

2020 ACF Winter

Packet K by Colorado A, Harvard A, Michigan A, Minnesota B, Oxford B, Penn A

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Tossups

1. The title character of a story by this author regrets answering “A false alarm on the night bell” and imagines the inevitable rape of his maid Rosa by a man who crawls out of a pigsty. In another story by this author, two ladies’ handkerchiefs fall out of the coat of a man who is angered when a servant vomits across a machine that has its funding withheld by the new Commandant. A character created by this author of “A Country Doctor” has the words “BE JUST” carved into his back by his own torture machine. In a novella by this author, a character who has an apple thrown at his back hopes to pay for violin lessons for Grete. For 10 points, name this Czech author of “In the Penal Colony” who wrote about Gregor Samsa’s transformation into a bug in *The Metamorphosis*.

ANSWER: Franz **Kafka**

<European Literature>

2. A length scale that describes this process in pulsating stars is usually set equal to the dimensionless parameter alpha times the local pressure scale height. The stability of this process can be determined by looking at two values of a term written $d \ln T$ over $d \ln P$. After nuclear fusion, this process can extend more deeply in a dredge-up event, which causes more elements to show in a star’s spectrum. Stability against this process depends on the Schwarzschild criterion. Solar granules can form where this process occurs in Bénard cells. A stellar “zone” named for this process is made up of turbulent plasma. This process dominates in the cores of high-mass main sequence stars, while intermediate-mass stars favor radiative cores. For 10 points, name this mode of heat transfer caused by the bulk flow of fluids.

ANSWER: stellar **convection** [accept **convective** mixing or **convection** cells or **convection** zones or **convective** cores; prompt on **mixing** or the **mixing length** by asking “the mixing is a result of what other process?”]

<Other Science>

3. A book distinguishes among forms of promoting this concept called “existential,” “missionary,” and “imperialistic.” This is the last title concept of a book that distinguishes between two entities based on whether they compensate “independents.” In the book that introduced this concept, several ambassadors are deemed to be fools by the local inhabitants because they wear gold, a substance that the inhabitants reserve for slaves. That book describes the travels of Raphael Hythloday to a fictional New World society without private property. This is the last title concept of a book which claims that the minimal state uniquely does not violate individual rights; that Robert Nozick book is titled for anarchy, state, and this concept. The title concept of a Thomas More treatise is, for 10 points, what Greek word for “nowhere”?

ANSWER: **utopia** [or word forms; prompt on *Anarchy, State, and Utopia* by asking “which title concept?”]

<Philosophy>

4. Putti harvesting grapes appear on two Roman examples of these objects sculpted in porphyry for Constantina and Helena, now in the Vatican Museums. An egalitarian portrait of two spouses conversing decorates one of these objects in terracotta from the Etruscan site Cerveteri (“chair-VAY-tair-ee”). Paired Old and New Testament reliefs cover one of these objects named for the early Christian Junius Bassus. A heavy example of these objects made of quartzite with a granite lid was taken from KV62. A rishi feather pattern decorates a nested set of these objects concealing a gold mask inlaid with lapis lazuli and wearing a nemes (“NEM-eez”) headdress. Stands called biers often support these objects, whose name means “flesh-eater.” For 10 points, name these carved receptacles sculpted to hold the corpses of pharaohs like Tutankhamun.

ANSWER: **sarcophagi** [or a **sarcophagus**; accept **coffins** or caskets; accept tomb **effigies**; prompt on any answers about **funerary** art, **tombs**, or similar; prompt on **boxes** or **containers** or **receptacles** by asking “used to hold what?”; accept the **Sarcophagus** of the Spouses or **Sarcophagus** of Junius Bassus]

<Other Arts>

5. *Note to moderator: Read the answerline carefully.* In 2017, the Center for Investigative Reporting found that drug addicts were forced to work in this industry under the pretext of staying at Oklahoma’s Christian Alcoholics & Addicts in Recovery rehab center. A 2020 book by Tom Philpott argues that this industry is collapsing due to overproduction rather than misdirected insurance and subsidies. A 2011 article by Mark Bittman highlighted Montana and Kansas passing “gag laws” that prevent people from trespassing in this industry’s facilities and taking photographs. This industry’s increasingly crowded “CAFOs” are often likened to “factories.” The Cabinet Secretary overseeing this industry, Sonny Perdue, has relaxed standards for school lunches and herbicide use. For 10 points, the USDA regulates what industry that produces food?

ANSWER: **agriculture** [accept **USDA** or United States Department of **Agriculture** or **Agriculture** Department; accept **agribusiness** or **ag-gag** laws; accept factory **farming** or **growing food** or **crops** or clear-knowledge equivalents; accept **meat** or **poultry** or **slaughterhouses** or concentrated **animal feeding** operations or similar answers; prompt on **food**] (The Philpott book is called *Perilous Bounty*.)

<CE/Geo/Other/Pop Culture>

6. Activist William Lane advocated for the removal of immigrants of this ethnicity and founded a colony in Paraguay to escape them. White workers organized “roll-ups” to take control of worksites manned by people of this ethnicity during the Lambing Flats riots. One of Ned Kelly’s first victims was a pig merchant of this ethnicity who beat him with a stick. John Hall established a poll tax to disenfranchise people of this ethnicity, which was later expanded by Richard Seddon. People of this non-white ethnicity immigrated to Australia in massive numbers following the discovery of gold in Victoria. For 10 points, the White Australia policy was created to stop what ethnicity’s emigration from Guǎngdōng?

ANSWER: **Chinese** Australians [accept **Chinese** New Zealanders; accept specific Chinese minorities, like **Hàn** or **Fujianese**]

<Other History>

7. A woman in this novel embroiders a “nightmarish zoology” of dogs, cats, and butterflies in an attempt to sew the world’s largest tablecloth. A girl in this novel threatens to stop breathing to convince her father to adopt a furniture-eating puppy who was last fed by the dying Captain Longfellow. That dog in this novel is made into a rug upon being stabbed at the wedding of a miner who is cursed by his sister Férula. This novel opens with the journal entry “Barrabás came to us by sea,” written by a mute clairvoyant. This novel’s patriarch devotes himself to the hacienda Las Tres Marías after Rosa the Beautiful dies. For 10 points, name this novel that chronicles the family of Clara del Valle (“VAH-yay”) and Esteban Trueba, written by Isabel Allende.

ANSWER: *The **House of the Spirits*** [or *La **casa de los espíritus***]

<World/Other Literature>

8. This organism produces toxins called exfoliatins that cause scalded skin syndrome. This is the most prominent organism to express a protein that converts a host's fibrinogen into a fibrin layer to protect itself from phagocytosis; that protein is coagulase. This organism produces Protein A, which inhibits opsonization. This organism can absorb the SCCmec ("S-C-C-meck") cassette, giving it access to the *mecA* gene. Superantigens like TSST-1 that are produced by this organism cause a disease sometimes contracted through use of super absorbent tampons; that disease is toxic shock syndrome. A methicillin-resistant strain of this bacterium is a deadly antibiotic-resistant "superbug." For 10 points, name this spherical Gram-positive bacteria that frequently causes infections in hospitals. ANSWER: ***Staphylococcus aureus*** [or ***Staph aureus*** or ***S. aureus***; accept **MRSA** or any previous answers prefixed with "methicillin-resistant"; prompt on ***Staphylococcus*** or ***aureus***; do not accept or prompt on "***Streptococcus***"]
<Biology>

9. An environmental history by Johan Elverskog argues that since these people embody the "field of merit," directing *dāna* towards them is prosperity theology. These people can be "defeated" and enter a state called *pārājika* in the Dhammayuttika Nikaya ("ta-ma-YOO-tee-ka nee-KA-ya"). A medieval literary genre about these people was perfected by Saigyō's poems and Kamo no Chōmei's essay *Hōjōki*, or *An Account of My Hut*. The elaborate cuisine *shōjin ryōri* was created by these people, who follow *prātimokṣa* ("prah-tee-moke-shah") guidelines from the Vinaya texts. These people include female *bhikkhunī* ("bik-koo-nee") and male *bhikkhu* ("bik-koo"), who both wear saffron robes. Saichō founded these vegetarians' Tendai school, whose Sōtō school offshoot was created by Dōgen to teach *zazen* meditation. For 10 points, what Buddhists renounce material society to pursue nirvana? ANSWER: Buddhist **monks** [or Buddhist **nuns**; or **monastics**; accept people who join a **monastery**; accept **hermits**; accept **recluse** literature; accept **ascetics** or **renunciants**; accept descriptions like people who **seclude** themselves from society; accept **bhikkhunī** or **bhikkhu** until read; accept **sangha**; prompt on **Buddhists** or **disciples** of the Buddha; prompt on **vegetarians** or **vegans** until "vegetarians" is read; accept **temple** cuisine] (The first sentence refers to *The Buddha's Footprint: An Environmental History of Asia*.)
<Religion>

10. Polish craftsmen led a strike for voting rights in this colony, which regulated the intersex person Thomas (ine) Hall's clothing. The distiller George Thorpe killed this colony's mastiffs after they attacked Werowocomoco residents who stuffed dead colonists' mouths with dirt at Berkeley Hundred. Angela was among "20 and odd" enslaved Ndongans brought to this rival of Maine's Popham colony, whose "First Families" included Mathews and Randolph. The *Sea Venture* was sent to feed this colony, but wrecked in Bermuda. Robert Beverley wrote that jimsonweed poisoned this colony in an anti-Doeg ("anti-dohg") uprising led by Africans and white indentured servants. The year when slavery reached this tobacco-farming colony titles Nikole Hannah-Jones's "1619 Project." For 10 points, what colony faced Bacon's rebellion and seized land from the Powhatan? ANSWER: **Jamestown** [accept Colony of **Virginia**; accept **Martin's Hundred** or **Berkeley Hundred** until read] (Jimsonweed is derived from "Jamestown weed.")
<American History>

11. An epic poem imagines this animal "seen thro' mists & shadows, hov'ring" and surrounded by "a Female Tabernacle woven in Cathedron's looms." A speaker born "in the southern wild" imagines joining an English boy as "round the tent of God like [these animals] we joy." A poet drew two spindly trees entwining above a group of these animals to illustrate a poem about this animal's "tender voice / Making all the vales rejoice!" That poem's speaker tells this animal that its "clothing of delight" came from someone who "is meek & he is mild." That poem's companion poem asks a [emphasize] *different* animal "Did he who made [this animal] make thee?" For 10 points, name this animal contrasted with "The Tyger" in a poem by William Blake. ANSWER: **lambs** [or "The **Lamb**"; accept the **Lamb** of God; prompt on **sheep** or similar]
<British Literature>

12. A short C minor piano piece by this composer uses the slow rhythm “quarter, quarter, dotted eighth, sixteenth, quarter” in every bar except the last. This composer also wrote a “suffocating” piano piece in the same opus where the notes “long B, C, long B” are repeated over left-hand chords that slowly chromatically descend. Rachmaninoff wrote a set of solo piano variations on a theme by this non-Corelli composer, who also inspired Rachmaninoff’s cello sonata in G minor. The right hand plays almost entirely black keys in a piece by this composer in the same genre as one in which the pianist mimics wrong notes. During a trip to Majorca with George Sand, this composer was inspired by a storm to write his “Raindrop” prelude. For 10 points, name this Polish composer of the “Revolutionary” Étude.

ANSWER: Frédéric **Chopin**
<Classical Music>

13. A hyperboloid-shaped construct named for this quantity serves as a solution set for physical systems that satisfy classical equations of motion. Because this quantity is inversely proportional to cyclotron frequency, cyclotron resonance is used to measure an equivalent of this quantity for electrons. The ratio of two values of this quantity can be used to approximate the efficiency of a rocket. For a two-body system, the ratio of the product and sums of this quantity for the two bodies results in a “reduced” form of this quantity that models the system as a one-body problem. The centroid is equivalent to a point named for this quantity for a body with uniform density; that point is the “center” of this quantity. For 10 points, name this quantity that is multiplied by acceleration to give force according to Newton’s second law.

ANSWER: **mass** [accept effective **mass** or **mass** shell]
<Physics>

14. Peter Longerich’s 2015 biography of this man diagnosed him with narcissistic personality disorder and earned the author a lawsuit from this man’s estate. This man’s early semi-autobiographical novel *Michael* tells the story of a man who meets a “sacrificial death” and was satirically re-published by Elfriede Jelinek (“el-FREE-duh YELL-ih-neck”) in 1972. This man called for “total war” during a speech at the Sportpalast stadium. This man’s affair with Czech actress Lída Baarová almost broke up his marriage to his wife Magda, with whom he committed suicide and killed his six children in the Führerbunker. Leni Riefenstahl was often employed by this man, who effectively nationalized his country’s film industry. For 10 points, name this Reich Minister of Propaganda and close confidant of Adolf Hitler.

ANSWER: Joseph **Goebbels** [or Paul Joseph **Goebbels**]
<European History>

15. Kate Raworth’s *Doughnut Economics* advises, “Be agnostic about [*this quantity*],” which is zero in the economic system proposed by Tim Jackson. The Ramsey–Cass–Koopmans model of this quantity follows the Inada conditions for its stability. It’s not unemployment, but in classical economics, demand shocks do not cause this quantity to increase in the long run. Rostow’s five stages model the “takeoff” of this quantity, which is tracked by the long-term trends of business cycles. Increasing the savings rate only temporarily increases this quantity in the exogenous Solow–Swan model. It’s not population, but the World3 simulation informed the Club of Rome’s 1971 report on this quantity’s “limits.” This quantity is positive in expansions and negative during recessions. For 10 points, what quantity measures the change in real GDP over time?

ANSWER: economic **growth** rate [or GDP **growth** rate; accept warranted **growth**; accept zero-**growth**; accept **expansion** until read; prompt on real **GDP** or **gross domestic product** or **output** or **production** by asking “what quantity measures the change in GDP?”; accept exogenous **growth** models; accept output **growth**; accept *Prosperity Without **Growth***]
<Social Science>

16. A peroxyacid (“pur-oxy-acid”) ester containing a ring of this size excites the dye in glow sticks by decomposing into CO₂. This many symmetry operations characterize the point group C_{2v}. Complexes with this coordination number are the main ones to undergo the *trans* effect. One of the two common metal complex geometries with this coordination number is typically low-spin with a d⁸ configuration. A cyclic diene with this ring size is the simplest antiaromatic molecule. This many substituents are ranked by priority to determine geometric isomerism in the E–Z system. In VSEPR (“vesper”) theory, this is the steric number of ammonia and water. This many substituents bond to the central atom in seesaw and square planar geometries. For 10 points, how many atoms surround the central atom of a tetrahedral molecule?

ANSWER: **four** [or **4**]

<Chemistry>

17. Two characters in this play recite a prayer for the dead but add the words “you sonofabitch” at the end. While a Black character in this play argues with a Jewish invalid (“IN-va-lid”) about which one of them is racist, he says “real love isn’t ambivalent,” which he claims is from a novel set on a Deep South plantation. A woman in this play imagines smelling ozone while she hallucinates that she is in Antarctica with Mr. Lies. A lawyer in this play insists that he had “liver cancer” before he dies. In this play, a character offers Joe Pitt a job in D.C., but Joe hesitates to take it due to his Valium-addicted wife, Harper. At the beginning of this play, Louis Ironson learns that his lover, Prior Walter, has AIDS. For 10 points, name this play, a “Gay Fantasia on National Themes” by Tony Kushner.

ANSWER: ***Angels in America*** [or ***Angels in America: A Gay Fantasia on National Themes***; prompt on ***Millennium Approaches*** or ***Perestroika***]

<American Literature>

18. A person with this first name sat for a 12-foot bronze portrait sculpture by the pioneering Nigerian artist Ben Enwonwu. Another person with this name was often painted holding a sieve, referencing the Roman maid Tuccia. The phrase *Non sine sole iris* (“NON sin-eh SO-leh EE-ris”) appears next to that person with this first name in a portrait depicting that person holding a rainbow. A person with this first name was depicted in Nicholas Hilliard’s *Phoenix* and *Pelican* portraits. A portrait depicts a ruler with this name whose right hand rests atop a globe while ships encounter stormy seas in a painting over her left shoulder. For 10 points, give this first name of the subject of the *Armada Portrait*, the “Virgin Queen” of England.

ANSWER: **Elizabeth** [or **Elizabeth I**; or **Elizabeth II**; accept **Elizabeth** Alexandra Mary Windsor or **Elizabeth** Tudor; accept Queen **Elizabeth** (of England/Great Britain/the UK)] (The sculpture in the first line is of Queen Elizabeth II.)

<Painting/Sculpture>

19. *Description acceptable.* The skull of one of these people who had died from the “blowing from a gun” execution method was found in a pub by historian Kim Wagner. During Chinese New Year celebrations, these people were incited by the Ghadar conspiracy to revolt in Singapore in 1915. These people’s fear of the *kala pani* taboo led them to march overland to Chittagong without bull carts rather than sail from Barrackpore. After the hanging of one of these people named Mangal Pandey, several of them marched to the court of Bahadur Shah Zafar and proclaimed him emperor. These people were alarmed by rumors that Enfield P53 cartridges contained cow and pig fat in violation of their religions. For 10 points, the British East India Company employed what Indian colonial soldiers who participated in a namesake 1857 mutiny?

ANSWER: **sepoys** [accept descriptions of **Indians** in **British** or **British East India Company military service**; prompt on **Indians** or **Indian soldiers**; prompt on **Sikh** or **Hindu** or **Muslim soldiers**; prompt on **rebels** or other generic terms not specifying Indian]

<World History>

20. They're not ravens, but one of these animals steals the sun in a pot after a possum and buzzard fail. One of these animals teaches the Navajo Hero Twins of the four hazards awaiting them on a journey to meet the sun. A deity with this animal form is a counterpart of Tawa who created humans from clay before leading them into the fourth world. One of these animals fills his hat with steaming hot beans during his mother-in-law's funeral, causing himself to go bald. In many Native American myths, this animal form is adopted by a "Grandmother" and the trickster Iktomi. One of these animals attempts to hoard wisdom in a way-too-big gourd and trades some troublesome animals, including a python and a leopard, to Nyame for all of the world's stories. For 10 points, what animals include Anansi and Arachne?

ANSWER: **spiders** [or **arachnid**s; accept **Spider** Woman or Grandmother **Spider**]
<Mythology>

21. A 1969 Supreme Court case from this state established a right to possess obscene materials based on pornography seized from Robert Stanley. Warren Burger's concurrence in a case from this state quoted William Blackstone decrying "a crime not fit to be named" after Officer Keith Torick served an invalid warrant to a man who violated this state's sodomy law. This state's resident Moreton Rolleston argued that the 1964 Civil Rights Act violated his Fifth Amendment right to not rent rooms to Black guests at his motel. Andrew Jackson ignored John Marshall's ruling on the sovereignty of this state's tribal capital New Echota ("ee-CHO-tuh") in a case whose plaintiff was the missionary Samuel Worcester. For 10 points, the US removed the Cherokee from what state, the site of the Heart of Atlanta Motel?

ANSWER: **Georgia** [or **GA**; accept *Stanley v. Georgia*; accept *Worcester v. Georgia*; prompt on Cherokee Nation by asking "in what US state was the capital of the Cherokee Nation located?"] (The sodomy case is *Bowers v. Hardwick*.)
<American History>

Bonuses

1. Studies for this law were carried out on fit young volunteers who ate borax administered by a chemist who later campaigned against caffeine at *Good Housekeeping*. For 10 points each:

[10] Name this law supported by Alice Lakey's activism and Harvey Wiley's poison squad. A socialist novel about Lithuanian immigrants helped pass this law and a related law targeting Omaha's "Big Four" firms Cudahy ("CUD-uh-hee") and Armour.

ANSWER: **Pure Food** and Drug Act of 1906 [accept the **Pure Foods** Movement] (The novel is *The Jungle* by Upton Sinclair; the "Big Four" were meatpacking companies.)

[10] In 1899, Florence Kelley, Josephine Lowell, and Jane Addams founded a "National League" for these people to expose Pure Food and Drug Act violations. These generic people name a nonprofit whose "reports" test products for buyers.

ANSWER: **consumers** [accept National **Consumers** League or **NCL**; accept **Consumer** Reports or **Consumers** Union or **CR** or **CU**]

[10] The Consumers League took up cases of women harmed by this substance, according to Kate Moore's book about its namesake "Girls." Factories from Orange, New Jersey, used this substance in the luminous watch dial paint Undark.

ANSWER: **radium** [accept *The Radium Girls: The Dark Story of America's Shining Women*; accept the United States **Radium** Corporation]

<American History>

2. In Book I of Ovid's *Metamorphoses*, Mercury tells the story of these two figures to Argus in order to lull him to sleep. For 10 points each:

[10] Name these two figures. One of them, a deity, chased the other, a nymph, until she begged to be turned into a set of hollow reeds; the first figure then cut the reeds and created a new type of flute.

ANSWER: **Pan** AND **Syrinx** [accept in either order]

[10] This Greek goddess invented a double-reeded flute, but upon trying to play it, she saw her cheeks bulging out and threw it away in disgust. This Greek goddess of wisdom sprung fully grown from Zeus's forehead.

ANSWER: **Athena** [or **Minerva**; accept Pallas **Athena**]

[10] After Athena threw aside her flute, this satyr picked it up and invented flute music. This figure vainly challenged Apollo to a music contest, and when he lost, he had his skin flayed off.

ANSWER: **Marsyas**

<Mythology>

3. This composer wrote a set of *Four Last Songs* primarily to texts by Hermann Hesse shortly before he died. For 10 points each:

[10] Name this German composer of the tone poems *Don Juan* and *Also Sprach Zarathustra*.

ANSWER: **Richard Strauss** [prompt on **Strauss**]

[10] This recently-deceased Black soprano won a Gramophone Award for her recording of *Four Last Songs*. The pioneering Leontyne ("LEE-un-teen") Price inspired her to pursue singing, and she started her career in Europe because of limited opportunities in the US.

ANSWER: Jessye **Norman**

[10] Norman was also renowned for her performances of this composer's art songs, which include his *Liederkreis* ("LEE-der-KRICE") and *Dichterliebe* ("DIKH-tur-LEE-buh"), both of which were composed during his 1840 "year of song."

ANSWER: Robert **Schumann**

<Classical Music>

4. A character who is reluctant to finish this book remembers Lydia's baking after reading this book's accounts of 1628 bread riots. For 10 points each:

[10] Name this novel in which Don Rodrigo orchestrates a plot to kidnap Lucia and take her to the castle of the Unnamed. Lucia and Renzo's marriage ends this novel by Alessandro Manzoni.

ANSWER: *The **Betrothed*** [or *I **Promessi Sposi***]

[10] In this novel, Maureen Smales worries about finishing *The Betrothed* and being left with nothing to read. Maureen chases a helicopter in this novel after fleeing from home in a yellow *bakkie*.

ANSWER: ***July's People***

[10] *July's People* is a novel by this South African author of *Burger's Daughter* and *The Conservationist*.

ANSWER: Nadine **Gordimer**

<World/Other Literature>

5. David Reich concluded that these two species hybridized after their initial divergence, consistent with the famously "bushy" appearance of their clade's phylogenetic tree. For 10 points each:

[10] Name these two living organisms that likely diverged 5 to 7 million years ago. Fossils resembling the last common ancestor of these two organisms include *Orrorin*, *Sahelanthropus tchadensis*, and *Ardipithecus*.

ANSWER: **humans** AND **chimpanzees** [or **humans** AND **bonobos**; accept in either order; accept ***Homo sapiens*** or **people** or similar in place of "humans"; accept ***Pan troglodytes*** or ***Pan paniscus*** in place of "chimps" or "bonobos"; prompt on **hominins** or **hominids** or **primates**]

[10] After the human-chimp divergence, hominins evolved in a "mosaic" pattern whereby this trait drove pelvic changes before skull size increased. The savannah and brachiation ("bray-kee-AY-shun") hypotheses explain why hominins adopted this trait instead of swinging through the trees.

ANSWER: **bipedalism** [accept **walking** or walking on **two legs** or walking **upright** or **running** or similar; prompt on **locomotion**]

[10] Bipedal australopithecines ("australo-PITH-uh-seens") diverged into the genus *Homo* and a group of hominins described by this adjective, like *Paranthropus*. Gracile ("GRASS-yle") features are contrasted with this term, which describes heavily-built hominins with thick teeth for chewing tubers.

ANSWER: **robust** hominins [accept *Paranthropus **robustus***]

<Social Science>

6. In the quantum analog of this effect, conductance is quantized in multiples of the fundamental charge squared over Planck's constant. For 10 points each:

[10] Name this effect in which a voltage difference is produced across a conductor in the presence of a current and a magnetic field.

ANSWER: quantum **Hall** effect

[10] Support for the quantized nature of light in the form of photons was given by this physicist's explanation of the photoelectric effect in one of his 1905 Annus Mirabilis papers, made while he worked as a patent clerk in Bern.

ANSWER: Albert **Einstein**

[10] In the quantum Hall effect, the orbits of electrons are confined to discrete energy levels with this name. The variable occupation of the highest of these states can lead to varying electronic properties, such as when susceptibility fluctuates in the de Haas-van Alphen effect.

ANSWER: **Landau** levels [accept **Landau** quantization]

<Physics>

7. This island's Layout Petroglyph Park preserves an ancient face of Yocahú carved by indigenous people before the 8th century. For 10 points each:

[10] Name this island whose national hero Satuye, aka Joseph Chatoyer, led a Garifuna revolt against the British in the 1790s, twenty years after the peace ending their first war. This island now forms a country with an island chain where many rebels were exiled on Baliceaux, near Bequia.

ANSWER: **Saint Vincent** [accept **Saint Vincent** and the Grenadines]

[10] Saint Vincent's Garifuna are also called "Black" members of this ethnic group related to the mainland Kalina. These people both fought and traded with the Taíno who settled islands like Hispaniola and Cuba in their namesake sea.

ANSWER: Island **Caribs** [or **Kalinago**; or **Kalíphona**; accept the **Caribbean** Sea; do not accept or prompt on "Arawaks"]

[10] The Black Caribs descended from maroons who escaped the giant plantations of this wealthy British colony and shipwrecked in the Grenadines. Bussa led an 1816 slave revolt on this island that, with Jamaica, dominated sugar production.

ANSWER: **Barbados**

<World History>

8. This quality is the first word in the title of a painting that depicts a car fragmented by red arrows. For 10 points each:

[10] Identify this quality that a "Technical Manifesto" states should be rendered in paintings as a type of "sensation." This quality is the first word in the title of a painting that depicts a dog with blurred legs.

ANSWER: **dynamism** [accept **Dynamism** of a Car; accept **Dynamism** of a Dog on a Leash; prompt on **dynamic**; accept **Dinamismo** di un cane al guinzaglio; accept **Dinamismo** di un'automobile]

[10] Luigi Russolo and Giacomo Balla were members of this art movement, whose *Manifesto* was written by Filippo Marinetti. This Italian art movement celebrated industrialization, speed, and technology.

ANSWER: Italian **Futurism** [or **Futurismo**]

[10] A bronze sculpture by the Futurist Umberto Boccioni is titled for *Unique Forms of Continuity in Space* in this concept. A phallic series of sculptures titled for this concept were initially taxed by US Customs, as the sculpture was deemed to not be art.

ANSWER: **space** [accept *Unique Forms of Continuity in Space*; accept *Bird in Space*; accept *Pasărea în văzduh*; accept *Forme Uniche della Continuità Nello Spazio*]

<Painting/Sculpture>

9. In quantitative proteomics, this term refers to tandem mass tags and other markers that have identical total masses, but form fragments with distinct isotopic shifts. For 10 points each:

[10] Give this term also applied to processes with a polytropic index of zero, such as the heat addition and rejection steps in a Brayton cycle. The heat capacity during this type of process equals the partial derivative of enthalpy with respect to temperature.

ANSWER: **isobaric** [or **isobaric** process; accept **constant pressure** heat engine; accept heat capacity at **constant pressure** or **C_p** or **C-sub-p**; accept **isobaric** tags for relative and absolute quantification or **iTRAQ**]

[10] Charles's law states that heating a gas under isobaric conditions will cause it to undergo this process. The first two steps of a Carnot cycle involve this process, which is proportional to the coefficient alpha for solid materials.

ANSWER: thermal **expansion** [or word forms; accept **increased volume** or equivalents]

[10] During gas expansion in a closed system, this quantity equals pressure times the change in volume. Free energy is the maximum output of this useful quantity performed by a system, which is measured in joules.

ANSWER: **work** [or **W**; or mechanical **work**; or PV **work**; or **work** output]

<Chemistry>

10. A John Quidor painting depicts a man fleeing through this town, where a grey-headed Black musician “had been the itinerant orchestra of the neighborhood for more than half a century.” For 10 points each:

[10] Name this farming town near the Tappan Zee and a swampy haunted brook. At a Dutch family’s mansion in this town, a music teacher dances with his pupil, but she marries a jerk who rides the steed Daredevil after he disappears.

ANSWER: **Sleepy Hollow** [accept “The Legend of **Sleepy Hollow**”]

[10] “The Legend of Sleepy Hollow” drew on European legends of Dullahan and the Wild Hunt to depict a Hessian (“HESH-in”) with this trait. Being hit by a cannonball during a “nameless battle” gave this trait to the story’s ghostly horseman.

ANSWER: **headless** [or **decapitated** or a **severed head** or equivalents; accept the **headless** horseman; prompt on **dead**]

[10] Vincent buys a painting of a headless girl carrying a headless hawk’s cage in a story from this author’s horror collection *A Tree of Night*. This author wrote about making fruitcakes in his nostalgic story “A Christmas Memory.”

ANSWER: Truman **Capote** [or Truman Garcia **Capote**; or Truman Streckfus **Persons**]

<American Literature>

11. This book includes the “analogy of the divided line,” where the four line segments each represent separate “affections” of the psyche. For 10 points each:

[10] Name this book that concludes with the “Myth of Er,” which discusses the consequences of our choices after death in response to a question by Glaucon.

ANSWER: **Republic** [or **Politeia**]

[10] *Republic* is one of the many dialogues by this Ancient Greek philosopher that featured his mentor Socrates conversing with various Athenians.

ANSWER: **Plato** [or **Platon**]

[10] This 20th-century philosopher dedicated a chapter to Plato’s *Republic* in his book *The City and Man*. He rejected Karl Popper’s view that the *Republic* was a blueprint for a society and instead argued that its purpose was to “make us see the essential limitations of political society.”

ANSWER: Leo **Strauss**

<Philosophy>

12. This queen took power after her husband Agron died from drinking too much after learning of a victory over the Aetolians. For 10 points each:

[10] Name this Illyrian queen who authorized her troops to use their *lembos* ships to disrupt Roman trade. Her general Demetrius betrayed her, leading to her eventual defeat.

ANSWER: **Teuta**, Queen of the Ardiaei [or **Teuta** of Illyria]

[10] Teuta encouraged her troops to engage in this activity. Julius Caesar was once ransomed by Cilician (“suh-LISH-in”) members of this profession.

ANSWER: **piracy** [or **pirates** or word forms; accept synonyms like **privateering**]

[10] Piracy in Rome declined substantially after this man carried out a massive campaign against Cilician pirates. Ironically, Julius Caesar defeated this other member of the First Triumvirate to take power in Rome after the death of Crassus.

ANSWER: **Pompey** the Great [or Gnaeus **Pompeius Magnus**]

<Other History>

13. The world's oldest festival for this dance takes place in Seinäjoki ("SAY-na-yo-kee"), Finland. For 10 points each:

[10] Name this partner ballroom dance that originated in the streets of Montevideo and Buenos Aires. Performances of this dance are often accompanied by the bandoneón, which is similar to an accordion.

ANSWER: **tango**

[10] Besides the tango, the most popular dance in Finland is a speedy type of this dance called the humppa. Vernon and Irene Castle performed this smooth ballroom dance with a basic slow-quick-quick rhythm, similar to the waltz but in 4/4 ("four-four") time, that is often danced to swing music.

ANSWER: **foxtrot**

[10] This French-born Argentinian, nicknamed the "King of the Tango," recorded hits like "Mi Noche Triste" before his death in a 1935 plane crash.

ANSWER: Carlos **Gardel**

<Other Arts>

14. An object named for this adjective can be constructed by laying half-open intervals from 0 to 1 end-to-end, one for every index in an uncountable set. For 10 points each:

[10] That common counterexample in topology is a line named for what adjective? Its closed intervals are homeomorphic to the closed interval from 0 to 1 on the real number line, but it isn't homeomorphic to any subset of R^n , and it isn't metrizable or Lindelof.

ANSWER: **long** [or word forms like **length** or being **longer** than the real line; accept the **long line** or the **long ray**; prompt on **LL**]

[10] In this man's "leaky tent," another fun counterexample, removing only the top point can make the space totally disconnected. He names a set formed by starting with a unit interval and repeatedly removing the middle third.

ANSWER: Georg **Cantor** [accept **Cantor**'s leaky tent or the **Cantor** set]

[10] Another pathological space can be constructed by graphing this function of 1-over-x and adding the origin, known as "the topologist's" example of this curve. The derivative of this trigonometric function is the cosine of x.

ANSWER: **sine** [accept the topologist's **sine** curve]

<Other Science>

15. The Papin sisters, who had this profession, inspired a play that begins with an accusation about seducing the milkman with a pair of gloves. For 10 points each:

[10] Identify this profession that names a play in which a roleplaying duo is gifted a red dress and a fur cape. Solange and Claire fantasize about killing Madame in that French play named for this profession.

ANSWER: **maids** [accept *The Maids* or *Les Bonnes*]

[10] This French author wrote *The Maids*. A revolution takes place outside a brothel in this author's play *The Balcony*.

ANSWER: Jean **Genet** ("zhuh-NAY")

[10] Genet belonged to this movement, which often rejects reality and uses illogical actions and speech. Samuel Beckett used French to write *Waiting for Godot*, a play in this movement.

ANSWER: **Absurdism** [or word forms; accept Theatre of the **Absurd**]

<European Literature>

16. After reluctantly marrying the Duke of Cádiz, a queen of this name joked that her husband wore more lace than her on their wedding night. For 10 points each:

[10] Give this name of a queen who married Ferdinand and thus combined the forces of Aragon and Castile.

ANSWER: **Isabella** [or **Isabel**; accept **Isabella** II of Spain or **Isabella** I of Spain]

[10] Isabella II's succession was delayed by her uncle, who inspired this faction of supporters that also named a series of mid-19th-century Spanish civil wars.

ANSWER: **Carlists** [accept **Carlist** Wars; prompt on Infante **Carlos**]

[10] Isabella was forced to marry the Duke of Cádiz by this French politician. This conservative counterpart to the liberal Adolphe Thiers ("tee-AIR") was removed during the 1848 revolution.

ANSWER: François **Guizot** ("ghee-ZOH") [or François Pierre Guillaume **Guizot**]

<European History>

17. The Black Pyramid and House Chimney are two ice formations found on this mountain's most common climbing route of the Abruzzi Spur. For 10 points each:

[10] Name this "Savage Mountain" in North Pakistan, the second highest in the world after Mount Everest.

ANSWER: **K2** [or **Chhogori**; or Mount **Godwin-Austen**; or **Oogir** Feng; or **Dapsang**]

[10] The International Mountaineering and Climbing Federation classifies K2 as one of 14 mountains in Central Asia that exceed this height in meters. In 1986, Reinhold Messner became the first person to climb all 14 mountains exceeding this height.

ANSWER: **8,000** meters [accept **eight-thousanders**; accept **26,257 feet**]

[10] K2 is located in this mountain range, which the Indus River flows through as it travels through Gilgit-Baltistan. The Khunjerab Pass is part of a highway named for this mountain range that connects Pakistan to the Xīnjiāng region of China.

ANSWER: **Karakoram** Range [accept **Karakoram** Highway]

<CE/Geo/Other/Pop Culture>

18. Answer the following about winners of the James Tait Black Memorial Prizes, the UK's oldest literary prizes, for 10 points each.

[10] This author wrote the James Tait Black-winning novel *After Many a Summer Dies the Swan*, which features the millionaire Jo Stoyte. This author is better known for a novel set during AF 632, *Brave New World*.

ANSWER: Aldous **Huxley**

[10] The 1952 iteration of the prize was won by this author's World War II novel *Men at Arms*. This author is better known for a novel following Charles Ryder, who almost gains ownership of the title estate through his marriage to Julia Flyte.

ANSWER: Evelyn **Waugh** ("EEV-lin WAH") (That novel is *Brideshead Revisited*.)

[10] The winner of the 2012 Best of the James Tait Black was *Nights at the Circus*, a novel by this author. The Bluebeard legend inspired the title story of a collection by this author that retells fairy tales from a feminist perspective.

ANSWER: Angela **Carter** (The collection is *The Bloody Chamber*.)

<British Literature>

19. Brunei bans the sale of these substances but generously allows their duty-free import every 48 hours. For 10 points each:

[10] Identify these substances that are considered *khamr* based on Quranic verses about their preparation from date palms and grapes. Turkish Alevis may consume these substances, such as raki (“ra-KEE”), but most Muslims consider them haram.

ANSWER: **alcoholic** beverages [accept date palm **wine** or grape **wine**; accept **liquors** or **intoxicants**; prompt on **drinks** or **beverages** or **drugs**; accept **ethanol** or specific types of alcohol]

[10] Tourist resorts offer exceptions to the strict alcohol ban in the Maldives, where many ornate coral stone mosques are reserved for these people. These people have a disproportionately high obesity rate in many Muslim countries.

ANSWER: **women**’s mosques [accept people who are **female** or equivalents]

[10] The book *Locating Maldivian Women’s Mosques in Global Discourses* compares Maldivian women who serve as imams to this ethnicity’s nusi tradition. This Northern Chinese Muslim minority enjoys state favor while their coreligionist Uyghurs (“WEE-gurs”) are persecuted.

ANSWER: **Huí** (“hway”) people [or **Huízú**; accept **Dungan** people or **Dōnggānzú** or variants; accept **Panthay**] <Religion>

20. Along with perforin (“PUR-for-in”), this protein complex names a superfamily of proteins that can induce pore formation in pathogens. For 10 points each:

[10] Name this protein complex, an end product of the complement system that develops on the cell membrane of a pathogen and causes its lysis.

ANSWER: **membrane attack** complex [or the **MAC**; accept **terminal complement** complex or **TCC** or **C5-9**]

[10] The MACPF superfamily includes perforin and granzymes, which are released by both natural killer cells and these cells, which can kill infected cells presenting an antigen. These lymphocytes express a “cluster of differentiation” protein that interacts with MHC class I.

ANSWER: **cytotoxic T** cells [or **CD8 positive T** cells or **CD8 T** cells or **killer-T** cells or **T-killer** cells; accept answers with “lymphocytes” in place of “cells”; prompt on **T** cells or **T-sub-c** cells or **CTLs**]

[10] The “memory” class of these other lymphocytes can act as antigen-presenting cells that prime cytotoxic T cells. These cells were actually named for developing in the Bursa of Fabricius in birds, not for maturing in the bone marrow in humans.

ANSWER: memory **B** cells [or **B** lymphocytes] <Biology>

21. A castrato who chiefly lived in this city, Giusto Tenducci, was cast as the leading role in one composer’s *Adriano in Siria*. For 10 points each:

[10] Name this city where Johann Christian Bach ran a subscription concert series. The Academy of St. Martin-in-the-Fields is a major Baroque ensemble in this city, whose other musical venues include Covent (“CUV-int”) Garden and Royal Albert Hall.

ANSWER: **London** [or **Westminster**]

[10] As the “London” Bach, Johann Christian was a major influence on the young Mozart, who transcribed three of his sonatas into pieces of this genre. Mozart’s C major 21st piece in this genre is commonly nicknamed after the movie *Elvira Madigan*.

ANSWER: **piano concerto** [accept **keyboard concerto**; prompt on **concerto**]

[10] J. C. Bach’s business partner, Carl Friedrich Abel, played this bowed and fretted string instrument common in Baroque music. Although similar to a cello in size, its name is similar to the most common instrument that uses the alto clef.

ANSWER: **viol** [or **viola da gamba** or **gamba**; do not accept or prompt on “viola”] <Classical Music>