

2020 Terrapin Open

Packet 6

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Tossups

1. **In this place, a character offends a black man who constantly reminisces about owning a gambling joint by calling him a “bloody Kaffir.” After realizing that he’s the only one the protagonist converted, a character in this place realizes he’ll “never be a success in the grandstand – or anywhere else!” In this place, a Harvard drop-out raps on tables while singing a song about a sailor lad named Jack. This place is the setting of a play that ends with a character, who frequently exclaims “laugh leedle bourgeois monkey-faces,” singing (*) “Carmagnole.”** This place is owned by an agoraphobe who vows to walk around the block on his birthday. In the final act of a play set in this place, a character leaps to his death from a fire escape after being told to “get the hell out of life” by the “old foolosopher” Larry Slade. In a play sat in this place, Hickey attempts to convince its regulars to abandon their “pipe dreams.” For 10 points, name this setting of Eugene O’Neill’s play *The Iceman Cometh*.
ANSWER: Harry Hope’s saloon [or Harry Hope’s bar; or the bar or saloon from *The Iceman Cometh*; accept equivalents]

<CK, American Literature>

2. **D. M. Murdock argues that religious traditions associated with Jesus evolved from the worship of this deity, whom she claims had twelve disciples and was baptized in the Eridanus River by a figure named Anup. Macrobius describes this deity’s association with the winter solstice, when this deity’s birth was celebrated. This deity was attacked by Uhut in a scene often depicted on cippi used for healing rituals. The bottom half of the Metternich Stela (“MET-er-nik STEE-luh”) depicts this deity grasping a lion in his left hand and an oryx in his right. Depictions of this deity holding a finger to his lips gave rise to a (*) Hellenized version of this deity’s “newborn sun” aspect. In his infancy, this deity was poisoned while he was hidden in the marshes. As Heru-pa-Khered, this deity is commonly depicted in steles (“STEE-leez”) dancing on top of snakes, scorpions, and alligators.** For 10 points, name this deity whose healing powers were represented by his wedjat eye.

ANSWER: Horus

<JSH, Mythology>

3. **An album by a musician with this first name ends with a smooth jazz rendition of the “Battle Hymn of the Republic,” which Hunter S. Thompson used in his campaign ads. At the Village Gate, that musician with this first name made a 1961 live recording of “Comin’ Home Baby.” A musician with this first name wrote the tracks “One Finger Snap” and “Oliloqui Valley” for an album on whose final track he plays a simple ostinato rhythm that Freddie Hubbard improvises over, titled “The Egg.” A jazz (*) flutist with this first name recorded the album *Memphis Underground*. A musician with this first name recorded the album *Empyrean Isles*, which includes his song “Cantaloupe Island.” That musician with this first name recorded a funk track that opens with Bill Summers imitating a *hindewhu* (“HIN-duh-woo”) using a beer bottle.** For 10 points, give this first name of a jazz pianist who composed the fusion standards “Chameleon” and “Watermelon Man” for his album *Head Hunters*.

ANSWER: Herbie [or Herbert; accept Herbert “Herbie” Hancock or Hebert “Herbie” Mann]

<CK, Other Arts: Music>

4. *Note to moderator: Read the answerline carefully. Note to players: Description acceptable.* **Gregory Fu’s team developed a ferrocene-based DMAP analog in order to perform this procedure on acylated secondary alcohols. In Eli Lilly’s synthesis of duloxetine, this is the first of the three steps in the RRR procedure. Elution**

order and the extent of this process can be predicted in certain functionalities using Helmchen's postulates. Old reagents used for this process, like trifluoroacetylated anthracene and Mosher's acid, have been replaced with a technique that makes use of columns containing (*) cyclodextrin stationary phases. In addition to that form of chromatography that performs this process, the kinetic version of this process is often used as a cheaper alternative to direct asymmetric synthesis, which can isolate compounds prefixed "levo-" and "dextro-." The "spontaneous" variety of this process was first observed in the crystallization of sodium ammonium tartrate by Louis Pasteur. For 10 points, name or describe this process of separating racemic ("ruh-SEE-mick") mixtures into stereoisomers.

ANSWER: **chiral resolution** [or **optical resolution** or **kinetic resolution**; or **chiral derivatization** or **derivatizing chiral** compounds; or descriptions like **separating chiral** compounds or mixtures; or **determining enantiomeric excess** or **determining optical purity**; or **determining absolute configuration**; or **analysis of enantiomers** or **analysis of diastereomers** or **analysis of chiral mixtures**; accept **separating stereoisomers** or **enantiomers** or **diastereomers** before the end of the tossup, and prompt after; prompt on **resolution** or **separation** or equivalents; prompt on performing **NMR** or **HPLC** or **chromatography** by asking "what is the goal of that experiment?"]
<KS, Chemistry>

5. To explain this concept, one thinker posited a "division of labor" between "marked" and "unmarked" expressions. A 2005 book by Chris Potts develops a "logic" of a type of this concept, exemplified by expressions containing the word "but." Laurence Horn gave an account of this concept based on the opposing Q- and R-principles. One thinker illustrated this concept using the example of a professor who only praises his student's attendance and command of English in a letter of recommendation. According to one paper, they arise when speakers (*) violate the maxims of quantity, quality, relation, and manner, while observing the cooperative principle. Unlike the "conventional" type, the "conversational" type is cancellable. In pragmatics, this concept is contrasted with both presupposition and entailment. For 10 points, H. P. Grice coined the name for what phenomenon in which an utterance suggests something not logically implied by its meaning?

ANSWER: conversational **implicatures** [or conventional **implicatures**; or scalar **implicatures**; do not accept or prompt on "implication" or "implies"; prompt on **pragmatics**]
<CK, Social Science>

6. Pierre Rode, Pierre Baillot, and this man developed the official French method for playing his instrument using the new Tourte ("toort") bow. A chamber piece subtitled for this man opens with muted strings arching up from low B and E into a jarring tremolando E minor chord with an F-sharp, and has four "Con moto" movements. Repetitive 16th notes make up most of this composer's 42 "études or caprices." A sonata dedicated to this man opens with a forte-piano A major quadruple-stop and a chain of slow falling thirds in a four-bar (*) violin solo followed by a darker four-bar piano solo. Leoš Janáček's ("LEH-ohsh YAH-naw-check's") String Quartet No. 1 is indirectly titled for this violinist. He was the second dedicatee of an A minor sonata premiered by George Bridgetower, but refused to play it. For 10 points, name this French court composer of German descent, the dedicatee of Beethoven's Violin Sonata No. 9, which inspired a Tolstoy novella.

ANSWER: Rodolphe **Kreutzer** ("KROYT-sir") [accept **Kreutzer** Sonata; do not accept or prompt on "Kreisler"]
<KS, Classical Music>

7. It's not Uruk, but most of the tablets containing the Epic of Gilgamesh were discovered in this city's ruins by archaeologist Hormuzd Rassam. Claudius Rich performed the first survey of this city's ruins, which Paul-Émile Botta used to begin excavations at this site, before moving across the Tigris to the ruins of Dur-Sharrukin. In the 1930s, Reginald King and Leonard Campbell Thompson excavated this city's Temple of Ishtar, which was located on a hill called the (*) Kuyunjik. It's not Palmyra, but ISIS destroyed this city's Temple of Nebu in 2016, in addition to a shrine dedicated to the prophet Jonah. Many of the Assyrian tablets in the British Museum's collection come from Austen Henry Layard's excavations in this city, which led to the discovery

of the palace of Sennacherib and the library of Ashurbanipal. For 10 points, name this city that was the capital of the Neo-Assyrian empire.

ANSWER: **Nineveh**

<AE, Archaeology>

8. A Jonathan Lethem story parodies this story in a section that begins with Bruce Wayne declaring, “I have completed the construction of my Batcave, and it seems successful.” The narrator of this story claims that the most beautiful part of its setting is the “stillness,” and describes the “happy but dangerous hours,” when he throws himself upon his stockpiles of food, gorging himself. The narrator decries his latitude toward the “small fry,” whom he suspects is responsible for a (*) faint whistling sound. Though it originally ended mid sentence, Max Brod edited that sentence so that it ends, “But all remained unchanged.” Dora Diamant may have destroyed an ending to this story describing a struggle between the narrator and an invading beast. The protagonist of this story stockpiles flesh in a place he calls the Castle Keep, a room in the title place that is hidden beneath a moss covering. For 10 points, name this Franz Kafka story about a creature who lives in the title hole.

ANSWER: “The **Burrow**” [or “Der **Bau**”]

<CK, European Literature>

9. Guo et al. disrupted HIV-1 replication with one of these structures called Ll-dot-LtrB by modifying its EBS and delta positions to facilitate its IEP-mediated retrohoming. Sue Berget noticed unusual patterns in R-loop formation that led the Sharp lab to discover these structures at the same time as the Roberts group. A rare type of them that does not obey the GU-AG rule gets processed by U12 machinery. The group-one type of these sequences was discovered in *Tetrahymena* by the Cech (“check”) lab and is considered a ribozyme as it catalyzes its own consecutive (*) transesterification reactions. These sequences form a lariat when snRNAs recognize their branch, acceptor, and donor sites. They are removed from pre-mRNA through splicing. For 10 points, name these mostly non-coding sequences of DNA found between exons.

ANSWER: **introns** [or **intervening sequences**; accept **ribozymes** until “Berget” is read, but prompt on **ribozymes** until “ribozyme” is read; prompt on all types of **RNA** until it is read; prompt on **splice sites** until “splicing” is read by asking “what type of sequence are splice sites found on?”]

<JS, Biology>

10. A ruler of this kingdom who was originally betrothed to a son of Frederick Barbarossa had five children with her cousin Alfonso before their marriage was annulled by Pope Innocent III. It’s not France, but a queen born in this kingdom signed the Treaty of Paris to end the Albigensian Crusade while serving as regent for her son, whom she married to Margaret of Provence (“pruh-VONCE”). That woman from this kingdom feuded with her son Louis IX over his treatment of the French Jews. Another ruler of this kingdom signed the Treaty of Alcáçovas (“all-KAH-soo-vuss”) to secure her claim to the throne during a war in which she was victorious at the Battle of (*) Toro against a rival claimant known as “La Beltraneja.” Under the influence of her confessor Cardinal Cisneros, that ruler of this kingdom promulgated the Alhambra Decree. For 10 points, name this Spanish kingdom that was united with its eastern neighbor when its queen Isabella married Ferdinand II of Aragon.

ANSWER: **Castile**

<JL, European History>

11. A man in this novel smokes hashish with a woman who tells him that she was reborn on a lonely night with “a cold rain falling.” A ghost repeatedly harasses this novel’s protagonist for her TV subscription fee as she hides in her apartment. At the end of this novel, the protagonist climbs up the stairway of an expressway with a man she met at a playground. That woman had been magically impregnated on a stormy night during which she kills (*) Leader during a massage session. In this novel, a private investigator named Ushikawa is suffocated with a plastic bag by a man employed by an elderly dowager. After the death of a blind goat, a little girl

in the Sakigake (“sa-kee-ga-keh”) cult meets the Little People in a story nested within this novel titled *Air Chrysalis*. A woman in this novel deduces that hearing Janáček’s (“YAH-naw-check’s”) *Sinfonietta* in a taxi sent her to an alternate reality with two moons in the sky. For 10 points, Tengo and Aomame (“ah-oh-MAH-meh”) appear in what lengthy Haruki Murakami novel titled for an alternate year?

ANSWER: 1Q84 [or Ichi-Kyū-Hachi-Yon]

<CM, World/Other Literature>

12. **Endochronic theory describes this process in terms of integrals of memory kernels. The “flow” theory of this process requires a loading–unloading condition. It’s not failure, but the Drucker–Prager criterion gives a condition for when this process begins. This process begins when the second deviatoric invariant reaches a critical value according to the von Mises (“fon MEE-ziss”) criterion. Work hardening results from dislocation introduced during this process. The (*) yield point on a stress–strain curve is the value where this process begins, and materials that do not undergo this process instead exhibit brittle failure. This process happens at higher strain than elastic deformation. For 10 points, name this process in which a solid is permanently deformed by applied stress.**

ANSWER: plasticity [or plastic deformation; or plastic flow; accept flow plasticity; accept yielding; prompt on deformation]

<GR, Physics>

13. **To test this character’s devotion, another character feigns illness by mixing pig’s blood with his own vomit, which he induced by consuming ipecacuanha (“IP-uh-cack-yoo-AH-nuh”). In another scene, a man is shocked that this character sold her clothes to purchase a coffin adorned with depictions of an hourglass, an urn, and a lily with a snapped stem. This character’s best friend warns her about another character’s tryst with an inn-keeper’s daughter nicknamed “Rosebud.” This character describes that antagonist as a “pernicious caterpillar” in a series of ten fragmentary (*) “mad papers,” which represent her loss of sanity using scattered typography. This character exchanges letters that she hides in her family’s woodhouse with her friend Anna Howe, and she rejects a proposed marriage to the elderly Roger Solmes. This character bribes Dorcas as part of a plot to escape a brothel owned by Mrs. Sinclair where she is raped by Robert Lovelace. For 10 points, name this heroine of an epistolary novel by Samuel Richardson.**

ANSWER: Clarissa Harlowe [prompt on Harlowe]

<CK, British Literature>

14. **Spiro Agnew cast a tie-breaking vote in favor of bailing this company out, a task accomplished by the 1971 Emergency Loan Guarantee Act. It’s not the UFC, but bribes handed out by this company’s executives around the same time as Chiquita’s “Bananagate” scandal led Congress to ban bribery of foreign officials by American companies. This company bribed West German and NATO allies to win the “deal of the century” over competitors like the French firm Dassault (“da-SO”). “Kelly” Johnson was a key engineer at a secret facility operated by this company in (*) Burbank, California. The F-104 Starfighter, SR-71 Blackbird, and U2 were all created by this company’s Skunk Works division. Unlike the civilian-market-focused Boeing and Airbus, this company takes in over 85 percent of its revenue from defense contracts. For 10 points, name this aerospace company that became the world’s largest military contractor after its 1995 merger with Martin Marietta.**

ANSWER: Lockheed Corporation [accept Lockheed Martin Corporation]

<GR, American History>

15. **Some accounts state that the first Buddhist schism was caused by Mahādeva’s argument that these people are susceptible to wet dreams. Buddhists are ineligible for ordination if they have murdered their mother, their father, or one of these people. According to tradition, five hundred of these people convened after the death of the Buddha to codify the first Buddhist scriptures. The Tripitaka (“trih-PIH-tuh-kuh”) states that**

the laity cannot directly attain the status of these people without being reborn first. Individuals attain this status by releasing themselves from *samyojana*, or (*) fetters. A widely-venerated group of these individuals is said to have sixteen members in Japan and Tibet and eighteen members in China. The status of these people is minimized in Mahāyāna Buddhism, which emphasizes the status of bodhisattva. For 10 points, name this term used in Theravada Buddhism to describe individuals who have achieved *nirvāṇa*.

ANSWER: arhats [or arahants; or arahat; or arahan; or arakan; or aluohan]

<NC, Religion: Buddhism>

16. A situation very close to this phenomenon denoted $2\lambda_J - 5\lambda_S$ is termed “the Great Inequality.” One type of this phenomenon can occur when the precession is between two rates of change of the argument of periapsis. According to the Nice (“neese”) model, Jupiter and Saturn increased their orbital eccentricity after crossing one type of this phenomenon during the formation of the Solar System. Io, Ganymede, and Europa exhibit the three-body (*) Laplace type of this phenomenon, and Saturn’s Titan ringlet is stabilized by a different example of this phenomenon. Kirkwood gaps are regions where asteroids are likely to be ejected from the asteroid belt due to this phenomenon with Jupiter. For 10 points, name this phenomenon in which orbiting bodies have a strong influence on each other due to their periods being integer multiples of each other.

ANSWER: orbital resonance [accept mean-motion resonance or secular resonance]

<GR, Other Science: Astronomy>

17. A version of this problem centering on a lesion that makes people both want to smoke and more susceptible to lung cancer is used to illustrate a response to it, called the “tickle defense.” A “meta-” version of this problem was introduced in a 2001 paper in *Analysis* written by Nick Bostrom. David Lewis argued that in the prisoner’s dilemma, each prisoner faces this kind of problem, which he also wrote about in his paper “Why Ain’tcha Rich?” In response to this problem, Allan Gibbard and William Harper used the probabilities of counterfactuals to develop (*) causal (“CAUSE-al”) decision theory. Robert Nozick first formulated this problem to illustrate a clash between the principles of dominance and expected utility maximization. For 10 points, name this problem centering on a predictor who puts either a million dollars or nothing in an opaque box depending on whether they predict that an agent will take an open box containing a thousand dollars.

ANSWER: Newcomb’s problem [or Newcomb’s paradox; accept meta-Newcomb problem]

<CK, Philosophy>

18. The philosopher Huang Zongxi (“dzong-shee”) decried the influence of eunuchs (“YOO-nucks”) on this dynasty’s government, noting that “Everyone has known for thousands of years that eunuchs are like poison and wild beasts.” The “Eight Tigers” was a group of eunuchs in this dynasty that was led by Liu Jin (“l’yoh jin”) and dominated the court of the Zhengde (“jung-duh”) Emperor. The reign of the Tianqi (“t’yen-chee”) Emperor during this dynasty was dominated by a man who crushed the reformist Donglin faction and is considered the most powerful eunuch in Chinese history, Wei Zhongxian (“jong-sh’yen”). The failures of the eunuch Wang Jen (“wong jun”) during a military expedition launched by this dynasty led the (*) Oirats to capture this dynasty’s Zhenzong (“jung-tohng”) Emperor during the Tumu Crisis. A eunuch who lived during this dynasty executed the pirate Chen Zuyi (“chun dzoo-yee”) and brought a giraffe back from his voyage to Malindi. For 10 points, name this Chinese dynasty during which Zheng He (“jung huh”) led several treasure voyages to the Indian ocean.

ANSWER: Ming dynasty

<AE, World History>

19. This city’s tradition of exchanging books and roses on Saint George’s Day inspired UNESCO to declare April 23rd “World Book Day.” A meridian arch stretching from Dunkirk to this city was measured by the French Academy of Sciences to determine the length of the meter. This city’s Hospital de Sant Pau

(“oo-spee-TALL the sahm pow”) became a museum and is part of a UNESCO World Heritage Site celebrating the Art Nouveau style of (*) Lluís Domènech i Montaner (“l’yoo-EESE doo-MEN-uck ee moon-ta-NAY”). This city hosted the last Summer Olympics to occur in the same year as the Winter Olympics. Much of this city’s Asian population lives in its Raval district, which is separated from the Gothic Quarter by the popular street La Rambla. A church in this city was designed to have 18 spires and is on track to be completed in 2026. For 10 points, name this Spanish city home to Antoni Gaudí’s (“gow-DEE’s”) unfinished Sagrada Família.

ANSWER: **Barcelona**

<EM, Modern World>

20. An artist from this country was accused of blasphemy for painting Pontius Pilate gesturing at a thin and dishevelled Christ in *What is Truth?*, which likely inspired the fictional painting *The Admonition of Pilate*. Artists from this country refused to paint the university-mandated theme of *Odin Entering Valhalla* in the “revolt of the 14” that led to the formation of the Artel of Artists. A church on a small outcropping appears in *Above the Eternal Peace*, a painting by an artist from this country named (*) Isaac Levitan. Two maids in religious garb hold an empty box in a painting from this country in which a hump-backed boy is prevented from joining the title *Religious Procession*. As part of his *Turkestan* series, an artist from this country depicted a pyramid of skulls in the painting *The Apotheosis of War*. An artist from this country painted men watching the drafting of an insulting letter to Sultan Mehmed IV. For 10 points, name this country where The Wanderers were led by Ilya Repin.

ANSWER: **Russia** (*The Apotheosis of War* is by Vasily Vereshchagin; *The Admonition of Pilate* is a fictional painting that appears in *Anna Karenina* that was probably inspired by Nikolai Ge’s aforementioned painting.)

<VS, Painting/Sculpture>

Bonuses

1. The *Authentica habita*, which established the rules, rights, and privileges of medieval universities, led to the development of Europe's first legal schools in this city. For 10 points each:

[10] Name this Italian city where Gratian laid the foundation for Catholic canon law at its university. This city's university claims to be the oldest in Europe.

ANSWER: **Bologna**

[10] The *Authentica habita* was written in 1155 by this Holy Roman Emperor who drowned in the Saleph River during the Third Crusade.

ANSWER: **Frederick Barbarossa** [or **Frederick I** of the Holy Roman Empire; prompt on partial answer]

[10] The *Authentica habita* was incorporated into Justinian's Codex, which was studied by this jurist at the University of Bologna. This founder of the School of Glossators helped reintroduce the study of Roman law to Medieval Europe.

ANSWER: **Irnerius** [accept *lucerna juris* or "**lantern of the law**"]

<JD, European History>

2. The heat equation sets this function of u equal to the Laplacian of u . For 10 points each:

[10] Name this function that gives the instantaneous rate of change of a variable.

ANSWER: **time derivative** [or partial **derivative with respect to time**; accept **d/dt** or **d-over-dt**; prompt on partial **derivative** by asking "with respect to what variable?"]

[10] This process deforms a Riemannian manifold in a manner analogous to the heat equation. This process can be simplified by Karen Uhlenbeck's trick, and Grigori Perelman proved the Poincaré ("pwann-kah-RAY") conjecture using this process "with surgery."

ANSWER: **Ricci flow**

[10] Ricci flow smooths out irregularities in this tensor, which generalizes the dot product to Riemannian manifolds.

ANSWER: **metric** tensor

<CK, Other Science: Mathematics>

3. A boy creating some of these things appears above the scene and next to a skull in the painting *The So-Called Brewery of Jan Steen* ("yon stain"). For 10 points each:

[10] Name these things that represented the transience of life in a common 17th-century Dutch motif that often paired them with skulls; that motif is referred to as *Homo* followed by the Latin word for them. Rembrandt depicted Cupid creating these things in one painting.

ANSWER: soap **bubbles** [accept *Cupid Blowing Soap Bubbles*; accept *Homo Bulla*]

[10] This artist depicted a man leaning out of a window and blowing bubbles in an homage to the Dutch *Homo Bulla* motif. He likely drew inspiration from Rembrandt's painting *The Slaughtered Ox* for a work depicting a spooked cat and the title mortally wounded fish.

ANSWER: Jean-Baptiste-Siméon **Chardin** ("shar-DAN") (The painting is *The Ray*.)

[10] This artist drew ire for commercializing the *Homo Bulla* motif when he sold depictions of children blowing bubbles to Pears Soap for use in advertisements. This member of the Pre-Raphaelite Brotherhood painted *Ophelia*.

ANSWER: John Everett **Millais** ("mill-AY")

<VS, Painting/Sculpture>

4. This story begins, "Their honeymoon was one long shudder." For 10 points each:

[10] Name this story by the "Edgar Allan Poe of South America," Horacio Quiroga ("oh-RAHSS-yo kee-ROH-ga"). It ends as Jordán ("hor-DAH-N") slashes open the title object to discover that it contains a parasite that has been sucking the blood out of his wife Alicia.

ANSWER: "The **Feather Pillow**" [or "El **almohadón de plumas**"; or variant translations]

[10] Edgar Allan Poe influenced this author whose character Roberto Michel discovers that a photograph he took prevented a teenage boy's seduction in the story "Blow-Up."

ANSWER: Julio **Cortázar**

[10] The narrator of a Cortázar story writes letters to Andrea detailing this bizarre affliction of his, which intrudes upon the "compact order" of a house that he otherwise leaves undisturbed. Though the narrator tries to hide its products in an armoire, this condition eventually drives him to jump off a balcony.

ANSWER: he **vomits rabbits** [accept equivalents; accept answers indicating that he is **creating rabbits**; prompt on answers like **vomiting animals** or **creating animals** that do not specify what animals] (The story is "Letter to a Young Lady in Paris.")

<CK, World/Other Literature>

5. After being closed for a one-year hiatus, this restaurant reopened in 2018 and was ranked second in *Restaurant* magazine's 2019 ranking of the best restaurants in the world. For 10 points each:

[10] Name this restaurant that was voted the world's best restaurant four times between 2010 and 2014. Under head chef René Redzepi it has been at the forefront of the New Nordic movement.

ANSWER: **Noma**

[10] Noma is located in this Danish city. This city is also home to the Tivoli Gardens amusement park and the Little Mermaid statue.

ANSWER: **Copenhagen** [or **København**]

[10] Noma has recently published an encyclopedic guide to using microbial fermentation in cooking. Elsewhere in Nordic cuisine, this food is fermented to make the Icelandic dish *hákarl*.

ANSWER: **shark** meat [or Greenland **shark**; or sleeper **shark**; prompt on **fish**]

<EM, Modern World>

6. Many Catholic schools were opened following an unsuccessful lawsuit that resulted from this event, after which many Catholic boys left the namesake school. For 10 points each:

[10] Name this event in which the Catholic boy Thomas Whall was whipped for refusing to recite the King James Bible's version of the Ten Commandments, sparking outrage among local Catholics.

ANSWER: **Eliot** School Rebellion

[10] The Eliot School Rebellion occurred in this state, a hub of 1850s Irish immigration. Its Irish political figures have included Tip O'Neill and the Kennedy family.

ANSWER: **Massachusetts**

[10] Shortly after the Eliot Rebellion, this politician proposed a ban on the use of public funds for parochial schools; it failed, but many states adopted Amendments named for him that banned parochial school funding. While serving as Secretary of State, this politician organized the First International Conference of American States.

ANSWER: James G. **Blaine**

<EL, American History>

7. Because time propagation is one of these mathematical operations, they are used to prove Liouville's ("lyoo-VEEL's") theorem. For 10 points each:

[10] Name these mathematical operations that change the coordinates and momenta while maintaining the form of Hamilton's equations.

ANSWER: **canonical transformation**

[10] This equation, which sets the partial time derivative of Hamilton's principal function equal to negative H , can be derived from Hamilton's equations using a canonical transformation with a type-2 generating function chosen such that the new Hamiltonian is zero.

ANSWER: **Hamilton-Jacobi** equation

[10] Hamilton's principal function is closely related to this functional quantity. This quantity is extremized with variational derivatives to yield the Euler–Lagrange equations for a system, and it is given by a time integral of the Lagrangian.

ANSWER: **action**

<GR, Physics>

8. Robert Stalnaker gave a semantics for the conditional in terms of a selection function that picks out the closest one of these things that makes the antecedent true. For 10 points each:

[10] Name these things. A young Saul Kripke devised a semantics for modal logics based on a frame consisting of a set of these things and an accessibility relation.

ANSWER: possible **worlds**

[10] Johan van Benthem proved that propositional modal logic is the fragment of this logic that is invariant under bisimulation. Unlike propositional logic, this logic contains quantifiers and variables.

ANSWER: **predicate** logic [or **first-order** logic]

[10] In modal predicate logic, this formula is equivalent to its converse on symmetric frames. This formula says that if everything is necessarily F, then it is necessary that everything is F.

ANSWER: **Barcan** formula

<CK, Philosophy>

9. This phrase was adopted in 2011 for use in English-language services by the Roman Catholic Church. For 10 points each:

[10] Give this four-word set response to “the Lord be with you.” It replaced the formerly used phrase “and also with you.” An exact answer is required.

ANSWER: “**and with your spirit**”

[10] This ancient Syriac-language translation of the Bible uses the normally feminine noun *ruha* for the Holy Spirit. This is the standard translation used by the Church of the East and its descendants.

ANSWER: **Peshitta** (“p’sheet-TAW”)

[10] Although contemporary English translations of the Bible generally use the term “Holy Spirit,” older translations often use this other name for the third person of the Trinity. This term has fallen out of favor because it suggests a dead person rather than a spirit.

ANSWER: **Holy Ghost**

<NC, Religion: Christianity>

10. In the intro to her first sonnet cycle, this poet claimed that the sonnets were given to her by a friend with permission to publish, which has led many to speculate that the sonnets were written by John Knox. For 10 points each:

[10] Name this poet and longtime friend of Knox. Her sonnet cycle based on Psalm 51, *A Meditation of a Penitent Sinner*, is considered the first English sonnet cycle.

ANSWER: Anne **Locke**

[10] Locke's sonnet cycle precedes *Astrophel and Stella*, long considered to be the first English sonnet cycle, which was published during this monarch's reign. She is allegorized as Gloriana in Edmund Spenser's *The Faerie Queene*.

ANSWER: **Elizabeth** I [accept **Elizabethan** Era]

[10] Locke was influenced by this poet, who described people who “put themselves in danger / To take bread at my hand” in “They Flee From Me.” He may have had an affair with Anne Boleyn.

ANSWER: Thomas **Wyatt**

<EL, British Literature>

11. After his neoclassical period culminated in *The Rake's Progress*, Stravinsky broke down in the Mojave Desert, but this man guided him back to confidence and to the progressive Second Viennese School. For 10 points each:
[10] Name this erudite American conductor who premiered *Agon*. He was Stravinsky's protective young amanuensis ("uh-man-yoo-EN-siss"), consultant, and ghostwriter throughout his serial period, starting with the 1952 *Septet*.

ANSWER: Robert **Craft**

[10] Messiaen's ("mess-YAWN's") *Treatise* analyzes the "rhythmic characters" of this third Russian-period ballet by Stravinsky that caused a sensation. Wild jerky rhythms and dissonant ostinatos are heard in its "Dance of the Earth."

ANSWER: *The Rite of Spring* [or *Le Sacre du printemps*; or *Vesna svyashchennaya*]

[10] Although Stravinsky resisted Wagner, Diaghilev ("dee-AH-gill-ev"), who commissioned *The Rite of Spring*, had similar aesthetic ambitions to Wagner. In two 1849 essays, Wagner described this aesthetic that synthesizes many genres into a whole, such as music, drama, dance, visuals, and even architecture.

ANSWER: **Gesamtkunstwerk** ("guh-ZOMT-koonst-vairk") [or **total work of art**; or **total artwork**]

<OL, Classical Music>

12. Claudius Henry, who belonged to this religious group, was arrested in 1959 for attempting to launch a communist insurrection, and selling fraudulent tickets on a nonexistent ship back to Africa. For 10 points each:

[10] Name this religious group. Labor Party PM Alexander Bustamante ordered police officers to kill 150 members of this religious group in the 1963 Coral Gardens massacre.

ANSWER: **Rastafarians** [or **Rastas**]

[10] Rastafarians overwhelmingly supported this socialist PM of Jamaica in the 1970s. He famously joined hands with the leader of the rival Labor Party, Edward Seaga ("see-AH-ga"), during Bob Marley's One Love Peace Concert.

ANSWER: Michael **Manley**

[10] Edward Seaga's Labor Party won a resounding victory over Manley's People's National Party in a 1983 snap election held after the US invasion of this island, whose New Jewel Movement was led by Maurice Bishop.

ANSWER: **Grenada** ("gruh-NAY-duh")

<CK, World History>

13. The sedative and hypnotic agent chloral hydrate is an example of the geminal type of these functional groups. For 10 points each:

[10] Name this functional group. Vicinal examples of these functional groups may be cleaved using lead(IV) ("led-four") acetate in the Criegee ("KREE-gay") oxidation, and they can be formed by oxidizing alkenes with osmium tetroxide.

ANSWER: **diols** [accept vicinal **diols** or geminal **diols** or **glycols**; do not accept or prompt on "alcohols" or "ols"]

[10] Barry Sharpless's dihydroxylation is a variation of a diol production method named for this pharmaceutical company that made use of NMO and OsO₄. This company was acquired by Pharmacia AB in 1995 and is now owned by Pfizer.

ANSWER: **Upjohn** Company [accept **Upjohn** dihydroxylation]

[10] The Malaprade reaction is a glycol cleavage that makes use of an acid containing this element. In a standard laboratory test, this element forms a blue-black color in the presence of starch.

ANSWER: **iodine** [or **I**] (The acid is periodic acid.)

<KS, Chemistry>

14. In a long poem, this author describes how "Man's body bends" toward the title object, which collects human pain "drop by drop." For 10 points each:

[10] Name this Greek poet of "The Cistern," who wrote a poem whose speaker declares: "I woke with this marble head in my hands; / it exhausts my elbow and I don't know where to put it down."

ANSWER: George **Seferis** [or Georgios Stylianos **Seferiadis**] (The poem is *Mythistorema*.)

[10] George Seferis had a chilly relationship with this other Greek-language poet. The speaker advises the reader, “hope your road is a long one, full of adventure, full of discovery” in his poem “Ithaka.”

ANSWER: Constantin **Cavafy** [or Konstantinos **Kavafis**]

[10] This novel’s appendix contains English translations of Cavafy’s poems “The City” and “The God Abandons Antony.” In a scene from this novel, L. G. Darley meets the title character while giving a lecture on Cavafy.

ANSWER: **Justine** (by Lawrence Durrell)

<VS, European Literature>

15. Forces from this kingdom used a chariot equipped with a mace called a *rathamushal* to drive through enemy crowds and mow them down in a war against the nearby republican Vajjian Confederacy. For 10 points each:

[10] Name this kingdom. Its rulers from the Haryanka Dynasty included Bimbisāra and Ajātashatru, the latter of whom constructed a city that would serve as the capital of the Nanda, Gupta, and Mauryan Empires.

ANSWER: **Magadha** (The city is Pātāliputra.)

[10] Magadha was home to this religious leader who experienced enlightenment under a bodhi tree in Bodh Gaya.

ANSWER: **Buddha** [or **Siddhārtha** Gautama; or Siddhārtha **Gautama**; or **Gautama** Buddha]

[10] The legendary strength of the Magadha armies under the Nanda Dynasty inspired this leader’s troops to revolt, ending his campaign at the Beas River.

ANSWER: **Alexander** the **Great** [or **Alexander III** of Macedon]

<EL, Ancient History>

16. The Orsay virus causes intestinal abnormalities in this genus. For 10 points each:

[10] Name this genus that includes *nigoni* and *briggsae* sister species. John Sulston and H. Robert Horvitz mapped the entire embryonic cell lineage of the N2 strain of its best-studied species.

ANSWER: **Caenorhabditis** (“see-no-rab-DYE-tiss”)

[10] Wild *Caenorhabditis* dauer juveniles engage in a neutral type of this interspecies interaction called phoresis, in which they temporarily attach themselves to a host for travel. This strategy includes commensalism, mutualism, and parasitism.

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

[10] Many filarial nematodes require infection with this mutualistic alpha proteobacterium for fertility, and some woodlouse populations depend on it for feminization. Introducing this genus into *Aedes aegypti* (“AY-deez ee-JIP-tye”) mosquitoes can dramatically lower dengue (“DEN-gay”) transmission.

ANSWER: **Wolbachia** (“wohl-BACK-ee-uh”)

<JS, Biology>

17. This popular Israeli folk dance became a hit in Taiwan and Japan via postwar youth groups and gym classes. For 10 points each:

[10] Name this dance celebrating the discovery of water in the desert that names a simple grapevine step. Composer Emanuel Pugachov took its lyric “you shall joyously draw water from the springs of salvation” from Isaiah 12:3.

ANSWER: **Mayim Mayim** [or **Mayim** (“MA-yim”); or **Ushavtem Mayim**; prompt on **Water Water**]

[10] Pioneers in the 1930s developed the first Israeli folk dances like Mayim and Hora, which ultimately derive from the Greek *choros* or *choreia*, a type of dance with this shape in which all dancers hold hands in a linked chain.

ANSWER: **circle** dance [or **circular** dance; or **ring** dance; do not accept or prompt on “round dance”]

[10] In North and West Europe around the 1500s, the communal bonding of circular folk dances gave way to this type of dance in upper-class ballrooms. A leader and a follower in closed position perform dances of this type.

ANSWER: **partner** dance [or **couple** dance; prompt on **ballroom** dance]

<OL, Other Arts: Dance>

18. Charles William Booth colored streets orange if they were wealthy and black if they were deprived on a map showing the distribution of poverty in this city. For 10 points each:

[10] Name this city where Jon Snow plotted clusters of cholera cases on a map of Soho to trace an epidemic to its source at the Broad Street Pump.

ANSWER: **London**

[10] This statistician praised the high data-to-ink ratio of Snow's outbreak maps in *The Visual Display of Quantitative Information*. He popularized the term "sparklines" to refer to small inline graphs.

ANSWER: Edward **Tufte** ("TUFF-tee")

[10] Tufte also praised this French engineer's chart of the invasion of Russia by Napoleon, which showed the decreasing size of the French army as a line of diminishing thickness.

ANSWER: Charles Joseph **Minard**

<EM, Other Academic>

19. The protagonist distributes baseball uniforms purchased by "the mattress king of northern Kansas" in this collection's comic story "Money as a Weapons System." For 10 points each:

[10] Name this collection whose title story opens with the narrator remembering shooting dogs in "Operation Scooby," and ends with that narrator shooting his own dog, Vicar, who is suffering from cancer.

ANSWER: **Redeployment**

[10] Phil Klay's *Redeployment* is frequently compared to this Tim O'Brien collection, whose title story ends with Lieutenant Jimmy Cross burning his love letters from Martha after Ted Lavender is killed.

ANSWER: *The **Things They Carried***

[10] Norman Bowker blames himself for the death of this character, O'Brien's best friend in the platoon. Following his death, Alpha Company spends an entire day searching for his corpse in a "shit field."

ANSWER: **Kiowa** ("KYE-oh-wuh")

<CK, American Literature>

20. The simulation theory of empathy contends that empathy arises because these cells allow people to understand other's actions and emotions. For 10 points each:

[10] Name these cells that are activated both when you perform an action and when you see someone else perform that same action. They are believed to be closely-related to humans' theory of mind.

ANSWER: **mirror neurons** [prompt on partial answers]

[10] A popular theory holds that this disorder arises from "broken" mirror neurons. Simon Baron Cohen controversially argued that individuals with this spectrum disorder have an "extreme male brain."

ANSWER: **autism**

[10] This UC San Diego neuroscientist popularized the "broken mirrors" theory. In a paper with Baland Jalal, he argued that the mirror neuron system causes "Ghostly Bedroom Intruder" hallucinations during sleep paralysis.

ANSWER: V. S. **Ramachandran** [or Vilayanur Subramanian **Ramachandran**]

<CK, Social Science: Psychology>