

TOSSUPS

1. *Overdrive* sequences enhance the rate of integration of this organism's genetic material into a host. A genetic construct found in this organism can be classified as no-pa-line, octopine or agropine depending on what type of opine (oh-peen) is used by this organism as a source of nitrogen. VirA (veer-"a"), a histidine kinase, is one part of a two component-system encoded by the vir operon of this organism. Phenolic compounds like a-ceto-syring-one can be used to induce infection by this organism. Certain species can be transformed by dipping them in a liquid culture of this organism. Infection with this organism, which carries the Ti plasmid, leads to the formation of benign tumors known as crown gall disease. For 10 points, name this bacterium commonly used in plant biotechnology to transform *Arabidopsis*.

ANSWER: **Agrobacterium** [or **A. tumefaciens**; or **Agrobacterium tumefaciens**; or **R. radiobacter**; or **Rhizobium radiobacter**; or **A. radiobacter**; or **Agrobacterium radiobacter**]

2. In exchange for financing this campaign, the Riccardi of Lucca were given customs collections on wool exports. Archbishop John Peckham tried to negotiate an end to this campaign, but the opposing side denounced a ruler as worse than Saracens in the "Declaration of Defiance." After completing this action, its perpetrator hired James of Saint George to design the "iron ring" of eight concentric castles, including one on a cliffside called Harlech. Provoked when an opposing ruler married Eleanor de Montfort, this campaign ended with that ruler's death at the Battle of Orewin Bridge. According to legend, this action's completion inspired the "last bard" to issue a curse before jumping off a cliff. At the end of this process, English-speaking sheriffs enforcing common law were imposed on settler-populated counties carved out by the Statute of Rhuddlan. Its victor used Marcher Lord castles as forward bases for expeditions into mountainous Snowdonia. For 10 points, name this achievement of Edward I, who subdued a territory ruled by Llywelyn ap Gruffudd (thew-EL-in ap "griffith").

ANSWER: the Edwardian **conquest of Wales** [or the Anglo-Norman **conquest of Wales**; or **Edward I's invasion of Wales**; or the English **conquest of Wales**; or equivalents; prompt on the **invasion of Wales**]

3. A poet from this country concluded a poem, "I am light honed to a still point in the incandescent onrush, a fine ash in the beast's sudden desiccation when the sun explodes." That poet from this country described a "silence for spectroscopic flight of fancy" before the speaker tells a potential landlady "I am brunette, but madam, you should see the rest of me." Another poet from this country ended his death poem with the lines, "The new star appears, foreshadows its going before a going and coming that goes on forever." That poet from this country described himself as a "watchman for the watchword" at the title location of a poetic sequence in which he declares, "naked I stand; before your watery presence," addressing the village stream "mother Idoto." Poets from this country wrote "Telephone Conversation," "Elegy for Alto," and the sequence *Heavensgate*. For 10 points, name this birth country of Christopher Okigbo and Wole Soyinka.

ANSWER: Federal Republic of **Nigeria**

4. This monastic order permanently gave up meat after its seven founding monks allegedly fell asleep for forty-five days and awoke to find their meat turned to ash. Philip Groning spent six months filming the lives of some of these monks for his 2005 documentary *Into Great Silence*. This order, which was founded by Bruno of Cologne, has an emblem which includes a banner with seven stars and the motto "the cross stands firm while the world turns." On Mondays, members of this contemplative order take a long walk called a *spatiantum*. The monks of this order occupy themselves by distilling a sweet liqueur which has given its name to a greenish-yellow color. This hermit order lives in monasteries called "charterhouses." For 10 points, name this monastic order which is named for its founding monastery near Grenoble in the French Alps, the Grand Chartreuse.

ANSWER: **Carthusian** Order [accept the Order of **Saint Bruno** until "Bruno"]

5. This thinker argued that because theoretical statements are not translatable into statements about the immediate objects of experience without a loss of meaningful content, “descriptivist” interpretations of theories inevitably collapse into “instrumentalist” interpretations. One of this thinker’s papers posits that “persistence” and “plasticity” are the two essential criteria of goal-directed processes. When a target theory includes terms not included in the base theory from which it was reduced, it produces what this thinker called a “heterogeneous reduction.” This author of *Teleology Revisited* argued that vocabularies from distinct scientific theories could be linked by bi-conditional “coordinating definitions” producing what he called “bridge laws” in *The Structure of Science*. For 10 points, name this foremost 20th-century analytical philosopher of science, who shares his last name with the author of *Mind and Cosmos* and “What is it Like to Be a Bat?”

ANSWER: Ernest **Nagel** [do not accept "Thomas Nagel"]

6. An essay by this author contrasts Titian’s skin tones with Van Dyck’s, arguing that the latter lack the title property, which is the “power or passion defining any object.” He claimed that the title sculptures disprove Joshua Reynolds’s theory of the mutual exclusivity of grand design and exactness of detail in one of three essays he wrote about the exhibition of the Elgin Marbles. This author of “On Gusto” wrote an essay describing a match between butcher Bill Neate and Tom Hickman, known as the “Gas-man.” He controversially described his seduction of his landlord’s daughter, Sarah Walker, in a work subtitled “the New Pygmalion.” This author of “The Fight” co-wrote *The Round Table* with Leigh Hunt, and included profiles of Walter Scott and Jeremy Bentham in his collection of character sketches of twenty-five representative men of the early 19th century. For 10 points, name this English essayist, the author of *Liber Amoris* and *The Spirit of the Age*.

ANSWER: William **Hazlitt**

7. Grodzinsky and Reinhart argued against Grimshaw and Rosen that this grammatical phenomenon can only be understood as innate if it is processed by a different module than co-reference. The “co-argument condition” was proposed in a theory of this phenomenon in Norwegian; that work by Lars Hellan focuses on the pronouns *seg* and *ham*. Besides case, the conditions named for this phenomenon are what distinguish NP-traces from Wh-traces. Reinhart and Reuland’s predicate-based theory of this phenomenon states that a predicate is reflexive if and only if its arguments are co-indexed. A pronoun possesses this property if it has a quantified determiner phrase as its antecedent. “Herself saw him” is not grammatical because “herself” lacks an antecedent, according to this phenomenon’s Condition A. This phenomenon co-names a Chomskian theory of phrase structure grammar along with “government.” For 10 points, name this linguistic phenomenon, the syntactic constraints on nouns, pronouns, and anaphors.

ANSWER: **binding** [accept word forms, such as **bound**]

8. A woman of this profession in a red dress drifts in and out of focus and dissolves in and out of a field of gray haze in a 12-minute short film by David Lynch included as an extra on the DVD release of *Inland Empire*. A sequence depicting another woman of this profession, which is overlaid with Gloria’s narration of how her sister Iris cut her wrists after marrying a wealthy suitor to pay her father’s medical bills, appears in Stanley Kubrick’s *Killer’s Kiss*. A person of this profession asks her composer husband to remove the title objects after she jumps in front of a train at the end of a film by Emeric Pressburger and Michael Powell. In another film, a woman with this profession hallucinates feathers sprouting from her shoulder and stabs herself with a shard of glass, resulting in her death at the end of her “perfect” performance. For 10 points, name this profession practiced by the protagonists of *The Red Shoes* and Darren Aronofsky’s *Black Swan*.

ANSWER: **ballerina** [or **ballet** dancer; prompt on **dancer**]

9. Poetic moments in this speech include an evocation of man's "climb from the swamp to the stars" and a warning of a "thousand years of darkness." This speech darkly hints at the cause for the disappearance of 66 shiploads of grain headed for Austria, and criticizes the gift of a yacht to Haile Selassie. Near its conclusion it opens three consecutive paragraphs with the phrase "You and I," quoting FDR's 1936 convention speech to say "You and I have a rendezvous with destiny." It was known as "The Speech" while being perfected over a series of deliveries to city Chambers of Commerce, before it was finally delivered on television by the host of *GE Theater*. This speech raised \$8 million for a man it praises for promising "peace through strength" against the advance of communism. For 10 points, name this 1964 speech supporting Barry Goldwater that launched the political career of Ronald Reagan.

ANSWER: "A **Time for Choosing**" [prompt on "The Speech" before it is read]

10. In 2012, police in this country kidnapped and murdered the son of Julieta Castellanos (hoo-lee-et-ah cas-tay-yah-nohs), the rector of its largest university. The Dinant Corporation has been accused of orchestrating the murders of over one hundred small farmers in this country's Bajo Aguan valley in order to manufacture palm oil. In 2011, this country's National Front of Popular Resistance created the LIBRE political party, which ran Xiomara (hsee-oh-ma-ra) Castro in its 2013 presidential election. In 2016, an activist in this country was assassinated after leading its native Lenca people to oppose the construction of a dam on its Gualcarque (gwahl-kar-kay) river. That activist, Berta Cáceres (KAH-seh-"race"), accused Hillary Clinton of legitimating the election of Porfirio Lobo after its government was overthrown in a 2009 coup. For 10 points, name this Central American country where that coup overthrew President Manuel Zelaya (zeh-"LIE"-ah).

ANSWER: Republic of **Honduras**

11. One artist from this country created a series of sculptures of cute, sleepy-eyed children casually carrying lethal weapons like saws and knives. Another artist from this country founded its "concreteness" group and devoted the last years of his life to repeatedly painting circles. Some of this country's traditional painting styles were revived in part by Ernest Fenollosa in the nineteenth century. A contemporary artist from this country has voluntarily lived in a sanatorium for the last four decades and paints many works that consist of polka-dots. Another artist from this country has produced many paintings of smiling, technicolor flowers, as well as the cover art for Kanye West's *Graduation*. That cartoonish style from this country often subverts sexualized images of women. For 10 points, name this country that is the origin of the superflat style and artists such as Yayoi Kusama and Takashi Murakami.

ANSWER: **Japan** [or **Nihon**; or **Nippon**]

12. In a myth of these people, a man plants orange trees around his house and sticks a silver pin in his head to ward off a death-spirit who nevertheless kills him with an iron hammer. A god of these people captured his wife by drawing lines on the ground that grew into a copper castle, then defeated her father in a three-part metamorphosis contest. That god of these people is accompanied by swan-riding attendants and multi-colored, music-producing clouds. A queen and king of these people were born on the same day at different forest wells, she from the rib of a cockatrice and he from an egg watched over by a white horse. After remaining in a cave for 100 days while eating only garlic and mugwort, a bear transformed into a woman who became the mother of these people's first king, Dangun, as related in the *Samguk Yusa*. For 10 points, identify these people who created founding myths for kingdoms like Silla and Gojoseon.

ANSWER: **Koreans** [or **Hanguk**-in; or **Joseon**-in]

13. This ruler took the opportunity to blockade and subjugate a rival state after two of its officials referred to him as "sovereign" rather than "lord." Official accounts claim that under this man's rule, Christian nobles began abandoning the Trinity for the heresy of Skariya the Jew. This ruler schemed to expropriate monastic lands by adjudicating a synod between the "Possessor" and "Non-Possessor" factions, where his policies were championed by holy man Nilus of Sora. A delegation including Cardinal Bessarion offered a second marriage to this ruler, after which he adopted the symbol of a two-headed eagle for his seal. This husband of Zoe Palaeologus carted off the *veche* bell of a conquered city whose fur-trading elites he exiled. This ruler's refusal to pay tribute led to a battle in which the opposing side under Ahmad Khan retreated after failing to cross the Ugra river. For 10 points, identify this Grand Prince of Moscow who subjugated Novgorod and gained independence from the Golden Horde.

ANSWER: **Ivan III** [or **Ivan the Great**; prompt on **Ivan**]

14. When Evan Priestley was part of this organization, he developed the Phabricator collaboration tool, which is used for code reviews. In 2013, this company acquired the Mobile-Backend-as-a Service provider Parse, but shut it down in January 2017, raising concerns about vendor lock-in. A publicly available framework initially developed by this company centers on “components” that implement the render method, and is a popular alternative to Angular for building UIs for Web apps. Another of this company’s frameworks originally converted scripting code to C++, but now merely executes it using just-in-time compilation on a virtual machine. This company’s projects include the JavaScript Library React, as well as the HipHop transpiler, allowing them to write a modified form of PHP. For 10 points, name this company whose social network service is centered on a user’s “Timeline” and which has periodic updates announced by Mark Zuckerberg.

ANSWER: **Facebook**

15. An army led by a member of this ethnic group was formed by a meeting in Bilpam, which is the name given to the headquarters of that army. A “white army” helped participate in a massacre of this ethnic group at Bor. This group’s traditional spiritual leaders are the “masters of the fishing spear,” who sacrifice their long-horned cows to their lone god, Nhialac. Worshipers of this ethnicity were killed in the capital of Unity state in the Bentiu massacre. A current President of this ethnic group often wears a black Stetson cowboy hat because he really liked one that George W. Bush had given to him in 2006. A member of this ethnic group named John Garang led the SPLA. This ethnic group often oppressed the Nuer and is the plurality in a country with the capital at Juba. For 10 points, name this ethnic group led by Salva Kiir that is the largest in South Sudan.

ANSWER: **Dinka** people [or **Jieng**]

16. Although this character’s creator claimed he was a purely imaginative product, he was partly modeled on David Shipman. In this character’s final scene, he does not realize that his dog has already died before him and has been stuffed by his friends in a lifelike pose. After being helped out of a chair facing the sunset, this man cries “Here!” before dying. To allow his friend to win a silken calash as a prize, this character purposely only grazes a potato with his bullet during a shooting contest. Abiram White frames him for the murder of Asa Bush in a novel in which this man is assisted by Captain Middleton, the grandson of his friend Major Duncan Heyward. Frequently accompanied by Chingachgook, in different novels he is referred to as “the trapper,” “Hawkeye,” and “Deerslayer.” For 10 points, name this protagonist of James Fenimore Cooper’s *Leatherstocking Tales*.

ANSWER: Natty **Bumppo** [or **Natty** Bumppo; or **Nathaniel** Bumppo; or **Pathfinder**; or La **Longue Carabine**; accept the **trapper**, **Hawkeye**, **Deerslayer**, or **Leatherstocking** before each are read]

17. Reaction of a münchnone (MYOONK-nohn) with an alkyne followed by a retro-Diels-Alder loss of carbon dioxide can be used to produce these molecules. Two of this molecule are joined to boron tri-fluoride in the dye BODIPY (bo-“die-pie”). The Michael addition of tosyl iso-cyanide to an enone followed by an elimination forms these molecules in the Van Leusen reaction. A primary amine reacts with a 1,4-diketone (“one four die key tone”) to form them in the Paal-Knorr synthesis. Four of these structures are combined to form a porphyrin (POR-fur-in) ring. They can be formed by treating of furan with ammonia to replace the oxygen atom with nitrogen. For 10 points, name these five-membered hetero-cyclic aromatic compounds containing a single nitrogen atom.

ANSWER: **pyrroles** (PEER-ole(s))

18. The Wessobrunn prayer was the inspiration for a Helmut Lachenmann piece written for sixteen of these instruments, his *Consolation II*. The “humorous,” “sentimental,” “erotic,” “ghostly-horrific,” and “mystical-funereal” states are represented by five of these instruments in Ligeti’s *Aventures*. Live and recorded versions of the same performer of this instrument simultaneously interact with a synthesizer in Milton Babbitt’s *Philomel*. The eleventh chapter of Joyce’s *Ulysses* inspired *Thema* for tape and this instrument, which along with *Sequenza III* was one of several pieces for this instrument that Luciano Berio wrote for Cathy Berberian. An ensemble of these instruments performs Ligeti’s *Lux Aeterna*. Stockhausen manipulated and distorted a recording of a 12-year-old boy using this instrument in *Gesang der Jünglinge* (geh-ZAHNG der YOONG-ling-uh). For 10 points, name this instrument that 20th-century composers often called upon to sing nonsense syllables.

ANSWER: the human **voice** [accept **singer** before it is read; prompt on things like “the human **body**”]

19. This poet wrote a poem of seven-line stanzas preserving an *a-b-c-d-e-f-g* rhyme scheme beginning with the line, “I see scarlet, green, blue, white, yellow.” This poet described himself trembling “like a child before the rod” in a poem he described as a “song of nail and uncle,” and which begins by depicting “the firm desire that enters my heart.” The title of T. S. Eliot’s second poetry collection, *Ara Vos Prec*, is taken from lines spoken by this man in a passage ending with the line “Poi s’ascose che gli affina” (poy sah-SKOH-say kay “glee” ah-FEE-nah), or “Then he hid himself in the refining fire.” Petrarch praised this poet as the “gran maestro d’amor,” and Guido Guinizzelli calls him “miglior fabbro” (MEEL-yohr FAH-broh), or “better smith,” in Dante’s *Purgatorio*. This poet wrote the first poem consisting of six stanzas of six lines with repeating end-words followed by a three-line envoi. For 10 points, name this Occitan troubadour who invented the sestina.

ANSWER: Arnaut **Daniel**

20. This property is the most basic characteristic of a quantum computer proposed by Alexei Kitaev (kih-“tie”-ev) that exploits the non-Abelian group of excitations of the Moore-Read Pfaffian (FAFF-ee-an) state. Those quasiparticles that appear in systems with this property have statistics operators that are representations of the braid group, which means that interchanging two of them is equivalent to multiplying their combined wavefunction by an arbitrary unit complex number. Anyons (“any”-ons) can only exist in systems with this property, which along with broken inversion symmetry is necessary for Rashba spin-orbit coupling to occur. When the gate-to-source voltage of a MOSFET (“MOSS”-fet) exceeds the threshold value, the region below the gate oxide becomes an inversion layer that behaves like an electron gas with this property. For 10 points, identify this geometry that is characteristic of systems like quantum wells and graphene.

ANSWER: **2-D** [or **two-dimensional**; or confined to **two dimensions**; or **planar**; do not accept or prompt on “lattice”]

TB. The patron saint of this ethnic group was a servant of one of the Three Marys before arriving in Camargue (kah-MAHRG), where her church is now located. University of Texas historian Ian Hancock, a specialist in the Vlax dialect of their language, wrote a book titled “We are [this people].” This ethnic group venerates Sarah the Black and Ceferino Gimenez Malla (tseh-feh-REE-no HEE-men-ez MY-yah) as saints. One group of these people speak Domari. Members of this ethnic group were imprisoned by Ferdinand VI of Spain in a “Great Round Up.” Some members of this ethnic group resolve conflicts in a court called the *Kris*. Antipathy towards this group is known as antiziganism, and these people were forced to wear upside-down brown triangles as part of the *Porajmos*. The flag of this ethnic group depicts a red wheel, alluding to the nomadic nature of this group. For 10 points, name this much-maligned ethnic group which probably originates from India and were often accused by Europeans of stealing their children.

ANSWER: **Roma** [or **Romani**; or **Gypsies**]

BONUSES

1. King Shulgi of Ur built a 150 mile wall to defend against these people. For 10 points each:

[10] Name this Semitic people who established the cities of Ebla and Mari while usurping cities like Kish and Eshnunna. The most famous member of this people conquered Larsa from Rim-Sin I and also instituted a draconian law code demanding “an eye for an eye.”

ANSWER: **Amorites** [or **Martu**; or **Amurru**; prompt on but DO NOT OTHERWISE MENTION **Babylonians**]

[10] The Amorites established the first dynasty of this city, which was subsequently ruled by Hammurabi.

ANSWER: **Babylon** [or **Babel**; or **Babylonia**]

[10] This is the name given to the second dynasty of Babylon, which lasted 368 years. Rulers of this dynasty claimed descent from the greatest ruler of Isin, and its name derives from its dominance over southern Mesopotamia.

ANSWER: **Sealand** dynasty

2. You may not be Elizabeth Bishop, but answer the following questions of travel. For 10 points each:

[10] Each mile along this road is marked by a bell that hangs on a pole resembling a shepherd’s staff. This road allowed travelers in the eighteenth century to journey from San Diego to Monterrey.

ANSWER: El **Camino Real** [or The **Royal Road**; or The **King’s Highway**]

[10] El Camino Real connected 21 of these religious outposts; the first nine of them in California were founded by Junipero Serra.

ANSWER: Spanish **missions**

[10] This city along El Camino Real was founded by Serra in 1772. It is known as the home of the more northerly campus of Cal Poly and for Bubblegum Alley, a narrow 70-foot alley with walls covered in chewed gum that has inexplicably become a tourist attraction.

ANSWER: **San Luis Obispo** [or **SLO**; do not accept "Pomona"]

3. The solution to this problem places the object in question in the lower arm of a Mach-Zehnder interferometer so that in 25 percent of test cases, a photon is observed at the detector where destructive interference would normally occur. For 10 points each:

[10] Name this thought experiment that asks whether bombs can be identified as functional without detonating them.

ANSWER: **Elitzur-Vaidman** bomb testing problem

[10] Bell’s theorem resolves the paradox posed in the Einstein-Podolsky-Rosen thought experiment by stating that this kind of theory cannot obey local realism. The Bohmian interpretation of quantum mechanics is this kind of theory.

ANSWER: **hidden variable** theory [or a theory with **hidden variables**]

[10] The “quite ridiculous” thought experiment that introduced this animal helpfully noted that it must be prevented from interfering with the Geiger counter, relay system, hammer, and poison flask that will eventually lead to its death.

ANSWER: **Schrödinger’s cat** [prompt on **cat**] (Editor’s note: Schrödinger called his own thought experiment “quite ridiculous” in the original paper.)

4. This battle took place during a crossing of the Tisza (TEE-zah) River in modern Serbia, where forces under Mustafa II were ambushed, leading to a mutiny by his Janissaries. For 10 points each:

[10] Name this 1697 victory for a Holy League army under Prince Eugene of Savoy, which forced the Ottomans to agree to the subsequent Treaty of Karlowitz.

ANSWER: Battle of **Zenta**

[10] The Great Turkish War ended by the Battle of Zenta began with an unsuccessful 1683 siege of this European city by Kara Mustafa, which was foiled by a charge of Winged Hussars under Jan III Sobieski.

ANSWER: **Vienna** [or **Wien**]

[10] A relative of Kara Mustafa, Fazil Ahmed Koprulu, was more successful in wresting this Cretan colony from Venice in 1669. A decades-long siege was needed to seize this colony's namesake fortress at modern Heraklion.

ANSWER: Kingdom of **Candia**

5. The title figure of this painting is crowning a kneeling man with ivy, and sits next to a smiling fellow staring directly at the viewer while holding up a cup filled to the brim with wine. For 10 points each:

[10] Name this painting of a brilliant-white god nude to the waist sitting among suntanned men with wrinkled skin .

ANSWER: *The **Triumph of Bacchus*** [or *Los **Borrachos***; or *The **Topers***; or *The **Drunks***]

[10] *The Triumph of Bacchus* is a painting by this Spanish artist, who painted a similarly ivory-skinned god among laborers in *Apollo in the Forge of Vulcan*. He also painted *Las Meninas*.

ANSWER: Diego (Rodrigo de Silva y) **Velazquez**

[10] In Velazquez's *The Spinners*, working women spin wool in the foreground while a version of this painting hangs as a tapestry in the background. The original version features a *putto* riding a silver fish, holding onto its flippers.

ANSWER: *The **Rape of Europa*** (by Titian)

6. 60 traits were classified as expressions of this construct in an inventory based on Bem's schema theory. For 10 points each:

[10] Identify this construct. Kohlberg's cognitive theory argues that it progresses from "basic identity" to "stability" and "consistency," and it is assessed in the Personal Attributes Questionnaire.

ANSWER: **gender** role [do not accept or prompt on "sex"]

[10] When applied to gender role adoption, this psychologist's "social cognitive theory" holds that people adopt their gender roles through modeling and tri-adic reciprocal causation. He conducted the Bobo Doll Experiment.

ANSWER: Albert **Bandura**

[10] This text by Nancy Chodorow traces the generation of gender roles to childhood, when male children form their egos against the opposite-sex parent while female children react to the parent of the same sex.

ANSWER: *The **Reproduction of Mothering***

7. This author wrote a cycle of poems, alternately called *The Girlfriend* or *The Mistake*, that was inspired by her affair with Sofia Parnok. For 10 points each:

[10] Name this bisexual Russian poet who hanged herself after her husband and daughter were arrested for espionage by the Soviet regime. She wrote pro-White Army works such as "The Swans' Encampment."

ANSWER: Marina **Tsvetaeva** (tsveh-"TIE"-eh-vuh)

[10] Tsvetaeva was friends with this author and wanted to name her son after him. The CIA bought and distributed thousands of copies of this author's novel *Doctor Zhivago* in order to make him a Nobel Prize contender.

ANSWER: Boris **Pasternak**

[10] This long Tsvetaeva poem, comprising six cantos and subtitled "A Lyrical Satire," is a reworking of the Pied Piper of Hamelin legend that savages the Bolsheviks.

ANSWER: *The **Ratcatcher***

8. A hormone named after these structures can be used to determine the ovarian reserve available for IVF procedures.

For 10 points each:

[10] Name these paired ducts in the embryo that develop into the uterine tubes, uterus, cervix and upper portion of the vagina in females.

ANSWER: **Mullerian ducts** [or **paramesonephric ducts**; do not accept “mesonephric ducts”]

[10] In males, anti-Müllerian hormone is secreted by these cells, which aid in the development of sperm cells along with Leydig cells. FSH causes these cells to produce estradiol in the testes.

ANSWER: **Sertoli** cells

[10] Sertoli cell development is controlled by the Sox-9 transcription factor, which itself is regulated by testis determining factor, encoded by a gene on this chromosome.

ANSWER: **Y** chromosome

9. This civil law concept, which is similar to *res judicata*, has occasionally also been used to bar subsequent criminal prosecutions since the 1916 case *United States v. Oppenheimer*. For 10 points each:

[10] Name this doctrine similar to double jeopardy which does not allow parties to relitigate the same issues in later cases involving the same parties.

ANSWER: **collateral estoppel** [or **issue preclusion**; prompt on partial answers]

[10] A different type of estoppel, promissory estoppel, creates a promise that can be enforced even in the absence of one of these agreements. These agreements require consideration, offer, and acceptance.

ANSWER: **contracts**

[10] This rule requires that certain contracts be in writing and signed by the parties. Generally, it applies to contracts in Consideration of Marriage, contracts for the Sale of an Interest in Land, and contracts that can't be performed in one year, among others.

ANSWER: **statute of frauds**

10. For 10 points each, answer some questions about the essay collection *Both Flesh and Not*.

[10] *Both Flesh and Not* is the posthumous final essay collection by this American author, whose other works include *A Supposedly Fun Thing I'll Never Do Again* and a novel about the Incandenza family.

ANSWER: David Foster **Wallace** [or **DFW**]

[10] *Both Flesh and Not* contains “The Empty Plenum,” an appreciation of this experimental novel, a series of short paragraphs delivered by Kate, who believes herself to be the last human on earth.

ANSWER: **Wittgenstein's Mistress** [by David Markson]

[10] In “Fictional Futures and the Conspicuously Young,” Wallace attacks young writers for employing a style he calls “catatonic realism,” modeled on the prose of this American writer, who wrote a story in which the blind man Robert holds on to the narrator's hand as he draws the title building.

ANSWER: Raymond **Carver** [the story is “Cathedral”]

11. This incident was inscribed into historical memory with a poem in Spenserian stanzas by Thomas Campbell, who perpetuated the myth that Joseph Brant was responsible. For 10 points each:

[10] Name this 1778 incident in a namesake valley in Pennsylvania, where Loyalists and Indian soldiers under John Butler massacred women and children gathered at Forty Fort.

ANSWER: **Wyoming** Massacre

[10] The Indians who allied with Butler in the Wyoming Massacre belonged to this Indian confederacy of “Six Nations” such as the Mohawk and Seneca.

ANSWER: **Iroquois** Confederacy

[10] After the Wyoming Massacre, George Washington ordered this punitive expedition against Loyalists and allied Iroquois. This 1779 scorched earth campaign broke the power of the Iroquois in western New York.

ANSWER: **Sullivan**-Clinton Expedition

12. Oddities in this novel include a weather-powered machine that makes a mosaic out of harvested teeth, and a troupe of corpses animated with a serum that makes them reenact the most important moments of their lives. For 10 points each:

[10] Name this novel by Raymond Roussel in which the inventor Martial Canterel shows off his surreal inventions while providing a guided tour of his estate.

ANSWER: **Locus Solus**

[10] The Roussel-inspired literary journal *Locus Solus* was co-edited by Kenneth Koch, James Schuyler, and this other New York School poet, whose works include the book-length poem *Flow Chart*.

ANSWER: John **Ashbery**

[10] Roussel's short story "Among the Blacks" begins with a sentence about a table for playing this game, which is the subject of a pun in the story's last line. Robert Faehmel plays this game at half-past nine in a novel by Heinrich Böll.

ANSWER: **billiards** [or **pool**; or **snooker**]

13. A member of this Chinese school wrote a dialogue that propounds the paradox that a white horse is not a horse. For 10 points each:

[10] Name this school of philosophy, whose most famous practitioner claimed that he "made so the not-so and admissible the inadmissible." It is named for entities whose proper usage marks the "beginning of wisdom" in another school.

ANSWER: **School of Forms** and **Names** [or **Logicians**; or Xíngmíngjiā]

[10] The doctrine of the "Rectification of Names" is central to this other school of Chinese philosophy, which is expounded in its Four Books, including its creator's *Analects*.

ANSWER: **Confucianism**

[10] The School of Names grew out of Mohism, which suggests that any theory be measured according to three central standards, denoted by this Chinese word. The three are: the model of past sages, the experiences of eyes and ears, and pragmatic efficacy.

ANSWER: **fa** [or **yi**]

14. This action was drastically accelerated after Rab Butler had lunch with Lord Rothermere, who then publicized its content in the *Daily Mail*. For 10 points each:

[10] Name this controversial action taken by the Conservative prime minister on July 13, 1962. In this action, the PM sacked a third of his cabinet to try and salvage his government's declining popularity.

ANSWER: the **Night of the Long Knives**

[10] The Night of the Long Knives tarnished this Conservative British PM, who delivered the "Wind of Change" speech. His government was *finally* sunk by the Profumo Affair.

ANSWER: Harold **Macmillan**

[10] Macmillan's government was *also* rocked by this other sexual scandal, in which a homosexual civil servant in the Admiralty was revealed to have spied for the KGB after being photographed participating in an orgy.

ANSWER: **Vassall** Scandal

15. This book's epilogue describes the attempted suicide of the narrator's lover Laura Riding in Cairo, where the narrator teaches English. For 10 points each:

[10] Name this book that also describes its narrator's miserable childhood at Charterhouse prep school, as well as its narrator being falsely reported dead after taking shrapnel through the lung at the Battle of the Somme.

ANSWER: **Good-Bye to All That**

[10] *Good-Bye to All That* is a partial autobiography by this English author, who propagated eccentric mythological theories in *The White Goddess* and wrote a pair of novels about the Roman emperor Claudius.

ANSWER: Robert **Graves**

[10] Graves wrote a novel narrated by Mary Powell, the first wife of this English polemicist, whose experiences with Powell informed his controversial tracts *The Doctrine and Discipline of Divorce* and *Tetrachordon*.

ANSWER: John **Milton**

16. A secular oratorio including a chorus of nymphs and Triton was written for the 100th anniversary of this city's admiralty. For 10 points each:

[10] Name this European city. A piece titled for this city's "ebb and flow," which includes a minuet depicting Zephyr and a bourrée (boo-RAY) depicting Thetis awakening, was written by a composer who was music director of its five churches from 1721-1767.

ANSWER: **Hamburg**

[10] All of those pieces are works of Georg Philipp Telemann, who composed the earliest known concerto for this instrument. Music for this common string instrument is usually written in the alto clef.

ANSWER: **viola**

[10] Telemann studied at the university in this other German city, where Johann Sebastian Bach spent his final decades and where Felix Mendelssohn founded an influential conservatory.

ANSWER: **Leipzig**

17. ERDAS Imagine is a software package for data analysis in this field, which uses techniques such as LIDAR ("lie"-dar) to collect data for applications that include archaeological surveys and geographic information systems. For 10 points each:

[10] Name this scientific field that involves detecting objects on the Earth with instruments on aircraft and satellites.

ANSWER: **remote sensing**

[10] Remote sensing is used to measure the summer extent of this substance, which many climate models project to fall below one million square kilometers by 2050. This substance's decline is causing rapid polar bear depopulation.

ANSWER: **Arctic sea ice** [accept answers describing **ice** at the **North Pole**; prompt on sea **ice** or polar **ice**]

[10] This remote sensing technique attaches a radar antenna to a fast-moving platform to increase the distance over which the antenna moves as it picks up returning radio pulses, thus increasing the resolution of the imaging system.

ANSWER: **SAR** [or **synthetic aperture** radar]

18. Name some jazz musicians who collaborated with Thelonious Monk, for 10 points each.

[10] Monk's quartet was joined by this saxophonist for a July 1957 live recording at the Five Spot Cafe that features a recording of "Ruby, My Dear." His own albums include *Giant Steps* and *A Love Supreme*.

ANSWER: John (William) **Coltrane**

[10] This student of Monk's made the first-ever recording of "Round Midnight", and his own compositions include "Tempus Fugue-it" and "Un Poco Loco."

ANSWER: Bud **Powell** [or Earl Rudolph **Powell**]

[10] Monk made a recording of "In Walked Bud" on a collaborative album with The Jazz Messengers, a group led by this drummer.

ANSWER: Art **Blakey** [or Arthur **Blakey**; or Abdullah Ibn **Buhaina**]

19. Name some things about the intersection of magic and religion, for 10 points each:

[10] The *Atharva*, the fourth and final of these ancient Hindu religious texts, contains love spells, healing incantations, and other magical formulas.

ANSWER: **Vedas**

[10] This term for folk magic or witchcraft is in use across the Caribbean. It is sometimes contrasted with the similar West African practice of "myalism."

ANSWER: **Obeah** (oh-bay-ah)

[10] The German historian George Waitz discovered these two medieval charms in 1841. One of them appears to have been intended to heal horses and the other involves releasing captive warriors.

ANSWER: **Merseburg Incantations** [or **Merseburg Charms**; or **Merseburger Zauberspruche**]

20. Examples of these substances include Q- and SP-Sepharose. For 10 points each:

[10] Name these substances that commonly consist of polystyrene beads functionalized with sulfonic acid or quaternary amine groups. Di-ethyl-amino-ethyl, or DEAE, is also commonly found on these substances.

ANSWER: **ion-exchange** resins or **ion-exchange** membranes [accept anything with **ion-exchange** in it]

[10] Ion-exchange chromatography is also used to perform this process, in which calcium and magnesium ions are removed from a certain substance and replaced with sodium or potassium. Calcium hydroxide can be used to perform this process through precipitation.

ANSWER: **water softening** [prompt on water purification]

[10] Soils can be organized by their ability to exchange these positively charged atoms, which are generally smaller than their uncharged counterparts.

ANSWER: **cations** [prompt on ions]