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**TOSSUPS:**

1. A “pacman” or butterfly configuration is used to examine small specimens of this organ throughout the Mohs technique of removing cancer from it. An ocular micrometer is placed at a right angle to the stratum granulosum to measure the Breslow depth of tumors in this organ. A 0.1 milliliter solution of T·U is injected into this organ in the (\*) P·P·D test. Electro·dessication and cryo·surgery procedures are used to remove squamous·cell and basal·cell carcinomas from this organ. Asymmetric, variegated moles are a sign of melanoma in, for 10 points, what organ damaged by the U·V rays in sunlight?

ANSWER: **skin** [accept any answer containing the word **dermis**]

<JS, Biology>

2. A prophet of these people named Siener (“seen·ur”), which translates to “Looker,” later inspired a Gustav Müller·led survivalist group of these people who fear white genocide. The Slachter’s Nek Rebellion was perpetrated by these people, who founded the Natalia Republic following their victory at Blood River. A powerful political leader of these people had his lands targeted by a (\*) Cecil Rhodes·supported British insurgency intended to start an *uitlander* (“OOT·lahn·der”) uprising, known as the Jameson Raid. Many of these peoples migrated northward during the Great Trek, and they fought two namesake wars with the British from the Transvaal and the Orange Free State. For 10 points, name this people once led by Paul Kruger, the descendants of Dutch·speaking settlers in South Africa.

ANSWER: **Boers** [accept **Afrikaners**; prompt on *Voortrekkers*; prompt on **Dutch** people or people from the **Netherlands**; prompt on **South Africans**] (The unnamed group mentioned in the lead·in refers to the *Suidlanders*)

<TM, World History>

3. Balthasar de Beaujoyeulx (“bal·TAY·zar duh BOOJ·why·oos”) created an early work in this artform named for the Rhine while working in the court of Henry III. Jennifer Homans’ book *Apollo’s Angels* is a history of this artform. Training methods for this performing art are named for Enrico Cecchetti and August Bournonville. Ludwig (\*) Minkus is best known for composing music for this performing art, including his scores for *Don Quixote* and *La Bayadere*. Practitioners of this artform may perform *grand jetes* or *arabesques*. Performers of this style of dance often practice at the barre and must practice their pointe technique. For 10 points, name this style of dance performed during works like *Swan Lake* and *The Nutcracker*.

ANSWER: **ballet** [accept *ballet de cour*; prompt on **dance** or **dancing**]

<TH, Dance>

4. The Rybczynski (“RIB-chin-SKI”) theorem and the Stolper-Samuelson theorem are two of the four conclusions that can be derived from a model of this phenomenon. The Linder hypothesis states that entities with similar demand structures tend to engage in this phenomenon more readily. The Leontief paradox was discovered when attempting to empirically test a model of this phenomenon. A mathematical general equilibrium model of this practice is the (\*) Heckscher-Ohlin model. Protectionism limits this practice through the implementation of quotas or tariffs. *Laissez-faire* economics policies promote the “free” example of, for 10 points, what exchange of goods or services in a market?

ANSWER: international trade [accept trading; accept international exchange of goods and services]

<TH, Economics>

5. A character in this novel feels the “gratification of self-love” for the first time while being paraded through the streets holding a mitre and wearing a robe. This novel’s digressive chapter “This Will Kill That” explains how the power of a printed book will trump the grandeur of an old building. This novel closes with the image of two skeletons in an open grave embracing. A girl in this novel agrees to marry the playwright (\*) Gringoire to spare him from hanging, and she is later accused of witchcraft for teaching her goat to spell out the name of her lover, Phoebus. In this novel, the Archdeacon Claude Frollo lusts after and eventually assaults the gypsy girl Esmeralda. For 10 points, name this Victor Hugo novel featuring the deaf and deformed bellringer Quasimodo.

ANSWER: *The Hunchback of Notre-Dame* [accept *Notre Dame de Paris*]

<TH, Long Fiction>

6. Søren Sørensen invented a form of this technique that measures proteo-lytic hydrolysis (“hi-draw-luh-sis”) by the formation of methylene amino groups. Cyanide is an effective masking agent used to improve the selectivity of one form of this technique that uses Fast Sulphon Black and Erio-chrome Black T. The chelating agent E·D·T·A is used when performing this technique on metal cations. Sodium thio-sulfate is a reducing agent in one form of this technique that uses a solution of a starch and (\*) iodine. A burette and stopcock are used in this technique whose endpoint is detected when indicators like phenolphthalein (“fee-nolf-thay-leen”) change color. For 10 points, name this process in which a reagent is slowly added to determine the concentration of an analyte.

ANSWER: titration [accept Sørensen formol titration; accept complexometric titration; accept iodometric titration; accept redox titration; accept acid-base titration; prompt on chelation or iodometry with “what more general method is used in that technique?”]

<JF, Chemistry>

7. Denis Johnson’s novel *Tree of Smoke* follows CIA agent Skip Sands as he works in this country. A poet born in this non-US country is known for his collection *Night Sky with Exit Wounds*. A spy from this country has an affair with Ms. Mori and Lana, the wife of the General he advises while in exile in Los Angeles in the novel *The Sympathizer*. The drug-addicted (\*) Lavender is shot while walking back from using the bathroom in a story set in this country, which is the primary setting of a collection that describes the significance of objects like a box of matches and a bag of M&M’s. A conflict in this country is the setting of a collection featuring the stories “The Man I Killed” and “How to Tell a True War Story.” For 10 points, name this country where the war stories in *The Things They Carried* takes place.

ANSWER: Vietnam [accept North or South Vietnam]

<TH, Mixed Lit>

8. A co-founder of this website financially backed the wireless provider TPO Mobile, which collapsed in February 2019. Genius.com founder Mahbod Moghadam is a co-founder of a Blockchain-based project that competes with this website. Steven Pruitt is a prolific contributor to this website and has contributed to about a third of its English language content. Co-founder Larry (\*) Sanger left this website in 2002, criticizing the lack of expertise in its content creators. This website features an annual banner across the top of its web pages that asks everyone reading to donate three dollars to keep this website ad-free. For 10 points, Jimmy Wales co-founded which free, online, editable encyclopedia?

ANSWER: Wikipedia.org [accept Wikimedia Foundation]

<TH, Modern World>

9. A poet associated with this city is known for their collection *I Must Be Living Twice* and the “dog memoir” *Afterglow*. “Back from a Walk” appears in a collection named for this city by Federico Garcia Lorca. Eileen Myles is a poet associated with a group named for this city that also included John (\*) Ashbery and Frank O’Hara. A poem describing a landmark in this city notes that it is “Not like the brazen giant of Greek fame” but is instead a “Mother of Exiles.” That poem about a site in this city exclaims “Keep, ancient lands, your storied pomp” before asking to “send these, the homeless, the tempest-tossed.” For 10 points, name this city that contains the subject of the Emma Lazarus poem “The New Colossus,” which describes the Statue of Liberty.

ANSWER: New York City [accept New York School; accept NYC or NY or the Big Apple]

<TH, Poetry>

10. The Vajrayana Wisdom Buddha Amoghasiddhi is usually depicted with this color skin. A Quranic companion of Moses who was known for his negotiation skill was named for this color, which according to Sura 76 is the color of the silken robes worn by people in *jannah*. In Eastern Orthodox Christianity, this color is worn by the clergy during Pentecost, while the Roman Catholic clergy wears this color during (\*) Ordinary Time. The only monochromatic national flag in world history was this color, which according to several hadiths was the favorite color of Muhammad. For 10 points, name this color closely associated with Islam that appears on the background of the flags of Saudi Arabia and Pakistan.

ANSWER: green

<TH, Religion>

11. The *presto barbaro* movement of a piece by this composer features a percussive introduction followed by an alto saxophone playing eighth note (*read slowly*) B flat, long A, followed by eighth note C, long G. A symphony by this composer uses tone rows in the “Dirge” movement and features a piano solo with sparse accompaniment in the “Masque” movement. In another piece by this composer an english horn solo begins the 4/8 adagio (\*) “Somewhere” movement. In addition to *Symphonic Suite from ‘On the Waterfront’* and the *Age of Anxiety Symphony*, this composer collaborated with Stephen Sondheim on musical featuring the songs “I Feel Pretty” and “Maria.” For 10 points, name this American composer of *West Side Story*.

ANSWER: Leonard Bernstein

<JH, Music>

12. **This quantity's namesake broadening has a Lorentz profile whose half-width is proportional to this quantity times temperature to the power of a scaling parameter. In a non-relativistic gas, this quantity is two-thirds of the kinetic energy density. The derivative of Gibbs free energy with respect to this quantity at constant temperature is (\*) volume. To account for intermolecular forces, the van der Waals ("vahls") equation adds  $a$  over  $v$ -squared to this quantity. The total amount of this quantity for a mixture is equal to the sum over each component's partial form of this quantity according to Dalton's law. For 10 points, what quantity equal to force per unit area is measured in atmospheres?**

ANSWER: **pressure** [prompt on p; accept **pressure** broadening]

<JS, Physics>

13. **This city's Newton Food Center is one its "hawker centers," the only zones where popular street food can be sold. This city's neo-gothic Chijmes ("chimes") Convent has been converted into a popular tourist destination. This city is the eastern terminus of the Eastern and Oriental Express train line. This city's Sentosa Island is home to a Universal Studios theme park. This city's namesake strait separates it from (\*) Batam Island to the south, and this city is just south of the Johor State of another country. Joseph Conrad patronized the Writer's Bar in this city's Raffles Hotel. Moshe Safdie designed the three towers of this city's iconic Marina Bay Sands Resort, which appears in *Crazy Rich Asians*. For 10 points, name this autonomous city-state located at the end of the Malay peninsula.**

ANSWER: **Singapore** City

<TH, Geography>

14. **Dada sculptor Raoul Hausmann attached a tape measure, clock, and a typographic cylinder to one of these objects in his work *The Spirit of our Times*. Several caryatids and elongated examples of these object comprise the entire sculptural output of Amedeo Modigliani. A bronze cubist sculpture by Picasso depicts one of these belonging to his lover (\*) Fernande Olivier. Brancusi's sculpture *Sleeping Muse* consists only of one of these objects lying on its side. Jean-Antoine Houdon sculptured one of these belonging to Voltaire. The majority of the works by ancient Egyptian sculptor Thutmose are of these objects, including one belonging to Nefertiti. Along with the shoulders, classical busts depict, for 10 points, what body part?**

ANSWER: **head** [accept **bust** before mentioned]

<TH, Sculpture>

15. **One man with this first name was famous for his publicity stunts including paging hotel bars and restaurants in Manhattan for a fictitious Mr. Clutterbuck to generate name recognition for his production of *Clutterbuck*. Another man with this first name was hailed by Alexander Pope as a man who "never had his equal as an actor" after his portrayal of the title role in Shakespeare's (\*) *Richard III*. Yet another man with this first name wrote a play in which Shelley "The Machine" Levene steals sales leads from John Williamson's office. For 10 points, give this first name shared by the theatrical producer Merrick, the Georgian actor Garrick, and the playwright of *Glengarry Glen Ross*, Mamet.**

ANSWER: **David** [accept **David** Merrick; accept **David** Garrick; accept **David** Mamet]

<JF, Drama>

16. **It's not the Secretary of the Interior, but starting in 1835, one man in this position ordered George McClellan to lead the search for a feasible transcontinental railroad route in the American West. It's not a judicial role, but after serving as the Governor-General of the Philippines, William Howard Taft was appointed to this position by Theodore Roosevelt. Under Franklin Pierce, this position was held by a young (\*) Jefferson Davis. As a result of 1947's National Security Act, Kenneth Royall was the last person to hold this position, whereas the first was responsible for leading artillery to the Siege of Boston. For 10 points, name this early Cabinet position, first held by Henry Knox, that had authority over U.S. military affairs prior to the creation of the Secretary of Defense.**

ANSWER: Secretary of War [do NOT accept or prompt on "Secretary of Defense"]

<BK, American History>

17. **This team was notoriously bad until the hiring of GM Lou Lamoriello in 1987, after which they made the playoffs every year from 1997 to 2010. It's not the Ducks, but in that span this team won 3 titles with the help of defensemen Scott Niedermayer and Scott Stevens. Formerly known as the Colorado Rockies, this team moved to its current city in 1982. Defensemen Andy Greene and left winger (\*) Taylor Hall currently play for this team based in the Prudential Center. A former goalie for this team who used a hybrid style leads goalies in all-time wins and shutouts. For 10 points, Martin Brodeur played for what NHL franchise whose mascot is a forked tail monster and plays in Newark?**

ANSWER: New Jersey Devils [accept either underlined portion]

<JF, Pop Culture Sports>

18. **Gilbert Ryle introduced the term "ghost in the machine" in a chapter of a 1949 book named for the "myth" of this thinker. In *Consciousness Explained*, Daniel Dennett accuses modern materialist theories of consciousness in drawing from this thinker's views, which Dennett analogizes to a "theater." This thinker used the example of a straight stick that appears bent in water to show the untrustworthiness of the senses. This thinker described an (\*) "evil demon" that could deceive all of one's senses in a work advocating seeking knowledge of the self through reason alone. For 10 points, name this thinker who wrote *Meditations on First Philosophy* and who introduced the proposition "I think therefore I am."**

ANSWER: Rene Descartes

<TH, Philosophy>

19. **During this decade, a group calling themselves the "Revolutionary Home Army" of a certain country seized an embassy in Bern, Switzerland. Nine striking workers at the Wujek Coal Mine were killed by police during this decade. Grey Wolf assassin Mehmet Ali Agca attempted to kill Pope John Paul II during this decade. General Wojciech (\*) Jaruzelski ("VOY-check YAIR-uh-ZEL-ski") declared martial law in the second year of this decade, partly to quell protests that began the decade before in the Gdansk Shipyards. The Lech Walesa-led Solidarity party won an overwhelming victory in the Polish election held in the last year of this decade. For 10 points, which decade saw the fall of the Berlin Wall?**

ANSWER: 1980s

<TH, European History>

20. Ayana Byrd and Lori Tharps wrote a history of this thing in the United States, which criticizes Andre Walker's system that divides this thing into categories ranging from 1A to 4C. Kanekalon and futura fibers are popular artificial replacements for this thing. Chris Rock investigated the use of corrosive chemicals in treating this thing in a 2009 documentary about attitudes toward this thing, which was prompted by a question from his young daughter. Madam (\*) C.J. Walker made her fortune selling products for altering the appearance of this thing. Historically popular styles for this thing include the Conk and the Jheri Curl. For 10 points, name this aspect of human appearance that some African Americans wear in Afros or Dreadlocks.

ANSWER: **hair** [prompt on beauty products]

<TH, Other Academic>

21. Originally observed as a heart-shaped feature, Linda Morabito discovered one of these structures because of an anomalous limb of a satellite. Energy from tidal flexing heats that one of these structures surrounded by a red ring. These structures are responsible for the formation of pancake domes, which are similar to features on Earth's seafloor. The release of (\*) greenhouse gases from these structures helped warm Mars' atmosphere and allow water to flow. The existence of these structures on Io was hypothesized due to the lack of impact craters. Three of these structures make up the Tharsis Montes, which is southeast of another of these structures, Olympus Mons. For 10 points, Venus has many of the shield type of what structures that eject ash and lava when they erupt?

ANSWER: **volcanoes** [accept **volcano** plumes; accept **volcanoes** on Io; accept **volcanoes** on Venus; accept **volcanoes** on Mars; prompt on mountains; do not accept or prompt on "cryovolcanoes"] (The first two clues refer to Pele on Io)

<JS, Other Science Astronomy>

22. In one appearance, a hero disguised as baby tricks this figure into getting his magic middle finger bitten off while eating griddle cakes. This figure's grandfather casts a spell on him that forces him to fight waves for three days. This figure died shortly after a raven landed on his shoulder while he was strapped to a stone. This figure who trained with (\*) Scathach, threw a rock at a swan who turned out to be a princess who he later saved from the castle of Forgall. This hero was named Setanta until killing a guard dog. This son of Lugh went into a berserker rage to fight Queen Maeve. For 10 points, name this Irish hero of the Ulster cycle who owns the spear Gae Bulg and single-handedly fought in the Cattle Raid of Cooley.

ANSWER: **Cuchulainn** [accept **Cuhullin**; accept **Setanta** until read]

<JH, Mythology>

23. *Description acceptable.*

The Peruvian Nazca people utilized a rather-mysterious system of *puquios* (poo-key-ohs) to accomplish this process. In his book *Oriental Despotism*, Karl August Wittfogel described a type of government that remained in power through a control of this process, which was accomplished by the Khmer Empire through a network of *srahs* and *barays*. Ancient Persians utilized the (\*) qanāt (ka-NAHT) to do this process, which the Egyptians accomplished via a shadoof. Utilized widely by "hydraulic empires," this process was often developed by cultures in arid regions that couldn't rely on regular rain cycles, but also saw implementation by the Romans through the building of aqueducts. For 10 points, canals and reservoirs were key aspects within which process of artificially delivering water to crops?

ANSWER: **irrigation** [accept descriptive answers that indicate the **distribution**, purposeful **moving**, or **management** of **water**; prompt on agriculture or farming]

<TM, Other History>

24. **The Pama-Nyungan languages are spoken almost exclusively in this country. A system of complex taboos called avoidance speech exists in this country's language of Dyirbal. A second wave feminist from this country argued that consumerism and the nuclear family structure oppresses women's sexuality in *The (\*) Female Eunuch*. In an essay titled "Famine, Influence, and Morality," a utilitarian thinker from this country asserted that mass donations to the poor was morally necessary. That thinker from this country also coined the term "speciesism" in his book *Animal Liberation*. Germaine Greer and Peter Singer are from, for 10 points, what country where ethnographers may study Aboriginal people in the Outback?**

ANSWER: Commonwealth of **Australia**

<TH, Mixed Social Science>

## BONUSES:

1. Edmund Halley, the namesake of Halley's comet, is said to have invented this profession when he formulated his namesake mortality table. For 10 points each:

[10] Members of this profession take exams administered by the SOA and the CAS. People in this profession calculate risk for insurance company using applied statistics.

ANSWER: **actuary** [accept **actuarial** scientist]

[10] For a random variable  $x$ , this function of  $t$  is equal to the expectation value of  $e$  to the  $t$  times  $x$ . This function, which is an alternative way to specify a probability distribution of  $x$ , is widely used in actuarial science.

ANSWER: **moment generating** function

[10] If event A and B have this relation, then the probability of A union B is the probability of A plus the probability of B. Events with this relationship cannot simultaneously be true, like being both alive and dead in an actuarial table.

ANSWER: **mutually exclusive** [accept **mutual exclusivity**]

<LL, Other Academic>

2. A scene characteristic of this period's bawdy comedy of manners is the "China Scene" from *The Country Wife*. For 10 points each:

[10] Name this era of English drama that often forwent biting satire, to instead focus on wittiness and aristocratic shenanigans. The first actresses appeared on stage during this era, whose notable playwrights included William Congreve and William Wycherley.

ANSWER: English **Restoration** Era Comedy

[10] The Restoration comedians distanced themselves from the more biting satire of this earlier playwright who wrote *The Alchemist*, *Volpone*, and *Every Man in His Humour*.

ANSWER: Ben **Jonson**

[10] The Restoration era's most successful female playwright was this woman who wrote *The Rover* and *The Lucky Chance*. She is also known for her early novel *Oroonoko*.

ANSWER: Aphra **Behn**

<TH, Drama>

3. This event was initiated by Robert Harley allowing John Blunt of the Hollow Sword Blade Company to run a lottery. For 10 points each:

[10] Name this British financial disaster involving an ineffectual overseas trading company. During this crisis, a namesake company was granted a monopoly on trade in South America and surrounding islands.

ANSWER: **South Sea Bubble** [accept answers indicating a scheme or economic crisis involving the **South Sea Company**]

[10] During his time as First Lord of the Treasury, this politician dealt with the damage caused by the South Sea Bubble. This Whig is usually regarded as the first Prime Minister of Great Britain

ANSWER: Robert **Walpole**, 1st Earl of **Orford** [accept either underlined name]

[10] Part of the South Sea Bubble financiers' inspiration for starting the rumors that led to the bubble were inspired by this Scottish finance minister for France, whose selling of trading shares in Louisiana led to the Mississippi Bubble.

ANSWER: John **Law**

<JH, European History>



4. The Sons of Ivaldi built one of these vehicles alongside new golden hair for Sif and the spear Gungnir. For 10 points each:

[10] Name this type of vehicle that includes Skidbladnir, which could fold up and fit in a pocket. Baldr was ceremonially burnt on one of these named Hringhorni after his death.

ANSWER: **ship** [or **boat**]

[10] The largest ship in Norse mythology, Naglfar, is composed of hair and these objects.

ANSWER: fingernails [accept toenails]

[10] Sessrumnir is both a ship and an afterlife location in Fólkvangr, the realm of this goddess. She also owns the necklace Brisingamen and a chariot pulled by two cats.

ANSWER: **Freya**

<JH, Mythology>

5. Patients with damage to this part of the brain often produce grammatically correct but semantically nonsensical language. For 10 points each:

[10] Name this area located in the left hemisphere of the brain which is responsible for comprehension of speech. This area is often studied alongside a similar area which is responsible for the production of speech.

ANSWER: **Wernicke's** area (“VUR-nih-kuh’s area”)

[10] Damage to Wernicke’s area or Broca’s area may cause this general type of neurological disorder, which is defined as any language disorder caused by trauma or disease.

ANSWER: **aphasia** [accept Wernicke’s Broca’s **aphasia**]

[10] Damage to language centers of the brain can also lead to acquired forms of these disorders involving reading. People suffering from this class of disorders may produce the wrong words when reading aloud or may mix up letters within words.

ANSWER: **dyslexia** disorders [accept **dyslexia**]

<TH, Psychology>

6. For 10 points each, answer the following about limnology:

[10] Limnologists study all inland aquatic ecosystems, but the prefix “limne” refers to these bodies of water. Unlike ponds or pools, these bodies of freshwater are thermally stratified and light does not penetrate to their bottom.

ANSWER: **lakes**

[10] The Winkler test is used on-site to determine this quantity for freshwater systems. Dead zones where this quantity is low form when the excess algae from fertilizer runoff decomposes.

ANSWER: **dissolved oxygen** [accept anything mentioning the **concentration** of **oxygen**]

[10] The plant community found in this zone of a lake typically consists of macrophytes like reeds and water lilies. Many lake fish species will move from the pelagic zone to this zone for the purposes of feeding and avoiding predation.

ANSWER: **littoral** zones [prompt on **intertidal**; prompt on **near-shore**]

<JS, Biology>

7. The *kinensai* festival involves prayers and processions aimed at providing a successful one of these events. For 10 points each:

[10] Name this yearly event whose end is celebrated by the *niname matsuri*. In 2018, Akihito performed a ritual involving this practice for what may be the last time ever.

ANSWER: rice **harvest** [prompt on farming or agriculture]

[10] Traditionally people in this role perform the rituals involved in the *daijosai* or Great Food Festival as head of Shinto. The *Kojiki* relates that these people are descendants of Amaterasu.

ANSWER: **Emperors** of Japan [accept Japanese **Emperor**; accept *tenno*]

[10] After 1945, State Shinto was abolished, though the Emperor still serves in some ceremonial roles. The many types of decentralized Shinto now practiced are known by this word, which in general refers to a religious subgroup within a larger tradition.

ANSWER: **sect** Shinto [accept kyoha]

<TH, Religion>

8. An example of this phenomenon is the continued existence of summer breaks for students, a hold over from times when it was needed for agrarian harvest work. For 10 points each:

[10] Give this two word term coined by sociologist William Ogburn, which posits that social problems emerge from the failure of culture and social organization to keep up with changes in technology.

ANSWER: **cultural lag** [or culture lag prompt on partial answer]

[10] The concept of cultural lag is discussed in an Alvin Toffler book titled for a condition of this type caused by the prospects of the future. This word is used to describe a situation in which an individual is overwhelmed by a culture vastly different than their own.

ANSWER: **shock** [accept culture **shock**; accept *Future Shock*]

[10] A component to the feeling of culture shock is a “barrier” present from differences in this thing. The effects of social structures on the use of this thing is the subject of sociolinguistics.

ANSWER: **language** [accept spoken or written language]

<TH, Sociology>

9. When asked why he never painted any angels, this artist responded “show me an angel and I’ll paint one.” For 10 points each:

[10] Name this realist artist whose depictions of crowds include *The Artist’s Studio* and *The Burial at Ornans*. He courted controversy with his depiction of female genitalia in *The Origin of the World*.

ANSWER: Gustave **Courbet**

[10] Another mid-19th century French artist with a knack for painting common people was this painter of *The Laundress* and *The Third Class Carriage*. He also caricatured Louis-Philippe as a pear-headed Gargantua.

ANSWER: Honore Victorin **Daumier**

[10] A female painter of the realist movement, Rosa Bonheur, painted a massive canvas which shows some men in blue and white attempting to calm some of these animals at a “fair.” George Stubbs was renowned for his realistic paintings of these animals.

ANSWER: **horses** [accept *The Horse Fair*]

<TH, Painting>

10. The Aufbau principle and Madelung's rule are used when constructing these representations of atoms. For 10 points each:

[10] Name this way of representing the atomic orbitals of an element. For hydrogen, this representation is simply 1·s·1.

ANSWER: **electron configuration**

[10] Symbols of elements in this group of the periodic table are often used to abbreviate lengthy electron configurations. These elements that are located in the last column of the periodic table have full octets.

ANSWER: **noble gases** [accept **noble gas** configuration; accept **inert gases**; accept Group **18**]

[10] This is the electron configuration for boron, which has the atomic number 5. You can answer with or without using the noble gas shorthand.

ANSWER: **1·s·2 2·s·2 2·p·1** (“one s two, two s two, two p one”) [or **[He] 2·s·2 2·p·1** (“helium, two s two, two p one”)]

<TH, Chemistry>

11. Featuring a “slow and painfully” tempo marking, the first of these pieces opens with the right hand notes (*read slowly*) F sharp - A - G - F sharp - C sharp - B - C sharp - D - A. For 10 points each:

[10] Name this set of three pieces inspired by Ancient Greek war dances.

ANSWER: the **Gymnopédies** (“jeem-no-pay-DEE”) [accept three or trois **Gymnopédies**]

[10] This French composer and mentor of *Les Six* wrote six Gnossiennes (“NOSS-see-ENS”) and three Gymnopédies.

ANSWER: Erik **Satie**

[10] The first few bars of the first Gymnopédies alternate major chords of this kind, which consist of a major triad plus a leading tone. The scale degree of this number is the subtonic.

ANSWER: major **seventh** chord [accept **seventh** scale degree]

<JH, Music>

12. Answer the following about extinction events besides the one that is currently happening. For 10 points each:

[10] The abundance of banded iron formations from about 2,400 million years ago attests to the magnetite formed around the time of this first mass extinction event. The Huronian (“hyur-rone-ian”) glaciation followed this event.

ANSWER: **Great Oxygenation** Event [or **G·O·E**; accept **Great Oxidation** Event; accept **Oxygen Catastrophe**; accept **Oxygen Crisis**; accept **Oxygen Holocaust**; accept **Oxygen Revolution**]

[10] Scientists have identified many causes of the Permian-Triassic extinction, including volcano eruptions, hypoxia, and these events. Many of these events that form craters occurred during the Late Heavy Bombardment.

ANSWER: meteor **impact** events [accept any answer synonymous to some object **hitting** Earth]

[10] This event marks the end of the Mesozoic Era. Gerta Keller refutes the hypothesis of Luis Alvarez that this extinction was caused by the impact that left behind the Chicxulub (“cheek-shuh-loob”) crater.

ANSWER: **K-T** extinction [or **K-Pg** extinction; accept **Cretaceous-Tertiary** extinction; accept **Cretaceous-Paleogene** extinction; prompt on partial answer]

<JS, Other Science Earth Science>

13. “Sweet the memory is to me, of a land beyond the sea.” Name some things about Amalfi, for 3, plus 3, plus 4 points each:

[10] The Italian Duchy of Amalfi was a longtime Mediterranean economic dynamo, prior to its being eclipsed by this other “Most Serene Republic,” which was brought to possess great wealth by doges such as Enrico Dandolo.

ANSWER: Republic of **Venice** [accept **Venetian** Republic; prompt on “*La Serenissima*”]

[10] In 1073, Amalfi was conquered by this man, a Norman explorer who managed to conquer Sicily and most of Southern Italy with his brother, Roger Bosso. According to chroniclers, this man, referred to as “Black Shirt” for the blurring of his elegantly dyed clothing, had to run away from one campsite after it was overrun with tarantulas.

ANSWER: **Robert Guiscard** [accept **Robert de Hauteville**; accept **Roberto il Guiscardo**; accept **Roberto d’Altavilla**; accept **Robert Viscardus** or **Robert Viscart**; accept **Robert** “**The Resourceful**,” “**The Cunning**,” “**The Wily**,” “**The Fox**,” or “**The Weasel**”]

[10] The mariner Flavio Gioja, who was likely born in Amalfi, is credited with polishing the design of the “box” variant of this technology, which originated over a millennium earlier with the Chinese *luopan*.

ANSWER: geomagnetic **compass**

<TH, Other History>

14. Nancy Mitford wrote a history of this writer’s relationship with Émilie du Châtelet in a book titled [*this author*] *in Love*. For 10 points each:

[10] Name this French writer, historian and philosopher who wrote about the search for Cunégonde and the ramblings of Professor Pangloss in his novella *Candide*.

ANSWER: **Voltaire**

[10] Along with the short story “Plato’s Dream,” this other Voltaire work is an early example of the science fiction genre. This novella focuses on the title giant alien, who comes from a planet that orbits Sirius.

ANSWER: **Micromégas**

[10] A Voltaire poem about this natural disaster ends with a line noting “But he could have added—hope.” This natural disaster ravages an Iberian city in the auto-da-fé scene from *Candide*.

ANSWER: 1755 **Lisbon Earthquake** [accept anything about an **earthquake** in **Lisbon**; accept “Poem on the **Lisbon Disaster**” Prompt on **earthquake** or **Portugal earthquake** by asking “In what city was the earthquake?”]

<JH, Mixed Lit>

15. Some songs are about saying “Hello,” but others are about saying goodbye. For 10 points each:

[10] This pianist described the title structure as “where the dogs of society howl” in his song “Goodbye Yellow Brick Road.” This singer is the subject of the 2019 musical biopic *Rocketman*.

ANSWER: Elton **John**

[10] A song by Supertramp from their album *Breakfast in America* is about saying goodbye to one of these people. A Billy Joel album featuring the songs “Only the Good Die Young” and “Movin’ Out” is titled for one of these people.

ANSWER: **stranger** [accept “Goodbye **Stranger**”; accept *The **Stranger***]

[10] A song by Q Lazzarus featured in *The Silence of the Lambs* is named for saying goodbye to these animals. An iconic 1975 album by Patti Smith is titled for these animals.

ANSWER: **horses** [accept “Goodbye **Horses**”]

<TH, Pop Culture Music>

16. This phenomenon is caused by satellites not being perfectly rigid, resulting in the namesake forces inducing bulges in the satellite. For 10 points each,

[10] Name this phenomenon that for eccentric orbits occurs when the spin rate matches the orbital rate at the peri-apsis. The time it takes for this phenomenon to occur is a function of the Love number and the dissipation rate, Q.

ANSWER: **tidal locking** [accept **gravitational locking**; accept **captured rotation**; accept **synchronous rotation**; prompt on **resonance**]

[10] The Earth is tidally locked with this celestial body, which was studied by the Apollo missions.

ANSWER: the **Moon**

[10] This problem was first studied for the Earth, Moon, and Sun system. Lagrange points are a family of solutions to this problem for which there is no general analytic solution.

ANSWER: **three-body** problem [anti-prompt on **n-body** problem]

<DG, Physics>

17. A novel by this author opens “Justice? You get justice in the next world. In this one you have the law.” For 10 points each:

[10] Name this American postmodernist author who satirized lawyers in *A Frolic of His Own*. In his most famous novel, Wyatt Gwyon makes a living in New York City by foraging paintings by the Dutch Masters.

ANSWER: William **Gaddis** (That novel is *The Recognitions*)

[10] In *A Frolic of His Own*, a protracted legal case ensues over an unauthorized film adaptation of a play about this war. Stephen Crane’s *The Red Badge of Courage* takes place during this conflict.

ANSWER: American **Civil** War

[10] The Gaddis novella *Agapē Agape* (“uh-GAH-pay uh-GAPE”) mostly consists of a deathbed monologue about these devices. A near future dystopia in which automation has eliminated the need for most labor is depicted in Kurt Vonnegut’s first novel, which is named for one of these instruments.

ANSWER: **player pianos** [prompt on **piano**; prompt on musical **instrument**]

<TH, Long Fiction>

18. An event held in this city saw the first meeting of the Parliament of World’s Religions, bringing together men such as Soyen Shaku and Swami Vivekananda (**vee-vay-ka-NUN-duh**). For 10 points each:

[10] Name this city, the site of a premier event that included the construction of the first Ferris Wheel, the installation of the stunning Tiffany Chapel, and life-size reproductions of the *Niña*, *Pinta*, and *Santa Maria*.

ANSWER: **Chicago**, Illinois

[10] That event, the 1893 Columbian Exposition, fell under this larger category of events designed to showcase the achievements of various countries. 1964 saw one of them hosted in New York, themed around “Peace Through Understanding.”

ANSWER: **world’s fairs** [accept world **expos**]

[10] The aforementioned 1964 New York World’s Fair managed to characterize its theme with this glorious symbol, a massive stainless steel model of the Earth that was built on the foundations of an earlier structure from 1939.

ANSWER: The **Unisphere**

<JH, American History>

19. Identify some instances of associative cuts from throughout the history of cinema, for 10 points each:

[10] A bone tool is thrown into the air before a cut to an orbiting satellite in its place at the end of this film's "Dawn of Man" segment. This Stanley Kubrick film features the crazed AI Hal 9000.

ANSWER: **2001: A Space Odyssey**

[10] In this experimental short film by Luis Bunuel, a razor is held close to a woman's eye before a cut to a slender cloud passing over the moon, and then a cut to an animal's eye being cut open.

ANSWER: **Un Chien Andalou** [accept **An Andalusian Dog**]

[10] In *Lawrence of Arabia* the title character holds and stares at one of these objects before a cut to the sun rising over a flat desert landscape.

ANSWER: a burning **match**

<TH, Film>

20. This work finds fault in the "reason equals virtue equals happiness" formula of dialectical Greek thought in its section "The Problem of Socrates." For 10 points each:

[10] Name this 1888 work which argues for the prioritization of instinct over reason, and becoming over being. Its quote "From life's school of war: what does not kill me makes me stronger" has been paraphrased by such diverse figures as Richard Nixon and Kelly Clarkson.

ANSWER: **Twilight of the Idols**, or, *How to Philosophize with a Hammer* [accept **Götzen-Dämmerung**, oder, *Wie man mit dem Hammer philosophiert*]

[10] *Twilight of the Idols* is a late work by this German thinker, best known for declaring that "God is dead" in *The Gay Science* and *Thus Spoke Zarathustra*.

ANSWER: Friedrich **Nietzsche**

[10] In *Twilight*, Nietzsche disapproves of the morality of the German lower classes, which he describes as the morality of this type of person, who values kindness and empathy over pride and power.

ANSWER: **slave** [accept **sklave**]

<TH, Philosophy>

21. This country was home to the Tupinamba people, many of whom were captured through expeditions known as *bandeiras*. For 10 points each:

[10] Name this country, which also received the greatest number of slaves via the Atlantic slave trade. Many of those slaves were forced to produce coffee on the *fazendas* in this country's northeast.

ANSWER: Federative Republic of **Brazil**

[10] Along with diamonds, veins of this precious metal were discovered in Minas Gerais in the 1690s, leading to a vast influx of slaves. As acting regent for Pedro II, the Brazilian princess Isabella enacted a law named for this substance that resulted in Brazil being the last country of the Western world to abolish slavery.

ANSWER: **gold** [accept **Golden Law**, or **Lei Aurea**]

[10] Escaped slaves in Brazil commonly formed large communities that went by this Portuguese name, and were often formed from the smaller-scale *mocambo* villages. The largest example, known as *Palmares* ("pal-MAHR-ess"), was famously ruled by the resistance symbol Zumbi, and his warrior-queen Dandara.

ANSWER: **quilombos** ("key-LOHM-bos") [prompt on "**Maroon villages**"; prompt on "**campsite**"; prompt on "**slave hut**"; I suppose prompt on **palenques**]

<TM, World History>

22. In February of 2016, Justice Antonin Scalia died of a heart attack, leaving his seat on the U.S. Supreme Court empty. For 10 points each:

[10] This Chief Judge of the Appeals Court for the D.C. Circuit was originally nominated to replace Justice Scalia by President Obama.

ANSWER: Merrick **Garland**

[10] After Garland's nomination expired at the end of the 114<sup>th</sup> Congress, President Trump nominated this textualist to Justice Scalia's former seat.

ANSWER: Neil **Gorsuch**

[10] Over a year after Gorsuch's confirmation, Brett Kavanaugh was eventually confirmed to the Supreme Court seat vacated by the retirement of this Reagan appointee.

ANSWER: Anthony **Kennedy**

<DG, Current Events>

23. This sea is bounded by Novaya Zemlya to the east and by the Scandinavian Peninsula to the south. For 10 points each:

[10] Identify this sea named for a Dutch navigator. The Russian cold water port of Murmansk lies on this sea.

ANSWER: **Barents** Sea

[10] Russia operates the small coal mining settlement of Barentsburg on this Norwegian island, the northernmost permanently inhabited island in the world.

ANSWER: **Svalbard**

[10] West of Svalbard is the sea named for this misleadingly named island controlled by Denmark. It is the largest island in the world by land area.

ANSWER: **Greenland**

<TH, Geography>

24. A Thomas Hardy poem claims that "[this thing] alone can lend you loyalty." For 10 points each:

[10] Name this thing that titles a poem which begins "Where the quiet-coloured end of evening smiles." This thing is set "Among the Ruins" in that poem's title.

ANSWER: **love** [accept "Love Among the Ruins"]

[10] This author of "Love Among the Ruins" also wrote the dramatic monologue "My Last Duchess," in which the Duke of Ferrara describes the reasons he killed his wife while showing off a painting of her.

ANSWER: Robert **Browning**

[10] The speaker in this other Browning poem also kills his significant other, though creatively he does so by strangling her with her blonde hair. This poem closes with a couplet stating "And all night long we have not stirred / And yet God has not said a word!"

ANSWER: "**Porphyria's Lover**"

<CW, Poetry>