

2019 Terrapin: Come on Angel, Come and Save Us

Packet 14

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Tossups

1. **This tribe was attacked in Logan’s Raid, in which Edward McGarry murdered the elderly chief Moluntha when Moluntha mistakenly said that he had been at the Battle of Blue Licks. Fighting alongside Little Turtle of the Miamis, a chief from this tribe inflicted casualties equal to about a fourth of the entire US Army during the Battle of the Wabash. A comet and the New Madrid earthquake helped a member of this tribe called “the (*) Prophet” assemble a confederacy. Blue Jacket was a chief from this tribe who fought at the Battle of Fallen Timbers. A brother of “the Prophet” led this tribe and their allies to a defeat by William Henry Harrison in the Battle of Tippecanoe. For 10 points, name this Native American tribe from the Ohio River Valley that was led by Tecumseh.**

ANSWER: Shawnee

<AE, American History>

2. **Though they are derived from the kidney, HEK 293 cells are used as laboratory analogs for the immature version of these cells. Rab7 and RILP regulate vesicle transport in these cells, and a BDNF gradient promotes endosome mobility in them. Orthograde transport in these cells is carried out by kinesin motor proteins, while dyneins (“DYNE-ins”) carry vesicles toward the soma of these cells. One type of receptor on these cells has an allosteric binding site for zinc and is co-activated by (*) glycine and glutamate. Those receptors are involved in spike timing plasticity and long-term potentiation in these cells. A membrane protein in these cells uses ATP to move three sodium ions out of them, maintaining their resting potential. For 10 points, name these cells that contain axons and dendrites, the basic units of the nervous system.**

ANSWER: neurons [prompt on nerve cells until read]

<GR, Biology>

3. **To view its author’s thought as continuously therapeutic, James Conant and Cora Diamond have promoted this book’s so-called “resolute reading.” This book employs a logic with an N-operator that is an infinitary analogue of the Sheffer stroke. It argues that the aim of philosophy is logical clarification of thoughts. G. K. Ogden produced an English translation of his book, which argues that since the tautologies do not represent reality, they are (*) senseless. It contains the famous dictum “what can be shown cannot be said.” This book with an introduction by Bertrand Russell argues that propositions are pictures of atomic facts. For 10 points, the proposition “the world is everything that is the case” begins what early work of Ludwig Wittgenstein?**

ANSWER: Tractatus Logico-Philosophicus

<CK, Philosophy>

4. **The narrator of this novel spies on a more senior fellow employee and discovers that he is secretly Muslim. The narrator of this novel imagines a woman removing money from a bag that she gives him before leaving her husband. That woman in this novel drunkenly runs over a child, leading her father-in law to attempt to frame the protagonist for it. This novel’s narrator calls his education “half-baked,” describes his country as “The (*) Darkness,” and writes of his desire to escape the “Rooster Coop.” This novel is framed as a letter that the narrator is writing to the Chinese Premier Wen Jiabao about what he views the true India to be. For 10 points, name this novel in which the taxi driver Balram Halwai earns the title nickname, a work by Aravind Adiga (“UH-ruh-vind UH-dee-guh”).**

ANSWER: *The **White Tiger***
<JH, World/Other Literature>

5. **Guido Agosti arranged three movements of this ballet for piano, and Kazuhito Yamashita transcribed it for guitar. According to Taruskin, the leit-harmonic (“light-harmony”) of an evil character in this ballet alternates major and minor thirds. Low strings open this through-composed ballet in A-flat minor by slowly repeating A-flat F-flat E-flat D F G before a natural-harmonic glissando reveals a magic garden. This ballet ends with a brass chorale in 7/4 time after the Princesses dance a (*) Khorovod.** This ballet’s 1919 suite includes a Berceuse (“bair-SUZZ”) featuring a low bassoon solo over harp. Many ’80s pop songs sample the orchestral hit on A and E that opens this ballet’s “Infernal Dance.” In this ballet commissioned by Diaghilev (“dee-AH-ghee-lev”), Ivan Tsarevich summons the title character with her feather to shatter an egg, destroying Kashchei (“kuh-SHAY”) the Immortal. For 10 points, name this first ballet by Igor Stravinsky.

ANSWER: *The **Firebird*** [or ***Zhar-ptitsa***]
<OL, Classical Music>

6. **This dynasty’s rule was opposed by the rebel Umar ibn Hafsun, a convert to Christianity who led resistance from the mountain fortress of Bobastro. The reign of this dynasty’s Hisham II, who ascended to the throne as a child, was dominated by the vizier (“vih-ZEER”) Almanzor, who led a campaign that captured the cathedral bells of Santiago de Compostela. A prince from this dynasty named Abd ar-Rahman founded the Emirate of (*) Córdoba in Spain.** Under the leadership of Marwan II, the forces of this dynasty were defeated at the Battle of the Zab. This dynasty’s capital was established at Damascus by its founder Muawiyah I, who fought against Ali in the First Fitna. For 10 points, name this Islamic dynasty that lost their control of the caliphate to the Abbasids.

ANSWER: **Umayyad** Dynasty [or **Omayyad** Dynasty; anti-prompt on Caliphate of Córdoba until it is read]
<WC, World History>

7. **In a paper co-written with Richard Arnott, this economist found that public expenditures tend to increase land rents, a result dubbed the “Henry George theorem.” In another paper, this economist and Bruce Greenwald used the insurance market to illustrate their finding that imperfect information prevents Pareto optimality. After winning the Nobel with Akerlof and Spence for their work in information (*) asymmetry, this economist criticized “market fundamentalism” in his acceptance essay. This economist criticized the concentration of economic and political power in his 2012 book *The Price of Inequality*.** For 10 points, name this economist who drew on his experience as the World Bank’s chief economist to write his book *Globalization and Its Discontents*.

ANSWER: Joseph **Stiglitz** [or Joseph Eugene **Stiglitz**]
<WC, Social Science>

8. **Anti-de Sitter space is named because it has an opposite value for this quantity compared to de Sitter space. The big omega parameter in the FLRW metric must be exactly one for a particular type of this quantity to be zero. Manifolds where this quantity is zero correspond to vacuum solutions with vanishing cosmological constant. This quantity can be calculated by contracting a related tensor symbolized R-mu-nu over the metric. The Einstein tensor includes the metric times the (*) scalar form of this quantity.** The “spacetime tells matter how to move” part of John Wheeler’s summary of general relativity refers to this quantity being nonzero. Geodesics generalize the concept of a straight line to a spacetime where this quantity is nonzero. For 10 points, name this concept from general relativity that quantifies how much a spacetime deviates from being flat.

ANSWER: **curvature** [or scalar **curvature** of space-time; accept Ricci **curvature** scalar; accept spatial (scalar) **curvature** after “big omega” is read; accept **cosmological constant** before “big omega” is read]
<GR, Physics>

9. A stanza of a lyric written by a member of this family implores the Holy Spirit to “let us all in thee inherit, / let us find the promised rest; / take away the love of sinning.” That stanza, often omitted for its stance toward free will, is from the hymn “Love Divine, All Loves Excelling,” written by a member of this family who wrote over 4,500 hymns including (*) “Hark! The Herald Angels Sing.” Aldersgate Day celebrates how a member of this family felt his heart “strangely warmed” in a conversion experience. Two brothers from this family founded a “Holy Club” at Oxford through which they met the itinerant preacher George Whitefield, with whom they carried out the First Great Awakening. For 10 points, name this family, whose brothers John and Charles founded Methodism.

ANSWER: Wesley family [accept John Wesley or Charles Wesley]

<WC, Religion>

10. A story by this author ends with the narrator recalling how his wife put her hand on his thigh while they drove home from the house of a couple with an incredibly ugly baby and a pet peacock. In another story by this author, a man rambles to the narrator about how he met his chimney sweep wife when he kissed her for “good luck.” While watching a TV film about the Middle Ages and (*) smoking weed, a man in one of his stories sits up and attempts to explain what the title object looks like to his blind guest. In another story by this author, Nick and Laura talk to Terri about her abusive ex Ed over gin. For 10 points, “Where I’m Calling From,” “Cathedral,” and “What We Talk About When We Talk About Love” are stories by what minimalist writer?

ANSWER: Raymond Carver

<JH, American Literature>

11. This event was described as “Horrid” and “Hellish” in a broadside with twelve engravings by Francis Barlow arranged as an early comic strip. During this event, the confidence man William Bedloe gave false testimony about being offered 4,000 pounds to murder a justice of the peace. That magistrate, Sir Edmund Godfrey, had been found dead by his own sword after hearing testimony about this event. This event was followed by the (*) Exclusion Crisis, which saw the Earl of Shaftesbury attempt to bar James, Duke of York from the line of succession. Israel Tonge promoted this hoax that was originally fabricated by Titus Oates. For 10 points, name this fictional plot from 1678, which claimed that Jesuits would murder Charles II to put the Catholic James II on the throne.

ANSWER: Popish Plot

<CK, European History>

12. A player of this instrument collaborated with Duke Ellington and Charles Mingus on the tracks “Very Special” and “Fleurette Africaine” for the album *Money Jungle*. That musician’s wife Abbey Lincoln screams over the sound of this instrument for over a minute on the track “Triptych” from *Freedom Now Suite*. A player of this instrument, who was secretly recorded yelling obscenities at band members on his tour bus, often ended concerts with his (*) “West Side Story Medley.” Max Roach played this instrument, which is given a prominent solo on Benny Goodman’s 1938 recording of “Sing, Sing, Sing.” In cool jazz, this instrument is often played with brushes. For 10 points, Buddy Rich and Gene Krupa played what percussion instrument usually played with two sticks?

ANSWER: drums [or drum set; prompt on percussion]

<CK, Other Arts>

13. In a 2009 paper, Keren Jin and Ethan Miller of UCSC found that using deduplication with these systems can reduce their storage requirements by a factor of 80 percent or more. In Intel processors, Extended Page Tables are used to reduce the overhead of maintaining shadow pages for these systems. These systems are created by programs like (*) ESXi and Microsoft’s Hyper-V, which are called hypervisors. HotSpot is an implementation of one of these systems that uses a just-in-time compiler. Java advertises that it is “Write once, run anywhere” because Java code is compiled to run on a namesake one of these systems. For 10 points, name these software computers that are “hosted” on a physical machine to emulate the workings of another machine.

ANSWER: **virtual machines** [or **VMs**; accept **virtualization**; accept **JVM** or **Java Virtual Machine**; prompt on **virtual disks** by asking “which are a part of what?”]

<WC, Other Science: Computer Science>

14. In a parody of this poem, the speaker asks God, Venus, and Mercury for a tobacco shop so that he can escape the “damn’d profession of writing.” This poem is also referenced by a tourist attraction in the Whispering Glades Memorial Park in Evelyn Waugh’s (“EEV-lin WAH’s”) novel *The Loved One* and by the closing lines of Lawrence Ferlinghetti’s “Junkman’s Obbligato.” This poem describes peace “dropping from the veils of the morning to where the (*) cricket sings.” This poem ends with the speaker standing “on the pavements grey” and hearing “in the deep heart’s core” the sound of water at the title place, where he hopes to have “nine bean-rows” and a “small cabin... of clay and wattles made.” For 10 points, name this poem that states “I will arise and go now” to the title island, a work of W. B. Yeats.

ANSWER: “The **Lake Isle of Innisfree**” (The first clue refers to “The Lake Isle” by Ezra Pound.)

<JB, British Literature>

15. This politician first came to prominence after he stepped between protestors and a line of policeman and declared, “No one will beat you again!” To mark the 600th anniversary of a battle on St. Vitus Day, this politician gave the “Gazimestan speech,” alluding to the possibility of “armed battles” in his country. Operation Allied Force was a (*) NATO bombing campaign against this leader’s country, which led to an unintended bombing of the Chinese embassy in his country. This leader supported a breakaway state led by his ally Radovan Karadžić (“KAR-ah-jitch”), whose general Ratko Mladić (“m’LAH-ditch”) carried out the mass murder of over 7,000 Bosniak men and boys at Srebrenica. For 10 points, name this Serbian president, whose time in office saw wars in Bosnia and Kosovo.

ANSWER: Slobodan **Milošević** (“mih-LAW-shuh-vitch”)

<AE, European History>

16. Peng and Schlegel combined two methods for finding these entities to create the STQN method. A “climbing image” that is unaffected by spring forces is used in a modification of the nudged elastic band method for finding these entities, and they can also be found using synchronous transit methods. The Curtin–Hammett principle states that one ratio is only dependent on the difference of energies of two of these entities. A coefficient symbolized kappa is used in an equation derived from these entities’ namesake theory; that equation is the (*) Eyring equation, a modification of the Arrhenius equation. These configurations are the saddle points of potential energy surfaces, and they are denoted by a double dagger. For 10 points, name these configurations that possess the highest potential energy along a reaction path.

ANSWER: **transition states** [accept **Transition State** Theory; accept **activated complex**]

<VS, Chemistry>

17. This man resigned as a consultant for Bob Dole’s presidential campaign after *The National Enquirer* revealed that he had placed ads in swingers’ magazines. In 2010, this man ran a Libertarian gubernatorial campaign for the the “Manhattan Madam” Kristin Davis. This man was the subject of a 2017 Netflix documentary by Dylan Bank. With Charlie Black and Paul (*) Manafort, this man co-founded a firm dubbed “The Torturer’s Lobby.” This self-proclaimed “dirty trickster” ate dinner with Julian Assange in August 2018 and was in contact on Twitter with “Guccifer 2.0,” the persona who claimed to have hacked the Democratic National Committee. For 10 points, the Mueller investigation indicted what Republican political operative in January 2019?

ANSWER: Roger **Stone** [or Roger Jason **Stone** Jr.]

<CK, Other>

18. A character in this novel exclaims “Here is faithfulness!” as he dies after a servant pushes his arm to slash his own throat. In this novel, a Greek charlatan has his tongue ripped out and is forced to “act” in a drama in

which his character is devoured by a real bear. This novel's protagonist wonders why his lover drew a fish in the sand when they first met, but he realizes its meaning when he crosses a river to meet her and her giant bodyguard, who later breaks the neck of a charging bull. In this novel, (*) Eunice and the "arbiter of elegance" Petronius cut their wrists at a party. Saint Peter utters this novel's title phrase to a vision of Christ after being convinced by Lygia's lover to leave Rome. For 10 points, name this novel about Marcus Vinicius's life during the reign of Nero, a work of Henryk Sienkiewicz ("shen-k'YEV-itch").

ANSWER: Quo Vadis [or Quo Vadis: A Narrative of the Time of Nero]

<AP, European Literature>

19. This deity's Fortuna aspect was worshipped by freedmen of Emperor Hadrian, who minted this deity's Pax aspect on sestertii. This deity's cults were located in Smyrna and Rhamnous ("RAM-nuss"), from which this deity's alternate name of Rhamnousia is derived. According to Pseudo-Hyginus, Zeus transforms into a swan and convinces Aphrodite to pursue him in the form of an eagle as part of a plot to rape this goddess, who transforms into a (*) goose in other retellings to escape him. In some accounts, this goddess, and not Leda, produces the egg from which Helen and the Dioscuri are born. This goddess is depicted with a whip or dagger, and along with the Furies and Ate, punishes mortals who fall victim to hubris. For 10 points, name this Greek goddess of retribution.

ANSWER: Nemesis [accept Rhamnousia until read]

<JS, Mythology>

20. This city is home to a 36-foot-tall Giuseppe Penone sculpture cast from a tree destroyed in a lightning storm. Mimmo Paladino's *The Sound of the Night* is located in this city's Cullen Sculpture Garden. Ellsworth Kelly created a triptych of dark bronze shapes counted against a concrete wall named for this city. The monumental painting *Say Goodbye Catullus to the Shores of Asia Minor* by Cy Twombly ("sigh TWOM-blee") is housed in a Renzo Piano-designed gallery in this city. This city's (*) Menil Collection sits just north of a church that houses Byzantine frescoes from Cyprus. In this city, Barnett Newman's *Broken Obelisk* is located outside of an octagonal, non-denominational building that contains fourteen dark-hued color field paintings. For 10 points, the Rothko Chapel is located in what Texas city?

ANSWER: Houston, Texas

<GR, Painting & Sculpture>

Bonuses

1. The title character of one of this author's plays works with the Cauliflower Trust to expand his cauliflower empire. For 10 points each:

[10] Name this author of *The Resistible Rise of Arturo Ui*. This playwright's other anti-Nazi works include a set of 24 short plays titled *Fear and Misery of the Third Reich*.

ANSWER: Bertolt **Brecht**

[10] *Arturo Ui* fictionalizes Hitler as a gangster from this country, where Brecht lived during World War II. Brecht's epic theater style was influenced by a film from this country, Charlie Chaplin's *The Gold Rush*.

ANSWER: **United States** of America [or United States of **America**; or **USA**]

[10] In a vignette from *Fear and Misery of the Third Reich*, X and Y read a work by this man before realizing they must denounce it as a "typical piece of misplaced Jewish ingenuity." A spy who pretends to think he's this man attempts to recruit Möbius to the Soviet Union in another play.

ANSWER: Albert **Einstein** (The second play is Friedrich Dürrenmatt's *The Physicists*.)

<VS, European Literature>

2. In 1910, Virginia Woolf and her friends donned blackface and fake beards, pretending to be "Abyssinian princes" in order to gain access to this ship. For 10 points each:

[10] Name this British battleship that single-handedly obsoleted all previous battleships when it was launched in 1906, in part thanks to its use of steam turbines that made it the fastest battleship in the world.

ANSWER: HMS **Dreadnought**

[10] The *Dreadnought* was built during a naval arms race between the United Kingdom and this other country. Alfred von Tirpitz oversaw the build-up of this country's navy under Wilhelm II.

ANSWER: **Germany** [or **Deutschland**]

[10] As the First Sea Lord, this British admiral oversaw the design of the HMS *Dreadnought*. He resigned his post in World War I due to his disagreement with Winston Churchill over plans for the Gallipoli Campaign.

ANSWER: John **Fisher** [or John Arbuthnot **Fisher**; or Jackie **Fisher**]

<JH, European History>

3. In one work, one of these two people wears a purple chlamys and a jeweled stemma and is accompanied by a retinue of soldiers and men dressed in white. For 10 points each:

[10] Name these two people depicted on either side of the apse of the Basilica San Vitale in Ravenna. One of them holds a jeweled chalice to identify her as the patron of the building.

ANSWER: **Justinian I** AND Empress **Theodora**

[10] Those depictions of Justinian and Theodora at San Vitale are in this medium, which is created by assembling small pieces of glass or tile.

ANSWER: **mosaic**

[10] A Roman floor mosaic from the House of the Faun in Pompeii depicts this historical figure in battle. The Azara herm is a Roman copy of Lysippos's bust of this man.

ANSWER: **Alexander** the Great

<GR, Painting & Sculpture>

4. Maxwell corrected this law by adding the displacement current term. For 10 points each:

[10] Name this law from Maxwell's equations that includes the current density as the source for the magnetic field.

ANSWER: **Ampère's** law

[10] The differential form of Ampère's law says that current is proportional to this vector operation applied to B . This operation is applied to the vector potential to calculate the magnetic field.

ANSWER: **curl** [accept the **curl** of B ; accept **del cross B**; do not accept or prompt on "del"]

[10] Ampère's law specifies the curl of B , but the divergence of B is zero according to another of Maxwell's equations, making it this type of field, which can be derived from a vector potential.

ANSWER: **solenoidal** (vector) field [prompt on divergence-free]

<GR, Physics>

5. This platform, which was inspired by Herbert Croly's book *The Promise of American Life*, was coined in a speech that called the Revolution and the Civil War the two great crises in American history. For 10 points each:

[10] Name this progressive platform that Theodore Roosevelt ran on in the 1912 election. Its measures included the adoption of an eight-hour workday and suffrage for women.

ANSWER: **New Nationalism**

[10] This winner of the 1912 election ran on the competing New Freedom platform, whose measures he enacted as president via the Underwood Tariff and the Clayton Antitrust Act.

ANSWER: Woodrow **Wilson** [or Thomas Woodrow **Wilson**]

[10] This lawyer, who wrote the muckraking collection *Other People's Money and How the Bankers Use It*, crafted Wilson's antitrust agenda. Wilson subsequently appointed him as the first Jewish member of Supreme Court.

ANSWER: Louis **Brandeis** [or Louis Dembitz **Brandeis**]

<CK, American History>

6. This author wrote a story in which a man hides inside of the title piece of furniture so that women will sit on him. For 10 points each:

[10] Name this Japanese author of "The Human Chair." This author with an Edgar Allan Poe-inspired pen name is best known for his stories featuring the detective Kogoro Akechi.

ANSWER: Edogawa **Rampo** [or **Edogawa** Rampo; or **Taro** Hirai]

[10] Rampo wrote an essay comparing Edgar Allan Poe to this other western literary figure, the author of *Great Expectations* and *David Copperfield*.

ANSWER: Charles **Dickens** (The essay is "Dickens vs. Poe.")

[10] This other Japanese author studied in the United Kingdom at the turn of the 20th century, later returning to Japan to become a professor of English literature. He wrote about the English teacher Squash, the head school teacher Red Shirt, and the title math teacher in *Botchan* ("BOAT-chahn").

ANSWER: Natsume **Sōseki** [or **Natsume** Kinnosuke]

<JH, World/Other Literature>

7. This element combines with iron to form the minerals troilite and pyrite. For 10 points each:

[10] Name this element found in crystals that form near volcanic fumaroles.

ANSWER: **sulfur** [or **S**]

[10] Sulfur dioxide air pollution is a major cause of this phenomenon when it combines with precipitation. This phenomenon causes soil and water damage and corrosion of metal structures.

ANSWER: **acid rain**

[10] This other class of air pollutants produces acid rain and smog. The production of these compounds during combustions is described by the Zeldovich mechanism, and they are produced naturally by thunderstorms.

ANSWER: **nitrogen oxides** [or **NO_x** ("nox") or **NO-sub-x**]

<GR, Other Science: Earth Science>

8. Narrator Robert Taylor informs the viewers of one of this man's films that all the servicemen shown have been killed, in *The Fighting Lady*. For 10 points each:

[10] Name this photographer of *The Pond—Moonlight* who co-founded the Photo Secession movement with Alfred Stieglitz.

ANSWER: Edward **Steichen**

[10] Edward Steichen photographed a person of this profession with “La Serpentine” in 1909. Another Steichen photograph depicts the dark profile of a man of this profession sitting pensively in its right foreground.

ANSWER: **artists** [or **sculptors** or **painters**; prompt on Henri Matisse by asking “what profession?”] (The second photograph is *Rodin with His Sculptures* “Victor Hugo” and “The Thinker”.)

[10] Steichen was the head of the Department of Photography at this city’s Museum of Modern Art, where he curated his exhibit *The Family of Man*. Diane Arbus photographed a child with a toy hand grenade in a park in this city.

ANSWER: **New York** City [or **NYC**]

<JH, Other Arts>

9. Chicago construction worker Marc Smith is credited with inventing this genre of poetry, which is often associated with New York’s Nuyorican Poets Café. For 10 points each:

[10] Name this poetry genre in which poems are read aloud by their authors and then judged by the audience.

ANSWER: **slam** poetry [prompt on spoken word poetry]

[10] This author won the first ever Grand Poetry Slam at the Nuyorican Poets Café. He wrote about a narrator who attempts to reintroduce slavery in suburban Los Angeles in his 2015 novel *The Sellout*.

ANSWER: Paul **Beatty**

[10] The founders of the Nuyorican Poets Café include Ntozake Shange (“EN-toh-zah-kee SHON-gay”), who wrote a choreopoem whose female characters, each dressed in different colors, represent one of these natural phenomena.

ANSWER: **rainbow**

<CK, American Literature>

10. The CIA’s Operation PBSUCCESS aimed to overthrow this democratically-elected leader, who succeeded Juan José Arévalo. For 10 points each:

[10] Name this leader who passed Decree 900, an agrarian reform law that redistributed unused lands from large plantations to peasants in exchange for government bonds.

ANSWER: Jacobo **Arbenz** [or Jacobo **Arbenz** Guzmán]

[10] Arbenz was the president of this Central American country where the “Ten Years of Spring” took place after the overthrow of Jorge Ubico. Rigoberta Menchú publicized this country’s atrocities against indigenous Mayans.

ANSWER: **Guatemala**

[10] Ubico allowed this American banana-selling corporation to execute troublesome employees. Under Ubico, this corporation controlled nearly half of Guatemala’s arable land and was exempt from paying taxes.

ANSWER: **United Fruit Company** [or **UFC**; prompt on Chiquita by asking “what was the predecessor to Chiquita?”]

<AP, World History>

11. Answer the following about squirrels in various mythological traditions, for 10 points each.

[10] The Choctaw believe that these celestial events are caused by a black squirrel attempting to eat the sun. In Chinese folklore, it is a dragon eating the sun instead, and firecrackers are set off to restore light.

ANSWER: solar **eclipse** [do not accept “lunar eclipse”]

[10] This squirrel runs up and down Yggdrasil, ferrying insults between Nidhogg at the bottom and the nameless eagle at the top.

ANSWER: **Ratatosk** [or **Ratatoskr**]

[10] A squirrel is one of the animals that helps Osmotar create this substance in the *Kalevala* by bringing her magic pinecones. In Sumerian mythology, the goddess Ninkasi taught humans how to prepare this substance.

ANSWER: **beer** [or **alcohol**; do not accept “wine”]

<JS, Mythology>

12. Answer the following about total synthesis, for 10 points each.

[10] This biological compound's synthesis from inorganic materials helped disprove vitalism. It is formed *in vivo* in the liver to excrete waste ammonia.

ANSWER: **urea**

[10] Woodward and Eschenmoser ("ESH-en-moh-zer") developed a total synthesis of vitamin B12, which includes a cobalt ion complexed to this macrocyclic molecule. This conjugated molecule has a similar structure to porphyrin.

ANSWER: **corrin**

[10] This technique developed by E. J. Corey is useful in planning total a synthesis. It starts from the target molecule and works backwards to simple, commercially available compounds.

ANSWER: **retrosynthesis** [or **retrosynthetic analysis**]

<GR, Chemistry>

13. According to legend, this emperor was saved by an angel, transformed into marble, and concealed in a grotto near the Golden Gate where he sleeps until he awakes to fight the Turks. For 10 points each:

[10] Name this last Byzantine emperor who was killed in 1453 while fighting against the Ottomans. In reference to the aforementioned legend, he is sometimes called the "Marble King."

ANSWER: **Constantine XI** Palaeologus [accept **Constantine XII** Palaeologus]

[10] This Ottoman sultan captured Constantinople from Constantine XI. This sultan hired the Hungarian engineer Orban to build him cannons for use in the siege.

ANSWER: **Mehmed II** [or **Mehmed the Conqueror**; or **Mehmet II**; or **Mehmet the Conqueror**]

[10] In 1480, Mehmed II unsuccessfully attempted to capture this island off of the coast of Anatolia from the Knights Hospitaller. This island was later captured during the reign of Suleiman the Magnificent.

ANSWER: **Rhodes** [or **Rhodos**]

<JH, European History>

14. A theorem states that "rotten" members of these groups will maximize the utility of the entire group so long as it benefits them. For 10 points each:

[10] Name this group that is the subject of an economic "treatise" by Gary Becker. In its chapter on the division of labor, Becker argues that agents in this group should specialize by investing in different kinds of capital.

ANSWER: the **family** [or **families**; accept *A Treatise on the Family*]

[10] This French sociologist argued that primitive societies maintain order through a "conscience collective" in his magnum opus, *The Division of Labor in Society*.

ANSWER: Émile **Durkheim** ("dur-KEM")

[10] *The Division of Labor in Society* argues that *anomie* arises when the division of labor fails to produce this sort of social cohesion that arises because individuals are dependent on other individuals to perform specialized jobs.

ANSWER: **organic solidarity** [prompt on **solidarity**; do not accept "mechanical solidarity"]

<CK, Social Science>

15. Since these poets were massive Ben Jonson fans, they are sometimes called the "Tribe of Ben." For 10 points each:

[10] Name these poets that included Robert Herrick and Richard Lovelace. Their name refers to the fact that they supported Charles I during the English Civil War.

ANSWER: **Cavalier** poets

[10] The Cavalier poet Richard Lovelace's experience of fighting for Charles I in the Bishops' Wars informed his poem "To Lucasta," which ends with the speaker declaring, "I could not love thee, dear, so much, / Loved I not [this concept] more."

ANSWER: **honor**

[10] This Cavalier poet depicted Apollo presiding over a meeting of poets who debate who should be bestowed with a laurel wreath in his poem "A Session of the Poets," but he is best-known for the lyrics in his play *Aglauros*.

ANSWER: John **Suckling**

<CK, British Literature>

16. One of these manuscripts contains a well-known arrangement of the aria “Bist du bei mir” from Gottfried Heinrich Stölzel’s (“SHTULT-sull’s”) opera *Diomedes*. For 10 points each:

[10] Give the title shared by two manuscripts that compile music by several composers, including a Minuet in G major that scholars now believe was written by Christian Petzold.

ANSWER: **Notebook for Anna Magdalena Bach** [or **Notenbüchlein für Anna Magdalena Bach**; or **Anna Magdalena’s Notebooks**]

[10] The 1725 notebook contains a version of a piece of this type that opens with a repeated C major arpeggio and opens J. S. Bach’s *Well-Tempered Clavier*, which pairs these short pieces with fugues in all 24 keys.

ANSWER: **preludes** [or **praeludium**]

[10] Australian musicologist Martin Jarvis has advanced the dubious theory that Anna Magdalena Bach composed these six Bach compositions for a solo string instrument that were popularized by Pablo Casals (“kuh-ZALLS”).

ANSWER: **Cello Suites** [or **Suites for Solo Cello**; or **BWV 1007–1012**]

<CK, Classical Music>

17. St. Anselm first presented this argument in his *Proslogion*. For 10 points each:

[10] Name this argument for the existence of God that contends that God must exist because a “being than which nothing greater can be conceived” would not be the greatest if it existed only in the mind.

ANSWER: **ontological** argument

[10] Gaunilo ridiculed Anselm’s ontological argument, arguing that it would entail the existence of a “lost” one of these things.

ANSWER: **island**

[10] Alvin Plantinga presented a “victorious” ontological argument in one of these logics called S5. Saul Kripke invented a semantics for these logics based on an accessibility relation between possible worlds.

ANSWER: **modal** logics

<CK, Philosophy>

18. Numerous examples of these molecules bind to RTKs during cell signaling. For 10 points each:

[10] Name this class of signaling proteins that controls cell proliferation. These proteins come in platelet-derived and fibroblastic classes.

ANSWER: **growth factors** [or **GFs**]

[10] RTKs are an examples of these enzymes, which catalyze the transfer of a phosphate group from ATP to a target molecule.

ANSWER: **kinases** [accept receptor tyrosine **kinases**]

[10] Class II (“two”) RTKs are activated by this peptide hormone produced in the pancreas. This hormone opposes the action of glucagon, and type II (“two”) diabetes results from insensitivity to this hormone.

ANSWER: **insulin**

<GR, Biology>

19. The production of this crop was the focus of an unsuccessful “Mega” project undertaken by the Indonesian government in the 1990s. For 10 points each:

[10] Name this crop grown in Indonesia and Malaysia on irrigated paddies called *sawahs*, which can yield two or three harvests of this crop per year. This crop is often grown in terraces on hilly terrain.

ANSWER: **rice** [accept specific types like basmati, jasmine, and brown **rice**]

[10] The Mega Rice Project attempted to turn peatlands and forests in Kalimantan, the portion of this island administered by Indonesia, into rice paddies.

ANSWER: **Borneo**

[10] The Dayak people grow the unique Bario rice variety in this Malaysian state in Borneo's northwest. This state shares its name with a kingdom once ruled by the Brooke family, who were known as the White Rajahs.

ANSWER: **Sarawak**

<AP, Other>

20. In 2015, Pope Francis proclaimed an "extraordinary" one of these events dedicated to mercy through his papal bull *Misericordiae Vultus*. For 10 points each:

[10] Name these events that are typically celebrated once every 25 or 50 years in the Catholic Church. During these events, the "holy doors" of certain basilicas are opened for pilgrims.

ANSWER: **jubilees** [or **jubilee** year]

[10] Going on pilgrimage through a holy door is one of the ways a Catholic can receive this type of indulgence that removes all of the temporal punishments due to venial ("VEE-nee-ul") sin. They can be contrasted with partial indulgences.

ANSWER: **plenary** indulgence

[10] Receiving an indulgence reduces the amount of time that souls spend in this place, where they are purified of venial sins until they are ready to go to Heaven.

ANSWER: **purgatory**

<WC, Religion>