

1. This composer wrote a work that describes a sergeant barking at his soldiers to count faster. A male chorus singing the "Shema Yisroel" concludes that work by this man, in which a narrator reads an account of Jews being rounded up in a ghetto. This composer used a controversial "inverted ninth" chord in a string sextet inspired by a poem about a woman telling her lover that she is bearing another man's child that was written by (*) Richard Dehmel. This composer of *A Survivor from Warsaw* developed a system by which all the pitches of a chromatic scale are arranged without repetition into a "tone row". For 10 points, name this composer of *Transfigured Night*, a leader of the Second Viennese School who developed "twelve-tone technique".

ANSWER: Arnold Schoenberg

<Lawrence>

2. This man's wife and a flying figure of Nike were removed from a painting in which he stands behind a group of black-robed men passing out black and gold cylinders. This man's mother was ahistorically placed in a painting that also depicts the Turkish emissary Halet Efendi and a crown being lowered onto the head of this man's wife. His name, along with those of Charlemagne and (*) Hannibal, appears on rocks at the foot of a painting in which he gestures upward from atop a rearing horse. A clock reading 4:13 a.m. and a scroll on which the word "Code" is partly visible appear with this man in one of the most famous hand-in-waistcoat portraits. For 10 points, name this man whose coronation and crossing of the Alps were depicted by Jacques-Louis David.

ANSWER: Napoleon Bonaparte [or Napoleon I; prompt on "Bonaparte"]

<Carson>

3. An organization named for this woman was founded with money from *Lusitania* survivor George Kessler. While still a girl, she unintentionally plagiarized from Margaret Canby's "The Frost Fairies" for her story, "The Frost King." This onetime student of the Wright-Humason School detailed how the 1912 Lawrence Textile Workers Strike turned her on to Socialism in her essay, "Why I Became an IWW." She was sent an instructor from the (*) Perkins Institution following a meeting with Alexander Graham Bell. After suffering from scarlet fever as an infant, this woman was taught by Anne Sullivan, a story which inspired William Gibson's play *The Miracle Worker*. For 10 points, name this deaf and blind woman.

ANSWER: Helen Adams Keller

<Bentley>

4. The rate of this process varies with the exponential of the interfacial energy cubed times molecular volume squared, and the critical radius at which it occurs equals twice the surface energy over the Gibbs volume energy. Louis Pasteur used this process to separate the enantiomers of sodium ammonium tartrate. A purification technique making use of this process takes a slurry and dissolves impurities in a hot common solvent. This process requires a "seed" upon which (*) nucleation can occur; otherwise, during fusion, supercooling occurs rather than this process. Supersaturated solutions spontaneously undergo this process. For 10 points, name this process similar to precipitation which forms ordered, solid products from a solution.

ANSWER: crystallization [or recrystallization; or crystal formation or same-knowledge equivalents; prompt on nucleation before it is read; prompt on precipitation; prompt on freezing]

<Silverman>

5. This modern country is the setting of Elspeth Huxley's *Red Strangers*. An author from this country described the Marching to Heaven project, constructed by the autocratic Ruler of the Free Republic of Abruria, in a 2006 novel. That author from this country wrote a novel in which General R. executes Mugo, who reveals that he had betrayed the killer of District Officer Robson, a resistance fighter named Kihika. The author of (*) *Wizard of the Crow* and *A Grain of Wheat* is from this country, which is the setting of a book whose protagonist has an affair with Denys Finch-Hatton after taking over Bror's coffee plantation. For 10 points, name this setting of Isak Dinesen's *Out of Africa*, the home country of Gikuyu author Ngugi wa Thiongo.

ANSWER: Republic of Kenya [or Jamhuri ya Kenya; prompt on "British East Africa"]

<Carson>

6. This god was flying as a hawk when Geirroth captured him to make this god bring an enemy to Geirroth's castle. This god misguidedly attacked an ox-devouring eagle with a staff, starting a crisis he ended by turning Idunn into a nut. In the Volsung Saga, this god retrieves cursed gold for Hreidmar as a wergild for killing Otr. This god arranged Thiazzi's death, leading (*) Skadi to vow revenge against him. He accompanied a cross-dressing Thor on a mission to retrieve Mjollnir from Thrym. This god's wife Sigyn catches the poison that a snake drips onto him until he is freed at Ragnarok, where he will kill and be killed by Heimdall. For 10 points, name this Norse trickster god.

ANSWER: Loki

<Bollinger>

7. This poem asserts that the only school for the soul is "studying monuments of its own magnificence," and it closes by describing "Grecian goldsmiths" who "keep a drowsy Emperor awake" and a form that tells of "what is past, or passing, or to come." The narrator of this poem asks figures "in the gold mosaic of a wall" to "consume my heart away," and those (*) "sages standing in God's holy fire" must help the poet "into the artifice of eternity." Unless "soul clap its hands and sing, and louder sing," this poem claims, "an aged man is but a paltry thing, a tattered coat upon a stick." The narrator of this poem leaves home because it is "no country for old men." For 10 points, name this W.B. Yeats poem about a voyage to a city renamed Constantinople.

ANSWER: "Sailing to Byzantium"

<Mehigan>

8. Mean difference is divided by this quantity to calculate Cohen's d, which measures effect size. This quantity equals the square root of the quantity number of trials times probability of success times probability of failure for a binomial distribution. It is squared in the denominator of Chebyshev's inequality, which guarantees at least a certain number of values close to the mean of a distribution. This quantity is multiplied by the square root of two pi in a denominator to normalize the (*) Gaussian distribution. The difference between a score and the mean is divided by this quantity to calculate z-scores. It equals the square root of the expected value of the quantity score minus mean, quantity squared. For 10 points, name this square root of variance.

ANSWER: standard deviation

<Reinstein>

9. According to legend, a gate in this city gave a notch to the sword Szczerbiec when struck by the Polish king Boleslaw the Brave. The Church of the Tithes replaced a pagan temple in this city after a mass conversion, according to a history attributed to the monk Nestor, the *Primary Chronicle*. A ruler from here married the Byzantine princess Anna Porphyrogeneta before a succession crisis between the brothers Sviatopolk the Accursed and (*) Yaroslav the Wise. A ruler originally from Novgorod, Oleg, began a Rurikid line here which included Vladimir the Great. More recently, this city was the site of the anti-Jewish Babi Yar massacre. For 10 points, name this city which once ran a pre-Russian "Rus" state, the center of the 2004 Orange Revolution.

ANSWER: Kiev [or Kievan Rus]

<Liu>

10. This modern-day country contains a still-extant kingdom whose king, or Kabaka, is Muwenda Mutebi II. After this country's Luwero War in the 1980s, short-ruling president Tito Okello was replaced with a leader of the National Resistance Army. An earlier leader of this country persecuted the Acholi and Langi ethnic groups and offered safe harbor to Air France Flight 139's (*) Palestinian hijackers. Israel's Entebbe raid took place in this country after the ouster of Milton Obote and the expulsion of its South Asian population. Its leader since 1986, Yoweri Museveni, dealt with the Lord's Resistance Army. For 10 points, name this country once led by Idi Amin, who called himself "The Last King of Scotland" despite ruling from Kampala.

ANSWER: Republic of Uganda

<Hart>

11. The speaker of one of this author's poems wonders what would happen if the title figure "had answered No, When forth the tremulous question came that cost the maiden her Norman name" in a poem addressed to a portrait of his great-grandmother and entitled "Dorothy Q." Another poem by this man describes an object that "No more shall feel the victor's tread, Or know the conquered knee," and opens with the exhortation "tear her (*) tattered ensign down!" This man's best known poem describes an animal that continually "left the past year's dwelling for the new" "as the spiral grew," and in that poem, he asks his soul to "Build thee more stately mansions." For 10 points, name this author of "Old Ironsides" and "The Chambered Nautilus."

ANSWER: Oliver Wendell Holmes, Sr.

<Bentley>

12. The "alpha 2b beta 3" integrin is found on these cells, which are the namesake of a phospholipid "activating factor" that binds to leukocyte integrins during extravasation. Kistrin binds to receptors present on these cells. Like enterochromaffin cells, they act as reservoirs of serotonin for the body. These cells are activated by ADP, which they store in their dense granules. They are produced by megakaryocytes. A cascade of serine proteases in the (*) extrinsic and intrinsic pathways forms a protein that binds to these cells. A glycoprotein on these cells binds to the von Willebrand factor. Fibrin, formed from its zymogen by thrombin, meshes these cells together during secondary hemostasis. For 10 points, name these cells which aggregate in a blood clot.

ANSWER: platelets [or thrombocytes]

<Silverman>

13. The coefficient for this process in a transmission line is equal to the standing wave ratio, gamma, minus one over quantity gamma plus one. Thin films designed to avoid this process typically have an index of refraction equal to the square root of the surface's and a quarter-wavelength thickness. The distinction between a "rough" and "smooth" surface separates its (*) "diffuse" and "specular" types. If an unpolarized wave undergoes this process at Brewster's angle, it becomes linearly polarized. If this process occurs from a low-n to high-n medium, the light has a phase change of 180 degrees. The law of this process states that only direction is changed, so its angle is equal to the angle of incidence. For 10 points, name this process for which one typically uses a mirror.

ANSWER: reflection [do not accept "refraction"]

<Bentley>

14. The protagonist of this poem cites Adam, Solomon, Samson, and David as other noble men deceived by women near its conclusion, which hearkens back to its opening about when the "siege and assault had ceased at Troy." This poem was written using a pattern of a short alliterative bob and a rhyming, four-line wheel. The two title characters of this poem agree to (*) re-convene a year and a day after the opening scene, causing the protagonist to journey to the castle of Lord Bertilak, where he is given a ring and magic girdle. This creation of the Pearl Poet opens when an axe-wielding man is sent by Morgan Le Fay to King Arthur's court. For 10 points, name this Middle English romance depicting a beheading contest involving a knight of the round table.

ANSWER: Sir Gawain and the Green Knight

<Schindler>

15. The Capitoline Museums contain a statue of Pothos by Scopas that was restored as a version of this figure. The east pediment of the Siphnian treasury depicts a struggle between Heracles and this figure. Albrecht Dürer copied the pose of a sculpture of this figure for that of Adam in his engraving *Adam and Eve*. Johann Joachim Winckelmann raved about the perfection of that sculpture of this (*) god, which gets its name from a palace owned by Pope Julius II. It was originally thought that all *kouros* statues represented this god, who leans on a tree and prepares to capture or kill a lizard in a sculpture by Praxiteles. For 10 points, name this Greek god whose most famous sculptural depiction is found in the Belvedere palace.

ANSWER: Apollo [accept Apollo Citharoedus or Apollo Sauroktonos or Apollo Belvedere]

<Carson>

16. This man delivered the first speech arguing that the name Alaska, rather than "Russian America," should be used for the land bought by "Seward's Folly." This man was eulogized by Lucius Lamar of Mississippi, a speech which John F. Kennedy's *Profiles in Courage* cited for mending North-South relations. This man, who compared Andrew Butler to Sancho Panza in one speech, chaired the Senate Foreign Relations Committee during the (*) Trent Affair. Laurence Keitt brandished a pistol and shouted "let them be!" as this man was retaliated against for his speech "The Crime Against Kansas." For 10 points, name this Radical Republican, an anti-slavery Massachusetts senator whom Preston Brooks attacked in the Senate chamber with a cane.

ANSWER: Charles Sumner

<Hart>

17. One work by this man opens by examining a "particular picture" of language from the *Confessions* of St. Augustine. This philosopher imagined a builders' vocabulary made of words like "block" and "slab" in a work that distinguishes between "seeing that" and "seeing as something else". This thinker argued that because there is nothing common to all games, they must be characterized by a family (*) resemblance. In his later work, this man demonstrated the impossibility of a private language with the "beetle in a box" thought experiment. In another work, this philosopher concludes that "what we cannot speak of, we must pass over in silence." For 10 points, name this author of *Philosophical Investigations* and *Tractatus Logico-Philosophicus*.

ANSWER: Ludwig Josef Johann Wittgenstein

<Kothari>

18. Hicksian demand can be recovered with the Slutsky equation if Marshallian demand and this phenomenon are both known. As wages increase, this phenomenon will start to predominate, causing the backward-bending labor supply curve. This phenomenon can be visualized by plotting a budget line parallel to the original on indifference curves. It is positive for (*) normal goods and negative for inferior ones. It is theoretically possible for this effect to predominate when a good's price drops, leading to less of that good being consumed. A Giffen good is a good where this is larger than the substitution effect. For 10 points, name this effect a change in a consumer's total real wealth has on behavior.

ANSWER: income effect [or wealth effect until "wealth" is read]

<Bailey>

19. This man negotiated with Joel Brand in the "blood for trucks" scandal and misused stock phrases which he called "winged words." This employee of RHSA branch IV-B-4 was interrogated by Gideon Hausner about his actions in Budapest. This sometime user of the pseudonym Ricardo Klement compared himself to Pontius Pilate after meeting Reinhard (*) Heydrich and others at the Wannsee conference, according to reports in *The New Yorker* which emphasized his "thoughtlessness". This man sat in a glass box during a months-long trial ending with his 1962 hanging. For 10 points, name this subject of Hannah Arendt's "banality of evil" thesis, who was captured by Israel from Argentina for arranging the logistics of the Nazi Holocaust.

ANSWER: Adolf Otto Eichmann

<Jackson>

20. On a snowy day, one member of this group had chased a lion into a pit and killed it. A few members of this group went to procure a drink of water, but the recipient poured it out on the ground, asking "Is it not the blood of men who went at the risk of their lives?" The Bible places these men into divisions like the Three and the Thirty. Because a member of this group refused an order to go home and wash his feet, he was murdered by being placed in the (*) front lines, an act which prompted Nathan to admonish the giver of that order. Joab commanded this group, which included Bathsheba's husband Uriah the Hittite. For 10 points, name this group that fought for the killer of Goliath.

ANSWER: David's army [or the army of Israel; or the army of the Israelites; David's soldiers; or synonyms stating that these are men fighting for David; or David's Thirty and David's Three before they are mentioned; or or the Mighty Warriors]

<Gupta>

21. During World War II, this city produced the Higgins boat, a landing craft used on D-Day. A race riot erupted in this city after Robert Charles shot two white policemen. Slave rebels marched toward this city in the German Coast rebellion. During Reconstruction, the Battle of Liberty Place occurred in this city, where the Slaughterhouse cases were filed to test the Fourteenth Amendment. General Order Number 28 barred this city's women from insulting (*) Union troops while Benjamin Butler occupied it. Jean Lafitte's pirates helped defeat Sir Edward Pakenham in this city, home to a creole aristocracy. For 10 points, name this city whose namesake battle, fought two months after the Treaty of Ghent, made Andrew Jackson famous.

ANSWER: New Orleans, Louisiana

<Bentley>

22. This language was used to write "For a Swarm of Bees", one of twelve surviving metrical charms in this language. This language's "Rhyming Poem" is unusual because this language's verse is normally alliterative, not rhyming. A poem in this language about the story of Judith and Holofernes is found in the Nowell Codex. A partially extant poem from this language commemorates the Battle of (*) Maldon. In a poem in this language, a monstrous woman is killed by a magical sword in her home at the bottom of a lake, after she kills Aeschere. The hero of that poem is mortally wounded when he slays a dragon, and he saves the hall Heorot from the monster Grendel. For 10 points, name this language which was used to write *Beowulf*.

ANSWER: Old English [or Anglo-Saxon; do not accept or prompt on "English"]

<Nediger>

23. Phosphorylase kinase and phosphoprotein phosphatase, respectively, activate and repress synthesis of this substance. Astrocytes are capable of synthesizing and storing this substance. In Pompe's disease, it builds up in the lysosomes. McArdle's disease causes a mutation in a phosphorylase acting on this compound. Debranching enzyme acts on this substrate, which normally has only one reducing end because of its alpha (*) 1-6 linkages. The closest analog to this compound in plants is amylopectin. Beta-adrenergic receptors respond to epinephrine by signaling the breakdown of this substance to G6P. Synthesis of this polymer is activated by insulin. For 10 points, name this polymer of glucose stored in the liver and muscle cells.

ANSWER: glycogen

<Silverman>

24. An archaic form of this resource was implemented by Bell Labs using a piggyback twistor. A more recent form of this resource that was created using chalcogenide glass is named for the property of phase-changes. The access latency for this resource can be reduced by using a translation-lookaside buffer, as one can avoid looking up things in a page table entry. A redundant organization of this resource is performed by (*) RAID. The top of a "hierarchy" of this resource contains processor registers and cache. It can be divided into volatile and non-volatile, the latter of which includes hard drives. For 10 points, name this resource that is used for data storage, an example of which is RAM.

ANSWER: memory [or virtual memory; or physical memory; or storage until it is read; hard disk drive; or HDD; or disk drive; or computer disk; phase-change memory until "phase-changes" is read; or RAM until it is read; or random access memory until "RAM" is read]

<Jose>

1. Georges Cuvier's publication of *Essay on the Theory of the Earth* lent strong support to this theory, of which he would become a leading proponent. For 10 points each:

[10] Name this historical theory, which argued that the mountains and canyons of the world were created by many natural disasters.

ANSWER: **catastrophism**

[10] In an attempt to refute catastrophism, James Hutton published *Theory of the Earth*, which argues for this alternate theory, holding that the natural laws that operate today also operated in the geologic past.

ANSWER: **uniformitarianism** [or **gradualism**]

[10] This famous geologist accepted gradualism, in contrast to Cuvier, and wrote about it in his book *Principles of Geology*.

ANSWER: Charles **Lyell**

<Jose>

2. In his *Critique of Judgment*, Immanuel Kant contrasts the dynamical and mathematical kinds of one of these concepts, and describes one of them as "contrapurposive" for its ability to overwhelm the imagination. For 10 points each:

[10] Name these two aesthetic concepts. One of these is "joyous and smiling" and satisfies the senses, while the other is often associated with natural imagery and pleases by provoking terror.

ANSWER: the **beautiful** and the **sublime** [must have both underlined words; accept in either order; or word forms]

[10] The distinction between the sublime and the beautiful was the subject of a 1757 book by this Irish conservative, who also wrote *Reflections on the Revolution in France*.

ANSWER: Edmund **Burke**

[10] This German pessimistic philosopher invokes the sublime to explain how we can take pleasure in tragic drama in his *The World as Will and Representation*.

ANSWER: Arthur **Schopenhauer**

<Kothari>

3. The most recent edition of this book combined a series of diagnoses into "Autism Spectrum Disorder". For 10 points each:

[10] Name this book produced by the American Psychiatric Association that is used in the US to classify mental illnesses.

ANSWER: **DSM-5** [or **Dagnostic and **Statistical **Manual of Mental Disorders, Fifth Edition**]****

[10] The DSM-5 also eliminated the "bereavement exclusion" for this common mental disorder, characterized by sadness, despair, and lethargy. This condition often treated with drugs like Zoloft and Prozac.

ANSWER: **depression** [or clinical **depression**; or unipolar **depression**; or major **depressive** disorder; or **MDD**]

[10] Milder cases of depression are often treated with this form of talk therapy that combines the work of Aaron Beck and Albert Ellis. This form of therapy is goal-oriented and focuses on eliminating maladaptive actions and patterns.

ANSWER: **CBT** [or **cognitive **behavioral **therapy**]****

<Spencer>

4. Matthew Boulton pioneered the manufacture of these devices, which were improved by James Watt. For 10 points each:

[10] Name these devices, which were originally used to pump water out of coal mines and which provided power for many of the factories built during the Industrial Revolution.

ANSWER: steam engines [or steam pumps]

[10] The steam engine let this western port city connect to Manchester via an early commercial railway. The *Lusitania* sailed between New York and this city, whose namesake lord was Prime Minister in the 1820s.

ANSWER: Liverpool

[10] Earlier, this man had independently developed a steam engine which used a piston to rock a large beam back and forth. Although inefficient, his was the first to be widely adopted in mines and mills.

ANSWER: Thomas Newcomen

<Nutter>

5. Name these female characters from Russian literature, for 10 points each.

[10] This Tolstoy title character, the sister of Stepan Oblonsky, chafes in her marriage to the much older Alexei and so begins a doomed affair with Count Vronsky.

ANSWER: Anna Arkadyevna Karenina [accept either; accept Anna Karenin; prompt on "Karenin"]

[10] Boris Pasternak created this woman, who shoots the prosecutor Kornakov at a Christmas party. Later, she marries Pasha Antipov but carries on a long-term affair with her great love, Yuri Zhivago.

ANSWER: Lara [or Larissa Fyodorovna Antipova; or Larissa Fyodorovna Guishar; prompt on "Guishar" or "Antipov" or "Antipova"]

[10] In Dostoevsky's *The Idiot*, this former mistress of Totsky forms part of a love triangle with Prince Myshkin and Rogozhin, the latter of whom eventually marries and murders her.

ANSWER: Anastassya Filippovna Barashkov [accept either underlined portion]

<Carson>

6. Answer the following about the poetry of Emily Dickinson, for 10 points each.

[10] In "There's a Certain Slant of Light," the light goes "like the distance on the look of" this figure. In Dickinson's most famous poem, this figure kindly stops for her because she cannot stop for him.

ANSWER: Death

[10] Dickinson describes an event of this type as ending when "a Plank in Reason broke." The drum-like beating of this event causes the poet's mind to numb, and this event is felt in the poet's brain.

ANSWER: a funeral

[10] In "I taste a liquor never brewed", Dickinson describes landlords turning a drunken one of these animals "out of the foxglove's door". In "It's all I have to bring today," Dickinson presents the reader with the poem, her heart, and all of these animals "Which in the Clover dwell."

ANSWER: bees

<Mehigan>

7. Richard the Justiciar was the first duke of this region. For 10 points each:

[10] Name this historic region home to the abbey of Cluny. It fell under French sway after Charles the Bold's duchy lost to Louis the Spider King at Nancy.

ANSWER: **Burgundy** [or **Bourgogne**]

[10] After Charles the Bold's death, this man married Mary of Burgundy to take up the Flemish part of that duchy. At his death, this Holy Roman Emperor was succeeded by his grandson Charles V.

ANSWER: **Maximilian I**, Holy Roman Emperor [or **Maximilian**, Duke of **Habsburg**]

[10] Earlier, this white-and-black-robed Catholic order founded the Citeaux abbey in Burgundy to try and follow the Benedictine rule more closely than the Benedictines at Cluny.

ANSWER: **Cistercian** order

<Bentley>

8. Its last two winners designed the Sendai Mediatheque and the Centre Pompidou-Metz, respectively, and are both from Japan. For 10 points each,

[10] Name this annual prize, won in 2013 by Toyo Ito and in 2014 by Shigeru Ban, that was established in 1979 by a co-founder of the Hyatt hotel chain.

ANSWER: the **Pritzker** Architecture Prize

[10] This inaugural winner of the Pritzker Prize designed the Gate of Europe towers in Madrid and the Glass House in Connecticut. He also collaborated with Ludwig Mies van der Rohe on the Seagram building.

ANSWER: Philip Cortelou **Johnson**

[10] This architect was the first woman to win the Pritzker Prize, doing so in 2004. She won the competition to design the since-canceled Vilnius Guggenheim, while her completed projects include the Guangzhou Opera House and Cincinnati's Rosenthal Center.

ANSWER: Zaha Mohammad **Hadid**

<Karas>

9. They include Clio, whose domain is history, and Polyhymnia, whose domain is sacred music. For 10 points each:

[10] Name these nine goddesses who personified the arts.

ANSWER: the **Muses**

[10] Although some sources state it is Mt. Parnassus, the muses made this mountain their home. The Aganippe and Hippocrene fountains found at this mountain contained poetically-inspirational water.

ANSWER: Mount **Helicon**

[10] This creature made the Hippocrene fountain after he kicked the dirt at Mount Helicon. In another story, this creature is stung by a gadfly.

ANSWER: **Pegasus**

<Jose>

10. The amount of heat released by an element due to this scientist's namesake "heating" is proportional to the current squared. For 10 points each:

[10] Identify this scientist whose namesake "heating", also called ohmic heating, occurs in all conductors.

ANSWER: James Prescott **Joule**

[10] Joule's famous experiment invalidating caloric theory involved calculating the amount of this thing needed to produce an equivalent amount of heat. Outside of thermodynamics, it is commonly defined as the change in kinetic energy.

ANSWER: mechanical **work** [or thermodynamic **work**]

[10] In multivariate calculus, it is common to define the work as this operation of force dot d s, over a curve defined by the function s. In general, this operation is used when integrating a function along a curve.

ANSWER: **line** integral [or **path** integral; or **contour** integral; or **curvilinear** integral]

<Voight>

11. This city is home to the Independence Monument, Neutrality Monument, and Monument to the Constitution. For 10 points each:

[10] Name this city whose Alem Cultural and Entertainment Center was opened in 2012 by Gurbanguly Berdimuhamedow.

ANSWER: **Ashgabat**

[10] Ashgabat is the capital of this former Soviet republic. Most of the country is covered by the Karakum Desert.

ANSWER: **Turkmenistan**

[10] The twelve-foot gold-plated statue of Saparmurat Niyazov which tops the Neutrality Monument no longer performs this action, which it did when astride the previous monument.

ANSWER: **rotates** throughout the day to always face the sun [or equivalents]

<Karas>

12. Article 9 of this country's constitution renounced its right to engage in "war as a sovereign right of the nation." For 10 points each:

[10] Name this country whose most recent constitution was drafted under the supervision of Douglas MacArthur's occupying troops. This nation's surrender ended World War II.

ANSWER: **Japanese** empire [or **Nippon**; or **Nihon**]

[10] Under politicians like Sato Eisaku and Junichiro Koizumi, this political party has dominated Japanese politics since World War II.

ANSWER: **Liberal Democratic** Party [or **LDP**; do not accept or prompt on "Democratic Party of Japan"]

[10] The Allies partially dismantled these large Japanese business firms after the war, though many reformed to become *kigyo shudan* or "enterprise groups". They included companies like Mitsubishi.

ANSWER: **zaibatsu**

<Bentley>

13. Answer the following about astronomer Donald Lynden-Bell, for 10 points each.

[10] Lynden-Bell was one of the first astronomers to suggest that the center of these entities contained supermassive black holes. These gravitationally bound collections of lots of stars, gas, and dust include the Magellanic Clouds.

ANSWER: **galaxies**

[10] Lynden-Bell was one of the astrophysical "Seven Samurai", who proposed the existence of this super-massive object in between the Hydra-Centaurus Supercluster.

ANSWER: **Great Attractor**

[10] Lynden-Bell was also the first to suggest that quasars were powered by black holes. Quasars are this kind of compact region at the center of a galaxy, which are extra-luminous in Seyfert galaxies.

ANSWER: **active galactic nuclei** [accept **AGN**]

<Jose>

14. This man worked with Dolores Huerta and his brother Richard to organize a strike of grape-growers in Delano, California. For 10 points each:

[10] Name this Mexican-American activist and founder of United Farm Workers, who went on several hunger strikes on behalf of Chicano laborers.

ANSWER: Cesar Estrada **Chavez**

[10] The UFW adopted this specifically-colored symbol, which harkened back to the Aztec heritage of many Mexican-Americans.

ANSWER: a stylized **black eagle** [or an **Aztec eagle**; or **águila negra**; prompt on partial answers]

[10] Chavez lobbied for an end to this informally-arranged program between the US and Mexican governments. Started during World War II, it brought laborers across the border to work in the US.

ANSWER: **bracero** program

<Jackson>

15. A solo for the euphonium appears about a third of the way through this piece, which is dominated by an ostinato rhythm consisting of a triplet of eighth notes, two quarter notes, two eighth notes, and another quarter note. For 10 points each:

[10] Identify this movement of a larger work. Like the last movement of the composition it appears in, which is subtitled "The Mystic", it is mostly in 5/4 time.

ANSWER: "**Mars, the Bringer of War**" [accept either underlined portion]

[10] "Mars, the Bringer of War" is the first movement of *The Planets*, a suite by this English composer of the Indian-inspired operas *Sita* and *Savitri*.

ANSWER: Gustav Theodore **Holst** [or Gustavus Theodore von **Holst**]

[10] Holst's *St. Paul's Suite* contains a reorchestration of the "Fantasia on the Dargason" from the second of these earlier works. The first, in E flat, is performed more often than the second, in F.

ANSWER: the **Suites for Military Band** [or Holst's **Opus 28**, nos. 1 and 2]

<Carson>

16. Identify the following about 20th century artists who worked in the United Kingdom, for 10 points each.

[10] This Irish-born artist riffed on Velazquez in a series of portraits showing Pope Innocent X screaming. He also created *Three Studies for Figures at the Base of a Crucifixion*.

ANSWER: Francis **Bacon**

[10] *Benefits Supervisor Sleeping*, in which a grotesque nude is shown haphazardly splayed across a piece of furniture, is characteristic of this German-born British artist's work. Another such work by him is *Night Portrait*.

ANSWER: Lucian Michael **Freud**

[10] Richard Hamilton, who created the collage *Just what is it that makes today's homes so different, so appealing?*, was a pioneering British member of this art movement. Its foremost American exponent screen-printed paintings of Campbell's soup cans.

ANSWER: **pop** art

<Bentley>

17. On Purnima, the day of the full moon, these people are celebrated in a festival in which their feet are washed. For 10 points each:

[10] Name these teachers from various religions of the Indian subcontinent, who bestow their religious knowledge and wisdom upon their students.

ANSWER: **gurus**

[10] The importance of the guru-student relationship was emphasized in the Mundaka, which is one of these 200 or so Vedic texts which have influenced Western philosophers.

ANSWER: **Upanishads**

[10] Gurus often live in these monasteries or hermitages, typically located on the outskirts of towns, which house and feed people developing their spirituality.

ANSWER: **ashrams**

<Gupta>

18. The diester of this ion is usually prefixed with "pyro", and its hydrolysis is highly exergonic. For 10 points each:

[10] Name this anion which is transferred between proteins by kinases. Three of them are bonded together in ATP.

ANSWER: **phosphates** [or **PO₄³⁻**]

[10] In muscle cells, this compound is a reservoir of high-energy phosphates, and can replenish the store of ATP during strenuous activity. Renal function can be measured by the levels of a similarly-named byproduct of this compound's breakdown.

ANSWER: **creatine** [do not accept or prompt on "creatinine"]

[10] Most kinases require this metal as a cofactor. This cation is required for PCR because it coordinates the negatively-charged oxygen atoms in ATP.

ANSWER: **magnesium** [or **Mg²⁺**]

<Silverman>

19. This character comically asserts that several men have "spoken untruths", "belied a lady", "have verified unjust things", and "are lying knaves", and in another scene laments that no one has written down that he "is an ass". For 10 points each:

[10] Name this Messina resident who leads the city watch in apprehending Borachio and Conrade, thus foiling the dastardly schemes of Don John.

ANSWER: Constable **Dogberry**

[10] The bumbling Dogberry appears in this Shakespeare comedy, which centers on the will-they-won't-they "merry war" between Beatrice and Benedick.

ANSWER: **Much Ado About Nothing**

[10] Don John spitefully attempts to prevent Claudio from marrying a woman with this name. In an unfinished Christopher Marlowe poem, a youth from Abydos vows to swim across the Hellespont nightly to be with a girl of this name.

ANSWER: **Hero** [definitely do not accept "Leander"]

<Carson>

20. He may have intended to publish his satirical *Dictionary of Received Ideas* as an appendix to a novel about two Parisian copy clerks he spent nine years working on. For 10 points each:

[10] Name this French author of *Bouvard and Pécuchet* who is more famous for his debut novel, a tale of an adulterous doctor's wife entitled *Madame Bovary*.

ANSWER: Gustave **Flaubert**

[10] Another popular Flaubert novel is this one, in which the social-climbing Frédéric Moreau has an on-again-off-again relationship with Madame Arnoux against the backdrop of the revolution of 1848.

ANSWER: **Sentimental Education** [or *L'Éducation sentimentale*]

[10] Flaubert spent much of his life working in fits and starts on this novel, whose title character struggles to resist his desire for Ammonaria, is visited by Lust, Death, and the Queen of Sheba, and is taken into outer space by his former disciple Hilarion in the form of a demon.

ANSWER: *The* **Temptation of Saint Anthony** [or *La Tentation de Saint Antoine*]

<Carson>

21. In the "Miller's Tale", Nicholas convinces the carpenter John that one of these events is about to occur so that he can sleep with John's wife, Alisoun. For 10 points each:

[10] Identify this type of event. Tom and Maggie Tulliver die while embracing during one of these events at the conclusion of *The Mill on the Floss*.

ANSWER: a **flood** [or obvious equivalents, such as drowning by **flood**; prompt on "drowning"]

[10] *The Mill on the Floss* was written by this pseudonymous British author of *Silas Marner* and *Middlemarch*.

ANSWER: George **Eliot** [or Mary Ann **Evans**]

[10] Earlier in *The Mill on the Floss*, Maggie's relatives worry that she has drowned in the river when she has in fact run off to Dunlow to be a queen of these people. Maggie's father gives one of these people five shillings when he returns Maggie to him on his donkey.

ANSWER: **Gypsies** [or **Romani** or **Romane** or **Roma** or **Romany**; prompt on "beggars"]

<Bentley>

22. Ridges and grooves in this structure are called gyri and sulci, respectively. For 10 points each:

[10] Name this folded outer layer of the brain which comprises the neuronal cell bodies and capillaries that make up the "gray matter."

ANSWER: cerebral **cortex**

[10] In humans, the cerebral cortex is divided into 44 of these functional and cytoarchitectonic regions named after a German anatomist.

ANSWER: **Brodmann** areas

[10] The "functional" type of this medical imaging technology uses BOLD contrast to localize functions to brain regions. This imaging technology uses T1 and T2 relaxation times of hydrogen atoms in tissues.

ANSWER: **magnetic resonance** imaging [or **MRI**; accept **functional magnetic resonance** imaging or **fMRI**]

<Kothari>

23. One pope of this name sent the missionary Augustine of Canterbury to England. For 10 points each:

[10] Give this name. The seventh pope of this name twice excommunicated Henry IV during a controversy over the lay investiture of bishops, and the first one names a type of monophonic chant.

ANSWER: **Gregory** [or **Gregory** I; or **Gregory** the Great; or **Gregory** VII]

[10] Henry IV walked to this castle in Emilia Romagna, where he waited barefoot in the snow for days to beg forgiveness from Gregory VII after his first excommunication.

ANSWER: **Canossa**

[10] This Norman raider rescued Gregory VII from the Castel Sant'Angelo when Henry IV reneged and occupied Rome to oust that pope. He attacked Islamic Sicily and beat the Byzantines at Dyrrhacium.

ANSWER: Robert **Guiscard** de Hauteville

<Liu>