

2020 Terrapin Open

Packet 11

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Tossups

1. **A text that followed this event advises people to “be not like those who say, ‘we hear,’ though they hear not,” after earlier noting that Allah “will cast terror into the hearts of those who disbelieve.” Prior to this event, the Ansari were told that they were allowed to go home, but they instead decided to stay and participate in this event. The son of Umayr ibn Wahb was taken prisoner at this event, as a result of which Umayr launched a plot to rescue his son and kill Muhammad. Amr ibn Hisham’s death at this battle allowed (*) Abu Sufyan to become the *de facto* leader of the Quraysh. The future caliph Uthman notably did not participate in this battle, which occurred after an earlier Muslim raid on caravans in Nakhlah. The command to “strike above the neck, and strike their every fingertip” from Sura al-Anfal refers to this battle, which took place a year before the Battle of Uhud. For 10 points, name this 624 battle in which the Muslims were victorious over the Meccans.**

ANSWER: Battle of **Badr**

<NH, Religion: Islam>

2. **In 2019, this organization shut down its Center for the Study of Science, which was led by prominent climate change denier Pat Michaels. This organization runs a journal whose name includes the word “unbound,” and its chairman Robert A. Levy personally funded the legal team for the plaintiff in *D.C. v. Heller*. This organization’s H. L. Mencken Research Fellows include magicians Teller and Penn Jillette. Following the death of William (*) Niskanen, a lawsuit for control of this organization pitted the children of one of its co-founders against its other founder, Ed Crane. Many of this organization’s fellows are also affiliated with George Mason’s Mercatus Center. Murray Rothbard was on this organization’s original board of directors, and it was founded with money from Charles Koch. For 10 points, name this libertarian think tank.**

ANSWER: **Cato** Institute

<CK, Other Academic>

3. **The rate of these events is thought to have two terms: a prompt piece proportional to stellar formation rate, and an extended piece proportional to mass. Unlike related events, these events can be observed in elliptical galaxies. Riess (“reese”) et al. used a “gold sample” of observations of these events at redshift greater than 1.25 from the Hubble Space Telescope for a 1998 result with over 18,000 citations. The Phillips relationship relates the transient (*) light curve of these events to their peak luminosity, making them useful standard candles. Observations of distant examples of these events provided evidence for a transition from decelerating to accelerating expansion of the universe, providing evidence for dark energy. These events happen when accretion causes the mass of a white dwarf to exceed 1.44 solar masses, the Chandrasekhar limit. For 10 points, name this astrophysical event that occurs in binary systems, a type of supernova.**

ANSWER: type **Ia (“one-A”) supernovae** [or **SNe Ia**; prompt on supernovae or type I supernovae]

<GR, Other Science: Astronomy>

4. **The authenticity of a document about the origin of these peoples’ beliefs known as the “Charter of Niquinta” is the subject of vigorous debate among historians. Mark Gregory Pegg challenged the traditional view of the existence of a centralized community of these people using manuscripts of interviews conducted by two Dominican friars in *The Corruption of Angels*. R. I. Moore argued that these peoples’ beliefs evolved as responses to local conditions rather than outside influence, and that they did not actually hold (*) dualist**

beliefs in *The War on Heresy*. An attempt to reconstruct the daily lives of these people using the records of inquisitor Jacques Fournier (“foorn-YAY”) was put forth in a pioneering microhistory by Emmanuel Le Roy Ladurie (“le RWAH la-doo-REE”). For 10 points, *Montaillou* (“mon-tye-YOO”) examines members of what heretical movement that was the target of the Albigensian Crusade?

ANSWER: **Cathars** [or **Catharism**; accept **Albigensian** or word forms until read]

<AE, Other History>

5. A video artist from this country creates distinctive, hypersexualized videos with psychedelic coloring, like *Who's The Daddy?* and *Jungle of Desire*. Artists in this country disseminated modern art in the **Black, White, and Grey Cover** books. An artist from this country graffitied his bald head on buildings that were about to be destroyed. Maniacally laughing figures with pink faces modeled on the artist and long distended mouths are a common motif used by a member of this country's (*) “Cynical Realism” movement. An artist from this country supposedly took pictures of himself cooking and eating a human fetus, though that work was never shown as planned at the “Fuck Off” exhibition. In *Study of Perspective*, an artist from this country took a picture of himself giving the middle finger to a location here. That artist from this country filled Turbine Hall with 100 million porcelain sunflower seeds. For 10 points, name this home country of Ai Weiwei.

ANSWER: **China** [or **People's Republic of China**; or **PRC**; or **Zhongguo**; do not accept or prompt on “Republic of China”] (The first line refers to Wong Ping, the third line refers to Zhang Dali, and the fourth line refers to Yue Minjun.)

<VS, Painting/Sculpture>

6. This author wrote a poem describing a woman who “sat at tea just like the others,” but followed the others slowly as if, on the “farther side,” she “might not be walking any more, but flying.” He wrote a poem that describes how “an image enters through the tensioned stillness of the limbs and in the heart ceases to be,” when “the curtain of the pupil soundlessly parts.” This author of “Going Blind” wrote a poem likening the title individual to “a sulphur match,” which “whitely, before it comes aflame, to every side darts switching tongues.” He wrote a poem about a (*) creature to whom “it seems there are a thousand bars and behind a thousand bars no world.” This author of “The Spanish Dancer” wrote a poem that declares, “we cannot know his legendary head with eyes like ripening fruit,” which ends with “You must change your life.” For 10 points, name this modernist poet whose thing-poems include “The Panther” and “The Archaic Torso of Apollo.”

ANSWER: Rainer Maria **Rilke** (“RYE-ner muh-REE-uh RIL-kuh”)

<CK, European Literature>

7. This scientist developed a gauge (“gayj”) choice where Goldstone components of scalar fields participating in the Higgs mechanism are set to zero, named for unitarity. With an alphabetically latter colleague, this physicist proved a theorem about the minimum spin required for particles to carry covariant current or stress-energy. This scientist introduced the Higgs mechanism to an SU(2)-cross-U(1) (“S-U-two cross U-one”) Yang–Mills theory in his paper “A Model of Leptons.” An angle named for this American scientist quantifies the mixing of the (*) B and W-zero vector bosons due to spontaneous symmetry breaking. For 10 points, name this physicist who received the 1979 Nobel with Glashow and Salam for unifying electromagnetism with the weak interaction.

ANSWER: Steven **Weinberg** [accept **Weinberg** angle]

<GR, Physics>

8. In a section of this dialogue, a character tells a story about a glistening heavenly realm, arguing that it shows “it is fitting to risk the belief – for the risk is a noble one.” A character in this dialogue recounts how he embarked on his “second voyage” after he read Anaxagoras and only found explanations in terms of air and ether. A character uses the example of heat following fire to argue that opposites must exclude each other in

this dialogue’s “final” argument. A man uses pieces of wood to illustrate how two objects that are (*) equal are never the same as “the Equal itself” in an argument in this book that shows that learning is recollection. Simmias objects that destroying a lyre destroys its harmony in a response to this work’s affinity argument. Framed as a conversation between Echebrates and Xanthippe, this dialogue claims that true philosophy is “training for dying.” For 10 points, three proofs of the soul’s immortality are offered by Socrates in what Platonic dialogue that ends with him drinking hemlock?

ANSWER: *Phaedo*

<CK, Philosophy>

9. He’s not George Washington, but this subject of a hagiography by Parson Weems led the forces that captured Fort Watson and Fort Mott with “Light Horse” Harry Lee. This man had earlier led a raid on Georgetown and defeated British troops at the Battle of Black Mingo. Because Horatio Gates distrusted him, this man’s militia wasn’t present during the Battle of Camden, sparing them from the destruction of Gates’s army. This man commanded the right flank of Nathaniel Green’s army at the Battle of (*) Eutaw Springs after leading many raids against British troops stationed between the Pee Dee and Stantee Rivers, preventing full British control of South Carolina. After a lengthy chase of this man, his rival Banastre Tarleton supposedly claimed, “As for this damned old fox, the Devil himself could not catch him.” For 10 points, name this Revolutionary War hero nicknamed “The Swamp Fox” who was famous for his use of guerrilla tactics.

ANSWER: Francis Marion [accept Swamp Fox until “fox” is read]

<AE, American History>

10. To fill a silence on a walk with her boyfriend, a woman in this novella stops in front of a hardware store and awkwardly asks, “I just love bolts and nails, what about you, sir?” This novella’s narrator parenthetically interjects the word “explosion” to mark drastic changes in the life of its protagonist. This novella’s protagonist often recounts facts, like that Charlemagne was called Carolus, which she learns from her Clock Radio. While visiting a zoo in this novella, a rhinoceros scares that character so much that she urinates on herself. This novella centers on a (*) “northeastern girl” whose boyfriend Olímpico dumps her in favor of her co-worker at the metal factory, Glória. This novella’s protagonist spends all her money to be told that she will meet a handsome foreigner named Hans by the fortune-teller Madame Carlota, but upon walking outside, she is killed in a hit-and-run by a Mercedes. For 10 points, name this novella about the typist Macabéa written by Clarice Lispector.

ANSWER: *The Hour of the Star* [or *A hora da estrela*]

<CK, World/Other Literature>

11. This procedure is contraindicated with the Jk-a-minus-b-minus phenotype, which can be detected via a urea lysis test. Substitutes investigated for this procedure include colloidal Gelofusine and emulsions of perfluorocarbons. Reagents used in this procedure may be UV-irradiated and pre-treated with riboflavin to reduce TTI, and they are often stored in a solution of phosphate, dextrose, adenine, and citrate. Severe complications of this procedure include TRALI and TACO. Some types of it use cryoprecipitated AHF. Leukoreduction decreases risk of HLA (*) alloimmunization and CMV transmission from this procedure. The indirect Coombs test and cross-matching are done prior to this minimally-invasive procedure to prevent hemolytic reactions. For 10 points, name this procedure in which components from Rh-negative and ABO-compatible donors are used to combat blood loss.

ANSWER: blood transfusion [or plasma transfusion; or platelet transfusion; or blood volume expansion]

<JS, Biology>

12. In a film, a character with this profession is stunned when a painting of himself reading a book as a child turns up in an art gallery, with a letter on the back thanking him for teaching the artist how to write. That

character abandons this profession after arguing with a colleague over his usage of heroin, a drug he later uses to reduce his back pain. The audio of a different film cuts out intermittently as a person with this profession gives a ride to a man carrying a pot of purple flowers. In a 2011 film smuggled to Cannes (“can”) inside a (*) cake, a man with this profession uses his iPhone to record his house arrest; that Jafar Panahi film is titled *This Is Not a Film*. Antonio Banderas plays a man with this profession in the 2019 film *Pain and Glory*. A real-life family is tricked into believing that a man is Mohsen Makhmalbaf, a man who has this profession, in the 1990 docufiction film *Close-Up*. For 10 points, name this profession of Abbas Kiarostami and Pedro Almodóvar.
ANSWER: film director [or filmmaker] (The first two lines refer to *Pain and Glory*.)

<AP, Other Arts: Film>

13. In 1975, this country’s education minister was awarded by UNESCO for overseeing a literacy campaign whose success has been credited to this country’s “pastoral democracy.” A paramilitary group in this country called the “Victory Pioneers” supported the rule of a leader who passed the 1975 Land Law to collectivize agriculture. To improve literacy, that leader of this country adopted the Latin alphabet for its language with help from the linguist Shire Jamaa’ Ahmad. The Soviet Union helped set up this country’s secret police, the National Security Service, whose atrocities prompted the formation of the SNM militia. Genocide committed against the (*) Isaaq people in this country was a major contributing cause towards the overthrow of a leader who attempted to eradicate this country’s *qabil* clan system and advocated “Scientific Socialism.” That leader of this country was forced into exile after his defeat in the Ogaden War. For 10 points, identify this country once ruled by Siad Barre from Mogadishu.

ANSWER: Somalia

<EL, World History>

14. A paper by this thinker observes that there is no technical solution to winning a game of tic-tac-toe, unless winning strategies include hitting your opponent over the head. A situation that [emphasize] *mirrors* a dilemma first discussed by this thinker was used by Michael Heller to explain why empty storefronts in post-Soviet Europe went unused. He critiqued the Spaceship Earth metaphor, imagining a lifeboat that can only accommodate ten more people, surrounded by hundreds of swimmers, in his paper (*) “Living on a Lifeboat.” A 1990 book responding to this man argues that norms governing the use of CPRs can solve the dilemma posed in his most famous paper, which criticizes the United Nations for protecting the “freedom to breed.” Elinor Ostrom wrote a book responding to that paper, which illustrates the title concept using the example of farmers who overgraze their cattle on public pastureland. For 10 points, name this ecologist who wrote “The Tragedy of the Commons.”

ANSWER: Garrett Hardin

<CK, Social Science: Political Science>

15. In a play by this man, a couple cannot catch the waiter’s attention even after the man calls the woman a “frigid, castrating bitch” and they throw glasses of water at each other. In a rant from a play by this author, a man remembers the shared experiences of ’50s TV shows, and repeatedly shouts “we licked postage stamps!” A psychiatrist who shouts “cocksucker” due to “low blood sugar” while talking to Bob Lansky and carries around a Snoopy doll appears in this author’s play about Bruce and Prudence, titled (*) *Beyond Therapy*. He wrote a play in which a man plans to cheat on his girlfriend with her assistant Hootie Pie during a play about a single molecule played by Nina. Diane puts on a pageant featuring a talking camel to “embarrass” the title catechism-quoting nun of a play by this author, who wrote the Chekhov-inspired play *Vanya and Sonia and Masha and Spike*. For 10 points, name this American playwright of *Sister Mary Ignatius Explains It All For You*.

ANSWER: Christopher Durang

<VS, American Literature>

16. This corporation sponsors a sports team whose board is led by the sausage-price-fixing billionaire Clemens Tönnies (“TUR-neese”). In 2020, this company will move its headquarters to the Lakhta Center, the largest skyscraper in Europe. Just weeks after his party lost to Angela Merkel’s CDU, former German Chancellor Gerhard Schröder took a job with this company directing its Nord Stream project. Along with a shadowy shell company registered just days earlier, this company was the only participant in the (*) 2004 auction of Yukos. This company, which currently sponsors German soccer team Schalke 04, cut service to Ukraine in 2009, but agreed to resume service in exchange for an extended lease on a Black Sea naval base. Alexey Miller is the CEO of this company, which is larger than both Lukoil and Rosneft. For 10 points, name this Russian state-owned natural gas company.

ANSWER: Gazprom

<CK, Modern World>

17. This country was one of the first to offer state medical aid when the 1892 Sickness Benefit Act created a group of government-backed sickness funds called *sygekasser* (“SYOO-uh-kess-ah”). The Kanslergade (“KEN-slah-GAY-thuh”) Agreement greatly expanded the poor’s access to government social services in this country. Much of this country’s social welfare state was masterminded by Karl Kristian Steincke (“STYNE-kuh”) while serving in the cabinet of this country’s first Prime Minister from the Social Democratic party, Thorvald Stauning (“TOR-val STAO-ning”). This country’s monarchy ceased to be politically relevant when a monarch’s desire to annex the city of (*) Flensburg caused him to dismiss prime minister Carl Zahle in the 1920 Easter Crisis. That crisis concerned whether or not this country should annex Central Schleswig despite the populace voting to remain part of Germany. For 10 points, name this country that developed into a constitutional monarchy with a strong welfare state under the reign of kings Frederick VIII and Christian X.

ANSWER: Denmark [or Kingdom of Denmark]

<AE, European History>

18. In a comic scene, a character threatens to punch another’s teeth after this hiding character uses that man’s voice to repeatedly interrupt a story by saying: “Thou liest.” After a character sings, “Flout ’em and scout ’em / and scout ’em and flout ’em, / Thought is free,” this character surprises him by playing the correct tune on his tabor (“TAY-bur”). This character later summons a pack of hounds to pursue three inebriated men whom he distracts with a clothesline laden with “glistening apparel.” In another scene, this character appears dressed as a harpy and uses a (*) “quaint device” to make a banquet vanish. This character sings, “In a cowslip’s bell I lie. / There I couch when owls do cry” in a song that begins, “Where the bee sucks, there suck I.” In another scene, this character summons spirits in the form of Iris, Ceres, and Juno, who bless the marriage of Ferdinand and Miranda. For 10 points, name this spirit enslaved by Prospero who causes the title storm in *The Tempest*.

ANSWER: Ariel

<CK, British Literature>

19. A 14-part motet by this composer divides into 4 groups of performers and separates each group’s feature with 7 bars of alleluias by the choir. This composer’s friend Hans Leo Hassler brought his composition style to Nuremberg, and it spread to Dresden via his student’s work *Psalmen Davids*. The Cleveland, Chicago, and Philadelphia Symphonies’ Brass Ensembles recorded selections from a collaboration by Frescobaldi and this composer titled *Canzona per sonare*. He was the first to specify instruments and dynamics, and did so in a piece that contrasted soft and loud, (*) *Sonata pian’ e forte*. This teacher of Heinrich Schütz included *In ecclesiis* (“een ek-CLAY-see-eeese”) in the posthumous second volume of his magnum opus, a set of 63 instrumental and choral works. A Venetian cathedral’s architecture influenced his polychoral style. For 10 points, what late Renaissance Italian composer wrote two sets of *Sacrae symphoniae* while organist at St. Mark’s Cathedral?

ANSWER: Giovanni Gabrieli

<ES, Classical Music>

20. Metal nanoparticles coated with ultrathin silica shells act as “smart dust” for a form of this technique used near surfaces. Dyes including Cy3 can be used to target oligonucleotides in an “enhanced” form of this technique used on adsorbed (“ad-ZORB’d”) molecules. Millie Dresselhaus pioneered the use of this technique to study carbon nanotubes, and their spectrum in this technique provides information about metallicity and doping in the G and G-prime bands. The signals in this technique can also be enhanced by the presence of an atomically sharp metallic tip. The strength of signals observed in this technique is proportional to the change in dipole–dipole polarizability for a transition. (*) Stokes and antistokes shifts in this technique correspond to the vibrational spectrum of samples in this technique. For 10 points, name this type of spectroscopy based on inelastic scattering in which photons exchange energy with vibrational degrees of freedom.

ANSWER: **Raman** spectroscopy [accept shell-isolated nanoparticle-enhanced **Raman** spectroscopy or stimulated **Raman** spectroscopy or surface-enhanced **Raman** spectroscopy]

<GR, Chemistry>

Bonuses

1. A poet from this country vowed “I’m going to hide behind language / why / I’m scared,” in her poem “Cold In Hand Blue,” which she wrote shortly before committing suicide. For 10 points each:

[10] Name this home country of that poet, the author of the book *Extracting the Stone of Madness*. Another poet from this country wrote “At the bottom of the sea / there is a crystal house” in her poem “Me at the Bottom of the Sea.”

ANSWER: **Argentina** (The poets are Alejandra Pizarnik and Alfonsina Storni, respectively.)

[10] Alfonsina Storni used repetitive lines like “you want me like dawn” and “you want me made of sea-foam” in a poem titled “You Want Me” followed by this quality. José Martí wrote a poem titled for cultivating a rose with this quality.

ANSWER: **white** [or **blanca**; accept **pale**; accept “You Want Me **White**” or “You Want Me **Pale**” or “Tú me quieres **blanca**”; “I Cultivate a **White** Rose” or “Cultivo una rosa **blanca**”]

[10] Storni wrote a “portrait” of this poet that describes his eyes as “deviating vessels.” This poet repeated “I want to sleep the dream of apples” in his poem “Ghazal (“GUZZ-all”) of the Dark Death.”

ANSWER: Federico García **Lorca**

<VS, World/Other Literature>

2. A photograph by this artist shows a group of school-children standing in front of Diego Velázquez’s *Las Meninas*, taking notes on the painting. For 10 points each:

[10] Name this photographer of the Düsseldorf School who created the series *Museum Photographs*.

ANSWER: Thomas **Struth** (“TOE-moss shtroot”)

[10] Struth’s *Family Portraits* series includes multiple photographs of this artist with his family. This German artist pioneered a technique where he would copy a photograph with paint, and then “blur” it out.

ANSWER: Gerhard **Richter**

[10] Richter produced a photo-blur portrait of his wife Emma that pays homage to this Cubist painting by Marcel Duchamp, inspired by a series of Eadweard Muybridge (“Edward MY-bridge”) photographs showing the human form in motion.

ANSWER: ***Nude Descending a Staircase, No. 2***

<CK, Other Arts: Photography>

3. In 1736, the patriarch of this family became the first Providence-based merchant to join a consortium of investors backing a slave-gathering voyage. For 10 points each:

[10] Name this family who were among the signatories of the charter for Rhode Island College, which is now an Ivy League University named for them in Providence.

ANSWER: **Brown** [accept **Brown** University]

[10] The Browns hired this naval officer to captain the *Sally* on a slave-trading mission in 1764. This Commander-in-Chief of the Continental Navy led the 1776 Raid on Nassau while captaining the *Andrew Doria*, the first American ship to receive a naval salute from a foreign power.

ANSWER: Esek **Hopkins**

[10] This historian wrote a book titled for the “first salute” that Hopkins had received. She won her second Pulitzer Prize for *Stillwell and the American Experience in China*.

ANSWER: Barbara **Tuchman**

<EL, American History>

4. In Watson–Crick base pairing, adenine and thymine form two of them, but guanine and cytosine form three. For 10 points each:

[10] Name these non-covalent interactions involving the lightest element.

ANSWER: **hydrogen bonds** [or **H-bonds**]

[10] These square-shaped structures often found in telomeres feature four of the same nucleic acid held together by Hoogsteen hydrogen bonding and stabilized by a cation, usually potassium.

ANSWER: **G-quadruplex** [or **guanine quadruplex**; prompt on **G4**]

[10] G-quadruplexes are a useful motif in the design of these nucleic acid affinity reagents. These molecules fold into 3-dimensional structures to bind a specific ligand, and their efficacy can be improved by SELEX.

ANSWER: **aptamers**

<EM, Chemistry>

5. This poem closely mirrors a Pierre de Ronsard (“ron-SAR”) sonnet, but instead of describing the reader as spinning wool beside a fire, it describes the reader as nodding off to sleep. For 10 points each:

[10] Name this poem that instructs the reader to, in the title time, “Murmur, a little sadly, how Love fled / And paced upon the mountains overhead / And hid his face amid a crowd of stars.”

ANSWER: “**When You Are Old**”

[10] This poet of “When You Are Old” called an aged man “but a paltry thing, a tattered coat upon a stick” in another poem whose speaker declares “That is no country for old men.”

ANSWER: W. B. **Yeats** [or William Butler **Yeats**] (The poem is “Sailing to Byzantium.”)

[10] That poem, “Sailing to Byzantium,” appears in a collection titled for this poem, whose speaker asks, “What shall I do with this absurdity, this caricature, decrepit age that has been tied to me as to a dog’s tail?”

ANSWER: “The **Tower**”

<CK, British Literature>

6. A *grande* one of these campaigns carried out by Edward the Black Prince in 1355 laid waste to much of Gascony and Armagnac (“ar-mun-YAHK”). For 10 points each:

[10] Name these large-scale mounted raids designed to cause economic devastation. Edward III sacked Caen (“con”) and Calais (“cal-AY”) during one of these campaigns that the French unsuccessfully attempted to stop at Crécy (“kray-SEE”).

ANSWER: **chevauchées** (“shuh-voh-SHAY”) [accept *grande* **chevauchée**]

[10] Edward the Black Prince’s 1356 *chevauchée* preceded this battle in which he captured John II of France. After this battle, France agreed to pay England three million gold crowns in the Treaty of Brétigny (“bray-teen-YEE”).

ANSWER: Battle of **Poitiers** (“pwaht-YAY”)

[10] John II’s capture allowed for the freeing of Charles the Bad, a ruler of this kingdom who suppressed the Jacquerie at the Battle of Mello. Philip the Wise established the Évreux (“ayv-ROO”) Dynasty in this kingdom.

ANSWER: Kingdom of **Navarre**

<CK, European History>

7. Sergei Lyapunov wrote 12 *Transcendental Études* in every sharp key to “complete” this composer’s plan to write 24 études in all the major and minor keys. For 10 points each:

[10] Name this virtuoso pianist who wrote the études “Mazeppa” and “Un sospiro” and 19 *Hungarian Rhapsodies*.

ANSWER: Franz **Liszt**

[10] Chopin, Scriabin, and Shostakovich’s preludes in all 24 keys use the circle-of-fifths order, alternating major and minor keys. In that scheme, this key comes last, while in Bach’s chromatically-ordered *Well-Tempered Clavier*, it comes in 6th.

ANSWER: **D minor** [do not accept or prompt on “D”]

[10] B-flats permeate the first three of Debussy’s 24 preludes, which are not in all 24 keys, but are vaguely grouped. This second prelude in Book 1 has an ambiguous French title and key, opens with hazy descending major thirds, and only uses whole tones, except for 6 pentatonic bars in the middle.

ANSWER: “**Voiles**” (“vwahl”) [prompt on “**Veils**” or “**Sails**”]

<OL, Classical Music>

8. The Kalai–Smorodinsky solution to this problem satisfies resource monotonicity, but not independence of irrelevant alternatives. For 10 points each:

[10] Name this problem where agents must either mutually agree on an allocation of a shared surplus, or accept the payoffs associated with a breakdown point.

ANSWER: **bargaining** problem

[10] This mathematician proposed a solution to the bargaining problem that satisfies IIA (“eye-eye-A”), but not resource monotonicity, in his dissertation, which also proved the existence of his namesake equilibrium in game theory.

ANSWER: John **Nash**

[10] In his model of alternating prices, Ariel Rubinstein proved that in dynamic bargaining problems, agents play these strategies, which are Nash equilibrium strategies for each subset of an extensive form game.

ANSWER: **subgame perfect** equilibrium [or **subgame perfect** Nash equilibrium; or **SPE**]

<AE, Social Science: Economics>

9. Versions of this moiety with a 2-prime O-methoxyethyl, or MOE (“M-O-E”), modification are used as ASO (“A-S-O”) compounds. For 10 points each:

[10] Name this moiety that, in LNAs, is locked into its C3-prime-*endo* conformation via an extra oxygen–carbon bridge. Restricting this moiety to its “North” conformation gives the molecule it is part of a preference for A-form duplexes.

ANSWER: **ribose** [or beta-d-**ribofuranose**; accept adjectival forms such as **ribosyl**; do not accept or prompt on “deoxyribose”]

[10] The SMA drug nusinersen is a 2-prime-MOE phosphorothioate antisense oligo that enhances exon 7 splice efficiency of a gene named “survival of [this cell type] 2.” The Babinski sign in adults reflects dysfunction in this cell type that comprises the corticospinal tract.

ANSWER: **motor neuron** [or **motoneuron**; or survival (of) **motor neuron**; prompt on **neurons**]

[10] The antisense oligo eteplirsen restores the dystrophin reading frame to treat the Duchenne type of this degenerative disorder characterized by progressive weakness.

ANSWER: **muscular dystrophy** [or **DMD**]

<JS, Biology>

10. After this politician announced reductions in fuel subsidies to comply with IMF requirements, organized protests forced him to relocate his government. For 10 points each:

[10] Name this politician who withdrew Julian Assange’s (“uh-SAWN-jizz”) asylum. Despite belonging to the same party as his left-wing predecessor Rafael Correa, this politician has adopted neoliberal policies.

ANSWER: Lenin **Moreno**

[10] The 2019 protests in Ecuador coincided with protests in this South American country that began in response to a proposed hike in public transportation fees in its capital Santiago. This country will hold a referendum to change its constitution in April 2020.

ANSWER: **Chile**

[10] Small protests broke out after this country’s congress appointed a new president in response to its dismissal by president Martín Vizcarra for refusing to pass anti-corruption legislation. This country’s 2020 elections resulted in a defeat for the right-wing Popular Force, which led efforts to impeach former president Pedro Pablo Kuczynski (“koo-CHEEN-skee”).

ANSWER: **Peru**

<AE, Modern World>

11. This emperor welcomed many Greek philosophers to a medical academy he established at Gondishapur after the Athenian Academy was closed. For 10 points each:

[10] Name this Sasanian emperor who succeeded Kavad I. Most historians believe that Yemen came under Sassanid rule during his reign.

ANSWER: **Khosrow I** [or **Chosroes I**; or Khosrow **Anūshirvan** or **Khosrow the Just**; prompt on **Khosrow** or **Chosroes**]

[10] At the beginning of his reign, Khosrow I signed the “Eternal Peace” with this Byzantine emperor who used the respite provided by the peace to send his general Belisarius to reconquer Africa and Italy.

ANSWER: **Justinian I** [or **Justinian the Great**; prompt on **Justinian**; do not accept or prompt on “Justin”]

[10] Khosrow I also allied with the Turks to launch several military campaigns against these people, likely destroying their empire. The Great Wall of Gorgan was probably built during the reign of Khosrow I to defend against these people, who were called “White Huns” in Byzantine documents.

ANSWER: **Hephthalites**

<AE, Ancient History>

12. While passing Fontainebleau (“fon-ten-BLOH”) Forest, this novel’s narrator imagines being beckoned by a ghost rider rumored to haunt the forest called the “Grand Veneur.” For 10 points each:

[10] Name this novel by Michel Butor about Léon, who is travelling by train from Paris to Rome to tell his mistress Cécile that he’s leaving his wife. It is unusually written entirely in the second person.

ANSWER: *La* **Modification** [or **Second Thoughts**]

[10] Despite rejecting the association himself, Butor is often grouped with a 1950s French literary movement associated with Alain Robbe-Grillet (“rob gree-YAY”) that sought to create novels described by this adjective, which also describes a contemporaneous “wave” in French film.

ANSWER: **new** [or **new** novel; or **nouveau** roman; or **New** Wave; or **Nouvelle** Vague]

[10] Butor was a major influence on this French-Mauritian author, who wrote a novel that opens in a café where its protagonist, Adam Pollo, describes to Michèle his graphic memories of raping her, titled *The Interrogation*.

ANSWER: J. M. G. **Le Clézio**

<CK, European Literature>

13. This process results in a speckle pattern when laser light passes through or reflects from a diffuse medium. For 10 points each:

[10] Name this process in which multiple waves combine, producing regions of high or low amplitude depending on the relative phase.

ANSWER: wave **interference** [accept **superposition**]

[10] Laser speckle produced in this region has statistical properties determined by the shape of the scattering objects that produced it, rather than the shape of the illuminated area as in the case of objective speckle. Approximations to the Kirchhoff formula must include quadratic terms to be valid in this region.

ANSWER: **near field** [prompt on **Fresnel** diffraction]

[10] Speckle can be diminished by reducing this property of the incident laser light. This property is inversely proportional to bandwidth and quantifies the correlation between phase at different locations and times.

ANSWER: **coherence** [accept **coherence** length, **coherence** time, spatial **coherence**, temporal **coherence**, or degree of **coherence**]

<GR, Physics>

14. The “Chamber of the 10 Maidens” houses one of these artworks titled *Coronation of the Winner*, which is one of the first known depictions of bikinis. For 10 points each:

[10] Name these works that were often created using techniques like *opus sectile* or *opus vermiculatum*. A work of this type depicts a ferocious black dog alongside the words “Cave Canem” (“KAH-vay KAH-nem”), or “Beware of the Dog.”

ANSWER: floor **mosaics**

[10] This decorative style of *opus sectile* work, named for a family who specialized in mosaics, is characterized by beautiful inlays of highly detailed triangles and rectangles. The pavement in front of the High Altar of Westminster Abbey was made in this style; that pavement inspired the tiling in *The Ambassadors*.

ANSWER: **Cosmati** work [or the **Cosmati** Pavilion; accept **Cosmatesque**]

[10] A prominent example of *opus vermiculatum* artwork is a mosaic from the House of the Faun, which depicts this figure’s victory over Darius III at Gaugamela (“GOW-gah-meh-lah”).

ANSWER: **Alexander** the Great

<VS, Painting/Sculpture>

15. When this man’s plot to overthrow a local king is discovered, he and his wife Megaram are forced to flee Borno. For 10 points each:

[10] Name this culture hero who slays the water-stealing serpent Sarki and marries Queen Daurama in Daura. This man’s descendants founded the seven Hausa kingdoms.

ANSWER: **Bayajidda**

[10] Bayajidda is an exiled prince of this city, which is also the home of a sailor who encounters a roc and a valley of diamonds on the second of his seven voyages, Sinbad.

ANSWER: **Baghdad**

[10] The Hausa queen Amina apocryphally took several lovers, all of whom she executed the next day, much like this king, whose marriage to Scheherazade forms the frame story of the *One Thousand and One Nights*.

ANSWER: **Shahryar**

<JSH, Mythology>

16. This work recounts how its author got into an argument with Aldous Huxley after claiming “all the imagery that I had under LSD was in my work already.” For 10 points each:

[10] Name this work whose “unexpurgated” version describes how the author, taking Otto Rank’s advice, slept with her own father Joaquín (“hwah-KEEN”), a composer. Its first section details the author’s infatuation with Henry Miller and his wife June.

ANSWER: Anaïs **Nin’s diary** [accept equivalents]

[10] Nin spent most of her life living in this city, which Henry Miller’s novel *A Tropic of Cancer* calls a “whore.” In the 1920s, it was home to many “Lost Generation” writers like Gertrude Stein.

ANSWER: **Paris**

[10] The protagonist of Nin’s *Winter of Artifice* is likely named after this author, whose best-known novel ends with a character getting down on all fours, barking, and nipping at her lover’s dog in an abandoned chapel.

ANSWER: Djuna **Barnes** (The novel is *Nightwood*.)

<CK, American Literature>

17. These areas are often bounded by wires or ropes, and there has been persistent debate about the propriety of establishing them in New York City. For 10 points each:

[10] Name these enclosed areas within which items may be carried on the Sabbath without violating the Talmud.

ANSWER: **eruv** (“AY-roov”) [or **eruvim**; or **eruvim**]

[10] Arguments about whether to establish *eruvim* in Brooklyn frequently refer to this work, which sets out conditions for the creation of an *eruv*. This book by Joseph Karo, whose title literally means “Set Table,” is the most authoritative compilation of Jewish law.

ANSWER: **Shulchan Aruch** (“shool-KHAN ah-ROOKH”) [or **Shulhan Aruch**]

[10] The *Shulchan Aruch* reflects Sephardic practice, and so this Jewish group uses Moses Isserles's ("ISS-er-liss's") gloss alongside it to reflect its own customs. Most American Jews are part of this group, which is made up of Jews of central and eastern European descent.

ANSWER: **Ashkenazi** Jews [or **Ashkenazim**]

<NC, Religion: Judaism>

18. Answer the following about "La Libertadora," Manuela Sáenz, and her life in the aftermath of the fall of Gran Colombia. For 10 points each:

[10] Sáenz was the target of rumors that she participated in General José Sardá's conspiracy against this leader. This leader defeated Antonio Nariño in a Vice Presidency election after the passing of the Constitution of Cúcuta.

ANSWER: Francisco de Paula **Santander**

[10] The many calls for Sáenz's exile led her to plan a return to this home country of hers, the site of the Battle of Pichincha. The *Junta de Guayaquil* fought for its independence.

ANSWER: **Ecuador**

[10] Sáenz also fought rumors that she had been part of the Battle of El Santuario in which a general of this ethnicity led forces against José María Córdova. With José de San Martín, a general of this ethnicity won the Battle of Maipú.

ANSWER: Chilean-**Irish** (The generals are Daniel Florence O'Leary and Bernardo O'Higgins.)

<EL, World History>

19. Answer the following about the career of applied mathematician Hilda Geiringer ("GUY-ring-er"), for 10 points each.

[10] Geiringer's PhD thesis generalized these series to two variables. These series expand a periodic function in terms of harmonic orthogonal basis functions.

ANSWER: **Fourier** series [do not accept or prompt on "Fourier transform"]

[10] Geiringer developed the mathematical basis for this phenomenon in genetics, expanding on descriptions of this phenomenon in terms of crossover probabilities by Haldane and Morgan. This phenomenon includes deviations from Mendel's law of independent assortment and can be quantified in centimorgan units.

ANSWER: genetic **linkage**

[10] Geiringer's work on mathematical statistics included proving generalizations of this statement, which is normally justified by applying Chebyshev's inequality and assuming that the variance of n variables tends to infinity more slowly than n -squared.

ANSWER: **law of large numbers** [accept the weak **law of large numbers** or **Khinchin's law**]

<GR, Other Science: Mathematics>

20. Wesley Hohfeld developed a logical analysis of these things, distinguishing between the De Morgan dual "liberty" and "claim" types of them. For 10 points each:

[10] Identify these fundamental principles that grant individuals freedoms like freedom of expression. Robert Nozick's *Anarchy, State, and Utopia* argues that they impose "side-constraints" on others' actions.

ANSWER: human **rights** [or natural **rights**]

[10] This philosopher defended the view that rights are "trumps" in his book *Taking Rights Seriously*. He wrote another work framed as a debate between Judge Hermes and Judge Hercules.

ANSWER: Ronald **Dworkin** (The book is *Law's Empire*.)

[10] Jeremy Waldron wrote a history of rights theory titled for this three-word phrase, which Jeremy Bentham famously used to dismiss natural rights as nothing more than rhetoric.

ANSWER: "**nonsense upon stilts**"

<CK, Philosophy>