novel *Nightwood*.

ANSWER: Djuna **Barnes**

[10] A laudatory introduction to *Nightwood* was written by this American poet of "The Hollow Men" and *The Waste Land*.

ANSWER: T.S. **Eliot** [or Thomas Stearns **Eliot**]

[10] This poet of "The Steeple-Jack", who wrote "I, too, dislike it" in her poem "Poetry", was a lifelong friend of Barnes.

ANSWER: Marianne **Moore** [or Marianne Craig **Moore**] <Hart>

11. This thinker claimed that "before it explodes, a bomb is a single entity in which opposites coexist in given conditions", analogizing the introduction of ignition to situations in which open conflict develops to resolve contradictions, in his essay "On Contradiction". For 10 points each:

[10] Name this philosopher who asserted that the best path to knowledge is not through rationalism or empiricism, but rather through dialectical materialism, in his essay "On Practice". He also claimed that "political power grows out of the barrel of a gun".

ANSWER: **Mao** Zedong [or **Mao** Tse-tung; or Chairman **Mao**]

[10] Undoubtedly the most famous compilation of Mao's thought is this ubiquitous book, whose official title is "Quotations from Chairman Mao Tse-Tung". Give its common Western name.

ANSWER: the **Little Red Book** [accept *The Treasured Red Book* or *Hong Baoshu*]

[10] Contrary to Leninist vanguardism, Maoism asserted the supremacy of this method of revolutionary leadership, in which the ideas and desires of the general populace are condensed through a Marxist-Leninist filter, then given back to them in "concentrated" form.

ANSWER: the **mass line** [or **qunzhong luxian** (**chun-jong loo-shee-an**)] <Carson>

12. Examples of this kind of game include *Halo 2600* and *Super Smash Land*. For 10 points each:

[10] Name this type of video game created by adapting a newer game for an older platform or for a platform with lesser technology specifications.

ANSWER: **demakes** [do not accept or prompt on “remake[s]”, obviously]

[10] *Gang Garrison 2* is essentially a demake of this Valve Software game, in which the RED team fights against the BLU team.

ANSWER: **Team Fortress 2** [do not accept or prompt on partial answers.]

[10] In 2005, a Chinese company made a demake of this game for the NES. Sadly, lines of dialogue like “even unpopular dweebs like you may meet their destiny here”, and Barret being told “you look like a bear wearing a marshmallow”, were left out.

ANSWER: **Final Fantasy VII** [or **FF7**] <Jose>

13. Circuits of this type can be more easily analyzed with the use of phasors. For 10 points each:

[10] Identify this type of current used in the electricity distribution system developed by George Westinghouse. Its sinusoidal oscillation means that it periodically switches directions.

ANSWER: **alternating** current [or **AC**]

[10] In AC circuits, this quantity is equal to the complex ratio of the voltage to the current. This quantity, usually symbolized Z, has an imaginary part equal to the reactance.

ANSWER: complex **impedance**

[10] The term “impedance” was coined by this scientist, whose work on modeling electric circuits also led to the development of his namesake “step function”.

ANSWER: Oliver **Heaviside** [accept **Heaviside** step function] <Carson>

14. This two-word phrase was popularized by historian Alfred Crosby. For 10 points each:

[10] Give this two-word term for the transfer of plants, animals, and diseases that occurred when “Old World” explorers made contact with the New World in the fifteenth and sixteenth centuries.

ANSWER: **Columbian Exchange** [prompt on **Grand Exchange**]

[10] The arrival of horses in the New World dramatically affected native tribes' lives on the Great Plains as they used horses to hunt this bovine animal, a key staple of American Indians' lives. This animal was nearly rendered extinct by hunters in the mid 1800's.

ANSWER: **bison** [or **buffalo**]

[10] A popular, if probably inaccurate, theory is that this Paleo-Indian culture's people were the ancestors of most indigenous Americans. This culture takes its name from a New Mexico site, and shares its name with a European ruler.

ANSWER: **Clovis** culture <Cheyne>

15. This man wrote that the *Mona Lisa* “is older than the rocks among which she sits” in part of a critical essay that Yeats turned into a poem and selected as the first entry in *The Oxford Book of Modern Verse*. For 10 points each:

[10] “Name this author of *Marius the Epicurean* whose book *The Renaissance* also asserts that “All art constantly aspires towards the condition of music”.

ANSWER: Walter Horatio **Pater**

[10] Both *Marius the Epicurean* and *The Renaissance* are misquoted by Lord Henry Wotton in this Oscar Wilde novel whose title object ages in lieu of the protagonist.

ANSWER: *The **Picture of Dorian Gray***

[10] Pater also wrote about this poet, who wrote the sonnet sequence *The House of Life*. He wrote of a woman who “lean'd out from the gold bar of heaven” in “The Blessed Damozel”.

ANSWER: Dante Gabriel **Rossetti** <Kothari>

16. The narrator of the fictional memoirs of Bras Cubas begins his story with this event. For 10 points each:  
[10] Name this event that happened to Bras Cubas “at two o'clock on a Friday afternoon in the month of August, 1869”, after “sixty-four intense and prosperous years”.

ANSWER: his **death** [more specifically **death** from pneumonia; accept equivalent answers]

[10] *The Posthumous Memoirs of Bras Cubas* is a novel by this author, who also wrote *Dom Casmurro*, a novel in which an unreliable narrator believes that his wife and his best friend are having an affair.

ANSWER: Joaquim Maria **Machado** de Assis

[10] Machado de Assis also wrote the novel *Quincas Borba*, in which the philosopher Quincas Borba leaves all of his wealth to his friend on the condition that the friend take care of one of these animals, also named Quincas Borba. Mark Haddon wrote a novel about a “curious incident of” one of these animals “in the night-time”.

ANSWER: **dog** [accept **canine** or other equivalents] <Gehring>

17. This kingdom contained numerous fortified towns called “burhs”. For 10 points each:

[10] Name this Anglo-Saxon kingdom that was led by Alfred the Great. It eventually took over a previous regional power, Mercia.

ANSWER: **Wessex**

[10] The kings of Wessex, including Alfred, frequently clashed with these Scandinavian invaders. Fearful English Christians probably contributed to the myth that these people were all savage berzerkers.

ANSWER: **Vikings** [prompt on **Danes** or **Norse**]

[10] The four main kingdoms of the old English “Heptarchy” were Mercia, Wessex, Northumbria, and this kingdom in modern-day Norfolk and Suffolk. Led by the Viking king Guthrum, it was to the north of the minor kingdom of Essex.

ANSWER: **East Anglia** [or **East Angles**] <Cheyne>

18. For 10 points each, name some things about piano pieces that divide the hands between white and black keys:

[10] The left hand plays black keys while the right hand plays white keys in “Disorder”, which along with “The Devil’s Staircase” is one of this composer’s études. This Hungarian used a gradually building set of pitch classes in his *Musica Ricercata*.

ANSWER: György Sándor **Ligeti**

[10] The combination of C and F-sharp major triads that represent the title puppet of this Igor Stravinsky ballet implies a white-key/black-key division, which makes sense given Stravinsky’s notorious habit of composing at the piano.

ANSWER: **Petrushka**

[10] The left hand plays white-key block chords while the left hand plays pentatonic quintuplets in much of “Brouillards” (**broo-YAHR**), one of this French composer’s piano préludes. He also wrote *La mer*.

ANSWER: Claude-Achille **Debussy** <Kothari>

19. Answer the following about bad things happening to the sun, for 10 points each.

[10] In Norse mythology, two sons of this character named Hati and Skoll constantly pursue the moon and the sun, respectively, finally catching and eating them at Ragnarok. The god Tyr sacrificed a hand in the process of neutralizing this character.

ANSWER: **Fenrir** [or **Fenrisulfr**; or **Fenris** wolf]

[10] In response to complaints that the sun is moving too fast across the sky, this Polynesian trickster lassoed it and beat the shit out of it with a jawbone. A Maori myth claims that he used the same jawbone to fish up the North Island of New Zealand.

ANSWER: **Mau**i [or **Mau**i-tikitiki]

[10] After all ten of the three-legged sunbirds decided to rise at the same time, this archer from Chinese mythology, who was married to the goddess Chang’e, shot nine of them out of the sky, thus saving humanity.

ANSWER: **Hou**yi [or **Shen**yi; or **Yi**] <Carson>

20. For 10 points each, answer the following about a close relative of cannoli: Martian canals.

[10] "Publications of this Italian astronomer's telescopic observations of Mars were the source of the Martian canal debacle because the word "canali" was mistakenly translated into English as "canals" instead of "channels".

ANSWER: Giovanni **Schiaparelli** [or Giovanni Virginio **Schiaparelli**]

[10] The American astronomer Percival Lowell was a fervent believer in Martian canals and founded the observatory where Clyde Tombaugh discovered this solar system object, which was reclassified as a dwarf planet based on a 2006 IAU resolution.

ANSWER: **Pluto** [or 134340 **Pluto**]

[10] This English astronomer published a provocative series of experiments demonstrating, with India ink, that the Martian canals were probably optical illusions due to the limited power of 1880s telescopes. He and his wife name an observed minimum in sunspot frequency.

ANSWER: Edward **Maunder** [or Edward Walter **Maunder**; accept **Maunder** minimum] <Voight>

Extra. A song about this person's death proclaims, "Popery I hate as death". For 10 points each:

[10] Name this great-granddaughter of Henry VII who was technically queen of England for about nine days in 1553. She was then imprisoned and "succeeded" by Mary I, who executed this woman in 1554.

ANSWER: Lady Jane **Grey** [accept BUT DO NOT REVEAL Lady Jane **Dudley**]

[10] Jane Grey's claim to the throne conflicted with not only the claims of Henry VIII's daughter, Mary, but also this other daughter, who became queen in 1558. The final Tudor monarch, she was known as the Virgin Queen.

ANSWER: **Elizabeth I** [or **Gloriana**; or **Good Queen Bess**]

[10] Jane Grey was married to a member of this family; her father-in-law was the Duke of Northumberland. Another member of this family, Robert, was the Earl of Leicester ("**Lester**") and a longtime suitor of Elizabeth, even after the mysterious death of his first wife.

ANSWER: **Dudley** [or the **Dudley** Boyz] <Cheyne>