

2019 Terrapin: Come on Angel, Come and Save Us

Packet 12

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Tossups

1. **A class of paradoxes concerning this connective motivated Anderson and Belnap’s development of relevance logic. A sentence that is equivalent to a formula in which it is embedded in this connective leads to triviality in Curry’s paradox. In Hilbert-style proof systems, formulae with these connectives can be proven using the deduction theorem. In normal modal logics, the box operator is closed under this connective according to Axiom K. In propositional logic, this is the main connective of a (*) vacuous truth.** This connective is logically equivalent to its contrapositive, and, in a *modus ponens* argument, its consequent follows from its antecedent. For 10 points, name this logical connective, often symbolized by a right arrow, that corresponds to if–then statements.

ANSWER: material **conditional** [or material **implication**; or **implies**; or **imply**; accept **if–then** statement until read; accept *P* **implies** *Q*; accept **if P then Q**; prompt on *P* right **arrow Q**]

<CK, Philosophy>

2. **Betaines, polyols, and amino acids are examples of “protectants” that cells use to prevent damage due to this phenomenon. Stresses due to this phenomenon can damage nerve cells in a disease alternately called CPM or this phenomenon’s namesake demyelination syndrome. Taurine and its transporting ATPase are used by cells in response to this phenomenon, and contractile vacuoles work to counter this phenomenon. This phenomenon is sometimes attributed to entropic forces, because there are more configurations when (*) solute concentrations are equalized.** This phenomenon results in turgor pressure experienced by plant cells. The forced “reverse” form of this process is a method for water filtration. For 10 points, name this process of solvent moving across a semipermeable membrane.

ANSWER: **osmosis** [accept **osmotic pressure** until “reverse” is read]

<GR, Chemistry>

3. **In one essay, this author argued that “mind and millinery” writing reinforced “the popular prejudice against the more solid education of women.” This author wrote a novella in which the revived corpse of a maid informs Latimer that his wife Bertha is trying to poison him. This author of “Silly Novels by Lady Writers” wrote a story in which the clergyman Mr. Gilfil falls in unrequited love with Tina Sarti. In another novel, (*) she wrote about Sir John Raffles who blackmails the banker and former purveyor of stolen Nicholas Bulstrode. In addition to *The Lifted Veil* and *Scenes of Clerical Life*, she wrote a novel that ends with Will Ladislaw announcing his marriage to Edward Casaubon’s wife.** For 10 points, name this author who wrote about Dorothea Brooke in *Middlemarch*.

ANSWER: George **Eliot** [or Mary Anne **Evans**]

<CK, British Literature>

4. **An empire with its capital on this river was founded after Biton Coulibaly transformed his *ton*, or age group association, into a standing army of slaves called the *ton djon*. That capital on this river, Ségou, was later conquered by a Sufi from the Tijani order named Umar Tall, marking the victory of his Toucouleur (“too-koo-LURR”) Empire over the pagan Bambara. In the 1990s, the Movement for the Survival of the Ogoni People, or MOSOP, was founded by Ken (*) Saro-Wiwa to protest the exploitation of the oil resources of this river’s delta. The Djingareyber (“jin-gah-ray-bair”) Mosque and the University of Sankore were established by**

Mansa Musa in a city located near this river, Timbuktu. For 10 points, name this river that enters into the Gulf of Guinea, the namesake of two West African countries.

ANSWER: **Niger** River

<AE, World History>

5. **This composer's music for a "ballet-pantomime" with choreography by Gasparo Angiolini has a 30th movement larghetto with grounded bass before a final movement "Dance of the Furies." He's not Strauss, but this composer of the ballet *Don Juan* used Philippe Quinault's ("kee-NO's") libretto for Lully as the basis of the opera *Armide* ("ar-MEED"). This composer collaborated with the librettist (*) Ranieri de' Calzabigi ("ron-YAIR-ee day kalt-sah-BEE-jee") on three operas that do not make use of *da capo* arias or *secco* recitatives as set out in the manifesto that was published with this composer's opera *Alceste*. A reform opera by this composer contains an Act 2 ballet known as the "Dance of the Blessed Spirits." For 10 points, name this German composer of the reform opera *Orfeo ed Euridice*.**

ANSWER: Christoph Willibald **Gluck**

<AE, Other Arts>

6. **In a novel by an author born in this country, the protagonist falls in love with a Midwestern social worker who calls him "Dickens" after fleeing Uganda, where he'd issued revolutionary pamphlets listing "Crimes Against the Country." A form of poetry from this modern-day country traditionally features a surface meaning called the "wax" and a hidden "gold" meaning derived by wordplay; that form is called *qene* ("ken-AY"). The author of *All Our Names* and *The Beautiful Things that Heaven Bears* is from this country, whose (*) national epic describes the Ark being brought to this country after Queen Makeda sleeps with Solomon. The epic *Kebra Nagast* was written in the Ge'ez ("GHEE-ezz") language in this modern-day country, where Dinaw Mengestu was born. For 10 points, Amharic is the traditional literary language of what East African country?**

ANSWER: **Ethiopia**

<JB, World/Other Literature>

7. **In a technique developed by W. H. King, thin film deposition causes a solid with this property to change oscillation frequency, allowing for measurement of film mass density and deposition or sorption rate. Modulators also known as Bragg cells, used to modulate signals or induce Q-switching, rely on this phenomenon. The change in frequency for a material with this property is proportional to added mass and resonant frequency squared, according to the Sauerbrey equation. Materials with this property are used to raster the sample stage in (*) scanning electron microscopes and atomic force microscopes. Ultrasonic transducers are made from materials exhibiting this effect discovered by Jacques and Pierre Curie. For 10 points, name this electromechanical effect in which crystals such as quartz produce a voltage in response to mechanical stress.**

ANSWER: **piezoelectricity** [or **piezoelectric** effect]

<GR, Physics>

8. **In Toltec tradition, the goddess Chimalma caught five of these objects belonging to Mixcoatl, leading to the birth of priest king Topiltzin Quetzalcoatl. Bhishma ("BEESH-muh") preferred to recline his head on three of these objects rather than pillows on his deathbed, which was made using hundreds of these objects. Worshippers would throw objects of this sort marked with the words "God wills it me" or "God forbids it me" before a statue of Hubal during a divination rite performed at the pre-Islamic (*) Kaaba. Out of jealousy, Feng Meng kills his master for his superior skill with these objects after that master, Houyi, uses them to down nine suns. Arjuna is the only Pāndava to pierce the eye of a golden fish with one of these projectiles, which grants him the right to marry Draupadi. For 10 points, name these instruments of war that Philoctetes might have shot from a bow.**

ANSWER: **arrows** [accept **bow and arrow**; do not accept "bow"]

<JS, Mythology>

9. This conflict inspired a poem that opens with the question “Hath not the morning dawned with added light?” That poem is “Ethnogenesis.” A poem about this war commands the title musical instruments to “leave not the bridegroom quiet, nor the peaceful farmer any peace” as they play “through the windows” and “through doors.” This conflict’s poetry is dismissed as “versified journalism” in literary critic (*) Edmund Wilson’s book *Patriotic Gore*. During his time as volunteer a nurse in this war, an author wrote the poems “Hush’d Be the Camps To-Day” and “Beat! Beat! Drums!” For 10 points, name this conflict that inspired Walt Whitman’s collection *Drum-Taps* and Herman Melville’s poem “Shiloh.”

ANSWER: American Civil War

<CK, American Literature>

10. A Pulitzer-winning 2009 biography of this person by T. J. Styles credits this person with creating an “unseen architecture which later generations of Americans would take for granted.” During a grand tour of Europe, Joseph L. White and Charles Morgan attempted to seize control of a company owned by this person. During the California Gold Rush, this person created the Accessory (*) Transit Company to bring passengers from the East Coast to San Francisco via Nicaragua. This entrepreneur faced off against Daniel Drew during the Erie War, a struggle for control over the Erie Railroad. For 10 points, name this American railroad tycoon nicknamed “The Commodore” who gave a million-dollar endowment to his namesake university in Nashville, Tennessee.

ANSWER: Cornelius Vanderbilt

<AE, American History>

11. In a book entitled *After Nature*, Marilyn Strathern argued that this concept was changed by particular technologies in the late 20th century. This concept is defined in terms of membership in a corporate body in “sociétés à maison,” or “house societies.” In Latin America, the *compadrazgo* is an example of its fictive form. In a book entitled for the American form of this concept, David Schneider criticized accounts of this concept that rely on biological notions such as (*) affinity and consanguinity. Structuralist anthropologists use the alliance theory to analyze this concept, arguing that exchange between groups is necessary because of the incest taboo, whereas functionalists analyze this concept in terms of biological descent. For 10 points, Claude Lévi-Strauss wrote a book describing the *Elementary Structures of* what anthropological term for familial relationships?

ANSWER: kinship [accept *Elementary Structures of Kinship*; accept *American Kinship*; accept Parenté after “Levi-Strauss” is read; prompt on family or families]

<GR, Social Science>

12. This artist painted three sisters in white dresses and gray wigs sitting around a table in a work commissioned by their mother in the hope of attracting suitors. This artist’s depiction of the infant Samuel praying is one of his best known depictions of childhood along with his image of a girl in a yellow dress that lends its title to Edith Wharton novel *The Age of Innocence*. This artist painted a life-sized double portrait in which dead game piles up behind two (*) aristocrats hunting with bow and arrow. This artist depicted the allegorical figures of Pity and Terror behind a throne in a painting that models Melpomene on a Shakespearean actress. For 10 points, name this first president of the Royal Academy of Arts, who painted *Sarah Siddons as the Tragic Muse*.

ANSWER: Joshua Reynolds

<JH, Painting & Sculpture>

13. The PIRATA buoy (“BOO-ee”) array is used to collect data about this body of water. A major current in this body of water is affected by an anomalous “cold blob.” Strengthening of that “blob” may reduce the sinking of this body’s namesake deep water mass, which is characterized by high temperature and oxygen content. Leakage of the Agulhas (“uh-GULL-us”) current [emphasize] into this body of water provides the main source of salt and heat for its namesake meridional overturning circulation. The Iapetus (*) Ocean was

the “predecessor” of this most saline ocean. In 1992, overfishing led to a 99-percent drop in biomass of a cod species native to this ocean, whose oscillation has a pressure center at the Azores High. For 10 points, the Gulf Stream flows along the west of what second-largest ocean?

ANSWER: **Atlantic** Ocean [accept **Atlantic** meridional overturning circulation; accept **North Atlantic Deep Water**; accept **Atlantic cod**; prompt on **Sargasso Sea** by asking “which is in what ocean?”]

<AP, Other Science: Earth Science>

14. In the classical era, a variety of this good called *Coa vestis* was produced on the Greek island of Kos. After Alfonso I granted a tax exemption, the city of Catanzaro became a major center of production for this good in Calabria. After sacking Thebes and Corinth, Roger II captured workers who produced this good and brought them to Sicily. (*) Brocade (“bro-KAID”) is a heavier, ornate form of this good that could be produced by unskilled workers following the invention of the programmable Jacquard (“zha-CAR”) loom. The production of this good in Europe began when Byzantine monks working for Justinian smuggled in mulberry shrubs and the eggs of a namesake “worm.” For 10 points, name this fabric that was traded along a namesake “road” across Asia that linked Europe to China.

ANSWER: **silk** [accept **silk**worms; accept **Silk** Road; prompt on **textiles** or **fabric** or **cloth**]

<AE, European History>

15. In a poem about this war, a eunuch tells his mistress that she was suckled by a tigress after her mother, the Queen of Ethiopia, abandoned her because she was white. After returning from captivity on the Fortunate Isles, a soldier in this war is shown a shield depicting the deeds of his ancestors from the House of Este (“ESS-tay”) by a wiseman. This war is the setting of a poem whose second canto witnesses the lovers Sofronia and Olindo both confess to the theft of a statue of (*) Mary. The sorceress Armida kidnaps the knight Rinaldo in that poem set in this conflict, which depicts a battle between Tancredi and Clorinda. That epic about this war begins with the angel Gabriel visiting Godfrey of Bouillon (“boo-YON”). For 10 points, name this war depicted in Torquato Tasso’s epic *Jerusalem Delivered*.

ANSWER: **First Crusade** [prompt on **Crusades**]

<CK, European Literature>

16. A 7th-century saint with this name wrote a book structured as 30 “steps” to spiritual perfection, titled *The Ladder of Divine Ascent*. A saint with this name developed the Paschal Homily (“PASS-kull HOM-uh-lee”) that is read in Orthodox churches on Easter, and wrote eight anti-Semitic homilies “Against the Jews.” That saint, who also developed a namesake “Divine Liturgy” used in Orthodox celebrations of the Eucharist, was given the epithet (*) “golden-mouthed,” or “Chrysostom” for his eloquence. The “disciple whom Jesus loved” is frequently thought to be an apostle and gospel author with this name. The Book of Revelation was written by an author with this name who resided on the island of Patmos. For 10 points, give this name of the prophet who baptized Jesus.

ANSWER: **John** [or **Johannes** or **Ioannes**; accept St. **John** Climacus, St. **John** Chrysostom, St. **John** the Evangelist, **John** of Patmos, and St. **John** the Baptist]

<WC, Religion>

17. Marshall Sahlins critiqued this thinker in a work whose title refers to *Abuse of this thinker’s field*. This thinker introduced the notion of taxon cycles where the range of species expands and contracts. With his student Simberloff, this scientist used defaunated mangroves in the Florida Keys to test a model for isolated communities. This scientist alluded to the modern synthesis in the subtitle to a book that discusses complex societies of animals including elephants, (*) *Sociobiology*. This scientist glibly explained that Marx just “had the wrong species,” because socialism works in eusocial insects like ants, on which this biologist is an expert. For 10 points, name this biologist who wrote *The Theory of Island Biogeography* with Robert MacArthur.

ANSWER: E. O. **Wilson** [or Edward Osborne **Wilson**]

<GR, Biology>

18. Percy Grainger adapted a movement from a work of this type for his *Blithe Bells*; that work of this type features a soprano soloist accompanied by two recorders. An adaptation of a score [emphasize] into a work of this type by Prokofiev contains movements such as “The Field of the Dead” and was reworked from his film score for *Alexander Nevsky*. A work of this type contains a chorale based on a hymn by Philipp Nicolai and is entitled (*) *Wachet auf* (“VAH-khet OWFF”), or “Sleepers Awake.” A secular one of these pieces opens with the line “Be still, stop chattering!” and one of them nicknamed for hunting contains an aria played at many weddings titled “Sheep May Safely Graze.” For 10 points, J. S. Bach wrote over 200 of what type of choral works, whose examples include one titled for coffee?

ANSWER: cantatas [accept sacred cantatas or secular cantatas]

<AE, Classical Music>

19. This region was home to a group of female soldiers called the “Greenfinches,” who went on patrols unarmed and would search women and children. A group in this region carried out an attack on bar-goers watching a 1994 World Cup game against Italy and organized the Shankill Butchers street gang. That group, which used a red (*) hand as their symbol, was the UVF. Every July 12th, a society in this region carries out marches to commemorate the Battle of Aughrim; that society is the controversial Orange Order. The Omagh bombing was the deadliest attack during this region’s Troubles, a conflict that also saw 1972’s “Bloody Sunday.” For 10 points, name this constituent country of the United Kingdom where loyalist paramilitaries clashed with the IRA.

ANSWER: Northern Ireland [or Tuaisceart Éireann; or Norlin Airlan; accept Ulster; prompt on Ireland until “constituent” is read]

<AP, European History>

20. This character is the sequentially [emphasize] first namesake of a short story in which the protagonist reminisces about his white girlfriend while buying a Creamsicle at a 7-11. This character is the first named in the title of a book that includes a story in which two teenagers bond while travelling to pick up a parent’s ashes, titled “This is What it Means to Say Phoenix, Arizona”; that book was adapted for the film *Smoke Signals*. This character, whose (*) “fistfight in heaven” with his companion names a Sherman Alexie collection, had a theme drawn from the finale of the *William Tell Overture*. This character, who used the phrase “Hi-yo, away” to call his horse Silver, addressed his companion as “Ke-mo sah-bee.” For 10 points, name this fictional mask-wearing Western hero of radio shows who fought outlaws alongside Tonto.

ANSWER: the Lone Ranger [prompt on *The Lone Ranger and Tonto Fistfight in Heaven*]

<AP, Other>

Bonuses

1. The narrator of a poem repeatedly exclaims, “I don’t want to see” the body of one of these people who “looked for dawn” though “the dawn was no more.” For 10 points each:

[10] Name this type of person whose death due to “wounds [that] burned like suns” occurs “at five in the afternoon” in a poem whose narrator “sings his elegance with a whimper of words.”

ANSWER: **bullfighter** [or *matador de toros*; or *torero*; or *toreador*; accept “**Lament for the Death of a Bullfighter**”; prompt on “*Llanto por Ignacio Sánchez Mejías*” by asking “which is an elegy for a person of what profession?”; prompt on Ignacio *Sánchez Mejías* by asking “who was of what profession?”]

[10] “Lament for the Death of a Bullfighter” is an elegy written by this Spanish author. This author’s other works include the plays *Blood Wedding* and *The House of Bernarda Alba*.

ANSWER: Federico **García Lorca** [prompt on partial answer]

[10] This English youth, the title character of a semi-autobiographical narrative poem by Lord Byron, watches a bull killed by a *matador* in Cádiz, one of the stops of the title “pilgrimage” he undertakes across Europe.

ANSWER: Childe **Harold** [accept *Childe Harold’s Pilgrimage*]

<AP, European Literature>

2. The day of this event was marked as the “Day of Atonement,” and it was paralleled by a “Day of Absence” for women who were excluded from this event. For 10 points each:

[10] Name this event in which many African-Americans gathered on the National Mall. This October 16, 1995, event was organized Louis Farrakhan, the controversial leader of the Nation of Islam.

ANSWER: **Million Man** March

[10] The exclusion of women at the march was protested by this African-American feminist, who had been arrested in 1970 for purchasing a shotgun used in an escape attempt by the Soledad Brothers, though she was acquitted.

ANSWER: Angela **Davis**

[10] This woman’s remarks at the march honored her late husband Raymond, who set up a defense fund for the Scottsboro Boys. She ignited the Montgomery bus boycott when she refused to give up her bus seat to a white man.

ANSWER: Rosa **Parks** [or Rosa Louise **McCauley**]

<AE, American History>

3. Dawson and Paredez described a conspicuous lack of proteins that bind to this protein in Excavata protists. For 10 points each:

[10] Name this protein used for mobility in amoeba that exists in fibrous and globular types.

ANSWER: **actin** [accept F-**actin** or G-**actin**]

[10] Like tubulin, actin is involved in this phase of the cell cycle. Sister chromatids align on a namesake plate in this phase.

ANSWER: **metaphase**

[10] The anaphase-promoting complex hastens the end of metaphase by catalyzing the formation of a bond between the cohesin complex and this other protein.

ANSWER: **ubiquitin**

<GR, Biology>

4. Marshall Sahlins argued that individuals in these societies only worked between three and five hours a day in an article that dubs them the “original affluent society.” For 10 points each:

[10] Name these foraging-based societies that declined after the spread of agriculture in the Neolithic Revolution.

ANSWER: **hunter-gatherer** societies [prompt on partial answer]

[10] Marshall Sahlins taught this anarchist anthropologist, who argued that societies arose from “everyday communism” in his book *Debt: The First 5000 Years*.

ANSWER: David **Graeber**

[10] In a 2018 book, Graeber included “box-tickers” and “taskmasters” as examples of these things that are “bullshit.” Arlie Hochschild (“HOCK-child”) examined the emotional requirements associated with them in *The Managed Heart*.

ANSWER: **jobs** [accept *Bullshit Jobs*]

<CK, Social Science>

5. An example of this type of religious literature is *Mere Christianity*, which advances a “trilemma” claiming that one cannot accept Jesus merely as a moral teacher because he must be a lunatic, God, or the Devil. For 10 points each:

[10] Name this type of religious literature that argues in defense of Christian doctrines. An early example of this type of literature was *Against Celsus* by Origen, which refuted the arguments of the namesake pagan philosopher.

ANSWER: Christian **apologetics** [or **apology** or **apologies** or **apologia**]

[10] *Mere Christianity* was written by this British author who also wrote the apologetic novel *The Screwtape Letters*. He also incorporated Christian themes into his children’s series, *The Chronicles of Narnia*.

ANSWER: C. S. **Lewis** [or Clive Staples **Lewis**]

[10] This saint and early apologist directed his *First Apology* toward Antoninus Pius and Marcus Aurelius. That apology argued that Greek philosophers possessed the “seeds of the *logos*,” but not the full *logos* of Christ.

ANSWER: St. **Justin Martyr** [prompt on **Justin**]

<WC, Religion>

6. According to popular belief, Pope Paul III was convinced to not ban music of this type after hearing Palestrina’s *Missa Papae Marcelli*. For 10 points each:

[10] Identify this type of musical texture that consists of two or more lines of independent melody. This musical texture is often confused with, but considered different than, counterpoint.

ANSWER: **polyphony** [or word forms like **polyphonic**]

[10] In this musical texture, two or more groups alternate the melody and harmony in a call-and-response. Giovanni Gabrieli composed many works in this texture due to the unique structure of Venice’s St. Mark’s Basilica.

ANSWER: **antiphony** (“an-TIFF-uh-nee”) [or word forms like **antiphonal**; prompt on **polychoral**]

[10] Antiphony and polyphony are contrasted with monophony, which is a single melody without accompaniment. Gregorian chant is a type of early Catholic modal monophonic music named for this English adjective and “chant” or “song.”

ANSWER: **plain** [accept **plainchant** or **plainsong**]

<AE, Classical Music>

7. This kind of cavalry was deployed in units called *chorągiew* (“ho-RON-g’yeff”) alongside *pancerni* (“pahn-TSAIR-nee”). For 10 points each:

[10] Name this kind of cavalry, some of whom fought for Poland while wearing armor with wings attached to the back plate that may have made a loud clattering sound as they charged.

ANSWER: **hussars** [or **husaria**; or Winged **Hussars**]

[10] Hussars originated as a kind of light cavalry from this kingdom, which elected the general János Hunyadi (“YAH-nohsh HOON-ya-dee”) as “governor” following this kingdom’s defeat by the Ottomans during the Battle of Varna.

ANSWER: **Hungary** [or **Magyarország**]

[10] Hussars served as light cavalry in this Hungarian military force that was organized by Matthias Corvinus. This professional army carried the Hungarian forces to victory over the Ottomans at the Battle of Breadfield.

ANSWER: **Black Army** of Hungary [or **Fekete sereg**]

<AE, European History>

8. Helen, a character in this novel, has her dreams of becoming a concert pianist destroyed when her father commits suicide and she can no longer attend Vassar. For 10 points each:

[10] Name this novel in which Francis sees the ghosts of people from his past, including the son he accidentally dropped and killed, while wandering the streets of Albany.

ANSWER: ***Ironweed***

[10] In William Kennedy's novel *Ironweed*, Helen "knows all about" Lily Bart, a character from this Edith Wharton novel, in which Lily's fall from New York high society is caused by her debt to Gus Trenor.

ANSWER: *The **House of Mirth***

[10] Helen is also mentioned to have read *Daisy Miller*, a novella by this author of *The Ambassadors* and *The Turn of the Screw*.

ANSWER: Henry **James**

<JH, American Literature>

9. One form of this algorithm uses an ancilla register to apply a controlled unitary to a superposition of that unitary's eigenstates. For 10 points each:

[10] Name this phase estimation algorithm that can find the order of a modulo N in polynomial time.

ANSWER: **Shor's** algorithm

[10] The quantum part of Shor's algorithm solves the order finding problem, which, with some classical preprocessing, is equivalent to this problem. This NP problem is the basis for the RSA cryptosystem.

ANSWER: prime **factorization** [accept anything involving finding the **prime factors** of an integer]

[10] One intermediate step in Shor's algorithm in computing this number, which can be done efficiently with Euclid's algorithm. For two integers a and b , this number is the largest number c such that a over c and b over c are both integers.

ANSWER: **greatest common divisor** [or **GCD**; or **largest common divisor**]

<GR, Other Science: Computer Science>

10. Arthur Prior analogized this concept to a "moving spotlight." For 10 points each:

[10] Name this concept. J. M. E. McTaggart distinguished between tensed and tenseless forms of this conception, which he called the A-series and B-series.

ANSWER: **time**

[10] Perdurantists ("per-DUR-un-tists") argue that ordinary objects exist as this sum of their temporal parts. This branch of metaphysics studies how parts are composed into wholes.

ANSWER: **mereology** [accept **mereological** sum]

[10] This thinker described a "brave officer" who remembers being flogged as a schoolboy to argue that personal identity over time consists of having the same memories in his *Essay Concerning Human Understanding*.

ANSWER: John **Locke**

<CK, Philosophy>

11. Act 2 of one opera opens with this character lamenting her husband's infidelity in the aria "Porgi, amor, qualche ristoro." For 10 points each:

[10] Name this character who marries Count Almaviva at the end of Rossini's *The Barber of Seville*.

ANSWER: **Rosina**

[10] In Act 1 of *The Barber of Seville*, Rosina sings this aria, in which she expresses her desire to be with Lindoro. This aria is often transposed from its written E major to F major when sung by *coloratura* sopranos.

ANSWER: "**Una voce poco fa**" ("OO-nah VOH-chay POH-koh FA")

[10] Rosina appears in both *The Barber of Seville* and this other Mozart opera about the preparations for the wedding of Susanna and the titular character.

ANSWER: *The **Marriage of Figaro*** [or *Le **nozze di Figaro***]

<AE, Other Arts>

12. After World War II, the unchecked handing out of construction permits in this city led to the destruction of many of its Art Nouveau buildings, an event that was dubbed the “sack” of this city. For 10 points each:

[10] Name this city in which the Maxi Trial took place. Two of the magistrates who organized the Maxi Trial, Giovanni Falcone and Paolo Borsellino, were each murdered by car bombs in this city in 1992.

ANSWER: **Palermo** [or **Palermu**]

[10] The Maxi Trial prosecuted members of this criminal organization, called the Cosa Nostra by its members. This organization follows the code of *omertà*, requiring members to never publicly speak out about crimes.

ANSWER: **Mafia** [or Sicilian **Mafia** or **mafiosi**]

[10] In 1995, an indictment for selling political favors to the Mafia was served to former Italian prime minister Giulio Andreotti, whose time in office saw the kidnapping and assassination of this politician by the Red Brigades.

ANSWER: Aldo **Moro** [or Aldo Romeo Luigi **Moro**]

<AP, European History>

13. In a short story, a man tells the protagonist, “nothing you’ll ever need to worry about,” when she asks about the meaning of a box in one of these images in a copy of *The Economist*. For 10 points each:

[10] Name this sort of image depicted on stained glass in a room visited by the main characters of that short story, in which Miranda hears her lover’s voice bounce “wildly off the glass, sometimes loud, sometimes soft” in it.

ANSWER: world **maps** [accept **Mapparium**]

[10] Imagery of maps and atlases reoccurs in “Sexy,” a short story in this collection by Jhumpa Lahiri. Its title story features Mr. Kapasi, an aspiring translator who fantasizes about Mrs. Das as he guides her family on a tour in India.

ANSWER: *The **Interpreter of Maladies***

[10] “Sexy,” and several other short stories in the collection, are set in this US state. Nathaniel Hawthorne’s *The Scarlet Letter* portrays Hester Prynne’s punishment for adultery during this state’s colonial era.

ANSWER: **Massachusetts**

<WC, World/Other Literature>

14. After Actaeon came upon this goddess bathing, he was turned into a stag before being killed by his own hunting dogs. For 10 points each:

[10] Name this virginal goddess of the hunt, the twin sister of Apollo.

ANSWER: **Artemis**

[10] After insulting the size of Artemis’s breasts, Artemis arranged for this woman’s rape at the hands of Dionysus. She went on a killing spree and then ate one of her twin children before throwing herself in the river Sangarios.

ANSWER: **Aura**

[10] Zeus turned into the form of Artemis to seduce this nymph. She was expelled from Artemis’s group, and then an angry Hera turned her into a bear before she was eventually put into the stars as Ursa Major.

ANSWER: **Callisto**

<JH, Mythology>

15. Rotons are quasiparticles corresponding to minima in the dispersion relation of this material. For 10 points each:

[10] Name this material that becomes a superfluid when cooled below its lambda point of 2.17 kelvins. The nuclei of atoms in this material consist of two protons and two neutrons.

ANSWER: superfluid **helium-4** [accept liquid **helium-4**]

[10] These devices use mixing properties of liquid helium-4 and helium-3 to produce temperatures in the microkelvin range.

ANSWER: **dilution refrigerators** [or **dil fridges**; prompt on **refrigerators** or **fridges**]

[10] These vacuum flasks are used to store and transport cryogenic liquids. They were developed by a British physicist who showed that liquid oxygen is paramagnetic and proposed a bicyclic isomer of benzene.

ANSWER: **Dewar** (“DEW-er”) flask

<GR, Physics>

16. Answer the following about telescopes all over the world, for 10 points each.

[10] A hotel with a red concrete façade in this desert that houses researchers for the ESO was featured in *Quantum of Solace*. This Chilean desert is ideal for astronomy because of its high elevation and low precipitation.

ANSWER: **Atacama** Desert

[10] The twin telescope Keck observatory is located on this US mountain. Protestors halted construction of the Thirty Meter Telescope on this sacred mountain in 2015, though as of 2018 construction is slated to proceed.

ANSWER: **Mauna Kea**

[10] The Gran Telescopio of this archipelago is currently the largest reflecting telescope in the world. It stands on the island of La Palma in this archipelago, which centers on Tenerife and the volcanic Pico del Teide.

ANSWER: **Canary** Islands [or **Canaries**; or Islas **Canarias**]

<GR, Other>

17. German journalist Jürgen Hinzpeter (“YUR-gun HINTS-pee-tuh”) smuggled out footage of an uprising in this city by hiding his film in an elaborately gift-wrapped cookie jar that he passed off as a wedding gift. For 10 points each:

[10] Name this city where an uprising began on May 18, 1980, after Chun Doo-hwan declared martial law. During that uprising, students at this city’s Chonnam National University were beaten and shot by state troops.

ANSWER: **Gwangju** [or **Kwangju**]

[10] The Gwangju Uprising was a key point in this Asian country’s transition to democracy. This country’s president Kim Dae-jung envisioned a “Sunshine Policy” towards its communist northern neighbor.

ANSWER: **South Korea** [or **Republic of Korea** or **ROK**; or **Daehan Minguk**; prompt on **Korea**; prompt on **Hanguk**; do not accept “North Korea” or “Democratic People’s Republic of Korea”]

[10] This first president of South Korea brutally quashed an uprising on Jeju Island. This man was eventually forced into exile in Hawaii after the success of the April 19 Revolution in 1960.

ANSWER: Syngman **Rhee** [or **Rhee** Syngman]

<AP, World History>

18. The first part of this work concludes with the elderly John Henry Newman only being able to exclaim “Oh, no! No!” when approached by an admiring curate (“CURE-it”). For 10 points each:

[10] Name this work by Lytton Strachey (“LIT-un STRAY-chee”) that includes biographies of Cardinal Manning, Florence Nightingale, Thomas Arnold, and Charles George Gordon, the four title representatives of their age.

ANSWER: **Eminent Victorians**

[10] This earlier author included essays on twenty-five men whom he believed exemplified their time, including Jeremy Bentham, Lord Byron, and William Wordsworth, in his book *The Spirit of the Age*.

ANSWER: William **Hazlitt**

[10] The Victorian-era *Dictionary of National Biography* is currently updated and published by this university, whose massive English Dictionary was compiled over the course of 70 years starting in 1857.

ANSWER: **Oxford** University [accept **Oxford** English Dictionary]

<JH, British Literature>

19. This artist executed a portrait of a former enslaved Muslim man named Yarrow Mamout who was supposedly 134 years old. For 10 points each:

[10] Name this American artist who also depicted himself lifting a red curtain to reveal shelves of taxidermied specimens organized by Linnaean classification.

ANSWER: Charles Wilson **Peale**

[10] A copy of Peale's portrait of George Washington at the Battle of Princeton is housed at this place, Washington's home plantation, which also has a bust of Washington by Jean-Antoine Houdon ("oo-DON") in its collection.

ANSWER: **Mount Vernon**

[10] This painting by Grant Wood copies its title man's pose from Peale's *The Artist in His Museum*. In this painting, that man pulls back a curtain to show George Washington's father confronting him about a cut cherry tree.

ANSWER: **Parson Weems' Fable**

<JH, Painting & Sculpture>

20. Colligative properties do not depend on the exact nature of interactions between this species and the solute. For 10 points each:

[10] Name these compounds that dissolve other species to form solutions.

ANSWER: **solvents**

[10] Two solvents described by this term cannot form a homogenous mixture in all proportions.

ANSWER: **immiscible** [or **immiscibility**]

[10] This quantity describes how a solute distributes itself between two immiscible solvents in equilibrium. The value of this quantity for octanol and water is a standard reference.

ANSWER: **partition coefficient** [or **distribution coefficient**]

<AE, Chemistry>