

1. One of this man's novels features a section about a group of assassins lying in wait for a car and opens with a section in which Urania Cabral recounts her childhood in Santo Domingo. An unlucky dice roll results in Cava attempting to steal a chemistry answer sheet in another novel by this author. He depicted the death of Rafael Trujillo in *The Feast of the Goat* and wrote of the Slave's death at the hands of Jaguar in a novel set in the (*) Leoncio Prado Military Academy. In another of his novels, the Genaros, who employ the protagonist, stop buying scripts from Cuba and instead hire the novela writer Pedro Camacho. For 10 points, name this author of *The Time of the Hero* and *Aunt Julia and the Scriptwriter*, a Peruvian Nobel Laureate.

ANSWER: Mario Vargas Llosa [or Jorge Mario Pedro Vargas Llosa; prompt on partial answers]

<Carson>

2. This composer's body of work was the basis for Johann Fux's treatise *Gradus ad Parnassum*. His works are marked by a relegation of dissonances to weak beats, mostly stepwise melodic lines, and a focus on making the text easily intelligible, a style later composers called "prima prattica." This member of the Roman School wrote a five-voice motet cycle about the *Song of Songs* and a setting of the Improperia performed every Good Friday at the Sistine Chapel. This composer wrote one hundred and four (*) masses, including one which apocryphally convinced the Council of Trent not to ban polyphonic church music. For 10 points, name this 16th-century Italian composer of the *Pope Marcellus Mass*.

ANSWER: Giovanni Pierluigi da Palestrina

<Thompson>

3. This man's government shut down the newspaper *Our Wheatfield* for anti-Semitic remarks. Daniel Speckhard was recalled from the country led by this man after his government shut down a complex holding several diplomats. During one demonstration against this leader, the police seized a white-red-white flag from a protestor, leading him to raise a (*) denim jacket instead. His government imprisoned opposition leader Alexander Kazulin, and he won his first election against Vyachaslau Kebich. The Zubr youth movement opposes this leader, who was elected to a third term with 84% of the vote after a referendum abolishing term limits. This man's government has been called the last remaining dictatorship in Europe. For 10 points, name this longtime president of Belarus.

ANSWER: Alexander Grigoryevich Lukashenko [or Alyaksandr Ryhoravich Lukashenka]

<Mukherjee>

4. The most efficient classical method of performing this operation is selecting a pair of small-degree polynomials over the rationals with a common integer root in the General Number Field Sieve. A method of doing this which finds a cycle in a pseudo-random sequence is Pollard's rho algorithm. Shor developed a polynomial-time algorithm for doing this on a (*) quantum computer. The ability to perform this function quickly for large inputs would defeat RSA encryption. A simple method of performing this operation is trial division, and this problem is somewhat more difficult than primality testing. For 10 points, identify this operation which decomposes a number into the product of powers of primes.

ANSWER: prime factorization [or integer factorization; accept factoring instead of "factorization"]

<Orth>

5. One king converted to this religion after the dust on the windows overlooking his seraglio was untouched, proving that its holy men stay put in their spots in the royal court. Whether or not a set of scriptures survived a famine that killed many of its monks is a point of contention in this religion, whose devotees follow "five great vows." One controversial practice in this religion is fasting to (*) death, which was how Chandragupta Maurya died. A whisk to sweep the ground ahead is one of few objects possessed by a sect of "sky-clad" monks in this religion. Divided into the Svetambaras and Digambaras, it reveres 24 tirthankaras and focuses on the tenet of ahimsa. For 10 points, name this Indian religion founded by Mahavira, which preaches nonviolence.

ANSWER: Jainism

<Gupta>

6. One artist from this modern-day nation inspired J. M. W. Turner with his *Seaport with the Embarkation of the Queen of Sheba*. Another artist from this country painted a landscape where two men carry the body of the draped title figure off of Athenian soil and a work where Wealth, Poverty, Pleasure and Labor cavort as (*) Father Time plays the lyre. Those paintings are *The Burial of Phocion* and *A Dance to the Music of Time*. That same artist from this nation depicted two men pointing at the title enigmatic inscription on a tomb in *Et in Arcadia Ego*. A later artist from this country painted series of haystacks and the Rouen Cathedral. For 10 points, name this country home to Nicolas Poussin and Claude Monet.

ANSWER: France [or the French Republic or République française]

<Bentley>

7. One work from this school warned that "Soon you'll be ashes or bones. A mere name at most—and even that is just a sound, an echo." One of its scholars was the pupil of Cleanthes and supposedly died of laughter from watching a donkey trying to eat figs. Scholars belonging to this group congregated at the Painted (*) Porch, from which it takes its name. One major work from this school was written during a military campaign; that self-help book was the *Meditations* of Marcus Aurelius. Members of this school held that sages of moral and intellectual perfection subsisted only on virtue. For 10 points, name this school of philosophy founded by Zeno of Citium, which taught that emotions were the result of errors in judgment.

ANSWER: Stoicism

<Gupta>

8. The speaker of this poem tells of how its subject "moves the wheels in the great world-clock", noting that that subject also "moves the spheres far out in Space" and calls forth flowers from their buds. Its penultimate stanza urges the reader to "close the holy circle tighter" and "swear by this golden wine". Its second stanza asserts that "above a starry canopy a loving Father must dwell" after dedicating a kiss to "the entire world" and enjoining the "millions" to "be embraced" in (*) brotherhood. It opens by referring to the title subject as the "beautiful spark of the gods" and the "daughter of Elysium". For 10 points, identify this poem by Friedrich Schiller used in the final movement of Beethoven's Ninth Symphony.

ANSWER: "Ode to Joy"

<Carson>

9. The sixth power of this quantity is proportional to the differential cross section of Rayleigh scattering. In Stokes' law, it is multiplied by the settling velocity, dynamic viscosity, and six pi to give drag. One form of this quantity is the ensemble average of the interparticle distance. The root mean square of distances from the center of gravity to the edge of a rigid body gives this quantity (*) "of gyration". The moment of inertia of a collection of particles is equal to the sum of the product of the mass times the square of this, and the moment of inertia is equal to two-fifths times the mass times this quantity squared for a solid sphere. For 10 points, name this value, the cube of which times four thirds pi gives a sphere's volume.

ANSWER: radius [or r or diameter or d; prompt on "size", "distance", "length", or "displacement"]

<Mukherjee>

10. John Randolph claimed that the only thing this legislation would manufacture was the next President of the United States. George McDuffie opposed it using a flawed Forty Bale theory, and four years later a similar bill was also opposed at the Columbia Convention. Its initial support came at the Harrisburg Convention. The president who signed this bill later served as chairman of the Committee on Manufactures to help (*) Henry Clay rewrite it. It created a conflict that led to the Webster–Hayne debate. This legislation was strongly opposed in the South Carolina Exposition and Protest by John C. Calhoun, and it was the direct cause of the nullification crisis. For 10 points, identify this import duty, nicknamed by the South for its distastefulness.

ANSWER: the Tariff of Abominations [or Tariff of 1828]

<Ueda>

11. The nomothetic–idiographic controversy was first popularized in a study of this concept by a man who, with Vernon and Lindzey, developed its "value scale." Defined as a function of heredity times environment by Gordon Allport, this concept was explained in a sixteen-factor theory by Raymond Cattell and divided by Hans Eysenck into (*) choleric, melancholic, sanguine, and phlegmatic types. It is classified by a "multiphasic inventory" developed at the University of Minnesota. Preferences for judging vs. perceiving or introversion vs. extroversion are represented by two of the four letters yielded by another test of this concept. The Myers–Briggs Type Indicator assesses, for 10 points, what indication of an individual's character often described as comprising traits?

ANSWER: personality

<Wynne>

12. This man wrote a pair of poems about a secret liaison called "Meeting at Night" and "Parting at Morning". He described what men "strive to do, and agonize to do, And fail in doing" in a passage that coined the maxim "less is more." This author wrote of a "sullen wind" that "tore the elm-tops down for spite" in a poem that begins "the rain set in early tonight". The speaker of that poem calmly remarks "and yet, God has not said a word!" after (*) strangling his lover with her own hair. A "faultless painter" is the subject of his "Andrea del Sarto", while another of his works tells of a woman with a heart "too soon made glad" who was painted by Fra Pandolf. For 10 points, name this author of dramatic monologues like "Porphyria's Lover" and "My Last Duchess."

ANSWER: Robert Browning

<Gupta>

13. A red frame supports the glass roof of the “Peace” one of these objects in Calgary. A large mast was used to create one of these objects for the Milwaukee Art Museum by the Catalan architect Santiago Calatrava, who also designed one for Turtle Bay Exploration Park. The founder of an art movement named for one of these objects depicted women in furs and men in top hats in the 1913 work, *Street, (*) Berlin*. A rabbit can be seen on one of these structures in *Rain, Steam and Speed*. They name an art movement founded by Ernst Kirchner and come in cantilevered and suspension varieties. For 10 points, name this type of expanse, such as the red Golden Gate one in San Francisco.

ANSWER: Bridges [or Die Brücke]

<Bentley>

14. The U.S. ambassador to this country, Robert Ford, was egged by protestors in September 2011. In this country's northeastern cities of Qamishli and Amoda, the Wifaq Party Council has taken effective control. Anthony Shadid, Gilles Jacquier, and Marie Colvin all died while reporting in this country, where the "Ghost" organization serves as pro-government hitmen. A group of officers in this country's military (*) defected after the siege of Daraa (dar-AH), and one siege in a conflict here saw tanks roll into Baba Amr. Kofi Annan drafted a peace plan for this country to stop the shelling of Homs, but violence by and against the Ba'th Party continues. For 10 points, name this country, which as of the Thursday before this tournament is ruled by Bashar al-Asad.

ANSWER: Syrian Arab Republic [or al-Jumhuriyya al-Arabiyya al-Suriyya]

<Mukherjee>

15. Victor of Tonnena reports that this person died of a painful cancer. Anathamus I hid in her quarters for twelve years. She created a convent called Metanoia for reformed prostitutes, and among her protégés was the banker Peter Barsymes. In one story, she performed a version of Leda and the Swan involving geese picking grain off her crotch. This enemy of John the Cappadocian and ally of (*) Narses instituted the death penalty for rape and outlawed forced prostitution. She was called "the most depraved of all courtesans" in the *Secret History* by Procopius, and she insisted that the government not go into exile during the Nika Revolts. For 10 points, name this contributor to the Corpus Juris Civilis, a Byzantine empress who was the wife of Justinian.

ANSWER: Empress Theodora

<Mukherjee>

16. The oldest solids formed in the solar system are inclusions enriched in calcium and this metal in chondrite meteorites. It's not magnesium, but one isotope of it has a 0.73-million-year half-life and is used as a clock for early solar system events. With clay and iron, this metal is leached from the E horizon. Except for quartz, all tectosilicates contain this element. Corundum is a crystalline form of this element's oxide. Along with silicon, oxygen, calcium, and alkalis, this metal is found in a mineral that comes in orthoclase and plagioclase types and is the (*) most common rock-forming mineral in the crust; that mineral is feldspar. Cryolite is used to extract this metal in the Hall–Heroult process from bauxite. For 10 points, name this most abundant metal in the Earth's crust.

ANSWER: aluminium [or aluminum or Al]

<Voight>

17. In *Works and Days*, Hesiod relates that Zeus destroyed the first generation of heroes by forcing a conflict over this person's sheep. This man's father-in-law Menoeceus leapt from the walls of the city he ruled to end a plague. This person speared Polyphontes to death after getting his foot run over by a chariot wheel. This man was spared the fate of being exposed upon Mount (*) Cithaeron, instead arriving at the court of Periboea and Polybus. This clubfooted person blinded himself with a pin during his catharsis. At a place where three roads met, he killed Laius and later married Jocasta after correctly answering "man" to the riddle of the Sphinx. For 10 points, name this Theban who was fated to kill his father and marry his mother.

ANSWER: Oedipus

<Gupta>

18. The activation of the phosphatidylserine receptor triggers this process. This process is followed by a pathway in which NADPH oxidase and myeloperoxidase create an oxidative burst. Streptococcal M protein prevents this process, as do polysaccharide capsules. The binding of complement proteins and antibodies primes this action in a process known as opsonization. It results in the creation of a (*) vesicle which then fuses with a lysosome, and among the cells capable of it are microglia and neutrophils. Other cells that perform this action differentiate from monocytes and are known as macrophages. For 10 points, name this process in which cells engulf debris and food from their surrounding environment, whose name means "cell eating".

ANSWER: phagocytosis [prompt on "endocytosis"]

<Mukherjee>

19. The phrase "men without skin" appears in this novel's three chapters of first-person "unspeakable thoughts." One character in this novel mutters "that ain't her mouth" to an image of a woman in a newspaper. Its characters include a man whose heart is like a rusted "tobacco tin" after he escapes a chain gang in Alfred, Georgia and the ferryman Stamp (*) Paid. This novel contains a passage set before Schoolteacher's arrival in which Baby Suggs' son Halle engages in bestiality like the other men of Sweet Home, Kentucky. Paul D and Denver both try to resist the effects of this novel's title character. For 10 points, identify this 1987 novel whose title ghost haunts its fugitive slave mother Sethe [SETH-uh], a work of Toni Morrison.

ANSWER: Beloved

<Jackson>

20. One ruler of this dynasty was killed by a bolt of lightning after committing blasphemy by shooting a leather bag of blood. Its first ruler overthrew a predecessor who built the obscenely expensive Tilt Palace. Its final ruler's acts of insanity included creating a pool of alcohol underneath a tree of roasted meat, and that ruler's downfall was mythologized in the *Investiture of the Gods*. This dynasty's forces were defeated by King Wu at the Battle of (*) Muye. Many events from this dynasty are recorded through a form of pyromancy written on turtle shells and oracle bones. This dynasty had its capital near Anyang and succeeded the Xia (SHEE-uh) dynasty. For 10 points, name this earliest historical Chinese dynasty, which was supplanted by the Zhou.

ANSWER: Shang dynasty

<Mukherjee>

21. The second pope of this name attempted to quash the conciliar movement with the bull *Execrabilis*. The fourth pope of this name issued the Tridentine Creed, and the fifth pope of this name excommunicated Elizabeth I. The sixth and seventh popes of this name were both taken prisoner and exiled by Napoleonic forces. David Dalin and John Cornwell each wrote studies of another pope of this name. One pope of this name reigned for a (*) record thirty-one years and, between 1860 and 1870, lost the Papal States to unification forces. For 10 points, identify this papal name borne by the "prisoner of the Vatican" and by Eugenio Pacelli, the so-called "Hitler's Pope" who reigned during World War II.

ANSWER: Pius

<Thompson>

22. One part of the brain that processes this sense is area MT. Another area key to this sense is organized into thick, thin, and pale stripes. Cytochrome oxidase blobs and dominance columns govern the organization of the main processing center of this sense, which in turn outputs to the dorsal and ventral stream. The lenticulostriate pathway sends signals of this sense from the lateral geniculate nucleus to the striate cortex in the occipital lobe. The (*) nerve responsible for this sense crosses over in a chiasm next to the pituitary gland. This sense's output is organized via center-surround inhibition of ganglion cells, which in turn receive input from rhodopsin-containing rod and cone cells in the retina. For 10 points, name this sense whose organ is the eye.

ANSWER: vision [or equivalents like seeing, sight, etc.]

<Mukherjee>

23. This poem's speaker states "I am a part of all that I have met" after asserting "I am become a name". Its speaker says that another character's job will be "to make mild a rugged people" and to "subdue them to the useful and the good". Its second stanza ends with the speaker declaring his desire "to follow knowledge like a sinking star, beyond the utmost bound of human thought". The speaker claims to "mete and dole (*) unequal laws unto a savage race" in this poem's first stanza. Its title character complains of "how dull it is to pause" and asserts "I cannot rest from travel; I will drink life to the lees". For 10 points, name this poem about a man who desires "to strive, to seek, to find, and not to yield", a Tennyson poem about a restless king of Ithaca.

ANSWER: "Ulysses"

<Gioia>

24. One theorem about this practice posited by Duncan Black states that its outcome tends toward the median. One method of performing this action finds a maximum likelihood sequence by finding the minimum bubble sort distance, called the Kemeny-Young method, and another method is the Borda Count. No method of doing this can have unrestricted domain, non-dictatorship, independence of irrelevant alternatives, and Pareto efficiency according to (*) Arrow's impossibility theorem. Variations of it include the single-transferable, instant runoff, and Condorcet method. The number of people participating in any one instance of this process is the turnout. For 10 points, name this practice, which is used to select leaders and representatives in a democracy.

ANSWER: voting [accept word forms; accept elections or other reasonable equivalents; accept counting votes]

<Mukherjee>

1. This Jewish holiday is held every year on the 15th day of Nisan. For 10 points each:

[10] Name this holiday that recalls the events surrounding the flight of the Israelites from Egypt. Before this holiday, all chametz, or leavening agents, must be removed from the home.

ANSWER: **Passover** [or **Pesach**]

[10] On Passover, families eat this ritual meal with accompanying text given by a Haggadah. It starts with the Kadesh and includes four questions asked by the youngest child.

ANSWER: **seder** meal

[10] D'tzach Adash B'achav is an acronym that may be recited after performing this action, which symbolizes the lessened joy caused by the suffering from the plagues afflicted on Egypt.

ANSWER: **spilling** ten drops of **wine** [**removing** ten drops of **wine** from a cup; the number may vary; accept all phrases that mean the same thing]

<McNamara>

2. For 10 points each, answer the following about power series.

[10] This kind of power series expands a function about a point a as a power series of the quantity x minus a , where the coefficient of x minus a to the n th power is equal to the n th derivative of the function at a , divided by n factorial.

ANSWER: **Taylor** series expansion

[10] For a power series to have this property, the limit of the power series as the number of terms goes to infinity must be finite.

ANSWER: **convergence** [or word forms like **convergent**]

[10] This test finds the interval of convergence for a power series by computing the limit as n goes to infinity of the absolute value of the $n+1$ th term of the series divided by the absolute value of its n th term.

ANSWER: **ratio** test

<Wynne>

3. Identify the following about some innovators from the Industrial Revolution, for 10 points each.

[10] Although Thomas Newcomen developed a commercially viable one of these devices, a later Scottish inventor added the condensation chamber, which vastly improved their power.

ANSWER: **steam engines**

[10] This man constructed an early submarine called the *Nautilus* but is better known for his pioneering *North River Steamboat*.

ANSWER: Robert **Fulton**

[10] James Hargreaves invented this device, whose inspiration supposedly came from an incident where his child overturned a wheel. It allowed an individual to process multiple threads at once and was first employed in a factory co-owned with Thomas James.

ANSWER: **spinning jenny**

<Bentley>

4. This composer paid homage to friends who died in World War I in *Le Tombeau de Couperin*. For 10 points each:

[10] Name this French composer of *Daphnis et Chloé* who composed a seventeen-minute-long crescendo based on a slow Spanish dance in his orchestral work *Boléro*.

ANSWER: Maurice **Ravel**

[10] Ravel arranged the standard orchestration of this suite originally composed for piano. Its movements include "Limoges" and "Ballet of the Unhatched Chicks."

ANSWER: ***Pictures at an Exhibition*** — *A Remembrance of Viktor Hartmann* [or ***Pictures from an Exhibition***; or ***Kartinki s vystavki*** — *Vospominaniye o Viktore Gartmane*]

[10] This work by Ravel consists of five "children's pieces," including one depicting a conversation between Beauty and the Beast. Its first two movements are based on Charles Perrault's fairy tales.

ANSWER: ***Mother Goose*** [or ***Ma mère l'oye***]

<Thompson>

5. Utility is maximized where the budget constraint line is tangent to one of these figures. For 10 points each:

[10] Name this graphical representation of consumer preferences over combinations of two goods.

ANSWER: **indifference curves**

[10] The slope of the indifference curve is the "marginal" form of this measure, the rate at which one is willing to exchange one type of good for another.

ANSWER: **substitution** [or marginal **substitution** rate, **substitute** goods, and other word forms]

[10] Diminishing marginal substitution rates imply indifference curves possess this mathematical property. Having this property is equivalent to saying that if two bundles of goods are individually preferred to a third, then the weighted average of those bundles is also preferred to the third.

ANSWER: strictly **convex** [do NOT accept "concave"]

<Bailey>

6. At the end of this work, Aureliano discovers his fate by translating Melquiades' Sanskrit texts as a storm destroys Macondo. For 10 points each:

[10] Name this Gabriel García Márquez novel about the decay of the Buendía family.

ANSWER: ***One Hundred Years of Solitude*** [or ***Cien Años de Soledad***]

[10] This wife of Jose Arcadio serves as the matriarch who holds the Buendía family together. She lives to the age of a hundred and has shrunk to the size of a baby by the time she dies.

ANSWER: **Úrsula** Iguarán Buendía

[10] Úrsula frequently warns members of the Buendía family not to commit incest, lest they produce a baby with this physical defect. At the end of the novel, Aureliano and Amaranta do commit incest, producing a baby with this defect that is eaten by ants.

ANSWER: having the **tail** of a **pig** [or equivalents; prompt on "having a tail" or equivalents; accept "having a curly tail" or equivalents]

<Bollinger>

7. Members of a violent nationalist movement in this territory staged a shooting at the US House of Representatives in 1954. For 10 points each:

[10] Identify this Caribbean territory, currently a Commonwealth of the U.S. The Foraker Act established the civilian government in this place, which was governed by Rexford Tugwell for a time.

ANSWER: **Puerto Rico**

[10] Two Puerto Rican nationalists, Oscar Collazo and Griselio Torresola, tried to assassinate this U.S. President, whose domestic policy was known as the Fair Deal.

ANSWER: Harry S **Truman**

[10] The attack on Truman took place at this Pennsylvania Avenue residence, the President's guest house. Truman was living there while the White House underwent renovations.

ANSWER: **Blair** House

<Thompson>

8. This man developed a progressivist, science-influenced system of "Synthetic Philosophy." For 10 points each:

[10] Name this British thinker who railed against creeping socialism in *The Man Versus the State*. He doubted the state's ability to enforce "the law of equal freedom" in *Social Statics*.

ANSWER: Herbert **Spencer**

[10] Herbert Spencer considered his social views to be in tandem with this biologist, whose voyage on the *Beagle* inspired *On the Origin of Species*.

ANSWER: Charles [Robert] **Darwin**, FRS

[10] This living American atheist contrasted the "skyhook" and "crane" models of change, and defended evolution as an explanation for things such as minds and machines, in his book *Darwin's Dangerous Idea*.

ANSWER: Daniel [Clement] **Dennett**

<Jackson>

9. Name these 20th-century playwrights from the British Isles, for 10 points each.

[10] This playwright of *Arms and the Man* and *Major Barbara* wrote about Professor Henry Higgins teaching Eliza Doolittle to speak elegantly in his play *Pygmalion*.

ANSWER: George Bernard **Shaw**

[10] This author of *Hay Fever* and *Private Lives* wrote about Charles Condomine holding a séance with Madame Arcati, who accidentally summons the angry spirit of his first wife, in the play *Blithe Spirit*.

ANSWER: Noel Peirce **Coward**

[10] Willy Brandt discovers that his secretary Gunter Guillaume is a spy in this man's play *Democracy*. This author of the sardine-laden farce *Noises Off* wrote about a meeting between physicists Werner Heisenberg and Niels Bohr in *Copenhagen*.

ANSWER: Michael J. **Frayn**

<Gioia>

10. The coefficient in this law is RT divided by the moles of electrons transferred times Faraday's constant. For 10 points each:

[10] Name this equation which is used to find the reduction potential of an electrochemical cell. Generalizing it to multiple ions gives the Goldman–Hodgkins–Katz equation.

ANSWER: **Nernst** equation

[10] The Nernst equation's logarithm contains this quantity, which is equal to the equilibrium constant when the reaction is at equilibrium. It is symbolized Q .

ANSWER: **reaction quotient** [prompt on partial answer]

[10] These u-shaped electrolyte-filled tubes connect the two half-cells of an electrochemical cell to ensure that the reaction can continue, rather than being stopped by charge separation.

ANSWER: **salt bridges** [prompt on partial answer]

<Mukherjee>

11. This woman was told the story of Iphis and Anaxarete by an old woman, who was really her future lover in disguise. For 10 points each:

[10] Name this wood nymph and fruit goddess successfully wooed by Vertumnus.

ANSWER: **Pomona**

[10] Pomona's orchard bore many fruits, most famously this kind. Another fruit of this type was marked "for the fairest" and thrown by Eris.

ANSWER: **apple**

[10] Vertumnus claimed that the story of Iphis and Anaxarete was well-known on Cyprus, one of the chief cult centers of this deity who was once ensnared in a net with Ares.

ANSWER: **Aphrodite** [or **Venus**]

<Wynne>

12. The ratio of this measure to the induced strain is equal to Young's modulus, and it is represented at a particular state by Mohr's circle. For 10 points each:

[10] Identify this measure of the force per unit area upon a continuous, deformable object. Like pressure, it is measured in pascals.

ANSWER: **stress**

[10] Placing a stress on an object past this point causes it to start deforming in a non-linear fashion.

ANSWER: **yield** point

[10] One method of analyzing the effects of stress on a beam is to model it as a series of rigid objects that are interconnected by springs. That method is given this name.

ANSWER: **finite element** method [or **FEM**]

<Mukherjee>

13. This man ordered the Jujuy (hoo-hwee) Exodus while a member of the Primera Junta. For 10 points each:

[10] Identify this man who launched a decisive counterattack at the Battle of Tucumán and later promoted the Inca plan. The Sun of May was added to a flag he created for his country, and he was the namesake of a warship sunk in 1982.

ANSWER: General Manuel José Joaquín del Corazón de Jesús **Belgrano**

[10] Belgrano is an important libertador of this country, which declared independence from Spain in 1816. It was later ruled by "caudillos" such as Juan Facundo Quiroga and Juan Manuel de Rosas.

ANSWER: **Argentina** [or the **Argentine Republic**; or la **República de Argentina**; or the **United Provinces of the Río de la Plata**; or **Provincias Unidas del Río de la Plata**]

[10] This Argentine ruler was supported by the *descamisados*, or "shirtless ones", and paid off his country's debt to the Bank of England. He was ousted in 1976 by Jorge Videla.

ANSWER: Juan Domingo **Perón**

<Bentley>

14. In this opera's third act, comic relief is provided by Vasek, who is convinced to put on a bear's costume. For 10 points each:

[10] Name this nationalistic opera in which Kecal attempts to prevent Marenka from marrying Janik.

ANSWER: *The **Bartered Bride*** [or ***Prodaná nevěsta***]

[10] *The Bartered Bride* was written by this 19th-century Czech composer who depicted the Vltava River in *Ma vlast*.

ANSWER: Bedřich **Smetana**

[10] *Ma vlast* consists of six of these pieces, orchestral works which evoke a novel, painting, or landscape. Russian examples of them include Alexander Borodin's *In the Steppes of Central Asia* and Modest Mussorgsky's *Night on Bald Mountain*.

ANSWER: **symphonic poems** [or **tone poems**]

<Magin>

15. Opposite sides of this region contain "Freedom Village" and "Propaganda Village," the former of which only women can marry into and the latter of which has no permanent residents. For 10 points each:

[10] Name this four-kilometer-wide region surrounding the armed border between North and South Korea.

ANSWER: **Demilitarized Zone** [or **DMZ**; prompt on "38th Parallel"]

[10] Until 2010, Propaganda Village held the record for the tallest one of these objects, at an astonishing 160 meters. That record has since been surpassed by objects of this type designed by David Chambers in Baku, Azerbaijan, and Dushanbe, Tajikistan.

ANSWER: **flagpoles**

[10] The DMZ is an important wintering area for the endangered red-crowned variety of this bird, an Asian symbol of longevity. Strings of origami representations of this bird can be found at the Hiroshima Peace Park.

ANSWER: **cranes**

<Wynne>

16. This author's works include *Rudin*, *Torrents of Spring*, and the novella *Diary of a Superfluous Man*. For 10 points each:

[10] Identify this Russian author who wrote about Arkady Kirsanov's attempts to become a nihilist out of admiration for his friend in his 1862 novel *Fathers and Sons*.

ANSWER: Ivan Sergeyevich Turgenev

[10] The aforementioned nihilist from *Fathers and Sons* is this character, a medical student who falls in love with Madame Odintsova but dies of typhus.

ANSWER: Yevgeny Vassilievitch Bazarov [accept either underlined name]

[10] Turgenev was put under house arrest after publishing this work, which contains "Khor and Kalinych", "Bezhin Meadow", "My Neighbor Radilov", and "Hamlet of the Shchigrovsky District".

ANSWER: A Sportsman's Sketches [or A Hunter's Sketches; or Scenes from A Hunter's Album; or Zapiski Okhotnika]

<Graebner>

17. The temperature is decreased during each cycle in the touchdown variant of this procedure, in which reverse transcriptase is used when creating a cDNA library. For 10 points each:

[10] Identify this technique in molecular biology invented by Kary Mullis, which uses Taq polymerase to make several million copies of a template strand of DNA or RNA.

ANSWER: PCR [or polymerase chain reaction]

[10] This step in the PCR cycle usually requires a great deal of optimization and usually has a temperature of between 50 and 60 degrees Celsius. It is the step at which primers hybridize to the template.

ANSWER: annealing step

[10] Templates that are particularly rich in guanine or this other nucleotide tend to resist coming apart during the PCR reaction. This nucleotide forms three hydrogen bonds with guanine.

ANSWER: cytosine

<Mukherjee>

18. One character repeatedly inveighs against "mendacity" in this play, which centers on the birthday party of Big Daddy Pollitt, who is dying of cancer. For 10 points each:

[10] Identify this work whose title character, Maggie, lies about being pregnant in order to secure Big Daddy's inheritance for her husband Brick and herself.

ANSWER: Cat on a Hot Tin Roof

[10] This American playwright's favorite of his own plays was *Cat on a Hot Tin Roof*. He also wrote *The Glass Menagerie* and *A Streetcar Named Desire*.

ANSWER: Tennessee Williams [or Thomas Lanier Williams III]

[10] In this one-act Tennessee Williams play, Violet Venable attempts to prevent Catherine Holly from revealing that her pederast cousin Sebastian had been killed and eaten by young boys while in Europe.

ANSWER: Suddenly, Last Summer

<Bentley>

19. This artist clasps his gloved hands together and is seated next to an open window in his *Self-Portrait with Landscape*. For 10 points each:

[10] Name this artist who stares front-on at the viewer in a self-portrait where he has long, curly locks. He also created a watercolor called *The Great Piece of Turf*.

ANSWER: Albrecht **Durer**

[10] A cat is about to pounce on a mouse on the bottom of an Albrecht Durer engraving of these two figures. The female receives an apple from a snake, while both of these people are covered by fig leaves.

ANSWER: **Adam** and **Eve**

[10] In this Master Engraving by Durer, one of the three title figures wears a crown decorated with live snakes. The central armored figure in this engraving rides a horse and is accompanied by his dog.

ANSWER: ***Knight, Death and the Devil*** [or ***Ritter, Tod und Teufel***]

<Bentley>

20. Lindsey Hughes wrote several works about this man, who employed the former slave general Abram Gannibal. For 10 points each:

[10] Name this tsar who traveled to Europe secretly in the Grand Embassy and won the Great Northern War against Swedish king Charles XII.

ANSWER: **Peter** the **Great** [or **Peter I** Romanov; or **Pyotr Alexeyevich Romanov**; prompt on **Peter**]

[10] Peter the Great's Table of Ranks created a hierarchy of nobility, causing conflict with these Russian nobles. Peter abolished their Duma and ordered them to pay a beard tax.

ANSWER: **boyars**

[10] Peter established the shipyard in this White Sea port city. During World War II, this site and Murmansk were used as delivery points for the Arctic Convoys bringing supplies to Russian troops.

ANSWER: **Arkhangelsk**

<Mukherjee>

21. This novel is framed by introductory letters between Parsons Tickletext and Oliver. For 10 points each:
[10] Name this satirical work, published under the name "Conny Keyber", whose title character shamelessly manipulates her "virtue" to trick Squire Booby into marrying her. It parodies an earlier epistolary novel about a character who eventually marries her master Mr. B.

ANSWER: *An Apology for the Life of Mrs. Shamela Andrews*

[10] The author of *Shamela* is most famous for this novel, whose title character is taken in by Squire Allworthy and marries Sophia Western.

ANSWER: *The History of Tom Jones, a Foundling*

[10] This English satirist co-founded the Bow Street Runners when he wasn't busy writing works like *Joseph Andrews*, *Shamela*, and *Tom Jones*.

ANSWER: Henry Fielding [or Captain Hercules Vinegar]

<Gioia>

22. This law gives an explanation for why the earth's radial velocity increases the closer its orbit takes it to the sun. For 10 points each:

[10] Identify this law which states that a body orbiting a larger, stationary body sweeps out equal areas per unit time

ANSWER: Kepler's second law

[10] Johannes Kepler's largest contribution to physics is his realization that orbits have this shape, rather than circular shapes. This conic section has an eccentricity between zero and one.

ANSWER: ellipse

[10] This is the point in an elliptical orbit where an orbiting body is closest to the body it orbits.

ANSWER: periapsis [generously accept perihelion or perigee or periastron]

<Mukherjee>

23. This dynasty declined after the death of Dagobert I during the reign of the do-nothing kings. For 10 points each:

[10] The Arnulfings came to dominate what long-haired dynasty, which earlier suffered during a feud between Brunhilda and Fredegunde?

ANSWER: Merovingian dynasty

[10] This son of Childeric I first unified the Franks and founded the Merovingian dynasty. When he was baptized by St. Remigius, he became the first Frankish king to convert to Catholicism.

ANSWER: Clovis I

[10] The history of the Merovingian Dynasty was chronicled by Saint Gregory of this location.

ANSWER: Tours

<Ueda>