

PACE NSC 2022 - Round 15 - Tossups

1. Dunkerley's method mitigates this phenomenon by avoiding "whirling." A so-called "universal curve" shows how this phenomenon's maximal intensity occurs at the peak of a Cauchy-Lorentz ("KOH-shee-loh-RENTS") distribution. The value at which this phenomenon occurs, divided either by its "bandwidth" or by twice a coefficient denoted "D," gives the "Q-factor." The effects of this phenomenon are reduced by a 660-ton sphere in Taipei 101, which is an example of a (*) tuned mass damper. When people walk together, this phenomenon can cause bridges to wobble, though it was not the cause of the Tacoma Narrows collapse as often stated. A driving frequency close to the natural frequency causes, for 10 points, what phenomenon in which a system's amplitude becomes very large?

ANSWER: mechanical resonance [accept word forms; accept normal mode oscillation or harmonic oscillation; prompt on oscillation or vibration or similar]

<Joseph Krol, Science - Physics> ~23339~

2. Annegret Fauser's book on this ballet details how it originally was based around the Medusa legend and had the title *Daughter of Colchis*. Elizabeth Sprague Coolidge insisted that this ballet's score requires fewer than thirteen musicians so it could be premiered in a chamber setting. One character in this ballet puts a hat on the fingertips of a group of Followers who keep their hands raised throughout his entire sermon. Dancer (*) Erick Hawkins played the Husbandman at the premiere of this ballet, whose composer won the 1945 Pulitzer Prize. The seventh scene of this ballet borrows from the Shaker hymn "Simple Gifts." For 10 points, name this ballet choreographed by Martha Graham, with a score by Aaron Copland.

ANSWER: Appalachian Spring

<Michael Bentley, Fine Arts - Ballet/Dance> ~23681~

3. Leo Bogart wrote about the problem of "awareness" in these things and founded AAPOR to improve journalistic consumption of them. Competitive situations lead to an increased use in the short "brushfire" type of these things. Social desirability bias likely led to errant results in these things in the case of Tom Bradley. One of these things overseen by *Literary Digest* in 1936 suffered from (*) participation bias. Contact rates for these things have declined due to the decreased popularity of landlines. The largest academic center administering these things is Quinnipiac University. Rasmussen and YouGov figure near the top of ratings of organizations that conduct these things done by FiveThirtyEight. For 10 points, name these mechanisms for finding voter preferences.

ANSWER: public opinion polls [or opinion survey; or poll responses; accept answers like presidential polls or exit polls or phone polls or brushfire polls or tracking polls]

<Michael Bentley, Social Science - Sociology> ~23716~

4. Carol Berkin's book about women in this conflict details how Frederika von Riedesel was admired by those on both sides. Elizabeth Burgin was accused of breaking out POWs confined to prison ships during this conflict. One side in this war used the scalping of Jane McCrea as propaganda. During this conflict, the code name "355" was used by women who were part of the (*) Culper Spy Ring. After serving in this conflict as "Robert Shurtleff," Deborah Sampson received a full military pension. Mary Ludwig Hays helped load cannons and serve water during the Battle of Monmouth in this conflict, inspiring the legend of Molly Pitcher. For 10 points, name this conflict during which Betsy Ross supposedly made a flag for the Continental Army.

ANSWER: American Revolutionary War [accept answers like the War of American Independence]

<Michael Bentley, History - American - Pre-1865> ~23082~

5. This author's older sister, who wrote the collection *Lineage*, was discussed by him in autobiographical collections like *In My Father's Court*. In a story by this author, the attic-dwelling title character marries his homely neighbor Black Dobbe ("dobby") despite his obsession with studying the book *Ethics*. This author worked with Leah Napolin on a play about a woman who dresses as a boy in order to study religious law at a yeshiva. Many stories by this author of "The Spinoza of Market Street" are set in (*) Frampol, such as one whose title character discovers from his wife Elka that their six children are not his, prompting him to urinate into the bread he is baking. For 10 points, name this Polish-born Jewish author of *Yentl* and "Gimpel the Fool."

ANSWER: Isaac Bashevis Singer [accept Israel Joshua Singer prior to "Father's"]

<Joseph Krol, Literature - European - Short Fiction> ~23233~

6. In a story by this author, the urgent message "Beam me up" is relayed between two agents named after *Star Trek* characters. This author's story "Chekov and Zulu" appears in their collection *East, West*. In a novel by this author, a physician falls in love with a woman by examining parts of her body through the holes of a bedsheet. After being hit by a silver (*) spittoon, the protagonist of that novel by this author regains his memory in the jungle. In that novel by this author, the midwife Mary Pereira switches a character with large knees with the protagonist, whose telepathy is linked to his massive nose. Saleem Sinai is born just after Partition in – for 10 points – what author's novel *Midnight's Children*?

ANSWER: Salman Rushdie [or Sir Ahmed Salman Rushdie]

<Michael Bentley, Literature - World and Miscellaneous> ~23231~

7. The coefficient of coincidence measures the likelihood of interference in this process. Spo11 (S-P-O-"eleven") intentionally induces damage to begin this process, whose repair leads to mostly NCO sites, as well as CO sites through a double Holliday junction. Unequal instances of this process may, like gene conversion, result in gene duplication. This process is ectopic if it occurs between non-homologous sites. This process can occur in the pseudo·auto·somal region in men. This process finishes during the (*) pachytene ("PACKET"-een) stage at a chiasma (ky-AS-muh). The synapto·nema complex forms to enable this process during prophase I. For 10 points, what process during meiosis helps provide genetic diversity to germ cells by exchanging the genes of homologous chromosomes?

ANSWER: genetic recombination [or crossing over or crossover recombination; prompt on synapsis]

<Andrew Wang, Science - Biology> ~23942~

8. After a fire destroyed 16 ships in this city's port in 996 CE, the locals blamed the fire on Amalfi merchants and massacred over 100 Italians. An important source on medieval Jewish history is a synagogue in this city called Ben Ezra that preserved over 200,000 fragments of writing with Hebrew letters on them. During Umar's campaigns against the Byzantine Empire, one of his generals founded (*) Fustat, the predecessor to this city. Louis IX was captured at Fariskur while attempting to conquer this capital city during the Seventh Crusade. It's not in Syria, but this city was the final capital of the Fatimid empire and later became the seat of power for the Ayyubid dynasty under Saladin. For 10 points, name this capital of Egypt.

ANSWER: Cairo [or al-Qāhirah]

<Michael Bentley, History - World - Middle Eastern> ~22467~

9. According to the *Homeric Hymn to Demeter*, Gaia created this plant to assist Hades with the abduction of Persephone. In another story about the creation of this plant, the youth Ameinias is given a sword and instructed to commit suicide. This plant was created after the goddess Nemesis punished the child of the river god Cephissus and the nymph Liriope. The banks of the River (*) Styx abound with this flower, whose namesake spurned the nymph Echo and, in doing so, caused her death. This flower's creation fulfilled a prophecy that a man would live long if he never knew himself. For 10 points, name this yellow flower into which a Boeotian hunter was transformed after falling in love with his own reflection.

ANSWER: narcissus flower [or daffodil; or jonquil]

<Matthew Bollinger, RMP - Greco-Roman Mythology> ~23981~

10. To reduce these events, in 2020 Oregon passed a bill eliminating the 85th Percentile Rule and adopting new categories such as "urban mix." One technique for reducing a type of these events is the Dutch Reach. To reduce these events, Consumer Reports has advocated for mandatory adoption of active systems such as AEB. The severity of these events has increased due to the rise of the heavier crossover category. These events can be more deadly for women due to the (*) NHTSA's use of all-male dummies. As part of Sweden's Vision Zero plan to eliminate deaths from these events, many new median barriers were built. Deaths from these events were reduced through the Click It or Ticket campaign. For 10 points, a fender bender is what type of event?

ANSWER: car crashes [or car accident; or traffic fatalities; or pedestrian fatalities; or getting hit by a car; or dooring; or bike accidents; accept any answers involving automobiles and collisions; prompt on accidents or crashes]

<Michael Bentley, Current Events - World> ~23900~

11. One of these places is depicted in Modest Mussorgsky's prelude to *Khovanshchina*. The third movement of a piano concerto about one of these places opens with a *dizi* solo, and depicts its "wrath." During an Act III "scene" set at one of these places, Aida sings the aria "O patria mia." The folk song "The East is Red" is quoted in a piano concerto named for one of these places that is based on a cantata written by (*) Xian Xinghai. The *Hatikvah*, or the Israeli national anthem, borrows its melody from a piece depicting one of these places that sits to the west of the castle Vyšehrad. For 10 points, the "Vltava" second movement of Bedřich Smetana's tone poem *Ma vlast* depicts, for 10 points, what type of body of water?

ANSWER: rivers [accept specific rivers such as the Moscow River or the Yellow River or the Nile River or the Vltava River or the Moldau River; prompt on bodies of water before "water"]

<Jonathan Magin, Fine Arts - Music - Romantic> ~23785~

12. A large extrachromosomal element called a borg is found in some archaea which metabolize this substance, which the borg is believed to help enhance. Alexander Shilov's namesake bond activation system oxidizes this compound in a similar manner to enzymes called MMOs. In anoxic environments, this compound is anaerobically oxidized in a reaction coupled with reduction of nitrate or sulfate. Carbon monoxide is the final electron receptor in an anaerobic respiration pathway that produces this compound in archaea. This potent (*) greenhouse gas' global warming potential is about 30 times that of CO₂, and is released in significant amounts by the belching of cattle. For 10 points, name this simplest hydrocarbon.

ANSWER: methane [or CH₄]

<Eric Yin, Science - Chemistry> ~23853~

13. In the Philippines, the issuance of Emancipation Patents was the last phase in an operation by Ferdinand Marcos named for this resource. It's not oil, but Lazaro Cardenas broke up Mexican monopolies on the allocation of this resource via the *ejido* ("ay-HEE-do") system. An 1879 "monster meeting" in Claremorris prompted the formation of an organization named for this resource that advocated for an end to absenteeism. Charles Stewart Parnell led an Irish (*) "league" for redistributing this resource in favor of smallholders. Orders from General Sherman are the source of a promise for a mule and this resource. Vassals were granted this resource, sometimes called a fief, in many feudal systems. For 10 points, name this resource often measured in acres.

ANSWER: land [accept farms or farmland; prompt on property or housing; prompt on 40 acres by asking "what type of resource is that?"]

<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~23078~

14. In 2020, Scripta Maneant released a three-volume photobook of this building that sold for \$22,000. A tapestry designed for this building, *The Death of Ananias*, is replicated in a cartoon at London's V&A. Some scholars contend that too much carbon black was removed from works such as the *The Cumean Sibyl* in this building. Daniele da Volterra earned the nickname "Breeches Maker" for his (*) censorship work in this building. An Alberti church is present in a painting in this building by Perugino titled *The Delivery of the Keys*. In one fresco in this building, the index fingers of two figures almost touch to symbolize the *Creation of Adam*. For 10 points, name this building in the Vatican whose ceiling was painted by Michelangelo.

ANSWER: Sistine Chapel [or Sacellum Sixtinum; or Cappella Sistina; prompt on Apostolic Palace or Papal Palace or Palace of the Vatican or Palace of Sixtus V]

<Michael Bentley, Fine Arts - Painting - European> ~23053~

15. Neil Price's recent history of these people documents their fiasco at Monkwearmouth and argues that many of them were covered by tattoos and filed horizontal grooves into their incisors. Some of these people left behind a large amount of hacksilver at Cuerdale. These people built stone fortresses called longphorts. After a defeat, a leader of these people signed the Treaty of (*) Wedmore with the victor of the Battle of Edington. These people's armies may have included entranced warriors called berserkers. These people's Great Heathen Army was repelled by Wessex's King Alfred the Great in the 9th century. For 10 points, name these people noted for their longship-based raids on much of Europe.

ANSWER: Vikings [accept Norse people or Norsemen or Danes or Varangians; prompt on Scandinavians]

<Michael Bentley, History - European - Middle Ages> ~22887~

16. Despite not knowing how to drive, this character drives her drunk father back from Mexico, after which her mother-in-law stabs her with scissors. This character is sent across the country with a wrist tag that reads, "To whom it may concern" to live with a woman who owns a general store with Uncle Willie. This character narrates the book *All God's Children Need Traveling Shoes*. After moving to St. Louis, this character's brother (*) Bailey develops a stutter. This character becomes the first Black woman to work as a streetcar conductor in San Francisco after escaping the racist environment in Stamps, Arkansas. This woman narrates a memoir titled for a poem by Paul Laurence Dunbar. For 10 points, name this poet who wrote *I Know Why the Caged Bird Sings*.

ANSWER: Maya Angelou [or Maya Angelou; or Marguerite Annie Johnson]

<Michael Bentley, Literature - American> ~23122~

17. An essay collection titled for these animals by the author of *The Flamingo's Smile* contains a table charting the evolution of Mickey Mouse's cranial vault. Chris Packham has argued that "saving" these "evolutionary cul-de-sacs" is not cost effective due to their habitat needs. Wes McKinney developed a Python library named for these animals that is based around data frames. One of these animals is the mascot of a charity that forced the (*) World Wrestling Federation to change its name. A diplomatic gesture in 1972 sent two of these animals to a Washington, D.C. zoo. An essay collection by Stephen Jay Gould is titled for a thumb-like bone that helps these creatures eat bamboo. For 10 points, name these black and white bears native to South China.

ANSWER: giant pandas [or panda bear; accept *The Panda's Thumb* or pandas; prompt on bears]

<Michael Bentley, Other - Other Academic and General Knowledge> ~23051~

18. A name meaning "servant of" this figure was adopted by Richard Alpert, who popularized Indian spirituality among American hippies in books like *Be Here Now*. *Lila* named for this figure are performed on the nine nights of Navaratri, and are based on a retelling of his "acts" by the poet Tulsidas. Demands to build a temple at this figure's birthplace led to a mob destroying the Babri Masjid in 1992. Bharata placed this figure's (*) sandals on the throne during the years he and his brother Lakshmana spent exiled from their kingdom of Ayodhya. Monkeys supposedly built the islands of Adam's Bridge to help this figure reach Lanka, the home of the demon Ravana. For 10 points, name this avatar of Vishnu who rescues his wife Sita in a namesake epic.

ANSWER: Rama [prompt on Vishnu]

<Jordan Brownstein, RMP - Hinduism> ~24006~

19. A man in this short story states that he is "ready to carve a flock of geese" when a woman asks him to carve the goose that has been served for dinner. In this story, a woman presses the protagonist about why he goes on cycling tours through France and Belgium instead of visiting his own country and also criticizes his pieces for *The Daily Express*. In this story, Freddy Malins arrives (*) "screwed" to a Christmas party where the main character gives a speech labeling his aunts Kate and Julia, and his cousin Mary Jane, the "Three Graces." At the end of this story, the protagonist is shocked to learn about his wife Gretta's former lover, Michael Furey. For 10 points, name this story about Gabriel Conroy that concludes James Joyce's *Dubliners*.

ANSWER: "The Dead"

<Sameen Belal, Literature - British - Short Fiction> ~17432~

20. These features are anomalously high in helium-3 drawn from a primordial reservoir. W. J. Morgan established many modern ideas of these features, which are often associated with negative anomalies in shear velocity. The bases of these features are roughly fixed and thus provide a means of estimating true polar wander. The arrival of these features at the lithosphere coincides with a period of (*) plate extension which allows melt to penetrate at the site of traps. The heads of these features broaden as their tails retract from the D" ("D double prime") layer. The motion of plates over these features produces traces like the Emperor Seamount Chain. For 10 points, name these hot convective flows believed to cause hotspot volcanism.

ANSWER: mantle plumes [or plume hypothesis; accept megaplumes; accept hotspots before mentioned; prompt on volcanoes before "volcanism"]

<Kevin Wang, Science - Earth> ~23695~

21. A reclusive poet who built a stone cottage in this state called Tor House described America settling "in the mould of its vulgarity, heavily thickening to empire" in "Shine, Perishing Republic." A newspaper in this state published Charles Bukowski's column "Notes of a Dirty Old Man." Kenneth Rexroth organized a raucous poetry reading in this state at Gallery Six. The speaker asks, "Will we walk all night through (*) solitary streets?" in a poem set in this state that describes encounters with Federico García Lorca and Walt Whitman. Lawrence Ferlinghetti founded the City Lights Bookstore in this state, which is the setting of an Allen Ginsberg poem about a supermarket. For 10 points, Beat Generation poets were responsible for what state's San Francisco Renaissance?

ANSWER: California [accept "A Supermarket in California"]

<Caleb Kendrick, Literature - American> ~24177~

PACE NSC 2022 - Round 15 - Bonuses

1. For 10 points each, identify the following about Japanese manufacturing in the 20th century.

[10] Japan was once a leading exporter of products made from this material. Rayon was originally called the "artificial" version of this material that comes from worms.

ANSWER: silk [accept Silk Road]

[10] This Secretary of State's joke that postwar Japan's first export should be cocktail napkins mostly came true. This man's brother was the first head of the CIA.

ANSWER: John Foster Dulles [do not accept or prompt on "Allen Dulles"]

[10] Other early postwar goods were toys of this product that the Kosuge Toy Manufacturing Company made from tin cans. The suffix "ney" ("nee") is added to the name of this vehicle in a portmanteau common on streets in the Philippines.

ANSWER: jeep [or U.S. Army Truck; accept Willys MB or Ford GPW or jeepney]

<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~18182~

2. A slow resting heart rate is part of Cushing's triad that occurs in response to an increase in this quantity. For 10 points each:

[10] Name this quantity, which can be lowered to normal levels by a shunt procedure or lumbar puncture.

ANSWER: intracranial pressure [or ICP]

[10] Lumbar punctures lower intracranial pressure by removing this substance from the body. The arachnoid mater ("mah-tur") and the pia mater ("mah-tur") are the two meninges that surround this substance.

ANSWER: cerebrospinal fluid [or CSF]

[10] This Greek physician may have been the first to identify cerebrospinal fluid, writing on "water surrounding the brain." His namesake oath begins "first, do no harm."

ANSWER: Hippocrates of Kos [or Hippocrates II; accept Hippocratic Oath]

<Benjamin Chapman, Science - Biology> ~18939~

3. An author with this surname caricatured her ex-lover as the protagonist of her Gothic novel *Glenarvon*. For 10 points each:

[10] Give this surname. Two authors who shared this surname collaborated on the children's book *Tales from Shakespeare*.

ANSWER: Lamb [accept Lady Caroline Lamb or Charles Lamb or Mary Lamb]

[10] The author of *Glenarvon*, Caroline Lamb, had an affair with this poet, whom she described as "mad, bad, and dangerous to know." This Romantic poet wrote "She Walks in Beauty" and *Childe Harold's Pilgrimage*.

ANSWER: Lord Byron [or George Gordon]

[10] Caroline Lamb parodied Byron's writing style in a poem titled for a "New" version of this poetic structure, which was referred to as *fit* in Old English. This poetic structure also titles a long, modernist poetic work partly written from a Pisan prison.

ANSWER: cantos [accept *The Pisan Cantos*] (by Ezra Pound)

<Joseph Krol, Literature - British - Poetry> ~19081~

4. This complex was designed by Raymond Hood. For 10 points each:

[10] Name this Art Deco building complex in New York home to Paul Manship's cast bronze sculpture of Prometheus. Diego Rivera's *Man at the Crossroads* mural was briefly located at this complex.

ANSWER: **Rockefeller Center** [antiprompt on Radio City Music Hall or 30 Rockefeller Center or 30 Rockefeller Plaza or RCA Building or GE Building]

[10] Isamu Noguchi's only work in this material, *News*, was created for Rockefeller Center. The Museum of Modern Art owns flatware designed by Ward Bennett made from this alloy, a cheaper alternative than silver.

ANSWER: **steel** [accept stainless **steel**]

[10] Edward Trumbull used this material to accent the rondels in the elevators at Rockefeller Center. Johan Christian Bjercknes and Jean Heiberg designed a phone made of this first commercially viable plastic.

ANSWER: **bakelite** [or **Polyoxybenzylmethyleneglycolanhydride**]

<Michael Bentley, Fine Arts - Miscellaneous> ~18086~

5. A 1966 book co-authored by this economist and William Bowen noted that although the productivity of a string quartet has not increased since the 19th century, wages of classical musicians have exploded. For 10 points each:

[10] Identify this economist who names a "cost disease."

ANSWER: William **Baumol** [or William Jack **Baumol**]

[10] Baumol's cost disease argues that the price of these things outpaces the price of goods. The tertiary sector of the economy is also named for these intangible acts, examples of which include haircuts.

ANSWER: **services** [accept **service** sector]

[10] Steven Perlstein has argued that Baumol's cost disease has led to more of this type of spending, which John Maynard Keynes argued should be increased during recessions to increase aggregate demand.

ANSWER: **government** spending [or **government** expenditure; accept **federal** spending; prompt on discretionary spending by asking "who is doing the spending?"; anti-prompt on deficit spending or government borrowing]

<Michael Bentley, Social Science - Economics> ~18298~

6. In this people's myth system, the world was originally made of water, until a god descended on a golden chain with a snail shell full of sand. For 10 points each:

[10] Name this ethnic group. In this people's creation myth, the world is created from dirt spread by a five-toed chicken.

ANSWER: **Yoruba** people [prompt on Nigerian people]

[10] The creator of humanity in Yoruba religion, Obatala, was one of these spirits. These servants of Olodumare are also venerated in many religions of the West African diaspora.

ANSWER: **orishas**

[10] The popular orisha Shango was a god of this domain. Zeus and Thor were also gods of this natural phenomenon.

ANSWER: **lightning** [or **thunder**; or **thunderbolts**; or **thunder**storms; prompt on the sky or heaven; prompt on the weather]

<Matthew Bollinger, RMP - World Mythology> ~19195~

7. One story by this author opens "on the front porch at Frank Martin's drying-out facility" and describes J.P., a drunk who is "also a chimney sweep." For 10 points each:

[10] Name this American author of the short story "Where I'm Calling From," which appears in his collection *Cathedral*.

ANSWER: Raymond **Carver** [or Raymond Cleve **Carver** Jr.]

[10] Robert, a character in the title story of Raymond Carver's *Cathedral*, has this trait. Late in life, John Milton dictated his writing to his daughters because he suffered from this affliction.

ANSWER: **visually impaired** [or **blind**ness; accept answers like **glaucoma** or word forms for **visual impairment**]

[10] Like Carver, this author was a guest editor of an edition of The Best American Short Stories. Cowboys Ennis del Mar and Jack Twist develop a gay relationship in this author's story "Brokeback Mountain."

ANSWER: Annie **Proulx** ("**PRU**") [or Edna Ann **Proulx**; or E. A. **Proulx**]

<Michael Bentley, Literature - American> ~18900~

8. After becoming one of the first Canadian women to become a doctor, this scientist left to research in Berlin due to a lack of opportunities for women. For 10 points each:

[10] Name this scientist, who is the second namesake of an equation that states reaction velocity equals V-max times substrate concentration over a namesake constant plus substrate concentration.

ANSWER: Maud **Menten**

[10] The Michaelis–Menten equation describes the namesake kinetics of these biocatalysts.

ANSWER: **enzymes** [accept **enzyme** kinetics]

[10] Maud Menten also was the first person to use electrophoresis to observe differences in the hemoglobin of sickle-cell patients. In spite of that, this developer of orbital hybridization theory received credit; this man also determined that hemoglobin changes conformation upon binding to oxygen.

ANSWER: Linus **Pauling**

<Benjamin Chapman, Science - Chemistry> ~18530~

9. Answer the following about the spread of Buddhism throughout the Indian subcontinent, for 10 points each:

[10] This "great" ruler of the Mauryan empire converted to Buddhism after waging a brutal war in Kalinga.

ANSWER: **Ashoka** the Great

[10] This empire that was established by the Yuezhi hosted the Fourth Buddhist Council, at which the scripture of Mahayana Buddhism was compiled. This empire's ruler Kanishka built a massive stupa in present-day Peshawar.

ANSWER: **Kushan** empire

[10] The Buddhist university at Nalanda grew under the patronage of the Pala dynasty, which was centered in this region. Much later, this region's *nawab* Siraj ud-Daulah locked POWs in a dungeon in Fort William.

ANSWER: **Bengal** [or **Bengal** presidency; accept West **Bengal**; do not prompt on or accept "Bangladesh"]

<Hari Parameswaran, History - World - Asian> ~19070~

10. This movement's middle section features muted trumpets holding an E minor and G-sharp minor polychord under strings and celesta arpeggios. For 10 points each:

[10] Name this final movement of a 1916 suite. It ends with a wordless women's chorus repeating a two-note motif as a door is slowly closed for a "fade-out."

ANSWER: "**Neptune**, the Mystic" [prompt on "The **Mystic**"]

[10] "Neptune, the Mystic" is the last movement of this Gustav Holst suite that begins with the movement "Mars, the Bringer of War".

ANSWER: *The **Planets***

[10] Both "Neptune, the Mystic" and "Mars, the Bringer of War" are in this unusual time signature. The second movement of Tchaikovsky's *Pathétique* Symphony has a "limping waltz" in this time signature.

ANSWER: **5/4** ("**five-four**")

<Benjamin Chapman, Fine Arts - Music - 1900 to 1970> ~18738~

11. Sandra Faber and grad student Robert Jackson provided an empirical relationship between this quantity's dispersion and the luminosity of an elliptical galaxy. For 10 points each:

[10] Name this quantity which is roughly constant with distance from a galaxy's center.

ANSWER: radial **velocity** [accept stellar **velocity dispersion** or galactic **rotation curves**]

[10] Vera Rubin's observation of flat rotation curves indicated that visible mass was scarce in this region. There are essentially no new stars formed in this region, which houses globular clusters.

ANSWER: galactic **halo** [accept, but DO NOT REVEAL, dark matter **halo**]

[10] This elusive material provides much of the mass needed to explain the nature of galactic rotation but does not interact with light, making it difficult to study.

ANSWER: **dark matter**

<Kevin Wang, Science - Astronomy> ~18802~

12. God commands the prophet Ezekiel to do some very odd things. For 10 points each:

[10] In Ezekiel 4, God commands the prophet to take a brick and build a miniature model of a siege against this city, whose Temple was later destroyed by Nebuchadnezzar II.

ANSWER: **Jerusalem**

[10] God commands Ezekiel to lie on his right side for this many days to represent the number of years of punishment awaiting Judah. The Israelites spent this number of years wandering the wilderness, and the heavens rained for this many days during Noah's flood.

ANSWER: **forty**

[10] In Chapter 5, God commands Ezekiel to take this stuff and burn a third of it, cut up a third of it with a sword, and scatter a third to the wind.

ANSWER: Ezekiel's **hair** [accept Ezekiel's **beard**]

<Jon Suh, RMP - Hebrew Bible> ~19302~

13. Discriminatory housing policies forced most Black residents in this city to live in its Toxteth ("TOX-tith") neighborhood. For 10 points each:

[10] Name this English city that in the 18th century controlled a fifth of the Atlantic slave trade. An ardent defender of slavery from this city, James Penny, names a street later immortalized in a pop song.

ANSWER: **Liverpool** [The song is "Penny Lane" by the Beatles.]

[10] A government inquiry found that this city's police were "institutionally racist" following the 1993 murder of Stephen Lawrence. Boris Johnson served as mayor of this city.

ANSWER: **London**

[10] Black people in this city were largely forced into the St. Paul's neighborhood. A notorious slaver from this city, Edward Colston, had his statue tossed into its harbor in 2020.

ANSWER: **Bristol**

<Michael Bentley, History - European - 1900+> ~18198~

14. A David Lewis paper about the "paradoxes" of this action uses the sentence "I can speak Finnish" to illustrate how "can" is equivocal in meaning. For 10 points each:

[10] Identify this action which, if possible, would seemingly let you kill your grandfather, thereby preventing your birth.

ANSWER: **time travel** [accept clear knowledge equivalents like **going back in time**]

[10] Time travel may allow a "backwards" form of this relation, which Max Black argued against via his "bilking argument." A counterfactual theory of this relation was proposed by David Lewis.

ANSWER: **causation** [accept word forms like **causality**]

[10] This logician's solution to the Einstein field equations established the existence of closed timelike curves possibly supporting time travel. He also names two incompleteness theorems.

ANSWER: Kurt **Gödel**

<Caleb Kendrick, RMP - Philosophy> ~18987~

15. After his wife leaves him, a member of this family ends up cutting off three of Pedro Tercero's ("ter-SAIR-oh's") fingers. For 10 points each:

[10] Name this fictional family who live at the estancia ("ess-TAN-see-ah") Las Tres Marías. In *The House of the Spirits*, this family's member Esteban marries Clara del Valle ("VIE-ay") rather than Rosa the Beautiful.

ANSWER: Trueba ("troo-AY-bah") family

[10] Pedro Tercero's fingers are cut off in this Chilean author's novel *The House of the Spirits*.

ANSWER: Isabel Allende ("aye-END-ay")

[10] Four children cut off their sister's head in "The Decapitated Chicken," a horror story by this country's author Horacio Quiroga ("oh-RASS-ee-oh kee-ROH-gah"). In 1973, Allende fled Chile with a copy of *Open Veins of Latin America*, a book by this country's author Eduardo Galeano ("gal-ay-AH-noh").

ANSWER: Uruguay [or Oriental Republic of the Uruguay]

<Joseph Krol, Literature - World and Miscellaneous> ~18815~

16. A grotesque terracotta caricature of Hippolyte Abraham Dubois is part of this artist's *Célébrités du Juste Milieu* series. For 10 points each:

[10] Name this French artist. A working-class woman holds a sleeping child next to an older woman carrying a basket in the foreground of an 1863 painting by this artist.

ANSWER: Honoré Daumier [or Honoré-Victorin Daumier] (the painting is *The Third-Class Carriage*)

[10] Daumier was arrested for an unflattering lithograph of a holder of this office sucking up the country's riches. Hyacinthe Rigaud painted a lavish portrait of an earlier holder of this office wearing a coat decorated with fleurs de lys.

ANSWER: King of France [or King of the French; or French monarch] (the Rigaud portrait was of Louis XIV)

[10] An old man looks down at the table in a Daumier painting of this activity. Marcel Duchamp stopped making art to focus on this activity.

ANSWER: playing chess [prompt on answers like playing a board game]

<Michael Bentley, Fine Arts - Painting - European> ~18721~

17. The San Blas Islands off the north coast of this country remain under the semi-autonomous control of its Kuna people. For 10 points each:

[10] Identify this country whose port of Cristóbal once had a large foreign community and an artillery post called Fort De Lesseps.

ANSWER: Panama [or Republic of Panama]

[10] Many of the wealthiest Panamanians live on one of these structures near Panama City called Ocean Reef. Other examples of these structures include The World off the coast of Dubai.

ANSWER: artificial island [or artificial archipelago; or man-made islands or ground fill islands or land fill islands or islands made from land reclamation or answers like that; prompt on islands or archipelago or artificial cities or artificial land formations]

[10] The Ocean Flower artificial island project off the coast of this Chinese province is slated to host no fewer than 28 museums. This province is the both the southernmost and least populous of China's provinces.

ANSWER: Hainan

<Michael Bentley, Geography - World> ~17890~

18. Because these items required an extreme amount of fabric to create, they were seen by some as wasteful and extravagant during a time of war. For 10 points each:

[10] Identify these articles of clothing popular among Black and Latino youth in the 1930s. Men wearing these clothes were targeted in a namesake 1943 riot.

ANSWER: **Zoot Suits** [accept **Zoot Suit** riots; prompt on **suits**]

[10] The Zoot Suit riots took place in this city, where racial tensions erupted during the 1992 Rodney King riots.

ANSWER: **Los Angeles** [or **LA**]

[10] Los Angeles's Latino population grew greatly in the 1940s thanks to this federal program. Harlon Carter and Joseph Swing forcibly deported this program's participants in the 1950s.

ANSWER: **Bracero** program

<Michael Bentley, History - American - 1865-1945> ~17918~

19. Dissolving a mesogen in a solvent can produce the "lyotropic" type of these materials, which are contrasted with their "thermotropic" type. For 10 points each:

[10] Name these materials which, despite having long-range order, still flow somewhat freely. They are the "LC" in "LCD displays."

ANSWER: **liquid crystals** [accept lyotropic **liquid crystals** or thermotropic **liquid crystals**]

[10] LCD displays often use liquid crystals in this phase, which is contrasted with the smectic phase. In this phase, rod-like molecules have long-range orientational order, but not positional order.

ANSWER: **nematic** phase [or **nematic** liquid crystals]

[10] Liquid crystals exhibit this anisotropic property, in which they have different indices of refraction depending on the direction of incident light.

ANSWER: **birefringence** [or **birefringent**]

<Joseph Krol, Science - Physics> ~18268~

20. This author's stock character of the lustful old man, or *senex amator*, is exemplified by Lysidamus from his play *Casina*. For 10 points each:

[10] Name this Roman playwright of *The Pot of Gold* and *Miles* ("MEE-lez") *Gloriosus*.

ANSWER: Titus Maccius **Plautus**

[10] Plautus' stock characters include a "clever" one of these people. The writers Terence and Aesop were both this type of person before they were manumitted.

ANSWER: **slaves** [or **enslaved** people or clear equivalents; or **servus** or **manicinium**]

[10] A slave called Messenio gets embroiled in a series of confusions concerning the title identical twins in this play by Plautus, which was the basis for Shakespeare's *Comedy of Errors*.

ANSWER: **Menaechmi** ("men-IKE-me") [or *The Brothers* **Menaechmus** or *The Twins* **Menaechmus** or *The Two Menaechmuses*]

<Joseph Krol, Literature - European - Drama> ~18248~

21. These structures shrink in response to abscisic acid. For 10 points each:

[10] Name these cells which bend when they are turgid, which occurs after the entry of potassium ions in response to phototropin activation.

ANSWER: **guard cells**

[10] The size of guard cells determine whether or not one of these pores found in leaves are opened or closed.

ANSWER: **stomata**

[10] The process of water's motion through a plant and diffusion through the stomata is given this name.

ANSWER: **transpiration** [accept **evapotranspiration**]

<Andrew Wang, Science - Biology> ~19303~