

2019 Terrapin: Come on Angel, Come and Save Us

Packet 7

Edited by Weijia Cheng, Jordan Brownstein, Graham Reid, Caleb Kendrick, and Ophir Lifshitz, with assistance from Andrew Wang

Questions by Graham Reid, Caleb Kendrick, Alex Echikson, Ani Perumalla, Weijia Cheng, Justin Hawkins, Jason Shi, Vishwa Shanmugam, Jack Lewis, Jack Nolan, Jordan Brownstein, Sarang Yeola, and Naveed Chowdhury

Tossups

1. **A measure μ (“mew”) is said to have the absolute form of this property relative to a measure ν (“new”) if, for all measurable sets A , “ ν of A equals zero” implies “ μ of A equals zero.” The Cantor function has this property, but not the absolute form of this property. A function f between topological spaces has this property if, for all open subsets of the codomain, the inverse image of the subset under f is open. A function has this property at a point a if f -of- x (*) converges to f -of- a for all x that converge to a . Despite being differentiable nowhere, the Weierstrass (“VYE-ur-shtross”) function has this property for all real numbers. A function is smooth if all of its derivatives have this property. For 10 points, what property is possessed by functions whose graph can be drawn without lifting a pen from the paper?**

ANSWER: **continuity** [or **continuous**; accept absolutely **continuous** during the first two sentences]

<AE, Other Science: Mathematics>

2. **Composer and genre required. The composer’s friend Charles Hoffmann suggested the simple, *lento* four-bar introduction to one of these pieces whose abrupt *allegro con brio* section’s noodly runs over A minor triads outline a long, descending chromatic scale. The right hand’s *fortissimo* G dominant seventh chord opens the twelfth of these pieces before the left hand plays stormy descending sixteenth notes. The first complete edition published by Alfred Cortot prefaces these pieces with copious (*) workouts for isolating difficulties. Besides the “three new” ones, they were published as Opus 10 and Opus 25. One of them opens with quick, dissonant minor seconds as if played by accident. These pieces include “Winter Wind” and one inspired by the November Uprising. For 10 points, name these pedagogical piano pieces, such as “Wrong Note” and “Revolutionary,” by a Polish composer.**

ANSWER: piano **étude** by Frédéric **Chopin** [prompt on partial answer; prompt on **studies** in place of “études”]

<CK, Classical Music>

3. **During this war, Johann Georg Fuchs von Dornheim built a special “witch-prison” to torture and house accused witches as part of his witch-hunt in Bamberg. After his allies were defeated in this war’s Battle of Dessau, Christian IV was routed at the Battle of Lutter and forced to withdraw from this war. During this war, an army’s left flank routed opposing (*) tercios using an oblique order in the Battle of Breitenfeld. That battle in this war was won by a monarch who was assisted during this war by his chancellor Axel Oxenstierna (“ook-sen-SHWANN-ah”) before being killed at the Battle of Lützen by the forces of Albrecht von Wallenstein. For 10 points, Gustavus Adolphus of Sweden fought in what war between Protestants and Catholics in the Holy Roman Empire?**

ANSWER: **Thirty Years’** War

<AE, European History>

4. **In a book about the “logic” of this work, David Gauthier (“GO-tee-ay”) used game theory to analyze an argument in it known as the “reply to the Fool.” Edwin Curley edited the popular Hackett edition of this book, which distinguishes between vital and voluntary motion in a discussion of the passions. This book’s introduction famously asserts, “life is but the motion of limbs,” and it presents nineteen principles of rational action called the (*) “laws of nature,” which it contrasts with the single “right of nature.” This book argues that, while there is no *summum bonum* or greatest good, the fear of death is the *summum malum*. Like its author’s earlier**

De Cive, this book characterizes the state of nature as a “war of all against all.” For 10 points, name this book that describes life as “solitary, poor, nasty, brutish, and short,” written by Thomas Hobbes.

ANSWER: Leviathan [or Leviathan: Or, The Matter, Forme and Power of a Common Wealth Ecclesiasticall and Civil]

<CK, Philosophy>

5. **Millie Dresselhaus pioneered spectroscopy of one compound of this element and was called the queen of this element. So-called peapods of this element could potentially be used for nanoscale lasers. One material composed of this element can be synthesized using xylene-based CVD with ferrocene or an iron-and-cobalt-coated catalyst support. The chiral angle of one form of this element, which can be produced by laser ablation, determines whether it takes a (*) zigzag or armchair structure. That form of this element comes in multi- and single-walled varieties. Another material composed of this element can be prepared via the “scotch tape method,” and consists of a single layer of hexagonally arranged atoms of this element. For 10 points, name this element that makes up graphene and namesake nanotubes.**

ANSWER: carbon [accept carbon nanotubes]

<GR, Chemistry>

6. **An author from this country described the four “Victim Positions” that its literary works display in a “thematic guide” to its literature titled *Survival*. A prop plane’s unexpected landing in an old fairgrounds opens a story from this country, “How I Met My Husband.” An author from this country developed theories of genres, myths, symbols, and modes in the four-essay collection *Anatomy of Criticism*. In a hugely-popular story that is quoted on this country’s (*) five-dollar note, a boy prays for moths to eat the title garment, which doesn’t display Maurice “The Rocket” Richard’s name. In a novel from this country, the Commander plays Scrabble with the narrator, Offred, in Gilead. For 10 points, name this home country of Roch Carrier, Northrop Frye, Alice Munro, and Margaret Atwood.**

ANSWER: Canada

<AP, British Literature>

7. **These things are described as “absolute” in a book written by the so-called “American Clausewitz,” Bernard Brodie. Scott Sagan and Kenneth Waltz had a book-length debate about the efficacy of these things, which increase the likelihood of minor conflicts in the stability–instability paradox. In analyzing a situation involving these things, Thomas Schelling introduced the notion of (*) brinkmanship. While at the RAND Corporation, game theorist Herman Kahn wrote a book about these things that imagines a hypothetical “Doomsday Machine.” Their use is irrational because the user will face a retaliatory “second strike,” according to deterrence theory. For 10 points, name these weapons whose use Robert McNamara claimed would lead to mutually assured destruction.**

ANSWER: nuclear weapons [or atomic weapons or nukes; accept specific types of nuclear weapons like atomic bombs or atomic missiles or fission bombs or hydrogen bombs or H-bombs; prompt on weapons or weapons of mass destruction or WMD; prompt on bombs or explosives or missiles or ICBMs]

<CK, Social Science>

8. **In *Building the Rule of Law*, Jennifer Widner examined how this country’s chief justice Francis Nyalali successfully organized an independent judiciary and multi-party elections. In this country, the ruling Chama Cha Mapinduzi party has held power since its establishment in 1977. Abeid Karume’s Afro-Shirazi Party launched a coup on an island sultanate that became part of this country, then massacred thousands of (*) Arabs in Stone Town. This country’s first president declared his support for socialism in the Arusha Declaration, after which he promulgated his socialist policies of “familyhood,” or *ujamaa*. For 10 points, name this country, which was first ruled by president Julius Nyerere in 1964 following a merger of Tanganyika and Zanzibar.**

ANSWER: Tanzania [prompt on Zanzibar]

<AE, World History>

9. This artist designed a tower of light that projects from a marble base near Reykjavik and is surrounded by one million buried wishes that this artist collected via the “Wish Trees” project. This artist included “Event Scores,” such as a “touch poem” that simply reads “Touch each other,” in a book titled *Grapefruit*. A work by this artist instructs pairs of people to strip and enter a black bag together, recalling the philosophy of bagism that (*) she helped develop. This artist sat in a dress with scissors in front of her in a performance art piece that invited the audience to cut parts of the dress; that work is “Cut Piece.” The cover of “Double Fantasy” was reproduced by this artist and her nude husband in a photograph by Annie Leibovitz taken shortly before that husband’s death. For 10 points, name this artist who was widowed after John Lennon’s death.

ANSWER: Yoko Ono

<VS, Other Arts>

10. Along with taking care of the family and observing the laws of *kashrut* (“kosh-ROOT”), this action is one of three *mitzvot* (“meets-VOTE”) that is specially entrusted to women. During Yom Kippur and Rosh Hashanah, the names of those holidays are recited in the prayer for performing this action, whereas most other holidays use the generic phrase *yom tov* (“yome tove”). This action is done to mark the anniversary of a death in the (*) *yahrzeit* (“YORT-site”) ceremony. This action is done twice to represent the commandments of *zachor* (“za-KHOR”) and *shamor* (“sha-MOR”), which are to “remember” and “keep” the Sabbath. The *shamash* (“sha-MOSH”) is used to perform this action once per day, in a right-to-left direction, during a winter festival that is celebrated over eight days. For 10 points, name this action that is performed every night on Hanukkah in a *menorah*.

ANSWER: lighting a candle [or anything that indicates making a candle burn; accept more specific types of candle-lighting like lighting a menorah or lighting Shabbat candles; accept lehadlik ner]

<AE, Religion>

11. A play written in this language that was described as “the greatest three-act hoax of the century” features a dancing man who fell through a funnel and nonsensical dialogues among characters named after body parts. This language, which was used to write *The Gas Heart*, was also used for a play in which a deaf-mute scribbles the word “ANGELFOOD” on a blackboard. In that play in this language, two characters bark like dogs at an invisible Emperor and commit suicide by (*) jumping out of a window, having spent the rest of the play rearranging the title objects. In another play in this language, the Fire Chief leaves a dinner party that devolves into a flurry of non-sequiturs shouted by the Smiths and the Martins. For 10 points, name this language used to write *The Chairs* and *The Bald Soprano* by the Romanian émigré Eugène Ionesco.

ANSWER: French [or Français] (*The Gas Heart* is by Tristan Tzara.)

<AP, European Literature>

12. Applying the Jensen inequality to a result derived by Jarzynski (“YAR-zhin-ski”) leads to this statement. The fluctuation theorem addresses situations when this statement is violated and explains that it holds on average. This statement is hard to derive from microscopic principles according to (*) Loschmidt’s paradox. Perpetual motion machines that convert heat into motion are consistent with conservation of energy but violate this principle. One statement of this principle disallows spontaneous heat flow from a cold object to a warm object, and an equivalent statement of this law says that that no process can fully convert heat to work. For 10 points, name this law that requires the entropy of an isolated system to always increase.

ANSWER: second law of thermodynamics [accept statements of the second law such as entropy always increases; prompt on partial answer; prompt on irreversibility]

<GR, Physics>

13. An important source on this monarch’s reign is the wall inscriptions found on the “Chapelle Rouge” built by this monarch at Karnak. The architect Senenmut oversaw the construction of this monarch’s mortuary

temple, the Djoser-Djoseru, as part of the necropolis at Deir el-Bahri. Reliefs at this monarch's burial site depict a corpulent foreign queen named Ati, and soldiers accompanying a trade expedition to bring back gold and myrrh ("murr") from the Land of (*) Punt. This monarch's statues and monuments were defaced during the reign of Thutmose III, whom this monarch had initially served as regent and then co-ruler. This monarch was frequently depicted wearing a false beard. For 10 points, name this only woman to reign in her own right as pharaoh.

ANSWER: Hatshepsut [or Hatchepsut]

<AE, European History>

14. The narrator is introduced to this real-life author through his homosexual relationship with the fictitious critic Farewell in a novel that begins with the line "I am dying now, but I still have many things to say." In a novel dedicated to this real-life author's wife, a postman seeks him out on the Isla Negra to learn how to court Beatriz. This character in Antonio Skarmeta's *Burning Patience* wrote "You will not return from these stone fastness" in a poem that urges (*) "Arise to birth with me, my brother." The line "The memory of you emerges from the night around me" starts a poem by this author that also includes the repeated exclamation that "In you everything sank!" For 10 points, what poet who appears in Roberto Bolaño's *By Night in Chile* himself wrote *The Heights of Machu Picchu* and *Twenty-One Love Poems and A Song of Despair*?

ANSWER: Pablo Neruda

<JH, World/Other Literature>

15. The encephalitis-causing powassan flavivirus is carried by this vector. These organisms are the vector for an allergy to alpha-gal that causes sufferers to not tolerate mammal meat. The genus *Ixodes* includes many examples of these organisms, which have hard dorsal plates. Species of rickettsia carried by these organisms can cause Helvetic and (*) Rocky Mountain spotted fever, a disease sometimes called this organism's "typhus," and other examples carry spirochetes in the genus *Borrelia*. These arthropods use their hypostome to penetrate the skin of other animals. For 10 points, name these arachnids, blood sucking parasites, some of which are carried by deer and transmit Lyme disease.

ANSWER: ticks [accept specific (hard) ticks such as (blacklegged) deer ticks or lone star ticks; accept tick typhus; accept *Ixodes scapularis* or other species of *Ixodes* until read; prompt on (class) acar; prompt on arachnids]

<GR, Biology>

16. In this state, a group of fundamentalist Christians set up the "Spiritual Counterfeits Project" to launch lawsuits and distribute leaflets against new religious movements. That organization grew out of the "Jesus Movement" in this state, which also produced the evangelical Campus Crusade for Christ. A student activist in this state gave a speech encouraging listeners to "put your bodies upon the (*) gears" during a sit-in at Sproul Hall; that activist was Mario Savio of the Free Speech movement in this state. During the summer of 1967, this state saw thousands of young people converge upon the Haight Ashbury district as part of the "Summer of Love." For 10 points, name this state that saw many countercultural protests during the 1960s at its public university in Berkeley.

ANSWER: California

<AE, American History>

17. Charles Baudelaire described one of this painter's works as a "terrifying hymn in honor of doom and irremediable suffering." This artist repainted the sky of that canvas in response to the works of Constable on display at the Salon of 1824. That work by this artist includes two "human pyramid" motifs with a soldier on a rearing horse at the top of the right pyramid. One of this artist's canvases was inspired by a (*) Byron poem in which Salemenes decries the luxury of the title character. Colorful works of this artist's North African phase include *The Women of Algiers*. This artist depicted an allegorical figure of Greece inspired by the siege of Missolonghi, and also painted an Assyrian king lying on a giant red bed and Ottoman forces rampaging at Chios. For 10 points, name this French Romantic painter of *The Death of Sardanapalus*.

ANSWER: Eugène Delacroix

<GR, Painting & Sculpture>

18. Asterisks appear before the names of soon-to-die characters throughout a novel by this author in which a tour group on Santa Rosalia become the progenitors of a race of furry seal-like mammals. Another novel by this author climaxes with an artist's explanation of the "unwavering band of light" in his abstract painting of Saint Anthony. After reading a book in which he is told, "You are the only creature in the entire Universe who has free will," the (*) car salesman Dwayne Hoover goes on a violent rampage in that novel by this author. The author of that in-universe book, Kilgore Trout, is also referenced in a novel by this author in which Billy Pilgrim hides out in the title location and becomes "unstuck in time." For 10 points, name this author of *Galápagos*, *Breakfast of Champions*, and *Slaughterhouse-Five*.

ANSWER: Kurt Vonnegut, Jr.

<JN, American Literature>

19. Project 23 examines 23 boxes of dirt that were excavated near one of these locations during the construction of LACMA's underground garage. W. W. Orcutt made the initial discoveries from one of these locations that are exhibited in the George C. Page Museum. Unusually, the *H. petrolei* fly lives in these toxic environments during its larval stage. Hancock Park surrounds one of these locations in the middle of (*) Los Angeles where many skeletal remains of mammals like dire wolves and saber-toothed cats have been found. For 10 points, name these geological features where bitumen rises to the surface, resulting in pools filled with natural asphalt, such as La Brea.

ANSWER: tar pits [or pitch lakes or asphalt pits or asphalt lakes]

<WC, Other>

20. Pausanias documented a belief that users of these objects were haunted by the ghost of a king of Pisa who died while using one. Erichthonius supposedly invented these things to hide his serpent feet. In Thessaly, a bronze one of these objects was ritually shaken to make rain, paralleling Salmoneus's attachment of bronze cauldrons to one of these objects. Ovid wrote that one of these objects is threatened by the constellation (*) Scorpius, and also wrote that an incident involving that one of these objects is responsible for the dark complexion of Ethiopians. Myrtilus used beeswax to sabotage one of these objects belonging to King Oenomaus, allowing Pelops to win the hand of Hippodamia. For 10 points, Phaethon was killed by Zeus for losing control of what kind of vehicle that belonged to his father Helios?

ANSWER: chariots [accept chariots of the sun]

<JS, Mythology>

Bonuses

1. A particularly complicated type of this art form is called *adweneasa*, meaning “my skill is exhausted,” requiring the weaver to use three pairs of heddles instead of the usual two. For 10 points each:

[10] Name this medium made up of interwoven strips of fabric that was originally developed by the Akan people.

ANSWER: **kente** cloth [or **nwentoma**]

[10] Kente cloth originated in the village of Bonwire in this country, whose other traditional types of fabric include *adinkra*. The Akan people sculpted brass weights for use in this modern-day country’s gold trade, which led Britain to call it the Gold Coast.

ANSWER: **Ghana**

[10] The *oyokoman* kente pattern uses these three colors, lending it an association with independence since they are found on Ghana’s flag. Rastafaris adopted the use of these Pan-African colors from the Ethiopian flag. Name all three.

ANSWER: **red, yellow, AND green** [accept in any order; accept **maroon** for “red”; accept **gold** for “yellow”]
<WC, Other Arts>

2. During a failed coup attempt against this leader, state television played *Swan Lake* on continuous loop. For 10 points each:

[10] Name this leader who survived a coup by the hardline “Gang of Eight.” That coup against this leader was opposed by another politician who was photographed on top of a tank in front of Parliament.

ANSWER: Mikhail **Gorbachev** [or Mikhail Sergeyevich **Gorbachev**]

[10] *Swan Lake* was also broadcasted on state television following the death of this other Soviet leader in 1982. This successor of Khrushchev established a namesake doctrine to justify the 1968 invasion of Czechoslovakia.

ANSWER: Leonid **Brezhnev** [or Leonid Ilyich **Brezhnev**]

[10] Khrushchev once complained to this prima ballerina of the Bolshoi that he saw *Swan Lake* so many times that the thought of seeing it made him sick. She was famed for her role as Odette-Odile in *Swan Lake*.

ANSWER: Maya **Plisetskaya** (“plee-SETS-ka-ya”)

<AE, European History>

3. Secretion of this hormone is stimulated by gastrin. For 10 points each:

[10] Name this short polypeptide hormone that promotes osteoclast activity and opposes PTH.

ANSWER: **calcitonin**

[10] Calcitonin is produced by the parafollicular cells of this endocrine gland that also releases iodine-containing T3 and T4 hormones. When this gland becomes enlarged, it is called a goitre (“GOY-ter”).

ANSWER: **thyroid**

[10] This part of the brain controls thyroid output as part of an axis with the pituitary gland. This structure releases thyrotropin-releasing hormone in response to low levels of thyroid hormone.

ANSWER: **hypothalamus**

<GR, Biology>

4. This essay’s author states that while reading a certain manuscript in public, “I have often had to close it lest some stranger would see how much it moved me.” For 10 points each:

[10] Name this short essay that concludes by comparing its subject to the children in one of his poems who gather pebbles on the seashore because “they know not how to cast nets.”

ANSWER: William Butler **Yeats’ introduction to *Gitanjali*** (“gee-TAHN-juh-lee”) [prompt on **introduction to *Gitanjali*** by asking “who wrote the essay?”; prompt on **Yeats’ introduction** by asking “to which literary work?”; accept **preface, forward**, or synonyms in place of “introduction”; accept ***Song Offerings*** in place of “*Gitanjali*”]

[10] *Gitanjali* was written by this Bengali poet, who also composed the national anthem of India.

ANSWER: Rabindranath **Tagore**

[10] In a poem from *Gitanjali*, the narrator prays, “My Father, let my country awake” into “that heaven of freedom” where the mind is without this quality.

ANSWER: **fear** [or **bhay**]

<CK, World/Other Literature>

5. After this law was passed, the federal government initiated the case *United States v. Forty Barrels & Twenty Kegs of Coca-Cola*, attempting to force Coca-Cola to remove caffeine from its formula. For 10 points each:

[10] Name this consumer protection law that was passed in 1906 after Upton Sinclair exposed the unsanitary conditions of American slaughterhouses in his novel *The Jungle*.

ANSWER: **Pure Food and Drug Act** of 1906 [prompt on partial answers]

[10] *The Jungle* portrayed the meatpacking industry of this city’s stockyard, which processed 18 million head of livestock during its peak year in 1924. Carl Sandburg coined this city’s nickname of “hog butcher for the world.”

ANSWER: **Chicago**

[10] This American chemist enforced the law as head of the USDA’s Bureau of Chemistry. He carried out voluntary “poison squad” studies testing the effects of common preservatives like formaldehyde on the human body.

ANSWER: Harvey Washington **Wiley**

<WC, American History>

6. The distinctive bridgeless nose of a ruler of this city appears in a diptych (“DIP-tick”) painting of him and his wife. For 10 points each:

[10] Name this city, one of whose dukes is the subject of several of Piero Della Francesca’s portraits. Rona Goffen argued that a painting commissioned in this city depicts a masturbatory gesture to signify chastity in a work titled for its “problematic patronage.”

ANSWER: **Urbino** [accept **Venus of Urbino**]

[10] This artist showed two maids rummaging through a *cassone* chest while a curled up dog lies next to the title figure in his *Venus of Urbino*.

ANSWER: **Titian** [or **Tiziano**; or Tiziano **Vecelli**; or Tiziano **Vecellio**]

[10] Another painting by Titian shows this figure leaping off a chariot pulled by two cheetahs to rescue a Greek princess. This figure sits surrounded by swarthy men in country clothing in a Velázquez painting titled for his “Triumph.”

ANSWER: **Bacchus** [prompt on **Dionysus**; accept **Bacchus** and *Ariadne* or *The Triumph of Bacchus*]

<JL, Painting & Sculpture>

7. Name a more iconic duo than being Greek and getting kicked off a cliff. For 10 points each:

[10] This Isthmian robber made his victims think that they were going to wash his feet, but then kicked them off a cliff into the jaws of a giant sea turtle instead.

ANSWER: **Sciron**

[10] Sciron was killed by this hero, who incidentally also died when Lycomedes kicked him off a cliff. His other exploits included attempting to abduct Persephone with his friend Pirithous and slaying the Minotaur.

ANSWER: **Theseus**

[10] This father of Theseus was so distressed when he saw that Theseus’s ship had black sails instead of white sails that he threw himself off a cliff. He had earlier buried a sandal, sword, and shield under a rock for Theseus.

ANSWER: **Aegeus**

<JS, Mythology>

8. This story ends with the main character stammering “isn’t life—?” to her brother, who responds, “Isn’t it, darling?” For 10 points each:

[10] Name this story in which Laura Sheridan gazes at the face of her dead neighbor Mr. Scott after leaving the title event to drop off a basket of leftovers as condolences.

ANSWER: “The **Garden Party**”

[10] This New Zealand-born author’s collection *The Garden Party* also contains “Miss Brill” and “Bliss.”

ANSWER: Katherine **Mansfield** [or Kathleen Mansfield **Murry**]

[10] The theory that the corpse in “The Garden Party” was inspired by the death of Mansfield’s brother is suggested in *No Man’s Land*, a book by two feminist literary critics who also wrote the seminal study *The Madwoman in the Attic*. Name either author.

ANSWER: Sandra **Gilbert** OR Susan **Gubar**

<AP, British Literature>

9. The Fanno line diagram for a flow, which accounts for friction, reaches a point of maximum entropy when this condition occurs. For 10 points each:

[10] Name this condition in which decreasing downstream pressure with constant upstream pressure does not increase the mass flow rate through a nozzle.

ANSWER: **choked** flow [accept answers indicating that the **Mach** number reaches **1** at the **throat** or **exit**]

[10] When the hourglass-shaped de Laval nozzle becomes choked, the fluid speed reaches a maximum of this value at the nozzle throat. This speed is equivalent to Mach 1.

ANSWER: speed of **sound** [or **sonic** flow velocity; accept **Mach 1** until read; do not accept “subsonic” or “supersonic”]

[10] One of these phenomena will form if the downstream pressure decreases past the pressure at which the nozzle velocity is sonic. Another type of these phenomena forms when a supersonic flow meets a body and curves as it detaches from the body.

ANSWER: **shock** waves [accept bow **shocks**; accept **shock** fronts]

<AP, Physics>

10. This monarch patronized the seaside resort of Brighton, where he built the Indian- and Chinese-inspired Royal Pavilion. For 10 points each:

[10] Name this monarch who had built the Royal Pavilion during his time as regent for his insane and possibly porphyria-afflicted father.

ANSWER: **George IV** [or **George Augustus Frederick**]

[10] The construction of the Royal Pavilion was overseen by this architect, who also laid out Regent’s Park in the borough of Westminster in London.

ANSWER: John **Nash**

[10] John Nash also oversaw the conversion of this palace into the British monarchs’ residence in London. During World War II, George VI lived in this palace, despite it receiving nine direct hits from bombs.

ANSWER: **Buckingham** Palace

<AE, European History>

11. This piece opens with the piano introducing and the soloist arpeggiating a gentle, rocking E dominant ninth chord, a cyclic motif that returns in its 3rd and 4th movements, a recitative-fantasia and a canon. For 10 points each:

[10] Name this chamber piece in A major composed as wedding present for Eugène Ysaÿe (“oo-ZHEN ee-ZYE”), who premiered it from memory in a dark art museum in Brussels in 1886. A cello version of it is by Jules Delsart.

ANSWER: **Violin Sonata** in A major by César **Franck** (“say-zar fronk”) [or **Franck**’s **Sonata** for **Violin** and Piano; prompt on partial answer]

[10] A 1910 Budapest visit influenced this composer’s last piece, a short 1917 violin sonata in a projected set of six sonatas he signed “musicien français” (“myoo-zeese-YANN fron-SAY”), including one for flute, viola, and harp. A cyclic motif unifies his String Quartet in G minor influenced by Grieg and premiered by the Ysaÿe Quartet.

ANSWER: Claude **Debussy**

[10] This composer wrote a solo violin sonata with optional quarter tones for Yehudi Menuhin (“yeh-HOO-dee MEN-yoo-in”) a year after *Concerto for Orchestra* and a year before his death. This Hungarian ethnomusicologist wrote two violin sonatas and six influential, modern string quartets.

ANSWER: Béla **Bartók**

<OL, Classical Music>

12. This author wrote a story in which the cowherd Yuhanna has his cattle stolen by a group of monks while he is reading the Bible. For 10 points each:

[10] Name this Lebanese author of an English-language book in which Al-Mustafa, the title prophet, delivers discourses on the nature of life to the citizens of Orphalese (“OR-fuh-leez”).

ANSWER: Kahlil **Gibran** [or Khalil **Gibran**]

[10] The title of Gibran’s story about Yuhanna calls him one of these people, one of whom also titles his first English collection of “parables and poems.” A character named for the Arabic word for this sort of person falls in love with Layla in a popular poem by Nizami.

ANSWER: **madman** [or word forms like **mad** or **madness**; or synonyms; accept **majnun**]

[10] Along with Mikhail Naimy, Gibran led “The Pen League,” an Arab-American literary movement in this city. Around the same time, this city’s neighborhood of Harlem was the focus of an African-American literary movement.

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

<AP, American Literature>

13. Schlenk lines can be used for reactions that require these techniques, and all associated glassware must be prebaked. For 10 points each:

[10] Name this class of techniques for sensitive reactions. Use of a positive pressure glovebox is one technique of this type.

ANSWER: **air-free** techniques [accept **air-free** reactions or **oxygen-free** reactions; accept anything indicating carrying out the reactions in an **inert atmosphere**; accept, but DO NOT REVEAL, **water-free** technique/reactions]

[10] Air-free reactions typically need to be carried out in an oxygen-free environment, or in the absence of this compound. This compound can be removed by desiccants or molecular sieves, and it is the solvent for aqueous solutions.

ANSWER: **water** [or **H₂O** accept **water**-free reactions]

[10] Water can be removed by using a sacrificial excess of magnesium when preparing these reactants. These magnesium halides are used to add carbonyl (“car-bo-NEEL”) groups to organic compounds.

ANSWER: **Grignard** (“green-YARR”) reagents [or **Grignard** reactants]

<GR, Chemistry>

14. Many Romance languages exhibit a phenomenon in which these morphemes “climb” to the matrix clause and attach to the matrix verb. For 10 points each:

[10] Name these morphemes that are pronounced like affixes but have phrase-level syntactic roles. A standard example in English is the contracted forms of the auxiliary verbs in “I’m” and “we’ve.”

ANSWER: **clitics**

[10] Zwicky and Pullum wrote a widely-cited paper contrasting cliticization with this morphological process that produces grammatical variants of a word, such as conjugating a verb or declining a noun.

ANSWER: **inflection** [or word forms; do not accept or prompt on “derivation”]

[10] This Asian language notably lacks inflectional affixes. The Wade–Giles and Pīnyīn systems are used to Romanize this language, which differentiates between homophones through four different tones.

ANSWER: **Mandarin** Chinese [or **Pǔtōnghuà** or **Guóyǔ** or **Huáyǔ** or **Gūanhuà**; prompt on **Chinese**; prompt on **Zhōngwén**]

<CK, Social Science>

15. According to legend, this king's army used a pet monitor lizard to reach a fort atop a steep cliff. For 10 points each:

[10] Name this founder of the Maratha ("muh-RAH-tuh") confederacy who took a title meaning "umbrella-lord." With the Mughal general Jai ("jay") Singh, he signed the Treaty of Purandar ("poor-UN-duhr"), which made him a Mughal vassal.

ANSWER: **Shivaji** ("shih-VAH-jee") Bhosle

[10] Shivaji agreed to become a vassal of this Mughal emperor, who promptly placed Shivaji under house arrest at his court in Agra. This Mughal emperor reimposed the *jizya*, which had been previously abolished by Akbar.

ANSWER: **Aurangzeb** [or **Alamgir**]

[10] Shivaji was renowned for his tolerance towards this minority religion among his citizens. Akbar combined elements of Hinduism and this official religion of the Mughal Empire to develop the Din-i Ilahi.

ANSWER: **Islam** [or **Muslims**]

<AP, World History>

16. This church was founded after Bishop Richard Allen and fellow Black worshippers were pulled off of their knees during a worship service in Philadelphia. For 10 points each:

[10] Name this Black church that was formally established in 1816. Henry McNeal Turner, a minister from this church, advocated Black emigration to Africa after serving in the Civil War as the first Black US Army chaplain.

ANSWER: **African Methodist Episcopal** Church [or **AME** Church]

[10] James H. Cone, a theologian and minister of the AME Church, advocated a "Black" version of this theological movement originating in Latin America that emphasizes the role of the church in advancing social justice.

ANSWER: **liberation** theology [accept Black **liberation** theology]

[10] In a 2011 book, James H. Cone contrasted the "Lynching Tree" with this symbol of Christianity, arguing that the tree keeps this method of Jesus's execution from becoming "a symbol of abstract, sentimental piety."

ANSWER: **cross** [or **crucifixion** or **crucify** or **crucified** or other word forms]

<WC, Religion>

17. A poem often ascribed to this author is set while the narrator "sleeps alone" at midnight, when "the moon and the Pleiades have set" and "the time is passing." For 10 points each:

[10] Name this female Greek poet from Lesbos who wrote of an "iridescent-throned" goddess descending in a chariot pulled by sparrows in the "Hymn to Aphrodite."

ANSWER: **Sappho** [or **Psappha**]

[10] A recurring Greek literary tale in which Sappho jumps off a rock into the sea after being rejected by Phaon first appeared in a play by this author. This comedic playwright wrote of the grouchy old man Knemon in *Dyskolos*.

ANSWER: **Menander** [or **Menandros**]

[10] "The Last Song of Sappho" is a poem from this author's *Canti*. This Italian poet's reflections on the relative merits of Latin and modern Romance languages occupy many pages of his massive set of notes, the *Zibaldone* ("dzee-ball-DOH-nay").

ANSWER: Giacomo **Leopardi**

<AP, European Literature>

18. In 2009, this surgeon wrote *The Checklist Manifesto*, using an anecdote about a man who was stabbed by a bayonet at a Halloween party to argue for using checklists in making complex decisions. For 10 points each:

[10] Name this Indian-American surgeon who founded Ariadne Labs to encourage health systems innovation. In June 2018, he was named CEO of a joint health venture by Amazon, Berkshire Hathaway, and JPMorgan Chase.

ANSWER: Atul **Gawande** ("GAH-wun-day")

[10] This current CEO of JPMorgan Chase lent his support to Gawande’s venture. After the murder of Jamal Khashoggi (“ka-SHOOK-chee”), he pulled out of the October 2018 “Davos (“da-VOSE”) in the Desert” conference sponsored by Saudi Arabia.

ANSWER: Jamie **Dimon** (“DYE-mun”)

[10] This CEO represented Amazon in the venture. In October 2018, he was praised by Bernie Sanders after he announced that US-based Amazon employees would receive a 15-dollar minimum wage starting in November 2018.

ANSWER: Jeff **Bezos**

<WC, Other>

19. R. M. Hare’s *Moral Thinking* argues that this theory is preferable for “proles” who need “intuitive level” moral principles because they lack the cognitive abilities of “archangels.” For 10 points each:

[10] Name this variant of utilitarianism which, unlike its act-based rival, argues that we can maximize utility via a fixed moral code.

ANSWER: **rule** utilitarianism

[10] This ethicist attempted to show that rule utilitarianism, Kantian deontology, and T. M. Scanlon’s contractualism all make similar recommendations in his 2011 book *On What Matters*.

ANSWER: Derek **Parfit**

[10] Strong versions of rule utilitarianism often incorporate this foundational principle of Kantian deontology which states that one should only act according to moral maxims that can be made universal.

ANSWER: **categorical imperative**

<CK, Philosophy>

20. In the lake effect, large amounts of this substance form as the result of cold air moving over the warm waters of a lake. For 10 points each:

[10] Name this form of precipitation that comes in shapes like stellar dendrites, needles, and capped columns.

Ablation removes this substance from the surface of a glacier.

ANSWER: **snow** [or **snowflakes**; prompt on **ice**]

[10] This diagram displays the types of snowflakes that form as temperature and water vapor supersaturation are varied. It is named after a Japanese scientist who created the first snowflake classification system.

ANSWER: **Nakaya** diagram [or Ukichiro **Nakaya**; or snow crystal **morphology** diagram]

[10] In 2017, the NSF-supported SNOWIE experiment in Idaho attempted to evaluate the effectiveness of seeding clouds using this compound, which has a crystalline structure similar to ice.

ANSWER: **silver iodide** [or **AgI**]

<WC, Other Science: Earth Science>