

2020 ACF Winter

Packet F by Brown A, Columbia A, MSU A, USC A

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Tossups

1. A 1978 paper by Robert Hall found that this behavior follows a random walk. In habit-formation models, the utility of this behavior depends on its past level. Graphs modeling this behavior show a line that constrains its optimal bundle size. Most studies find that this behavior declines sharply before retirement, in contrast to models predicting its “smoothing” in the absence of credit constraints. The formula “1 over 1 minus the marginal propensity for this behavior” gives the Keynesian (“CANE-zee-in”) multiplier. At low income levels, windfall gains increase the “induced” form of this behavior, which forms a decision tradeoff with savings. This largest component of US GDP is symbolized C. For 10 points, what behavior is called “conspicuous” when it entails acquiring luxury goods? ANSWER: **consumption** [or private **consuming**; or word forms; accept the **consumption** function; accept conspicuous **consumption**; accept **buying** or consumer **spending** or **purchasing** or similar; prompt on **C**] <Social Science>

2. A pathology of this structure can be caused by the bell clapper deformity. Compression of the left renal vein can interrupt the drainage of the pampiniform plexus in a pathology of this structure that presents with a “bag of worms” appearance, called a varicocele. This structure migrates along the inguinal canal as the gubernaculum shortens. The SRY gene product “determines” the formation of this structure, which is needed to replace the Müllerian duct with the Wolffian duct. LH and FSH act on this organ’s Leydig and Sertoli cells. Severe pain results from injuries that cause this organ’s namesake torsion. This organ’s seminiferous tubules drain into the epididymis (“ep-ih-DID-ih-miss”) and eventually into the vas deferens. For 10 points, name this androgen-producing male gonad. ANSWER: **testis** [or **testes** or **testicles**; accept **scrotum** or **scrotal sac**; accept **balls** or equivalents; accept **testis**-determining factor; accept **testicular** torsion] <Biology>

3. This scholar supplied parish churches with *Paraphrases* of the Epistles. A hermeneutics essay by this scholar spread the motto “ad fontes” or “back to the sources.” This scholar stressed “learned piety” in his “philosophy of Christ.” He controversially omitted the Johannine comma from his *Novum Instrumentum omne*, the first published Greek New Testament. This author of *Textus Receptus* mocked a drunk pope disputing with Saint Peter in *Julius Excluded from Heaven*. The EU’s student exchange program is named for this author of *Handbook of a Christian Knight*. A 1511 *Encomium* by this priest attacked an “ocean of superstitions” by lauding the ignorant title goddess, although he rejected Luther’s Protestantism. For 10 points, what Dutch Renaissance humanist satirized the Church in *The Praise of Folly*? ANSWER: **Erasmus** of Rotterdam [or Desiderius **Erasmus** Roterodamus] <Religion>

4. In a story by this author, the protagonist's tongue moves "as if pulled by a string or a wire" while he is asleep and a snake almost bites a young man bound in chains. A story by this author ends with the protagonist losing his appetite for the title food. This author created a man who studies a dead corpse to create *Five Levels of Rebirth* and hangs himself after watching his daughter burn alive in a carriage. Another story by this author centers on Kandata, a thief whose one act of kindness in life allows him a chance to climb out of Hell. This author included a priest and woodcutter in a story that uses conflicting testimonies to recount the murder of a samurai. For 10 points, name this Japanese author of "Hell Screen," "The Spider's Thread," and "In a Grove."

ANSWER: Ryunosuke **Akutagawa** [or **Akutagawa** Ryunosuke]

<World/Other Literature>

5. One instrument from this country consists of 16 L-shaped rectangular slabs that vary in width to create different pitches. A military victory inspired a virtuoso instrumental piece from this country titled "Ambush from Ten Sides." A dramatic musical form from this country divides roles into women, gentlemen, "rough men," and clowns and is exemplified by 1963's *On the Docks*. Instruments in this country's eight traditional categories include a two-string bowed fiddle whose sound box is covered by python skin. An oft-advertised performance group from this country claims to show "5000 Years of Civilization Reborn." Instruments from this country include the *pípá* and *èrhú* ("AR-hoo"). A form of opera is named after the capital of, for 10 points, what country home to "Shén Yùn"?

ANSWER: **China** [or **Zhōngguó**; accept People's Republic of **China** or Republic of **China**] (The instrument is the *fāngxiǎng*.)

<Classical Music>

6. In World War II, Florence Finch led fighters of this nationality against Japan. Racists targeted this nationality in the Yakima and Watsonville riots. "Sakadas" of this nationality harvested sugar in Hawai'i while "Alaskeros," like the author of *America is in the Heart*, canned salmon. Dawn Mabalon preserved this nationality's enclave in Stockton, which led an asparagus strike. Unions representing this nationality joined Mexican-Americans under César Chavez in the Delano grape strike led by Larry Itliong and Philip Vera Cruz. The Exchange Visitor Program brought many nurses of this nationality to the US, their former colonizer. Thousands of POWs of this nationality died in the Bataan Death March. For 10 points, people of what Asian nationality resisted US imperialism under Emilio Aguinaldo after the Spanish-American War?

ANSWER: **Filipinos** [or **Pinoy**; or **Filipinas** or **Filipinx**; accept **Filipino**-Americans or **Filipina**-Americans or Americans from the **Philippines**; accept **manong** generation; prompt on **Americans** or equivalents; prompt on "Little **Manila**"]

<American History>

7. Zel'dovich described how an object undergoing this process would emit a namesake superradiance, which implied that a gravitational mass undergoing this process would emit particles. James Terrell and Roger Penrose identified that a passing object would appear to undergo this behavior at relativistic speeds due to length contraction.

Llewellyn Thomas found that combining two non-collinear Lorentz boosts is equivalent to a composition of a boost and this kind of transformation. Work is hypothetically extractable from the ergospheres of black holes undergoing this process, such as those modelled by the Kerr metric. Reference frames undergoing this process may experience fictitious forces such as the Coriolis force and centrifugal forces. For 10 points, identify this kind of motion that is defined with respect to an axis.

ANSWER: **rotation** [accept equivalents such as **spinning**; do not accept or prompt on "precession"]

<Physics>

8. A thinker who used this language discussed how the human intellect can only perceive “intelligibles” by discovering the “middle term” of a syllogism. An argument written in this language which claims that the world has a cause because it has begun to exist, and because everything that begins to exist has a cause, has been defended by William Lane Craig. A text in this language argued for the existence of the soul by considering a “floating man.” During the Middle Ages, Latin translations of Ancient Greek works were primarily based on texts in this language. *The Incoherence of the Philosophers* was written in this language, which was also used by a thinker called “the Commentator” for his writings on Aristotle. For 10 points, name this language used by Averroes and Avicenna in their writings on Islamic philosophy.

ANSWER: **Arabic** [or **Arabiyya**] (The second clue refers to the *kalam* cosmological argument.)
<Philosophy>

9. This author states “I won’t take my religion from a man who never works except with his mouth” and asks the addressee “I want to know... what the hell... you know about Jesus” in a poem addressed to Billy Sunday. In another poem, this author remarks on seeing “the gunman kill and go free” and “painted women under the gas lamps,” responding to how “they tell” him that the title place is wicked, crooked, and brutal. A short poem by this author describes how the title phenomenon “sits looking... on silent haunches” and “over harbor and city.” His best-known poem describes the “big shoulders” of the “stormy, husky, brawling” title place, which he dubs the “nation’s freight handler” and “hog butcher of the world.” For 10 points, name this poet of “Fog” and “Chicago.”

ANSWER: Carl **Sandburg**
<American Literature>

10. This leader’s Preventative Detention Act caused the National Liberation Movement to form the United Party in his country. In 2009, John Evans Atta Mills began a tradition of reading this man’s “Dawn Broadcast” on his birthday. After he was invited by this leader to work on an encyclopedia, W. E. B. Du Bois died in his country. Sékou Touré appointed this head of the Convention People’s Party as co-president of Guinea after he was forced out of office by cocoa plantation owners while on a state visit to China. This Pan-African leader planned to supply aluminum plants with energy from the Soviet-funded Akosombo Dam on the Volta River. This leader changed his country’s name from the Gold Coast. For 10 points, name this independence leader and first president of Ghana.

ANSWER: Kwame **Nkrumah** [accept **Osagyefo**]
<World History>

11. After tile mosaics on one of these buildings nicknamed the “white elephant” were blown off, its designer Santiago Calatrava was sued by the city of Valencia. The tapestry *The Dice Are Cast* by Le Corbusier was originally acquired for one of these buildings, but was scrapped by Peter Hall. Pae White designed a feature of one of these buildings by scanning a crumpled ball of aluminum foil; that one of these buildings appears to sink into Oslo Harbor. Reinforced gypsum characterizes the “double pebble” design for one of these buildings by Zaha Hadid in Guǎngzhōu (“gwong-joh”). One of these buildings by Jørn Utzon (“yurn OOT-sun”) features a series of vaulted concrete ribs resembling a ship’s sail. For 10 points, what type of performing arts space is an icon of Sydney Harbor?

ANSWER: **opera** house [or **opera** theater or **opera** hall; accept specific **opera** houses; prompt on theater or auditorium or performing arts center or concert hall]
<Other Arts>

12. In a book partially titled for this man, Roberto Calasso claimed that an event centered around him was the last time gods and humans ate together; during that event, Demeter has a sexual liaison with a man who Zeus struck with a lightning bolt, named Iasion (“eye-AY-see-on”). After this man and his wife turn into snakes at the end of their lives, his daughter Semele inherits a cursed golden necklace. This man is often credited with introducing the Phoenician alphabet to Greece. This man’s father King Agenor tasks him and his brothers Cilix and Phoenix with finding their sister, Europa, though this man abandons that task to follow a cow. After killing a dragon at a spring sacred to Ares, this husband of Harmonia sows half the dragon’s teeth to create the Spartoi, who help him build a city. For 10 points, name this hero who founded Thebes.

ANSWER: **Cadmus** (The Calasso book is *The Marriage of Cadmus and Harmony*.)

<Mythology>

13. Though these organisms were historically categorized as either LPS or SPS, they are now divided into “robust” and “complex” clades. These organisms grow most favorably when the saturation state, denoted omega, is 3 or greater. A dark discoloration of these organisms caused by a member of the genus *Phormidium* is known as black band disease. These organisms are preyed upon by *Acanthaster planci*, or the crown-of-thorns starfish. These organisms are part of the class Anthozoa and form a symbiotic relationship with members of the class Zooxanthellae (“zo-oh-ZAN-thell-ee”), though those symbiotes are expelled when these organisms undergo “bleaching.” For 10 points, name these organisms that form marine ecosystems characterized by calcium carbonate deposition into shapes resembling pillars or brains.

ANSWER: stony **corals** [accept **coral** polyps or **coral** reefs; prompt on cnidarians or anthozoans before read]

<Other Science>

14. A man in this play is told “Scratching could not make [your face] worse” by a character whom he calls “a rare parrot-teacher.” In this play, a woman’s request to kill another character is denied, after which she claims that if she were a man, she “would eat his heart in the market-place.” That character in this play attends a masked ball, where she dances with a man she unknowingly calls “the Prince’s jester, a very dull fool.” In this play, the lady-in-waiting Margaret wears her mistress’s clothes while having sex with Borachio. In this play, the constable Dogberry unsuccessfully informs Leonato about a plan to ruin Hero and Claudio’s wedding by Don John. For 10 points, name this Shakespeare play that ends with the marriage of Beatrice and Benedick.

ANSWER: ***Much Ado About Nothing***

<British Literature>

15. A king of this country frolicked about with a prostitute named Bootee Katrine while physician Johan Friedrich Struensee took over and issued several radical reforms. Ernst von Mansfeld led this country’s troops to a disastrous defeat at Dessau during the Thirty Years’ War, eventually forcing this country to pull out with the Treaty of Lübeck. During a battle with this country, Horatio Nelson literally turned a blind eye to his telescope and ignored his commanding officer’s order to retreat. This country’s main source of income for 200 years was the Sound Dues toll imposed on passing ships. The territory of Schleswig-Holstein was eventually transferred from this country to Germany. For 10 points, name this country ruled by many kings named Christian from Copenhagen.

ANSWER: Kingdom of **Denmark** [prompt on Denmark-Norway]

<European History>

16. The Xingu (“sheen-GOO”) region of Brazil has begun efforts to do this task using the new *muvuca* strategy. Marc Benioff promoted this task by creating 1t.org (“one-T-dot-org”). A movement to perform this task was started by the first African woman to win a Nobel Prize, Wangari Maathai. A controversial paper from Thomas Crowther’s group inspired a goal adopted at the 2020 World Economic Forum to do this task one trillion times. A viral donation challenge to do this task 20 million times was created in October 2019 by YouTubers Mark Rober and Mr. Beast. This task was the focus of a program that sought to protect the Sahel from the expansion of the Sahara by creating a “Great Green Wall.” For 10 points, name this action undertaken to combat climate change and reverse deforestation, which is often done on Arbor Day.

ANSWER: **planting trees** [or **reforestation**; accept the **Green Belt** movement or the **GBM**; prompt on **environmentalism**]

<CE/Geo/Other/Pop Culture>

17. This artist used terracotta clay to make a polychrome bust featuring a red robe that depicts the recently deceased Niccolo da Uzzano. This artist’s reliefs of lively dances, based on classical sarcophagi, contrast sharply with the scenes of Psalm 150 created by Luca della Robbia, in each artist’s design for a *Cantoria* in the same building. The elongated head of one this artist’s marble statues of a robed man led to its common nickname, meaning “dimwit.” He shouted “Speak, damn you, speak!” at his statue of the Biblical prophet Habbakuk. This artist gave unusually long hair and a hat with laurels to a youth who rests his sword on a severed head in a sculpture considered to be the first freestanding nude since antiquity. For 10 points, name this Renaissance sculptor who made a bronze *David*.

ANSWER: **Donatello**

<Painting/Sculpture>

18. This poet declares “Ah, all is drunk... Nothing more to say!” in a sonnet that describes the decline of “fair-haired Barbarians.” This author included that poem in the collection *Yesteryear and Yesterday*, which also contains a poem dedicated to Charles Morice that coined the phrase “music above all else.” This writer of “Poetic Art” contemplates “the ill wind which carries me... Like the dead leaf” in a poem that describes “The long sobs of violins.” This author of “Autumn Song” associated the soul with bergamasquers and masqueraders in a poem that was later set to music by Claude Debussy. For 10 points, name this French author of *Poèmes saturniens* (“po-EM sah-turn-YEN”) and “Clair de lune” who shot his lover Arthur Rimbaud (“ram-BO”).

ANSWER: Paul **Verlaine** (The first poem is “Langueur.”)

<European Literature>

19. They’re not swords, but Roman records state that a long-standing trade in these weapons was carried on with the land of Agisymba by the Garamantes. Ironically, a general named Nicanor, who was nicknamed for these weapons, was on the losing side of a battle in which they were used to crush phalangites near Cynoscephalae. The Romans named a variety of these weapons after the region of Lucania after the Battle of Heraclea, in which Pyrrhus of Epirus used them. Tactics invented to defeat these weapons included releasing flaming pigs and opening ranks and then surrounding them, as done at the Battle of Zama. Chandragupta Maurya secured a treaty with the Seleucids by gifting 500 of these animals. For 10 points, name these large beasts famously brought over the Alps by Hannibal.

ANSWER: war **elephants** [accept Indian **elephants** or African **elephants**; prompt on **animals** until read] (The Romans called Pyrrhus’s elephants “Lucanian oxen.”)

<Other History>

20. The Kozeny–Carman equations estimate this process’s “superficial velocity.” The Lincoln County Process uses charcoal for this process, which can be facilitated by an aerobic vermi-digester or slow sand. Disposable cartridges set this process at 0.22 and 0.45 microns for most syringes. A Berkefeld device uses diatomaceous earth to aid this process by forming a “cake” similar to perlite. Hot samples undergo a simple form of this process driven by gravity. The HEPA standard rates the efficiency of this process, which is accomplished by the stationary phase in size-exclusion chromatography. A vacuum-assisted form of this process uses a Büchner funnel and semipermeable paper. For 10 points, what process uses a membrane’s pores to remove solid impurities from a liquid?

ANSWER: **filtration** [or **filtering**; accept **infiltration** or **percolation**; accept specific types of **filtration**; prompt on **separation** or **purification** or **fractionation** or **flow** or wastewater **treatment**; prompt on whisky **distillation** or **recrystallization** or **chromatography** by asking “what specific step?”; prompt on **adsorption** or laminar **flow**] (The Lincoln County process produces Tennessee whiskey.)

<Chemistry>

21. This country’s heel-shaped cairns include the “Tomb of the Eagles.” After an 1850 storm in this country revealed a stone village dated to before 2500 BCE, V. Gordon Childe led digs of its “Heart of Neolithic” UNESCO site that includes a passage grave and chambered cairn illuminated on Midwinter. A mysterious marine beast appears in symbol stones from this country found at Aberlemno and the Iron Age wheelhouse at its Viking settlement Jarlshof. South of this country’s border, handwritten tablets were found in the Roman fort Vindolanda. Atlantic roundhouses called brochs dot this country spanned by the Antonine Wall, whose Maeshowe barrow, Ring of Brodgar, and Standing Stones at Stenness lie near the village of Skara Brae in the Orkney Islands. For 10 points, the Picts inhabited what land north of Hadrian’s Wall?

ANSWER: **Scotland** [or **Alba**; accept **Caledonia**; prompt on **United Kingdom** or **UK** or Great **Britain** or **Britannia**] (The beast is the Pictish beast.)

<Other History>

Bonuses

1. Answer the following about Ottoman operations in the Indian Ocean, for 10 points each.

[10] To control trade of these goods via the Indian Ocean, Hadim Suleiman Pasha expanded Ottoman control over all entrances to the Red Sea and Persian Gulf except Hormuz. Examples of these goods include clove and nutmeg.

ANSWER: **spices** [or **seasonings**; or **flavorings**; or synonyms]

[10] The Ottomans vied for control of ports like Basra with this other empire, which they defeated at the Battle of Chaldiran. This empire's ruler Abbas I reconquered Caucasus territories with Janissary-inspired *ghulam* infantry.

ANSWER: **Safavid** Empire

[10] Suleiman the Magnificent forged Ottoman cannons for this sultanate in modern-day Indonesia, which conquered the Sultanates of Aru and Johor. This sultanate's "pepper rajahs" produced more than half of the world's pepper.

ANSWER: **Aceh** ("AH-chay") Sultanate

<World History>

2. A Dred Scott exhibition at the Art Institute of Chicago placed one of these objects on the ground below a book for viewers to leave their thoughts in. For 10 points each:

[10] Identify this object. Another artist claimed that a 1954 dream inspired him to paint several of these objects, including a *White* one of these objects painted using that artist's signature encaustic technique.

ANSWER: **American flag** [prompt on **flag**; accept *What is the Proper Way to Display an American Flag?*] (The artist is Jasper Johns.)

[10] A Gordon Parks photograph with this title depicts a woman holding a mop and broom with an American flag behind her. A Grant Wood painting with this title depicts a man holding a pitchfork in front of the Dibble house.

ANSWER: **American Gothic**

[10] This Impressionist artist depicted American flags in paintings like *Allies Day, May 1917* and *The Avenue in the Rain*. He often painted street landscapes of cities such as New York.

ANSWER: Childe **Hassam** ("HASS-um")

<Painting/Sculpture>

3. In a film, this character disguises himself as an old woman to board a plane to Spooky Island. For 10 points each:

[10] Name this Great Dane who reveals that his nephew Scrappy was piloting a human automaton of Rowan Atkinson to steal souls in a 2002 live-action movie adaptation. This member of Mystery Incorporated frequently appears alongside Fred, Daphne, Velma, and Shaggy.

ANSWER: **Scooby-Doo** [accept **Scoobert** Doo or **Scoobert** Doobert; or **Scoob**]

[10] Before starring in Scooby-Doo, Matthew Lillard and Sarah Michelle Gellar had earlier starred in two separate entries of this film series. The first film in this series opens with Ghostface asking a babysitter questions like "What is your favorite scary movie?" and "Name the killer in *Friday the 13th*."

ANSWER: **Scream** [accept **Scream** or **Scream 2**]

[10] At the end of the original *Scream*, Matthew Lillard's killer dies when one of these items is dropped on his head. In *Poltergeist*, Carol Anne announces "They're here!" while pointing to one of these items.

ANSWER: **television** set [or **TV**]

<CE/Geo/Other/Pop Culture>

4. Gadflies often play a rather annoying role in myths. For 10 points each:

[10] This dwarf is repeatedly bitten by an annoying gadfly often thought to be Loki while working the bellows. Along with his brother Eitri, this dwarf crafts Thor's hammer Mjölhnir after betting Loki that they could outdo the Sons of Ivaldi.

ANSWER: **Brokkr**

[10] A gadfly is sent by Hera to repeatedly annoy this woman and drive her across the world, which leads to the naming of the Bosphorus strait. Prometheus comforts her by letting her know that the greatest hero, Hercules, would descend from her bloodline.

ANSWER: **Io**

[10] After Bellerophon pridefully decides to fly to Mount Olympus, Zeus sends a gadfly to sting this winged horse of his, bucking him to the ground and wounding him greatly.

ANSWER: **Pegasus**

<Mythology>

5. The eyes of one of these animals are described as "hard like two black crystal scarabs" in a prose poem whose author included references to his childhood in Moguer. For 10 points each:

[10] Name this type of animal that accompanies a biographical stand-in for its author in the prose poem *Platero y yo*. In another novel, Ginés ("hee-NESS") de Pasamonte steals one of these animals named Dapple who often disappears.

ANSWER: **donkey** [or **ass**]

[10] This author drew upon his childhood memories in *Platero y yo*. This Nobel laureate and member of the Generation of '98 also wrote *Sonetos espirituales*.

ANSWER: Juan Ramón **Jiménez**

[10] The donkey Dapple often follows Rocinante around in this novel by Miguel de Cervantes about a knight-errant and his squire Sancho Panza.

ANSWER: **Don Quixote** [or *The Ingenious Gentleman Don Quixote of La Mancha*; or *El ingenioso hidalgo Don Quijote de la Mancha*]

<European Literature>

6. These groups are always normal subgroups in the groups they are derived from, as they are index-2. For 10 points each:

[10] Name these groups whose order is n factorial over 2 for some degree n . The instance of these groups of degree 5 is the smallest non-solvable group.

ANSWER: **alternating** groups [accept the **alternating group of degree 5**; prompt on **A** or **A5**]

[10] Alternating groups contain only the "even" examples of these things, which are the elements of a symmetric group. Order does matter for these rearrangements of a set, unlike combinations.

ANSWER: **permutations**

[10] This man is the alphabetically-first namesake of the theorem which states that polynomials of degree 5 or greater don't have general solutions, which is partially because A5 is the smallest unsolvable group. Groups named for this man have a commutative binary operation.

ANSWER: Niels Henrik **Abel** [accept **Abel–Ruffini** theorem or **Abelian** groups]

<Other Science>

7. This genre of music was re-popularized from its use in the soundtrack of the film *The Sting*. For 10 points each:
[10] Name this heavily syncopated musical genre whose “big three” composers included early 20th-century pianists Joseph Lamb and James Scott.

ANSWER: **ragtime**

[10] This composer of the opera *Treemonisha* composed numerous well-known rags, including *The Maple Leaf*, named for a club in Sedalia, Missouri, and *The Entertainer*.

ANSWER: Scott **Joplin**

[10] Ragtime originates from this type of dance, whose “hambone” rhythms mirror African polyrhythms. A short piano piece named for this dance briefly quotes *Tristan und Isolde* and forms part of a collection that also includes “Doctor Gradus ad Parnassum.”

ANSWER: **cakewalk** [accept *Golliwog's Cakewalk*] (The collection is Debussy's *Children's Corner*.)

<Classical Music>

8. In this novel, Agnes Jemima becomes a Suppliant to escape marriage after the death of her adoptive mother Tabitha. For 10 points each:

[10] Name this novel in which Daisy learns that she is Baby Nicole on her sixteenth birthday. In this novel, a car bomb is detonated outside a thrift store frequented by the Pearl Girls.

ANSWER: *The Testaments*

[10] In *The Testaments*, Baby Nicole was smuggled from this country by the Mayday organization. In another book set in this country, Serena Joy arranges for the protagonist to be impregnated by the chauffeur Nick.

ANSWER: Republic of **Gilead** [prompt on United States of **America**]

[10] The fall of Gilead occurs at the end of this author's novel *The Testaments*, the sequel to *The Handmaid's Tale*.

ANSWER: Margaret **Atwood**

<World/Other Literature>

9. One of these two authors encouraged the other not to publish his ex-wife's private letters in his collection *The Dolphin*, stating “art just isn't worth that much.” For 10 points each:

[10] Name *both* of these authors whose 30-year correspondence is collected in the book *Words in Air*. One of these authors addressed the poem “The Armadillo” to the other, while the other addressed a poem containing the line “We've lost our summer millionaire” to the former.

ANSWER: Robert **Lowell** AND Elizabeth **Bishop** [accept in either order; accept Robert Trail Spence **Lowell** IV in place of “Robert Lowell”]

[10] Lowell and Bishop were introduced by this author. The speaker “woke to black flack and the nightmare fighters” in this author's poem “The Death of the Ball Turret Gunner.”

ANSWER: Randall **Jarrell**

[10] Lowell's own war poetry includes a poem for the dead of this war's winning side that depicts him visiting a Boston memorial. Lowell's mentor Allen Tate wrote “Ode to the Confederate Dead” about a graveyard for this war's losing side.

ANSWER: American **Civil War** [or United States **Civil War**; or US **Civil War**]

<American Literature>

10. Complementary tungsten and deuterium (“doo-TEER-ee-um”) lamps supply radiation for this technique, which often uses a standard of holmium oxide dissolved in perchloric (“per-CLOR-ick”) acid. For 10 points each:

[10] Identify this technique that produces an absorbance spectrum across wavelengths ranging from around 300 to 700 nanometers. Colorimetry is a variant of this technique, which is named for two adjacent regions of the electromagnetic spectrum.

ANSWER: **UV-vis** spectroscopy [or **ultraviolet-visible** spectroscopy; prompt on spectroscopy or optical spectrometry; accept **spectrophotometry** or word forms]

[10] Woodward’s rules can predict a compound’s UV-vis absorption maximum, which is often highest for molecules with this property. Some isomers of linoleic acid have this property, which can be modeled as a particle in a box.

ANSWER: extended **conjugation** [accept **conjugated** chromophores or **conjugated** pi systems; accept **conjugated** dienes or alkadienes or polyenes; prompt on having multiple double bonds or being an unsaturated fat; do not accept or prompt on “hyperconjugation”]

[10] Since conjugated dienes and polyenes often absorb visible light, they can display bright colors like the signature orange of this vitamin’s precursor beta-carotene. Light causes this vitamin to isomerize to its all-*trans* configuration.

ANSWER: vitamin **A** [accept all-*trans* **retinoic acid** or **RA**; accept **retinol** or **retinal** or **retinoids**]

<Chemistry>

11. A book by Norman Ohler claims that most of this country’s population was hooked on the amphetamine Pervitin, much to the dismay of health minister Leo Conti. For 10 points each:

[10] Name this country. Theodor Morell injected this country’s leader, known as “Patient A,” with derivatives of bull testicles to cure him of his intestinal pains.

ANSWER: Nazi **Germany** [accept **Deutschland** or **Third Reich**]

[10] Germany prescribed Pervitin en masse to its troops during an invasion of this region. This Czech region was annexed by Germany prior to World War II.

ANSWER: **Sudetenland**

[10] Especially high doses of Pervitin were prescribed to operators of these vehicles despite side effects like double vision. The Panzer variety of these vehicles was preferred by the Nazi army.

ANSWER: **tanks** [prompt on Panzer]

<European History>

12. Johnny Hallyday was an early rock star who sang in this language, which was used by most yé-yé singers, like Sylvie Vartan. For 10 points each:

[10] Name this language used by Édith Piaf to sing *chansons* (“shawn-SAWN”) like “La vie en rose.”

ANSWER: **French** [or **Français**]

[10] In 1969, Serge Gainsbourg released the chart-topping song “Je t’aime... moi non plus,” which was banned from many radio stations due to orgasmic sounds made by this British actress, Gainsbourg’s then-partner. She names a line of expensive leather bags produced by Hermès (“air-MEZ”).

ANSWER: Jane **Birkin** [accept **Birkin** bags]

[10] Superstar musician Youssou N’Dour, who often sings in French, hails from this country. This is the larger of the two countries to produce *mbalax* (“mm-ba-lakh”) music, which is played by Orchestra Baobab.

ANSWER: **Senegal**

<Other Arts>

13. Great orators who primarily campaigned for this political goal include Henry Grattan and Daniel O’Connell. For 10 points each:

[10] Identify this political goal that was accomplished in England and Ireland in 1829 by a namesake act that abolished previous restrictions imposed by various Test Acts and Penal Laws.

ANSWER: **Catholic emancipation** [or (Irish) **Catholic relief**; or increased **freedoms** for **Catholics**; or equivalents]

[10] In historiography, this term is commonly used to denote the domination of Ireland by minority Protestant rule from the period of Cromwell’s conquest of Ireland. It was still largely in place after Catholic emancipation.

ANSWER: Protestant **Ascendancy**

[10] A particularly lamented feature of the Protestant Ascendancy by Irish peasants was the cruelty of Protestant examples of these people, who charged high levels of rent to their tenants.

ANSWER: **landlords** [prompt on land owners or property owners]

<Other History>

14. The name of the Mexica may come from a goddess of one of these objects named Metztli, although they were nicknamed the “people of” the other, which they called Tōnatiuh. For 10 points each:

[10] Name these two objects embodied by Zue and Chie, the chief gods of Colombia’s Muisca Confederation. The two main pyramids on Teotihuacán’s Avenue of the Dead were dedicated to these two celestial bodies.

ANSWER: the **sun** and the **moon** [prompt on partial answers; prompt on people of the sun; accept pyramids of the **sun** and **moon**]

[10] The Muisca honored the sun and moon by sculpting tunjos (“toon-hohs”) from tumbaga to deposit as this type of offering. This term refers to offerings consecrated to a god or saint, like Mexican retablo paintings and Catholic candles.

ANSWER: **votive** offerings [or ex-**voto**; or ofrenda **votiva**; accept **votive** candles; accept **votive** paintings or **láminas**; prompt on ofrendas]

[10] Yácata pyramids received votive offerings from Michoacán’s Tarascan culture, whose high priest venerated the sun god Kurikaweri (“koo-ree-kah-wair-ee”) by keeping one of these things. The Aztec “binding of years” renewed one of these things, which were kept by Roman priestesses who prepared mola salsa.

ANSWER: sacred **fires** [or **hearths**; accept **pyres**; accept **burning** wood or equivalents; accept **fire** worship or **pyroculia** or **pyrolatry** or **pyrolatria**; accept New **Fire** ceremony; prompt on Vestal Virgins or Vestālēs or Hestia; accept **Xiuhtecuhtli** or Lord of **Fire**; accept **immolation**; prompt on sacrifice]

<Religion>

15. Princess Elisabeth of Bohemia criticized this position by asking how an extended and unextended substance can interact. For 10 points each:

[10] Name this philosophical position espoused by René Descartes (“re-NAY day-CART”) which claims that the mind and body are separate entities.

ANSWER: **dualism** [accept substance **dualism**, mind-body **dualism**, or Cartesian **dualism**]

[10] Descartes claimed that the “light of nature” allows truths to be perceived in accordance with these two characteristics. Perceptions that have these two characteristics are not directly subject to Descartes’s “evil demon” thought experiment.

ANSWER: **clear** AND **distinct** [accept **clearly** and **distinctly**; prompt on partial answers]

[10] Antoine Arnauld and Pierre Gassendi (“gas-on-DEE”) are among several people who wrote these kinds of texts in response to Descartes’s arguments in the *Meditations*. This is also the general philosophical term for a claim made to argue against a certain premise, inference, or conclusion.

ANSWER: **objection** [prompt on refutation or counterargument]

<Philosophy>

16. Luke Howard, though more famous for his naming of clouds, was the first to notice a nocturnal effect in which these locations become hotter than their surroundings. For 10 points each:

[10] Name these locations prone to becoming “heat islands” due to their low rate of cooling relative to surrounding environments.

ANSWER: **cities** [or **towns** or **villages**; accept **urban** areas or equivalents; accept **urban** heat island effect; prompt on **human residences** or **places human live** or similar that do not indicate the area is urban]

[10] The high heat retention of this common material contributes to the urban heat island effect. River ecosystems are harmed by high demand for sand and its extraction by “sand mafias,” as sand is mixed with gravel and cement to create this material.

ANSWER: **concrete**

[10] Urban heat islands are divided into the urban boundary layer and a layer with this name whose properties are dominated by the reflections and emissions of buildings. In natural locations with this name, crown shyness allows light to pass through.

ANSWER: **canopy** layer [or forest **canopies** or the urban **canopy** layer; prompt on **UCL**; prompt on **rainforests** by asking “which layer of the rainforest?”]

<Biology>

17. This character is accidentally given the name to which his father Walter has “the most unconquerable aversion.” For 10 points each:

[10] Name this character who is born with a crushed nose because of the forceps used during his birth. This character narrates his own conception at the beginning of a novel, recounting the “dispersed... animal spirits” that disrupted the homunculus.

ANSWER: **Tristram** Shandy [or Tristram **Shandy**]

[10] Tristram claims that “the wisest of men in all ages” have one of these tendencies. Examples of these things in *Tristram Shandy* include Walter’s library and Uncle Toby’s pastime of building model forts.

ANSWER: **hobby-horse** [accept **hobby-horsical**; prompt on a **hobby**]

[10] A recurring Laurence Sterne character who appears in *Tristram Shandy* is Parson Yorick, from whose point of view Sterne wrote these types of works in *Journal to Eliza*. Epistolary novels are made up of this type of works.

ANSWER: **letters**

<British Literature>

18. An 1869 cover of *Harper’s Weekly* shows Vice President Schuyler (“SKY-ler”) Colfax reciting this statement, which led Delaware Senator James Bayard to resign in protest. For 10 points each:

[10] Name this statement promoted by Radical Republicans, by which voters affirmed that they never bore arms for the Confederacy. Lincoln’s lenient ten-percent plan for readmitting states rejected this statement in favor of amnesty.

ANSWER: **Ironclad Oath** [or **Ironclad Test Oath**; prompt on loyalty **oaths** or **tests**]

[10] Lincoln pocket-vetoed a bill mandating the Ironclad Oath that was named for Ohio Senator Benjamin Wade and a Maryland congressman with this surname. Another politician with this surname was Franklin Pierce’s Secretary of War.

ANSWER: **Davis** [accept Henry Winter **Davis** or Jefferson **Davis**]

[10] Jefferson Davis attempted to get recognition for the Confederacy with “diplomacy” based on this cash crop. However, rising production of this fiber in India, Egypt, and Brazil was enough to supply Britain’s textile mills.

ANSWER: **cotton** [accept **cotton** diplomacy; accept King **Cotton**]

<American History>

19. Benjamin Kahan argued that the “invention” of this behavior’s “situational” form in plays like *The Winter Bound* was crucial to society viewing its opposite as a stable category. For 10 points each:

[10] Identify this behavior delineated into two distinct adolescent forms by Richard Green. Evelyn Hooker’s tests of people exhibiting an “overt” form of this behavior suggested that its association with mental illness was a false correlation.

ANSWER: **homosexuality** [or being **gay** or equivalents; accept situational **homosexuality**; accept **bisexuality**; prompt on being **queer** or situational **sexual** behavior or sexual **orientation**; accept *The “Sissy Boy Syndrome” and the Development of **Homosexuality***; accept “The Adjustment of the Male Overt **Homosexual**”]

[10] The DSM-III distinguished between situational and persistent distress in its section on ego-dystonic homosexuality, which is marked by a desire for this goal. This is the goal of the conversion therapy forced on some LGBT youth.

ANSWER: **changing** sexual **orientation** [or equivalents; accept **becoming heterosexual** or **becoming straight** or equivalents; accept **changing gender** identity or equivalents]

[10] In the DSM-5, attractions from this category are distinguished from their disordered forms based on distress and a desire for change. This category includes persistent and unusual sexual interests like fetishes, exhibitionism, and masochism.

ANSWER: **paraphilias** [accept **paraphiliac** disorders]

<Social Science>

20. This point is found in the front of positive lenses such as biconvex lenses. For 10 points each:

[10] Name this point towards which light travelling through a lens converges.

ANSWER: **focus** [or **focal point** or **foci**]

[10] For a lens with this property, the lensmaker’s equation simplifies to $1/f = n - 1$ times the quantity $1/r_1 - 1/r_2$. Ray tracing analysis on lenses with this property yields a namesake equation which states that $1/i + 1/o = 1/f$, plus 1 over image distance, plus 1 over object distance, equals 1 over focal length.

ANSWER: **thin** [or **thin** lens; accept **thin** lens equation; accept answers indicating **negligible** lens **thickness**]

[10] The power of a compound lens formed out of two thin lenses has this relationship to the powers of the individual lenses. Give your answer in terms of the two powers p_1 and p_2 .

ANSWER: $p_1 + p_2$ [or the **sum** of p_1 and p_2 ; or equivalents]

<Physics>

21. Paul Horwich created the “Principle of V-Correlation” in a discussion of philosophical problems surrounding this activity. For 10 points each:

[10] Give this seemingly impossible activity in which a person can end up at an earlier date than when they left. Modal logic can demonstrate that using this activity to kill your grandfather creates a logical contradiction.

ANSWER: **time travel** [accept **traveling** through **time** or equivalents]

[10] The “bilking argument” attempts to demonstrate that a “retro” form of this phenomenon is not possible, which would be problematic for time travel. David Hume argued that our idea of this phenomenon comes only from “custom” by using the example of two colliding billiard balls.

ANSWER: **causation** [or **causality**; or **cause**; accept backwards **causation**]

[10] This philosopher defended the possibility of time travel on the grounds that some “commonplace reason” would prevent the traveller from killing her grandfather. This philosopher proposed a counterfactual account of causation in line with his views on possible worlds.

ANSWER: David **Lewis**

<Philosophy>