

**2021 WORKSHOP: How did I never notice that your username is Santa Claus and mine is reindeer?**

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Packet 9

Tossups

1. **A performance involving these objects was recreated using sculptured figures in the exhibition *Spirits in Steel* by Sokari Douglas Camp. Amadeo Modigliani’s viewing of a certain type of these objects at the Musée de l’Homme (“myoo-ZAY duh LUM”) influenced the visual style of the sculptures that he started producing in the 1910s. A 2019 book by Suzanne Blier argues that Leo Frobenius’s illustrations of these objects were the main visual source for the depiction of the two rightmost figures in a (\*) 1907 painting. Versions of these objects featuring three, six, or nine spikes protruding from their tops are used in male initiation ceremonies by the Bambara people. For 10 points, name these objects, often donned in ritual dance to represent the faces of the dead in many Sub-Saharan African cultures.**

ANSWER: masks [or African masks; prompt on headaddresses; do not accept or prompt on “costumes”]  
<MS, CE/Geo/Other>

2. **Islam-Girei III deserted a leader of this ethnicity three times, eventually forcing him to allow the annexation of the “left-bank” region of a modern-day country. This ethnicity adopted a constitution at Bendery that was guaranteed by a foreign king just before his exile to the Ottoman empire. A demand to increase the number of “registered” members of this ethnicity spurred an uprising that directly preceded the (\*) Deluge in Poland-Lithuania. During the Battle of Poltava, a leader of a “host” of this ethnicity betrayed Peter the Great for Swedish king Charles XII. Ivan Mazepa and Bogdan Khmelnytsky were among the *hetmans* of the Zaporozhian branch of this ethnicity. For 10 points, name this militaristic people that largely lived along the steppes of the Don River in Ukraine.**

ANSWER: Cossacks [or Kazaki; accept Don Cossacks or Zaporozhian Cossacks; prompt on Ukrainians]  
<CSI, European History>

3. **Differences in this quantity across an interface cause the formation of “mushroom spikes” that increase in size, eventually leading to a layer of turbulent mixing. Schlieren photography visualizes variations in this quantity using variations in refractive index. The time derivative of this quantity equals the negative divergence of this quantity times the flow velocity field according to the (\*) continuity equation of fluid dynamics. This quantity is the ratio of dynamic to kinematic viscosity. Hydrometers measure this quantity using the fact that the buoyant force equals the product of volume, gravitational acceleration, and this quantity. Specific gravity is the ratio of this quantity for a substance to that of water. For 10 points, name this quantity that, for water, is approximately one gram per milliliter.**

ANSWER: density [accept specific kinds of density such as mass density; prompt on rho]  
<DB, Physics>

4. **This author translated one saying as “the voice of wayside pansies murmurs in these desultory lines” in a book of aphorisms collected from China and Japan. The speaker of a poem by this author declares, “What a tenderness! What a quilt have you spread at the feet of trees / And along the banks of rivers!” A poem by this author of *Fireflies* claims that children meet “on the seashore of endless worlds” and they (\*) “seek not forbidden treasures, they know not how to cast nets.” This poet declares, “let my country awake” in “a place in which the mind is without fear,” in a collection whose preface is by W. B. Yeats. That collection by this poet opens, “Thou hast made me endless, such is thy pleasure.” For 10 points, name this Bengali poet of *Jana Gana Mana* and *Gitanjali*.**

ANSWER: Rabindranath Tagore [or Robindronath Thakur]

<AT, World Literature>

5. *Description acceptable.* This action traditionally takes place after the Stripping of the Altar ceremony during a mass marked by the display of the Blessed Sacrament on the altar of repose. On a holy day named for this action, Catholics in India and Malta visit fourteen or seven churches after the Mass of the Lord's Supper. During the day named for this practice, the oil of the sick and the oil of catechumens are blessed in the Chrism Mass. Pope (\*) Francis broke precedent by performing this action upon youth prisoners, including two Muslims and two women. This practice's precedent was recorded in John 13, when Jesus performed this action on the disciples after the Last Supper. For 10 points, Maundy Thursday refers to what action involving the cleaning of a specific part of someone else's body?

ANSWER: foot-washing [accept cleaning of the feet; accept maundy until read; accept mandatum or pediluvium; prompt on answers with "washing," "cleaning," or "ablution" that do not mention feet]

<RW, Religion>

6. People from this colony are given humorous nicknames like "Judge Jumble" and "Puzzlecause" in a book that dubbed it "Lubberland" due to the supposed laziness of its residents. While fleeing this colony, the leader of a rebellion here went by the extremely subtle pseudonym "Tuscape Death." This colony lay to the south of a border that William Byrd described surveying in his *History of the Dividing Line*. Delegates in this colony became the first to call for independence by adopting the (\*) Halifax Resolves. Herman Husband fled this colony following Governor Tryon's victory at the Battle of Alamance. This colony's naval stores of pitch and turpentine inspired its nickname. For 10 points, the War of the Regulation took place in what colony, the site of Roanoke and home of the Tar Heels?

ANSWER: Province of North Carolina [prompt on Province of Carolina]

<KT, American History>

7. This concept, utopia, and order form a "thematic trilogy" according to the Haitian anthropologist Michel-Rolph Trouillot ("troo-YO"), who argued that Western anthropology fills a "slot" named for this concept. A book titled for this adjective compares a club for killing fish to a lace collar from a Baroque painting in its first chapter. In a visual pun, a pansy flower was the first cover image for that book titled for this adjective, whose chapter "The Science of the Concrete" contrasts the approach of the (\*) "engineer" with that of the "bricoleur." As a noun, this word names the trope of a man uncorrupted by civilization that appears in the work of Rousseau. Claude Lévi-Strauss wrote about the "mind" described by, for 10 points, what word that denotes a "noble" figure often imagined by ethnographies?

ANSWER: savage [or sauvage; or word forms like savagery; accept the savage slot, *The Savage Mind*, the noble savage, *La Pensée sauvage*, or le bon sauvage; prompt on wild or primitive]

<JB, Social Science>

8. Applying Kraitchman's equations to these modes for different isotopologues ("iso-topo-logs") allows the determination of molecular structure. Transitions from common lower-energy states can be used to find a constant named for these modes using the method of combination differences. Spectral lines of these modes are separated into P and R branches and have gaps of size (\*)  $2B$ . Energies of these modes are proportional to  $J$  times  $J$ -plus-one. Microwave spectroscopy is used to probe this type of motion due to its low energy. These modes, which couple to vibrational modes, have their energy levels distorted due to centrifugal forces. For 10 points, name this type of motion that corresponds to periodic movement about a central axis.

ANSWER: rotation [accept rotational modes or rotational spectroscopy]

<AF, Chemistry>

9. **Maurizio Seracini claimed that he found a long-lost one of these objects based on the cryptic nearby phrase “Cerca trova” (“CHAIR-ka TRO-va”). One of these objects contained a “yellow veil” of dust before work by John Brealey that was criticized by the Spanish press. These objects can be supported by the techniques of lining and cradling. A 2019 paper by Laura Hendriks et al. used two microsamples from an object of this type to detect a (\*) bomb peak of carbon-14 isotopes. After botched amateur work, one of these objects in Spain became nicknamed “Behold the Monkey.” Conservators discovered that dark varnish made an object of this type that was commissioned by a militia company appear to take place at nighttime. For 10 points, name these objects that are restored by institutions like the Prado.**

ANSWER: **paintings** [accept **murals** or **frescoes**; prompt on **artworks**] (The first clue refers to Da Vinci’s *The Battle of Anghiari* and the second to Velázquez’s *Las Meninas*.)

<CSI, Visual Arts>

10. **In a preface to this novel, its author recalls being inspired by “the History of the Inconstant Lover” and “the tale of the sinful founder of his race.” The authorship of this novel is misattributed in a review that examines its quoting of the line, “We rest – A dream has power to poison sleep.” That line is quoted in a scene from this novel where the protagonist climbs a glacier during a trip to the countryside. After he (\*) studies the behavior of a man who reads from *The Ruins of Empire*, a character in this novel asks for a female companion. This novel opens with Captain Robert Walton’s letters to his sister while on an expedition to the North Pole, and ends with a man mourning the dead body of his creator, Victor. For 10 points, name this Mary Shelley novel subtitled “the Modern Prometheus.”**

ANSWER: **Frankenstein** [or **Frankenstein; Or, The Modern Prometheus**] (Sir Walter Scott’s review assumed Percy Shelley wrote the novel.)

<EGR, British Literature>

11. **A military officer in this country protested low officer pay by leading the “saber noise,” in which 56 officers rattled their swords on the floor of this country’s legislature. In 1984, a treaty signed in Vatican City awarded this country control of Picton, Lennox and Nueva from its eastern neighbor. A military dictatorship in this country was unseated democratically by a big-tent coalition called the (\*) Concertación. Mario Palestro exclaimed, “¡Viva [this country] mierda!” in response to a Socialist election victory in this country. The Caravan of Death was organized by a leader of this country who bombed the presidential palace, La Moneda, during a U.S.-backed coup. For 10 points, name this country led by Salvador Allende and Augusto Pinochet.**

ANSWER: **Chile** [or Republic of **Chile**; or República de **Chile**]

<MM, World History>

12. **This city is home to the world’s largest Bohemian crystal chandelier, which is found in a palace named for its location in a “filled-in garden.” The Fossati brothers added eight enormous circular medallions to a building in this city; those medallions depict names in gold against a black background. Pointed towers surround the “Gate of Salutation” at a palace complex in this city that also contains the canopied “Gate of Felicity.” Blue (\*) Iznik tiles were used for a building in this city designed by an acolyte of Mimar Sinan. Medieval Genoese merchants built the conically-topped Galata Tower in this city. Isadore of Miletus designed a huge domed cathedral in this city that was converted into a mosque after a 1453 siege. For 10 points, what city contains the Topkapı Palace and the Hagia Sophia?**

ANSWER: **Istanbul** [accept **Constantinople** or **Byzantium**] (The first palace is the Dolmabahçe Palace.)

<CSI, Other Arts>

13. **Multiple copies of this protein are separated by *loxP* sites, placed on a transgene, and knocked-in as part of a technique that affects cells stochastically. Fusing calmodulin to this protein yields camgaroos and cameleons, which change conformation in response to calcium 2-plus. The discovery of an S65T mutation that increased the activity of this protein’s serine-tyrosine-glycine tripeptide earned Roger (\*) Tsien his share of the**

2008 Nobel Prize in Chemistry. This protein's beta barrel can be fused to other proteins to allow easy localization. Popular mutants of this protein increase quantum yield and change the emission wavelength of its central chromophore. For 10 points, name this protein discovered in the *Aequorea victoria* jellyfish, which glows a namesake color.

ANSWER: **GFP** [or **green fluorescent protein**; accept **XFP**, **RFP**, **BFP**, **YFP**, or **CFP**; accept **red**, **blue**, **yellow**, or **cyan fluorescent protein**]

<CSH, Biology>

14. **Sengen shrines at these locations venerate the blossom princess Sakuya-hime (“SAH-koo-ya-HEE-may”) as their highest kami. The blacksmith Kaveh led an insurrection that bound the evil king Zahak beneath one of these locations with the help of Freydu. The ability for ‘ōhelo berries to take root at these locations makes them sacred to a goddess who turned her sister’s lover into stone in a fit of rage. A Nahuatl myth relates how two examples of these locations were formed after Iztaccihuatl (“ees-tahk-SEE-waddle”) was told that her lover (\*) Popocatepetl (“po-po-ka-TAY-peddle”) had died in battle and collapsed in grief. The snow goddess Poli‘ahu is the rival of a goddess of these structures who lives in Kilauea. For 10 points, name these locations that are the home of Pele, creator of the Hawaiian islands.**

ANSWER: **mountains** [accept **volcanos**; prompt on Mt. **Damavand**, Mt. **Fuji**, or **Fujisan** by asking “what kind of place is that?”]

<KT, Mythology>

15. **This is the number of voice parts in J. S. Bach’s motet *Singet dem Herrn ein neues Lied* (“ZING-it dem hairn yne NOY-us leet”), which Wolfgang Amadeus Mozart heard when he visited Leipzig’s Thomasschule (“TOH-moss-shoo-luh”). Antonio Lotti’s most famous piece is his Credo in F’s *Crucifixus* written for this number of voice parts. Claudio Monteverdi’s piece *Il combattimento di Tancredi e Clorinda* is included in his final book of madrigals, which is of this number. This is the number of voice parts in the Osanna section of Bach’s (\*) Mass in B minor, as well as the number of choral voice parts in the *St. Matthew Passion*. It’s not five, but Classical voice leading discourages parallel movement spanning intervals of this number. The largest non-extended perfect interval is of this number. For 10 points, an octave is an interval of what number?**

ANSWER: **eight** [accept **eighths**]

<WJ, Auditory Arts>

16. **A member of this family ran backwards on a road paved with gold dust while holding the reins of a chariot containing a god. A tondo alternately named after the city of Berlin or this family depicts one of its members missing his face because of a *damnatio memoriae*. A cult to a sun god revolving around a black stone was moved from Emesa on the orders of a member of this family. This (\*) dynasty’s patriarch, who later died while campaigning against the Caledonians, secured the throne after defeating Clodius Albinus at the Battle of Lugdunum. An edict by a member of this dynasty made every free man a Roman citizen. Caracalla was a member of, for 10 points, what dynasty that preceded the Crisis of the Third Century and was founded by Septimius?**

ANSWER: **Severan** Dynasty [or **Severi**; accept the family of Septimius **Severus**]

<KT, Ancient History>

17. **John Lion’s commentary on this software was illegally distributed in universities to circumvent licensing restrictions. Aho, Weinberger, and Kernighan (“KERN-ih-han”) designed a script language for this software that was implemented with Yacc (“yak”) and built on earlier filters like the stream editor. Berkeley’s distribution of this software has been succeeded by FreeBSD. The Open Group frowns on calling things that adhere to POSIX (“PAUSE-ix”) standards (\*) “[this software]-like.” The first of its kind to be portable between different hardware, this software introduced the “everything is a file” paradigm. This software’s kernel was the first to be written in C, which was created for the development of this software. For 10 points, name this foundational operating system created by Bell Labs.**

ANSWER: UNIX [or UNIX systems; accept Unix-like operating systems, UNICS, or Uniplexed Information and Computing System; prompt on \*nix (“nix”); prompt on Berkeley Software Distribution, BSD, FreeBSD, or OpenBSD before read; do not accept or prompt on “Linux”]  
<KW, Other Science>

18. **Morley Callaghan’s memoir *That Summer in Paris* recounts engaging in this activity with an author who spat in his face. A character who took up this activity in college fantasizes about romance after reading the novel *The Purple Land*. While lodging at Hirsch’s rooming-house, a fatalistic retiree from this activity waits for his death by lying in bed fully clothed as Nick Adams warns him about the (\*) hitmen Max and Al. Ole Anderson used to practice this activity in the short story “The Killers.” After dumping Frances Clyne, a former champion of this activity at Princeton beats up the matador Pedro Romero and Jake Barnes for the affections of Lady Brett Ashley. Robert Cohn and Ernest Hemingway practiced, for 10 points, what gloved combat sport?**

ANSWER: boxing [accept prizefighting; accept boxers or prizefighters]  
<RW, American Literature>

19. **A member of this school of thought compared his style to honey smeared on a cup of bitter wormwood medicine. The founder of this pre-modern school of thought introduced the common example of a round tower appearing square in his argument that all sense perception is true, and is credited with introducing the problem of evil in David Hume’s *Dialogues Concerning Natural Religion*. A six-book poem written to popularize this school of thought explains that (\*) free will exists because atoms falling through the cosmos experience *clinamen* (“cly-NAY-men”), or swerve. The founder of this school of thought enjoyed a diet of barley bread and water and taught at a school called “the Garden.” Lucretius was a follower of, for 10 points, what school of thought that held that pleasure is the only good?**

ANSWER: Epicureanism [or anything indicating followers of Epicurus; prompt on atomism; prompt on hedonism]  
<JB, Philosophy>

20. **Theodore Ziolkowski argued that this genre’s classical form originated from a poem opening “hail to thee, mountain beloved, with thy glittering purple-dyed summit!” and titled “The Walk.” In a poem in this genre, a character names constellations like the “Rider” and “Fruit-Garland” before leading a youth to the mountains of primal grief. A poem in this genre was written after its author’s failed proposal to a nineteen-year-old girl in (\*) Marienbad. The speaker of a poem in this genre recalls “the grieving for Linos” and asks the reader to remember Gaspara Stampa. A poem in this genre asserts, “beauty is nothing but the beginning of terror,” after asking, “who, if I cried out, would hear me among the Angelic Orders?” For 10 points, name this genre of a Rainer Maria Rilke collection titled for Duino Castle.**

ANSWER: elegy [or elegien; accept “Marienbad Elegy” or *Duino Elegies*] (Goethe, the author of the “Marienbad Elegy,” was 73 years old when he proposed.)  
<RW, European Literature>

## Bonuses

1. Olivier de Clisson's execution of prisoners after sieges and enemy *chevauchées* ("shuh-vo-SHAY") launched in Brittany during the reign of this king earned him the nickname "the Butcher." For 10 points each:

[10h] Name this king who appointed Bertrand du Guesclin ("bair-TRAWN due gay-CLAN") as constable. This king's navy and a Castilian force under Ambrosio Boccanegra defeated the Earl of Pembroke's navy at the Battle of La Rochelle.

ANSWER: **Charles V** of France [accept **Charles the Wise** or **Charles le Sage**; prompt on **Charles**]

[10m] Early in his reign, Charles V was forced to sign the humiliating Treaty of Brétigny ("bray-teen-YEE") to ransom back his father John II, who was captured after this 1356 battle won by Edward the Black Prince.

ANSWER: Battle of **Poitiers** ("pwaht-YAY")

[10e] The Battle of Poitiers and the Treaty of Brétigny ended the Edwardian phase of this lengthy medieval conflict between England and France.

ANSWER: **Hundred Years'** War

<RW, European History>

2. In this poem, the speaker's statement "I hate a wasted journey – I am African," receives the response "HOW DARK" from a landlady, rendered in all capital letters. For 10 points each:

[10h] Name this poem that ends with the speaker asking, "wouldn't you rather see for yourself," after the landlady hangs up on them.

ANSWER: "**Telephone Conversation**"

[10e] "Telephone Conversation" was written by this Nigerian Nobel laureate, who also wrote the play *Death and the King's Horseman*.

ANSWER: Wole **Soyinka** ("WALL-ay SHOW-ying-ka") [or Akinwande Oluwole Babatunde **Soyinka**]

[10m] Soyinka created this dictator of Isma, who demands the chief Oba Danlola's submission. Segi presents the head of her father at the Festival of the New Yam to this character in a Soyinka play titled for his *Harvest*.

ANSWER: President **Kongi** [accept **Kongi's Harvest**]

<JVN, World Literature>

3. A subculture centered on customized vehicles of this sort is the subject of Mitsuo Yanagimachi's film *God Speed You! Black Emperor*. For 10 points each:

[10e] Peter Fonda uses an American flag-patterned vehicle of what type in Dennis Hopper's film *Easy Rider*?

ANSWER: **motorcycles** [or **motorbikes**; accept **chopper**s or **hogs**; prompt on **bikes** or **cycles**]

[10h] The taxi driver "Blacksta" uses a colorful motorcycle emblazoned with a literal black star in this 2018 film by Wanuri Kahiu, which was banned in her home country of Kenya for depicting the lesbian romance of Kena and Ziki.

ANSWER: **Rafiki**

[10m] Beyoncé and Jay-Z repopularized a film from this country, *Touki-Bouki*, by featuring its image of a motorbike decorated with a cow's skull in a 2018 photoshoot. The director of *Black Girl*, Ousmane Sembène, was from here.

ANSWER: **Senegal** (*Touki-Bouki* was directed by Djibril Diop Mambéty.)

<JB, Other Arts>

4. In the 8th century BCE, Lord Parshvanatha revived this idea that acts of violence have an effect on an individual's Karma. For 10 points each:

[10e] Name this principle of total nonviolence which states that hurting another is equivalent to hurting oneself, since all beings have a shared divine energy.

ANSWER: **Ahimsa**

[10m] Ahimsa was strengthened by this man in the 6th century BCE. This Jain figure's teachings were recorded by his chief disciple, Indrabhuti Gautama, in the Agamas.

ANSWER: Lord **Mahavira** [or Prince **Vardhamana**]

[10h] This type of Jain “fixed text” is a variety of Agama. The Kalpa one of these texts contains biographies of Lord Parshvanatha and Lord Mahavira, while the Tattvartha one holds the foundational beliefs of Jainism.

ANSWER: **sutra**

<AT, Religion>

5. This is the title of the second volume of a Neil Gaiman graphic novel in which an old man in the desert tells a story about Dream sending his lover Queen Nada to Hell for rejecting him. For 10 points each:

[10e] Name this title of a Henrik Ibsen play about Nora Helmer, who walks out on her marriage with Torvald.

ANSWER: A **Doll’s House** [or *The Doll’s House*]

[10h] In a short story by this author, a violinist becomes obsessed with a male sex doll named Julio. The title woman is implied to have poisoned her abusive husband Ambrose Ashley in this author’s novel *My Cousin Rachel*.

ANSWER: Daphne **du Maurier**

[10m] In this short story, a doll named Olympia is only able to say “Ah, ah!” in response to Nathanael’s declaration of love for her. This story is the subject of Sigmund Freud’s essay “The Uncanny.”

ANSWER: “The **Sandman**” [accept “Der **Sandmann**”]

<CM, European Literature>

6. Yalangtush Bahadur constructed the Sherdor and Tilla-Kori *madrassas* to go along with an earlier one built by Ulugh Beg in this city’s Registan Square. For 10 points each:

[10m] Name this city. During Nader Shah’s capture of this city, he failed to recover a previous ruler’s remains from the Gur-e-Amir mausoleum after the sarcophagus broke into two pieces.

ANSWER: **Samarkand**

[10h] Nader Shah conquered this state founded by Muhammad Shaybani that controlled Samarkand in the 18th century under the Astrakhanids. The Naqshbandi order of Sufism was founded in its namesake city.

ANSWER: Khanate of **Bukhara** [accept **Bukhoro** or **Buxoro**]

[10e] This conqueror made Samarkand the capital of his namesake empire in 1370. This man was known for building pyramids out of human skulls, and is commonly named for his disabled right leg.

ANSWER: **Timur** the Lame [or **Tamerlane**, or **Timur** Lenk]

<RW, World History>

7. The presence of gadolinium 3-plus reduces the ability of these cells to respond to mosmol stimuli by interfering with their stretch-inactivated channels. For 10 points each:

[10h] Name these neurons that depolarize in response to changes in their physical size. These cells can be found in the circumventricular VOLT organ, which lacks a blood–brain barrier.

ANSWER: **osmoreceptors**

[10m] Osmoreceptors trigger the release of antidiuretic hormone to regulate the expression of these channel proteins with six transmembrane helices. The discovery of this class of channel proteins earned Peter Agre (“AH-gree”) half of the Nobel Prize.

ANSWER: **aquaporins** [accept **aquaporin-1**, **AQP-1**, **aquaporin-2**, or **AQP-2**; prompt on water channels]

[10e] Low levels of ADH causes a disease called [this name] insipidus, whose sufferers produce large amounts of tasteless urine. By contrast, the disease called [this name] mellitus causes sugary urine due to a lack of insulin.

ANSWER: **diabetes** [or nephrogenic **diabetes** insipidus; accept type I or type II **diabetes** mellitus; prompt on NDI or DM]

<KT, Biology>

8. In a dissenting opinion on this case, Antonin Scalia argued that this case’s majority decision effectively adjudged opponents of same-sex marriage as “enemies of the human race.” For 10 points each:

[10h] Name this case whose plaintiff sought to claim a federal estate tax exemption that was denied to same-sex spouses. The decision for *Hollingsworth v. Perry* was released on the same day as this case.

ANSWER: *United States v. Windsor*

[10m] This justice was the deciding swing vote in *United States v. Windsor* and wrote the majority opinion for the case, in which this justice ruled Section 3 of the Defense of Marriage Act unconstitutional.

ANSWER: Anthony (McLeod) **Kennedy**

[10e] Justice Kennedy specifically argued that Section 3 of the Defense of Marriage Act violated this clause found in the Fifth Amendment. This clause concerns the legality of the deprivation of life, liberty, and property.

ANSWER: **Due Process** Clause

<EL, Social Science>

9. Using an experimental setup involving five concentric icosahedral shells, Williams, Faller, and Hill found that this law is correct to within 2.7 times 10-to-the-negative-16th. For 10 points each:

[10h] Name this law that is experimentally tested by attempting to measure a non-zero force on a particle inside two concentric spheres. Experimental tests of it also provide a stringent test of the photon mass via the Proca equation.

ANSWER: **Coulomb's** law [prompt on inverse-square law]

[10e] The metal spheres used to test Coulomb's law are this type of material contrasted with insulators. E-field lines are perpendicular to the surface of these materials, since their electrons move to cancel out external fields.

ANSWER: **conductors**

[10m] Coulomb's law itself was first established using one of these extremely force-sensitive devices also used for early measurements of big G. They are named for the twisting of their ends in response to an applied torque.

ANSWER: **torsion balance** [or **torsion pendulum**; prompt on partial answer; prompt on torsion spring, torsion fiber, or torsion bar]

<AF, Physics>

10. This artist depicts herself as the only standing woman in a group of women and children by the rocks in a watercolor inspired by *The Ballad of Sir Patrick Spens*. For 10 points each:

[10m] Name this artist of *The Ladies' Lament*. This artist's husband, Dante Gabriel Rossetti, depicts her as Beatrice in a Dante-inspired painting where she is delivered a white poppy by a red dove.

ANSWER: Elizabeth (Eleanor) **Siddal** (The painting is *Beata Beatrix*.)

[10e] Siddal posed in a cold bathtub to model as this character for a painting by John Everett Millais. Millais portrays this Shakespearean character as a woman drowning in a river, surrounded by flowers.

ANSWER: **Ophelia**

[10h] Mary Pinnock wears a black cloak and wilting rosebuds in two of this artist's photographs of Ophelia. This photographer created soft-focus portraits of Charles Darwin and Lord Tennyson.

ANSWER: Julia Margaret **Cameron**

<CM, Visual Arts>

11. Fanny Burney describes "maimed, wounded, bleeding, mutilated, tortured victims of this exterminating contest" in her journals about this battle. For 10 points each:

[10m] Name this battle during which Mrs. O'Dowd comforts a character whose brother, Jos, buys an overpriced carriage and horses in order to run away from it.

ANSWER: Battle of **Waterloo**

[10e] Burney's journals inspired the descriptions of the Battle of Waterloo in this William Makepeace Thackeray novel about Amelia Sedley and Becky Sharp.

ANSWER: **Vanity Fair**

[10h] Becky Sharp compares Sir Pitt to Lord Orville, who is a love interest in this Fanny Burney novel. The title woman of this novel enters London society and struggles to be recognized as Sir John Belmont's daughter.

ANSWER: **Evelina**

<CM, British Literature>



12. Answer the following questions about the rare technique of [emphasize] gas–*solid* chromatography, for 10 points each.

[10m] Since the stationary phase is a solid, interaction between the mobile phase and the stationary phase occurs via this process. An equation describing this process relates fractional occupancy to partial pressure of a gas under isothermal conditions.

ANSWER: **adsorption** [do not accept or prompt on “absorption”]

[10e] Gas solid chromatography is not a popular technique because mobile phases with this property tend to get stuck on the solid. Bonds have this property if their atoms have significantly different electronegativities.

ANSWER: **polarity** [or word forms]

[10h] The polarity problem in gas solid chromatography can be mitigated by using a less polar stationary phase, such as a porous form of this polymer. This polymer’s underlying monomer forms a common block copolymer with butadiene.

ANSWER: polystyrene [prompt on **SBS**]

<AF, Chemistry>

13. This author’s fury comes from “racial distortions,” “silence,” “stereotyping,” “defensiveness,” “betrayal, and co-optation” but will “transform difference ... into power” according to “The Uses of Anger.” For 10 points each:

[10h] Name this poet and author of the essay “Poetry Is Not a Luxury,” who changed her name to preserve its “evenness.”

ANSWER: Audre **Lorde** [accept Audrey Geraldine **Lorde**]

[10e] This former calypso dancer asked, “Does my sexiness upset you?” in her poem “Still I Rise” after she legally adopted her stage name. This feminist author also wrote *I Know Why the Caged Bird Sings*.

ANSWER: Maya **Angelou** [accept Marguerite Annie **Johnson**]

[10m] This author of the poetry collection *Appalachian Elegy* took her pen name to honor her great-grandmother. A Sojourner Truth speech inspired the title of this author’s book on race and gender, *Ain’t I a Woman?*

ANSWER: bell **hooks** [or Gloria Jean **Watkins**]

<PS, American Literature>

14. Rebecca Reed’s reports of mistreatment by these people may have inspired Maria Monk’s likely false claims about these people in Montreal. For 10 points each:

[10h] Name this profession. A structure housing several members of this profession was burned down in Charlestown, Massachusetts during riots that were triggered by the sermons of Lyman Beecher.

ANSWER: Catholic **nuns** [accept **sisters**]

[10m] Anti-Catholicism partly incited street violence in New York City between Irish Protestants and Catholics during the Orange Riots, leading to Thomas Nast’s campaign against this man for corruption gaining steam.

ANSWER: Boss **Tweed** [or William M. **Tweed**]

[10e] In 1855, nativist mobs of this organization terrorized Catholics during “Bloody Monday” in Louisville, Kentucky. Members of this party were instructed to respond with this party’s name when asked about it.

ANSWER: **Know Nothing** movement [or Native **American Party**]

<KT, American History>

15. This technique can become skewed towards individual inputs when the dimension increases. For 10 points each:

[10m] Name this statistical technique that predicts the output at a point by averaging the output of a subset of the training set. This conceptually-simple technique’s namesake constant can be increased to remove outliers.

ANSWER: **k-nearest neighbors** [or **k-NN**; accept **k-nearest neighbors** algorithm, regression, or classification]

[10e] The *k*-nearest neighbors method chooses the neighborhood for a point by minimizing this quantity, whose Euclidean definition is the length of a straight line between two points.

ANSWER: Euclidean **distance** [accept  $L_p$  **metric** or p-**norm**]

[10h] Reducing large datasets to prototype values allows this most efficient variety of  $k$ -nearest neighbors to be used without losing too much information. Cover and Hart showed that this variety has minimal error as part of their proof that bounds the error rate of  $k$ -nearest neighbors.

ANSWER: **1-nearest neighbor** [or **1-NN**; accept  $k$ -nearest neighbors when  **$k$  is one**, **nearest neighbor**, or **NN**]  
<DB, Other Science>

16. This politician encouraged the “TikTok family” to make a plan to vote during a December 2020 debate in which he was the only candidate on stage, because his opponent didn’t show up. For 10 points each:

[10e] Name this politician and documentary producer who became the youngest member of the U.S. Senate after defeating David Perdue in a Georgia runoff election.

ANSWER: Jon **Ossoff** [or Thomas Jonathan **Ossoff**]

[10m] During his campaign, Ossoff attacked Perdue for performing this action 2,596 times while in office, including with companies such as FireEye, BVX, and Cardlytics.

ANSWER: stock **trading** [accept word forms and close equivalents, such as **buying** and **selling** stock or securities, as well as insider **trading**]

[10h] Ossoff’s work on documentaries included 2015’s *Justice!*, an investigation of this African leader and former leader of the RPF, who has held office since succeeding Pasteur Bizimungu in 2000.

ANSWER: Paul **Kagame**

<EGR, CE/Geo/Other>

17. A debate with François Bordes (“bord”) over the meaning of variability in these objects provided the impetus for Lewis Binford’s theory of processual archaeology. For 10 points each:

[10e] Name this general type of object that humans first manufactured by “knapping” materials like flint. Jane Goodall discovered that non-humans use these things by observing chimpanzees fishing for termites with sticks.

ANSWER: **tools** [or **instrument**s; accept stone **tools** or hand **tools**; prompt on synonyms like **implements** or **utensils**; prompt on **technologies**, archaeological **artifacts**, or **assemblages**]

[10h] The Bordes–Binford debate concerned the stone tools of this Middle Paleolithic culture, which, like the earlier Acheulean industry, is named for its French type site. The Levallois (“luh-vall-WAH”) technique was used for this culture’s tools.

ANSWER: **Mousterian** (“moo-STAIR-ee-in”) complex [or **Mode III**]

[10m] The earliest known tool industry is named after this site in Tanzania, where Mary Leakey divided tools into categories like “choppers” and “scrapers.”

ANSWER: **Olduvai** Gorge [accept **Oldowan**]

<JB, Social Science>

18. Jean Chrétien (“crate-YENN”) led this party to a strong majority in the 1993 Canadian federal election. For 10 points each:

[10e] Name this centrist Canadian political party led from 1968 to 1984 by Pierre Trudeau.

ANSWER: **Liberal** Party of Canada [or Parti **libéral** du Canada]

[10m] Chrétien handily defeated the Progressive Conservative Party led by this prime minister. This prime minister, who was appointed across party lines as chairperson of Canada’s Supreme Court advisory board in 2017, was both the country’s shortest-serving and its first female prime minister.

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

[10h] Most of the Progressive Conservative Party’s seats in Western Canada were won by this right-wing populist party, led by Preston Manning. This party would eventually become the Canadian Alliance in 2000.

ANSWER: **Reform** Party of Canada [or Parti **réformiste** du Canada; do not accept or prompt on “Canadian Reform Conservative Alliance”]

<JVN, Other History>

19. In 2007, this composer premiered her first opera, *Alice in Wonderland*, which featured a libretto that was co-written by Asian-American playwright David Henry Hwang. For 10 points each:

[10h] Name this composer who wrote *Šu* (“shoo”) for *sheng* (“shung”) and orchestra in 2009 after being inspired by the virtuoso *sheng* player Wu Wei. This composer of *Santica Ekatela* also wrote a cello concerto inspired by *pansori* music.

ANSWER: Unsuk **Chin** [accept first and last names in either order]

[10e] Chin was born in this country, which is also home to the *pansori* music that she drew on for her cello concerto. Both this country and its northern neighbor consider the folk song “Arirang” one of their national anthems.

ANSWER: **South Korea** [or **Republic of Korea** or **ROK** or **Taehan-min’guk** or **Han’guk**; prompt on **Korea**]

[10m] Chin was awarded the 2004 Grawemeyer Award for a piece in this genre that was premiered by Viviane Hagner. Jennifer Higdon won the 2010 Pulitzer Prize for Music for a piece in this genre composed for Hilary Hahn.

ANSWER: **violin concerto** [prompt on **concerto**]

<WJ, Auditory Arts>

20. For the epigraph of *Principia Ethica*, G. E. Moore took the quote “everything is what it is, and not another thing” from a thinker with this title. For 10 points each:

[10m] Identify this title that the philosopher Joseph Butler is often known by. An Irish contemporary of Butler who also had this title argued for idealism in *Three Dialogues between Hylas and Philonous*.

ANSWER: Anglican **bishop** [accept **Bishop** Joseph Butler or **Bishop** George Berkeley; or The **Right Reverend**; prompt on **reverend**, **cleric**, **minister**, **priest**, or **father**]

[10e] Bishops Butler and Berkeley both wrote critiques of ideas found in *An Essay Concerning Human Understanding* by this thinker, whose *Two Treatises of Government* influenced the American Revolution.

ANSWER: John **Locke**

[10h] The influential Butlerian account of forgiveness claims that it occurs when we “renounce” this specific state. P. F. Strawson used “reactive attitudes” to argue for compatibilism in an essay titled for “Freedom and” this emotion.

ANSWER: **resentment**

<JB, Philosophy>