

1. After a dismissal from politics, this man started his comeback by kidnapping his 14-year-old daughter from his wife and forcibly marrying her to Sir John Villiers. This longtime rival of Francis Bacon started his career as Robert Cecil's hatchet man, destroying the careers of Walter Raleigh and Robert Devereux. In Parliament, he irked James I by introducing the Statute of Monopolies to reform patent issuance and challenging James' right to judge Fuller's Case. This man chaired the committee that drafted the 1628 (*) Petition of Right, a testament to his belief that the Stuart monarchs were bound by the Magna Carta. For 10 points, name this 17th-century English jurist who argued for the superiority of the common law to monarchical authority.

ANSWER: Edward Coke

2. Like an earlier work by the same composer, this work's final section quotes the German tune *Grossvater Tanz*, which it refers to as a theme from the 17th century. Its opening is reworked from the composer's never-completed set of variations on a theme of Schubert. This work includes an intermezzo honoring Niccolò Paganini. It includes a three-bar long section with no key signature or tempo marking, which was never meant to be played; that section is called (*) Sphinxes. This work includes musical cryptograms using sequences of notes representing the letters A-S-C-H in various combinations, and several of its sections are named after *commedia dell'arte* characters. For 10 points, name this set of solo piano pieces by Robert Schumann representing a pre-Lent celebration.

ANSWER: Carnaval [or: Robert Schumann's Opus 9]

3. In *Cannery Row*, Steinbeck replaces a key word of this text with the word *nature* and inserts mentions of the coyote, the common brown rat, the English sparrow, the house fly and the moth. Lawrence Ferlinghetti wrote a parody of this text which ends with the exhortation *Oh, man* and which he read aloud during *The Last Waltz*. Bits of this text and the phrase *Life is very long* are interspersed between the stanzas of the final section of (*) T.S. Eliot's *The Hollow Men*. An old waiter recites a bastardized version of this text after explaining the inadequacies of bodegas to his impatient young colleague in Ernest Hemingway's *A Clean Well-Lighted Place*. For 10 points, name this text which Hemingway rendered as *Our nada who art in nada, nada be thy name*.

ANSWER: the Lord's Prayer [or: Our Father, Pater Noster]

4. This mathematician's thesis *On Denumerability in Topology* contains his namesake lemma: every nonempty collection of finite character has a maximal set with respect to inclusion. This mathematician built on Quenouille's (qwen-wheeze) jackknifing method while championing exploratory data analysis, which he literally wrote the textbook on in 1977. A test for pairwise *a posteriori* multiple comparisons named for this mathematician computes an (*) honest significant difference, or HSD, variable, and is a common post hoc test used with ANOVA. You can thank this mathematician for inventing the box-and-whisker plot. For 10 points, name this mathematician that popularized the fast Fourier transform after publishing an algorithm with James Cooley.

ANSWER: John Tukey [or: John Wilder Tukey]

5. In Celtic myth, this type of event, signaled by a bell tolling, turns the Children of Lir from swans into humans. This kind of event happens at the halfway point of *Njal's Saga* as a consequence of Thangbrand traipsing around Iceland stabbing people. This type of event is allegorically depicted in the final *runo* of an epic poem, in which an old man sails away on a copper boat after being accused by a (*) baby he sentenced to death. This kind of event, which coincides with Oisín's return from Tir na Nog, is treated allegorically in Marjatta cycle that ends the *Kalevala*. In Ireland, this type of event is enacted by a British boy enslaved by pirates who uses the shamrock to illustrate his ideas. For 10 points, identify this type of mass cultural shift in which a people abandons its pagan gods to worship Jesus.

ANSWER: **Christianization** [or: **conversion to Christianity**, **adoption of Christianity**, **adoption of Catholicism**, obvious equivalents; prompt on: **conversion** to a new religion , **end of paganism**]

6. A parameter for this process can be calculated using the on-shell recursion method of MHV vertex expansion. In the maximally helicity violating configuration, a parameter for this process can be calculated using the Parke-Taylor formula, which is easily obtained from the BCFW recursion relations. The ket of a wavefunction, ψ , after this process is equal to a retarded Green's function, or resolvent operator, times the potential, times ket ψ , plus ket ϕ , an unperturbed solution to the Schrödinger equation, according to the (*) Lippmann-Schwinger equation. A sum of Feynman diagrams organized perturbatively in the loop-expansion can be used to calculate its amplitude, from which one can calculate the differential cross section. For 10 points, name this process in which particles collide and change trajectory.

ANSWER: quantum **scattering** [prompt on: particle **collisions**]

7. A substance named for Turnbull has the exact same chemical composition as this substance, although the two were once thought to be distinct. This substance was first created when contaminated potash was mixed with cochineal by a man named Diesbach. People affected by a stolen radiotherapy device in Goiania, Brazil were treated with this substance, since it neutralizes cesium-137. Max (*) Perls developed a staining technique that detects iron by using this substance. Pierre Macquer decomposed this substance into iron and hydrogen cyanide. This substance, which largely replaced the extremely expensive ultramarine, was used to depict the sea in *The Great Wave off Kanagawa*. For 10 points, name this dye used in the uniforms of Frederick the Great's army.

ANSWER: **Prussian blue** [or: **Berlin blue**]

8. In the first chapter of this book, God commands **be not afraid, neither be thou dismayed: for the lord thy God is with thee whithersoever thou goest**. It describes a near war that is averted when one side explains that a great altar was merely built as a model to show their children. In this book, a petty thief is stoned to death with his whole family after being blamed for the death of thirty-six men. An angel carrying a sword commands its title character to remove his shoes. Other events related in this book include a hailstorm that destroys Azekah, a prostitute named (*) Rahab aiding a pair of spies, and God heeding the title man when asks that the sun be halted for a day. For 10 points, name this book whose title character sacks the cities of Canaan after succeeding Moses as leader of the Israelites.

ANSWER: Book of **Joshua**

9. A doctor says that this character is representative of the beginning of the coming universal wish not to live. After this character's suicide, an organist is heard playing Truly God is loving unto Israel. When he watches a procession of people in red robes during a Remembrance Day celebration, he remarks that it looks like Judgment Day. This character's grandparents send him alone on a ship from Australia to England. This character's actions lead his (*) stepmother to resume her relationship with Richard Phillotson. This character hangs himself and two other children, leaving a note saying Done because we are too menny. For 10 points, name this morose son of Jude in *Jude the Obscure*, whose nickname suggests that he is wise beyond his years.

ANSWER: Little **Father Time** [or: **Little Jude** Fawley; prompt on: **Fawley** ; before Jude is mentioned, prompt on: **Jude's son** , descriptions]

10. An incident at one of these places was investigated by the Agrava Board and resulted in the death of Communist hitman Rolando Galman. In response to a campaign at one of these facilities, 75-year-old Dora Bloch was shot by army officers at a hospital. The Tijuana Cartel killed Cardinal Juan Jes s Posadas Ocampo at one of these places after mistaking him for the head of the Sinaloa Cartel. After several Montoneros and (*) Peronists gathered at one of these places, right-wing snipers shot into the crowd during the Ezeiza massacre. The death of Benigno Aquino, Jr. at one of these places helped spark anti-Ferdinand Marcos sentiments in the Philippines. An Israeli raid that led to the death of Yonatan Netanyahu freed nearly 150 hostages at one of these places in Entebbe. For 10 points, identify these facilities, one of which in Tenerife was the site of a deadly accident involving two Boeing 747s.

ANSWER: **airports**

11. One photograph by this artist depicts the fingers and face of a man emerging from a manhole. He wrote a book of poetry titled after another of his photographs, which depicts a malnourished Brazilian boy named Flavio. He photographed three black clad women with unfocused faces in the background as a white-blouse wearing Ingrid Bergman stares into the camera. On his first day of employment with the Farm Security Administration, he took his famous photograph of a janitor standing in front of an American flag holding a broom and a mop. This photographer of (*) American Gothic was the first African-American staff photographer for *Life* magazine. For 10 points, name this photo-essayist who adapted his own coming of age novel in the film *The Learning Tree* and also directed *Shaft*.

ANSWER: Gordon **Parks**

12. Unlockable examples of these items are shaped like a fish, a log, the USA, and a snaketapus. A character based on the likeness of Jack Black wields a battle axe and one of these objects on the cover art of *Brütal Legend*. The protagonist of Rush's 2112 finds one of these objects near a waterfall, a story retold in a game starring the headless Austin Tejas and the robotic Echo Tesla. Bonnie from (*) *Five Nights at Freddy's* is sometimes shown holding one of these objects. Harmonix created a video game franchise named after these objects, which are simulated by controllers with green, red, yellow, blue, and orange buttons and a whammy bar. For 10 points, name these instruments featured in a namesake Hero video game franchise, in which you can play along to Sweet Child O Mine and Smoke on the Water.

ANSWER: **guitars**

13. The G in GAF domains comes from a family of these enzymes where the GAF domain was first observed. After the G-protein transducin is activated, it removes the inhibitory subunit from a family of these enzymes. These enzymes have a glutamine in their binding pocket that can freely rotate according to the glutamine switch hypothesis. Their type 1 is stimulated by the binding of calcium ions or calmodulin to their N-terminal site. Sildenafil, the generic form of Viagra, is an (*) inhibitor of their type 5. These enzymes break the bond formed between the 5-prime phosphate group and the 3-prime hydroxyl group of cyclic nucleotides. For 10 points, name these enzymes which hydrolyze cAMP and cGMP to AMP and GMP, breaking a namesake bond in the process.
ANSWER: mammalian cyclic nucleotide phosphodiesterases [or: PDEs]

14. These people made up most of the population of the town of Brody and established the colony of Mois s Ville in Argentina. The Galveston Movement supported these people. Starting in 1827, children of these people were forcibly abducted by *khapers* and sent to cantonist units. Birobidzhan is the capital of an autonomous region named for these people in eastern (*) Russia. An estimated 100,000 of them were killed during the Khmelnytsky uprising. These people, who were regulated by Alexander III s May Laws, often lived within the borders of the Pale of Settlement and were accused of ritual murder through blood libels. For 10 points, identify these people that were targeted by Russian pogroms.
ANSWER: Russian Jews [or: Ukrainian Jews; prompt on: Russians, Ukrainians]

15. A character in this play explains his silence by saying a great ox stands on my tongue. A group of old men in this play recount a story about two eagles devouring a pregnant hare. A speech in this play describes the grace of the gods as harsh and says that wisdom comes through suffering. This play begins with a watchman (*) complaining that he has been on lookout so long that he has memorized the night sky. A character in this play gives a speech recounting past crimes and predicting two murders, including her own, before declaring that she accepts her own death. In this play, the title character s wife convinces him to walk on a purple carpet into his home, whereupon she murders him. For 10 points, name this first play of Aeschylus *Oresteia*.
ANSWER: Agamemnon [until it is read, prompt on: Oresteia]

16. Selecting a mass-to-luminosity ratio that gives the greatest amplitude of rotation curve, then tuning core radius and central density is a method known as the maximum hypothesis of this shape. Kalnajs, Mestel, and Kuzmin and Toomre all proposed various flattened models of this shape. Lynden-Bell and Pringle showed that it is energetically favorable for objects with this shape to transfer angular momentum outward and mass inward. Some galaxies can be modeled as a combination of a thin one of these, a thick one of these, and a (*) halo. An important parameter for characterizing galaxies is the ratio of this shape to the bulge. Dust and gas around a star that may eventually form planets is a protoplanetary example of this shape. For 10 points, identify this shape that names and is taken by the diffuse material undergoing accretion into a black hole.
ANSWER: flattened disk

17. The narrator of this story warns that it doesn t have a plot aside from a conversation that took place over the course of a night in an unlit room. The opening sentence of this story is interrupted by a parenthetical comment by the narrator saying I have no right to utter this sacred verb. A character in this story invents a number system where each number has an (*) unrelated name, such as The Railroad for 7014, and the narrator speculates that he is incapable of abstract thought. Its title character always knows what time it is and quotes Pliny s *Natural History* in the original Latin. This story s title character gains a remarkable talent when he injures his head falling off a horse. For 10 points, name this Jorge Luis Borges story about a man with amazing mnemonic powers.
ANSWER: Funes the Memorious [or: Funes el memorioso , Funes, His Memory]

18. This speech describes the experience of meeting 19-year-old boys ready to lay down their lives to stop a mob from molesting old people they did not even know. It was the keynote address at an event where Mary Fisher twice asked *Are you human?* in her *A Whisper of AIDS* speech. Molly Ivins joked that this speech probably sounded better in the original German. It attacked the (*) amoral idea that gay and lesbian couples should have the same standing in law as married men and women and claimed the extent of Bill Clinton's foreign policy experience was breakfast at International House of Pancakes. For 10 points, name this speech which framed support for George H.W. Bush as part of a conflict in values between Democrats and Republicans, and which was delivered by Pat Buchanan at the 1992 Republican National Convention.

ANSWER: the culture war speech [prompt on: Pat Buchanan's speech at the 1992 Republican National Convention]

19. The efficacy of this technique can be measured by the Harvard Group Scale or the Stanford Scale, the latter of which was co-developed by a leading expert on this technique, *Andr  Weitzenhoffer*. Joseph Jastrow taught a course on this technique which was taken over by his student *Clark Hull*, who wrote the first rigorously scientific book about this technique. The use of (*) handshakes as part of this technique was invented by Milton H. Erickson. This technique begins with the process of induction. James Braid pioneered this technique, based on the animal magnetism theory of Franz Mesmer. For 10 points, name this type of therapy in which the patient is put into a trance.

ANSWER: hypnotherapy [or: hypnosis, hypnotism; until *Mesmer* is read, accept: mesmerism]

20. A painter from this country made a miniature watercolor-on-ivory portrait of her own breasts surrounded by white cloth, called *Beauty Revealed*. Another artist from this country made a series of six woodcuts inspired by *The Tale of Genji*, and invented the soak stain technique of pouring oil paint thinned with turpentine directly onto the canvas. That painter's trip to (*) Nova Scotia inspired her most famous painting, *Mountains and Sea*. An artist from this country was married to a fellow countryman who placed black ovals against white rectangles in his series of over 100 paintings inspired by the Spanish Civil War, *Elegy to the Spanish Republic*. For 10 points, name this home country of Sarah Goodridge and abstract expressionists like Helen Frankenthaler.

ANSWER: USA [or: United States of America, obvious equivalents]

1. In 2015, this politician revealed plans to create a state-run media service named JustIN. For 10 points each:

[10] Name this governor who aimed for a 10% income tax cut after succeeding Mitch Daniels in 2013. He received backlash after the signing of the Religious Freedom Restoration Act.

ANSWER: Mike **Pence**

[10] By refusing to cater to same-sex couples, Memories Pizza became the first to utilize this state's Religious Freedom Restoration Act. In response to that act, this state's largest newspaper included the massive headline "FIX THIS NOW" on its front page.

ANSWER: **Indiana**

[10] Naturally, Mike Pence opposed a 2009 anti-hate crime act named after this person, who was tied to a fence and left for dead in Laramie, Wyoming in 1998.

ANSWER: Matthew **Shepard**

2. In photography, density is the log of this quantity and is used instead of it because the log of a ratio scale is an interval scale. For 10 points each:

[10] Name this quantity that is the reciprocal of transmittance.

ANSWER: **opacity** [or: **kappa**]

[10] For stars, the opacity can be approximated as the density times temperature to the minus 3.5 power, according to this person's law.

ANSWER: Hans **Kramers**

[10] The Kramers-Kronig integral expression that relates the real and imaginary parts of the electric susceptibility is derived, in part, from the fact that the polarizability cannot depend on future values of the electric field, a condition known by this term.

ANSWER: **causality**

3. Joshua Prince-Ramus worked for this firm before founding REX, and Bjarke Ingels worked there before founding BIG. For 10 points each:

[10] Name this architecture firm which is known for incubating architects. It collaborated with Cecil Balmond on the Maison à Bordeaux, a moving house for a client in a wheelchair.

ANSWER: **OMA** [or: **Office of Metropolitan Architecture**]

[10] OMA is run by this Dutch architect who designed the Seattle Central Library and the Casa da Musica in Portugal.

ANSWER: Rem **Koolhaas**

[10] Koolhaas's design for a television broadcaster's headquarters in this country is often nicknamed for its resemblance to a pair of shorts. Steven Holl's innovative complex called Linked Hybrid is in this country.

ANSWER: **China**

4. The Day of Ashura commemorates the beheading and martyrdom of this man in a 680 battle. For 10 points each:
[10] Name this man who unsuccessfully led the Banu Hashim against the Umayyads at the Battle of Karbala. Many of the largest peaceful gatherings in history honor this son of Ali ibn Abi Talib on the day of Arba een.

ANSWER: Husayn ibn Ali

[10] Some accounts claim that this many men in Husayn ibn Ali's army were killed after their surrender to Yazid. According to popular belief, this is the number of *houris*, or virgins, that Muslim martyrs receive upon their death.

ANSWER: seventy-two

[10] This city sent letters pledging their support to Husayn, but changed loyalties after a new governor executed Husayn's cousin. Ali ibn Abi Talib was struck by a poisoned sword while praying at this city's Great Mosque.

ANSWER: Kufa

5. This play ends with an elderly conductor tipping his hat at Lula. For 10 points each:

[10] Name this Amiri Baraka play set in a New York Subway car in which Lula stabs Clay in the heart after verbally sparring with him.

ANSWER: Dutchman

[10] A strange creature called the Man-Moth rides the Subway in a poem by this poet. She wrote "The Art of losing isn't hard to master" in "One Art."

ANSWER: Elizabeth Bishop

[10] This program, which eventually spread to hundreds of cities, began in 1992 with an excerpt of Walt Whitman's "Crossing Brooklyn Ferry" displayed on a New York Subway car.

ANSWER: Poetry in Motion

6. This philosopher invented a race of people who cannot conceptualize inner mental states, but have a language for describing outward behaviors, the Ryleans. For 10 points each:

[10] Name this philosopher who attacked "the myth of the given" in *Empiricism and the Philosophy of Mind*.

ANSWER: Wilfrid (Stalker) Sellars

[10] Sellars also invented this character, who comes up with the brilliant theory that people have thoughts which can help explain their actions, even when they are not saying anything out loud.

ANSWER: Jones

[10] Sellars contrasted the "manifest image" of the world with an image described by this adjective. Paul Feyerabend's *Against Method* argues against this sort of method.

ANSWER: scientific

7. This publication paid F. Scott Fitzgerald \$4,000 for each of his stories and ran his insufferable article "How To Live on \$36,000 a Year." For 10 points each:

[10] Name this magazine that is more famous for its numerous Norman Rockwell cover paintings.

ANSWER: *The* Saturday Evening Post

[10] This magazine published Fitzgerald's essay series "The Crack-up." Gordon Lish became known as "Captain Fiction" for promoting Raymond Carver and Richard Ford as fiction editor of this magazine.

ANSWER: Esquire

[10] Maxwell Perkins edited Fitzgerald, Hemingway, and Thomas Wolfe while working for this publishing house.

ANSWER: Charles Scribner's Sons

8. Answer the following about the aftermath of World War I in Germany, for 10 points each.

[10] After World War I, this treaty explicitly prevented the Germans from rebuilding their military.

ANSWER: Treaty of **Versailles**

[10] After the Weimar Republic failed to pay war reparations, the British and French responded by occupying this area. Today, this densely-populated area includes the cities of Duisburg, Essen, and Dortmund.

ANSWER: the **Ruhr** Valley [or: **Rhine-Ruhr**; prompt on: **Rhineland**]

[10] This man won a Nobel Peace Prize for exposing details about the Germans' direct violation of the Treaty of Versailles through rearmament. He never accepted his prize, since he was imprisoned by the Nazis until his death.

ANSWER: Carl von **Ossietsky**

9. This process was rigorously redefined in Daniel Janzen's seminal article "When is it [this process]?" For 10 points each:

[10] Name this process broadly defined as two groups of organisms mutually influencing the evolutionary direction of each other.

ANSWER: **coevolution**

[10] A raft of new discoveries in coevolution stem from investigations of this theory of coevolution, developed by John Thompson. This theory proposes three primary drivers of coevolution, two of which are trait remixing and species intermingling in hot and cold spots.

ANSWER: **geographic mosaic** theory of coevolution [or: **GMTC**]

[10] Two rather classic examples of coevolution are the Batesian and Mullerian forms of this phenomenon.

ANSWER: **mimicry**

10. Answer the following about the conductor and musicologist Joshua Rifkin, for 10 points each.

[10] In the 1970s, Rifkin re-popularized the music of this ragtime composer of "The Entertainer" and "Maple Leaf Rag."

ANSWER: Scott **Joplin**

[10] Rifkin is known for championing the thesis that J. S. Bach's choral music was performed in this manner, which has been adopted by conductors like Andrew Parrott.

ANSWER: with **one voice per part** [or: **OVPP**, anything indicating that there's a single singer on each vocal line]

[10] Rifkin has also written about this composer's relationship with early music. This member of the Second Viennese School composed the *Concerto for Nine Instruments* and a bunch of lieder.

ANSWER: Anton **Webern**

11. In this type of fracture a material undergoes necking, after which microvoids form and coalesce in the neck region, eventually forming a fast fracture region at 45 degrees from the plane of tensile load. For 10 points each:

[10] Identify this mode of ductile failure, under uniaxial tension, that results in a shear lip is created around the fracture surface and the two structures—one rough, the other smooth—that give this mode of fracture its name.

ANSWER: **cup** and **cone** fracture [or: in any order]

[10] In contrast to ductile materials, this type of material undergoes fairly little deformation before fracture, which usually occurs via fast crack propagation along cleavage planes.

ANSWER: **brittle** materials

[10] Unlike fcc metals, metals with this crystal structure are likely to undergo a ductile-to-brittle transition with decreasing temperature, likely due to interstitial impurities and a temperature-dependent Peierls-Nabarro force. Alpha-iron has this crystal structure.

ANSWER: **bcc** [or: **body-centered cubic**, **cI**]

12. This practice was often employed as a reward for courageous actions or meritorious service, and it often carried with it pay increases. For 10 points each:

[10] Name this practice adopted by the United States military in the 19th century, in which an officer would nominally be promoted to a higher rank although there were no available commands for a person of that rank.

ANSWER: **brevet** [or: **brevet**ing]

[10] This general was brevetted to the rank of lieutenant general, becoming the first man since George Washington to receive that rank. He was known as Old Fuss and Feathers for his War of 1812 service.

ANSWER: Winfield **Scott**

[10] This Civil War general was brevetted three times in Mexico for his artillery service. He earned the nickname Rock of Chickamauga for preventing a rout at that battle.

ANSWER: George Henry **Thomas**

13. The Year Without a Summer inspired this man to write the poem Darkness. For 10 points each:

[10] Name this author of an unfinished vampire novel called A Fragment. He also wrote a long poem whose title character kills Hassan, condemning him to become a vampire.

ANSWER: George **Gordon**, Lord **Byron** [accept either underlined name]

[10] Byron's A Fragment was the basis for this author's 1819 story about a vampire named Lord Ruthven, The Vampyre.

ANSWER: John William **Polidori**

[10] When Byron, Polidori and the Shelleys were staying at a villa on Lake Geneva, Byron suggested that they each write a ghost story, which ultimately resulted in The Vampyre and this Mary Shelley novel.

ANSWER: **Frankenstein**, or The Modern Prometheus

14. The colors and patterns on these objects are representative of different orishas. For 10 points each:

[10] Name these objects, which are referred to by the Yoruban word eleke, and which are worn by new initiates after a ceremony involving a cleansing ritual and animal sacrifice

ANSWER: **beads** [or: **necklace**]

[10] Elekes are received by initiates into this religion, which was developed by Yoruban slaves in the Caribbean.

ANSWER: **Santeria**

[10] This other syncretic religion originated in Brazil in the Bahian city of Salvador. It combines Yoruban beliefs with Roman Catholicism and is named for the ritual music and dancing its adherents participate in.

ANSWER: **Candomble**

15. This song opens with a woman remarking Oh my God, Becky. Look at her butt. For 10 points each:

[10] Name this song that resurged into pop culture after several samples of it were incorporated into Nicki Minaj's Anaconda. It begins with Sir Mix-a-Lot stating that he cannot lie about liking big butts.

ANSWER: **Baby Got Back**

[10] The Nicki Minaj-will.i.am collaboration Check It Out repeatedly samples a two-measure loop from this song. It begins I heard you on the wireless back in '52, and was somewhat ironically the first song aired on MTV.

ANSWER: **Video Killed the Radio Star**

[10] In Right Thru Me, Nicki Minaj reused the beginning of this guitar virtuoso's track Always with Me, Always with You, which appears on *Surfing with the Alien*. The melody of Coldplay's Viva la Vida was similar enough to another of his tracks to warrant a lawsuit.

ANSWER: Joe **Satriani** [or: **Satch**, since he does have a track called Satch Boogie]

16. Several paintings of this location show a railway bridge in the Arc River Valley. For 10 points each:

[10] Name this location which was painted from Bellevue by the same artist who depicted it in the background with a large pine tree in the foreground.

ANSWER: Mont **Sainte-Victoire**

[10] Those paintings of Mont Sainte-Victoire are by this post-Impressionist, known for *The Card Players* and his still lifes.

ANSWER: Paul **Cézanne**

[10] This Cézanne still life, named after three objects shown on a table against a grey background, includes a bunch of fruit lying on a crumpled white cloth.

ANSWER: **Rideau, Cruchon et Compotier** [or: **Curtain, Pitcher and Fruit Bowl** , translations]

17. The GOLF, MDI, and VIRGO instruments are used in this branch of study, as are the ground-based instruments BISON, GONG, and IRIS. For 10 points each:

[10] Name this branch of study kickstarted by Leighton, et al.'s discovery of the 5-minute oscillations, which were eventually explained by the propagation of sound waves called *p*-modes.

ANSWER: **helioseismology** [do not accept: seismology]

[10] By confirming the correctness of solar models, helioseismology steered physicists towards the correct solution to discrepancies in the theoretical and observed counts of these particles from the Sun: namely, they can change lepton flavor via a namesake oscillation.

ANSWER: **neutrinos**

[10] The GOLF, MDI, and VIRGO instruments are found on this Sun-studying spacecraft, an ESA-NASA collaboration. This spacecraft also studies space weather, like the ACE and TRACE probes.

ANSWER: **SOHO** [or: **Solar and Heliospheric Observatory**]

18. A citywide *pompe* was part of the major Athenian festival for this god, at which tragedies and comedies were performed. For 10 points each:

[10] Name this Greek god of wine.

ANSWER: **Dionysus**

[10] In religious rituals, priests of Dionysus carried these fennel stalks topped with pine cones. In Euripides, these fertility symbols are carried by Maenads and drip honey.

ANSWER: **thyrsus** [or: **thyrsos**]

[10] Pithoigia, Choes, and Chytroi were the three days of this Athenian festival for Dionysus at the beginning of spring. During this festival, the *archon basileus* dressed up as Dionysus and publicly abducted his wife.

ANSWER: **Anthesteria**

19. This character duels with his rival Rinaldo after saving his love from Agricane. For 10 points each:

[10] Name this knight who is in love with Angelica in epic poems by Matteo Boiardo and Ludovico Ariosto.

ANSWER: **Orlando** [or: **Roland**]

[10] In *Orlando Furioso*, Orlando kills Agramante on this island. An author named after this island created Don Fabrizio Corbera.

ANSWER: **Lampedusa**

[10] In an epic by Luigi Pulci, Orlando befriends this giant and converts him to Christianity, but he is eventually killed by a crab bite.

ANSWER: **Morgante**

20. This period began with the destruction of Mycenaean palace complexes, once attributed to the Dorian Invasion. For 10 points each:

[10] Name this interval of time from about 1100 to 800 B.C., from which no written sources survive. According to the traditional narrative, Greek society in this period was characterized by an absence of centralized power.

ANSWER: the Greek **Dark Ages** [*prompt on:* the Early **Iron Age**]

[10] The Merneptah Stele names the Ekwesh, possibly displaced Mycenaeans, among the nine bows making up these invading peoples. Ramses III fought these marauders at the Battle of the Delta.

ANSWER: **Sea Peoples**

[10] The most important archaeological site for studies of the Dark Ages is this village in Euboea. The discovery of Phoenician artifacts at burial sites here implies that its residents traded with other Mediterranean cultures.

ANSWER: **Lefkandi**