1. **This man composed an opera in which Don Carlo kills his sister, Leonora, the lover of Don Alvaro. The title king of another opera by this man orders the destruction of the idol of Ba'al and frees the Israelites. That opera by this composer of *La Forza del Destino* contains "Va pensiero," or the "Hebrew Slave Chorus". This composer of (*)** *Nabucco* wrote an opera which ends when Amneris and Radames are buried alive, and he included the aria "La donna e mobile" in an opera about a hunchbacked court jester. For 10 points, name this Italian composer of *Aida* and *Rigoletto*.
ANSWER: Giuseppi **Verdi**

228-14-86-05101

2. **For a current loop, this quantity is equal to the current times the area cross magnetic field, and gyroscopic precession is induced by this phenomenon. Two forces that result in no net force but a nonzero value for this quantity are known as a couple, while both this quantity and force must be zero at equilibrium. The time derivative of angular momentum, it is found by taking the cross product of lever arm and (*)** force or by multiplying moment of inertia and angular acceleration. For 10 points, name this rotational analogue of force.
ANSWER: **torque**

226-14-86-05102

3. **This author wrote a narrative poem beginning with the line, "A thing of beauty is a joy forever." Another of his poems describes a knight-at-arms "alone and palely loitering." This poet of (*)** *Endymion* and "La Belle Dame Sans Merci" concluded his most famous poem with the lines, "Beauty is truth, truth beauty, that is all ye know on earth, and all ye need to know." For 10 points, name this English Romantic poet of "Ode on a Grecian Urn."
ANSWER: John **Keats**

230-14-86-05103

4. **This man cancelled an invasion after receiving the one-word reply of "If" from a prospective opponent. This ruler's forces annihilated the elite army 150 pairs of male lovers known as the Sacred Band. Before he was assassinated by his bodyguard, (*)** Pausanias, while he was attending a wedding, this man founded the League of Corinth. He defeated an alliance of Thebans and Athenians at the Battle of Chaeronea (kah-row-NAY-uh), where his teenage son commanded the left wing. For 10 points, name this king of Macedon and father of Alexander the Great.
ANSWER: **Philip II** of Macedon

052-14-86-05104

5. **The protagonist of this novel used to be known as the Golden Cicada. A supporting character in this novel used to be the "Curtain Lifting General" until he got banished for destroying a vase. The protagonist wants to return Buddhist scriptures and has such disciples as Sandy and (*)** Pigsy. A famous Arthur Waley translation of this novel is named after the character Sun Wukong, also known as Monkey. For 10 points, name this classical Chinese novel whose protagonist is traveling to India.
ANSWER: ***Journey to the West*** [or ***Monkey*** until it is read]

052-14-86-05105

6. **The P-ring connects these structures to the cell, and the so-called polar organelle is found in close proximity to these structures. *H. pylori* uses this structure to burrow into the mucosal lining of the stomach. These rotating structures are connected to a basal body and have a base of nine plus two arrangement of (*)** microtubules. These structures are notably absent in Paramecium. For 10 points, identify these long, whip-like bacterial structures used for locomotion, contrasted with the shorter cilia.
ANSWER: **flagella** [or **flagellum**]

7. **During this election year, the outgoing President quipped "If you give me a week, I might think of one" when asked which major decisions his party's candidate had made. Richard Daley may have swung the result of this election by enlisting the votes of thousands of dead Chicagoans. The eventual winner of this election was aided by a well-received performance in the first (*)** televised debates but faced questions about his Roman Catholicism. For 10 points, name this election which saw Richard Nixon lose to the young Democrat John F. Kennedy.
ANSWER: United States Presidential Election of 19**60**

8. **In one painting by this artist, a god bearing a halo commands the attention of four shirtless laborers as he is about to reveal Mars's affair with their master's wife. This painter of *Apollo in the Forge of Vulcan* depicted a man stepping on a sleeping dog in the bottom left corner of a painting in which he painted himself with a red cross on his shirt. In that canvas by this court painter of King (*)** Philip IV, two ladies in waiting and two dwarfs are shown in the retinue of the Infanta Margarita Theresa. For 10 points, name this 17th Century Spanish painter of *Las Meninas*.
ANSWER: Diego Rodriguez de Silva y **Velazquez**

9. **In a song by this band, the singer says he's like Greta Garbo and Marlon Brando because he has "got the buzz." Filmmaker Carlos Reygadas inspired their music video about a man who "doesn't look a thing like Jesus." Questions posed by this band include "Can you (*)** read my mind?" and "Are we human? Or are we dancers?" Their album *Battle Born* features the single "Runaways," and earlier hits by them include "Somebody Told Me" and "Mr. Brightside." For 10 points, name this band whose albums include *Hot Fuss,* led by Brendan Flowers.
ANSWER: The **Killers**

10. **Bekker numbers are used to categorize this man's writings. This thinker wrote that all objects had material, formal, efficient, and final causes, which he called the Four Causes. He hypothesized a "highest good" called *eudaimonia* (yoo-day-MOAN-ee-uh) in a tract titled for his son's ethics. He axiomatized the form of a (*)** syllogism in a tract on logic called the *Organon*. He introduced the three unities of time, place, and action and gave five characteristics of a tragic hero in his *Poetics*. For 10 points, name this Greek philosopher, the student of Plato.
ANSWER: **Aristotle**

11. **A reconstruction of the Ishtar Gate can be found on this city's Museum Island. Many ghost stations exist in this city's two train systems, which are denoted "S" and "U." This city's Mitte district includes a boulevard lined with linden trees, as well as a monument topped by a four-horse chariot. Norman Foster designed a glass (*)** dome for a building that burned down here in 1933. The Spree river passes through this city. For 10 points, name this home to the Brandenburg Gate and the Reichstag in Germany.
ANSWER: **Berlin**

12. **The suite version of this composition utilized a xylophone, though the original called for only thirteen instruments. With a set designed by Isamu Noguchi, this composition depicts, a sermon, a party and a house-raising. It takes its title from Hart Crane's "The Bridge" and depicts two newlywed (*)** pioneers in Pennsylvania. Choreographed by Martha Graham, this ballet's best known section features a set of variations on the Shaker hymn "Simple Gifts." For 10 points, name this ballet composed by Aaron Copland, whose title references an American mountain range.
ANSWER: *Appalachian Spring*

13. **After his death, this man became the god Quirinus. After an incident at some games dedicated to Consus, he was installed as king alongside Tatius. After being abandoned by his step-father Amulius, he was discovered, along with his brother, by Acca Laurentia and Faustulus. As king, this man initiated the Rape of the Sabine Women. This son of (*)** Mars and Rhea Silvia stayed alive, along with his brother, by suckling on a she-wolf. For 10 points, name this man who murdered his brother Remus before becoming the namesake of Italy's capital.
ANSWER: **Romulus**

14. **When these things are excludable but non-rival, they are referred to as "artificially scarce." These things are "luxury" if their price elasticity is greater than one. A possibly-fictitious type of these things occur in situations where the (*)** income effect dominates the substitution effect, as during the Irish Potato Famine; that variety of them is named for Giffen. These things are generally tangible commodities. For 10 points, identify these economic items which are bought, and whose physical nature contrasts them with services.
ANSWER: **good**s

15. **A molecule with this many carbon atoms has chair and boat conformations. Attaching a methyl group to a molecule with this many carbons produces toluene. In one step of enriching uranium, each atom of it is bonded to this many fluorine atoms. August Kekulé had a dream of a snake eating its tail to explain the structure of that compound with this many carbons named (*)** benzene. This many total electrons can be contained in the three p orbitals. For 10 points, identify this atomic number of carbon.
ANSWER: **six**

16. **This political party's biggest victory came in the "Big Loaf, Little Loaf" election. It criticized its opposition's support of the Ottoman Empire during the Midlothian campaign. This party's leader was accused of "killing" General "Chinese" Gordon and was called the British Father of (*)** Irish Home Rule. During the late nineteenth century, it was led by the "Grand Old Man," who served as Prime Minister four separate times. For 10 points, name this political party led for many years by William Gladstone, the rival in the nineteenth century of the Conservatives.
ANSWER: **Liberal** Party [or **Liberals**; do not accept "Labour Party"; do not accept "Liberal Democrats"]

17. **In one scene from this novel, the protagonist gets a haircut from Mikultisin's sister-in-law, who informs him about the massacre at Varykino. The title character serves under Liberius after joining the Forest Brotherhood. In this novel, the teacher Pavel (*)** Antipov is presumed dead, but resurfaces under the name Strelnikov. This novel's protagonist marries Tonya but falls in love with a woman who shoots Komarovsky for taking advantage of her. For 10 points, name this novel about the physician Yuri, who loves Lara during the Russian Revolution, written by Boris Pasternak.
ANSWER: *Doctor Zhivago*

18. **After King Porus lost at Hydaspes, one type of this manufactured good was the most prized commodity he offered to Alexander the Great. That was the "wootz" type of it, which the people of Damascus modified to create their own form of it. Jared Diamond explains European domination of the world in a book titled after (*)** "Guns, Germs," and this material. The Bessemer process creates this substance from pig iron. For 10 points, identify this ubiquitous metal that comes in a "stainless" variety.
ANSWER: **steel**

19. **One point four times the mass of this object is the upper limit on the mass of a white dwarf. The flavor oscillation hypothesis resolved this object's namesake neutrino problem. This object experienced the Dalton and Maunder minima. Pierre Janssen and Norman Lockyer's observations of this object led to the discovery of helium. This object emits a stream of charged particles that interacts with the (*)** Earth's atmosphere, its namesake "wind". For 10 points, identify this star eight light-minutes from Earth, at the center of our Solar system.
ANSWER: the **Sun** [or **Sol**]

20. **This novel ends with the destruction of a cinema in a perverse act of sexual sacrifice. This novel opens following Pirate Prentice, a man who works at ACHTUNG for the Pavlovian researcher Pointsman, who also supervises the work of the statistician Roger Mexico. While wandering through The (*)** Zone, the protagonist investigates the 00000 weapon; that protagonist's sexual encounters coincide with explosions of V-2 rockets. For 10 points, name this novel about Tyrone Slothrop written by Thomas Pynchon.
ANSWER: *Gravity's Rainbow*

21. **The basis of many of algorithms that perform this process are the 1977 and 1978 Lempel and Ziv papers. One method used in this process is to express data as a finite sum of cosines, which is the discrete cosine transform. Entropy encoding algorithms, such as arithmetic coding and Huffman coding, can be used to losslessly perform this process. One of the most popular types of this process uses the DEFLATE algorithm, which is used in the** (*) PNG format and by zip files. For 10 points, identify this method of reducing the size of files.
ANSWER: data **compression** [or image **compression**; or audio **compression**; **source coding**; or **bit-rate reduction**]

22. **This poet wrote of "midnight ruffles of cat-gut lace" in one sequence. In one poem, he declared, "My soul has grown deep," and that he "bathed in the Euphrates when dawns were young." This author asks if a certain concept "festers like a sore" or** (*) "sags like a heavy load" in another poem. This poet of "The Negro Speaks of Rivers" asked if "a dream deferred" dries up "like a raisin in the sun." For 10 points, name this poet of the Harlem Renaissance who wrote "Harlem."
ANSWER: Langston **Hughes**

23. **It's not Germany, but this country had a prime minister named Robert Schuman who proposed the European Coal and Steel Community. A socialist leader of this country put forth the 110 Propositions to win the 1981 election over a member of the UDF party, ending the term of** (*) Giscard d'Estaing. The FLN opposed this country's colonial policy until a ceasefire was agreed in the Evian Accords. For 10 points, identify this European country which faced an Algerian independence movement while led by Charles de Gaulle.
ANSWER: **France**

1. This man was the first Bourbon to sit on the French throne. For 10 points each:
[10] Name this monarch who legendarily said "Paris is well worth a mass" about his conversion to Catholicism.
ANSWER: **Henry IV** of France [or **Henry III of Navarre**; prompt on **Henry**; prompt on **Henry III**]
[10] In 1598, Henry IV signed this edict that gave many religious liberties to Huguenots. Louis XIV revoked it with the Edict of Fontainebleau.
ANSWER: Edict of **Nantes** (NAHNT, but accept phonetic pronunciations)
[10] Huguenots had been given some religious liberties with the earlier Edict of St. Germain in 1562, which was signed by this woman, the wife of Henry II of France.
ANSWER: **Catherine de Medici** [prompt on partial answer]

192-14-86-05201

2. This novel's protagonist is inspired by a sculpture of the Virgin Mary carved by Master Nicholas. For 10 points each:
[10] Name this novel about an artist and hedonist who is ultimately rescued from execution by the first title character, an abbot he befriended when they were schoolmates at Mariabronn.
ANSWER: *Narcissus and Goldmund* [or *Narziss und Goldmund*]
[10] *Narcissus and Goldmund* was written by this German novelist of *The Glass Bead Game* and *Siddhartha.*
ANSWER: Hermann **Hesse**
[10] In this Hesse novel, Harry Haller explores his own animal nature in a trip through Pablo's Magic Theater.
ANSWER: *Steppenwolf*

014-14-86-05202

3. These cells mature from thymocytes and express CD4 or CD8 glycoproteins. For 10 points each:
[10] Name these cells which come in "cytotoxic" and "helper" varieties.
ANSWER: **T** cells
[10] T cells are instrumental to the adaptive portion of this bodily system that protects against diseases.
ANSWER: **immune** system
[10] These other immune cells develop in the bursa of Fabricius in birds. They are responsible for the production of antibodies.
ANSWER: **B** cells

014-14-86-05203

4. The speaker of this work argues "The grave's a fine and private place, but none, I think, do there embrace." For 10 points each:
[10] Name this poem on the theme of *carpe diem* that begins "Had we but world enough, and time." It was written by Andrew Marvell.
ANSWER: "**To His Coy Mistress**"
[10] In "To His Coy Mistress," the speaker describes his love with this adjective before saying that it "should grow, vaster than empires and more slow."
ANSWER: **vegetable**
[10] The speaker of the poem also notes that he would love his mistress "ten years before" a Biblical event of this type, which wipes out much of the world's population in Genesis.
ANSWER: a great **flood**

5. This piece opens with a famous G-D-G-D-G-D-G-B-D sequence in the violins. For 10 points each:
[10] Name this G major serenade for strings with a German title, translated as "a little night music."
ANSWER: *Eine **Kleine Nachtmusik***
[10] This German composer of *Eine Kleine Nachtmusik* wrote forty-one symphonies, of which the fortieth and forty-first, known as the "Jupiter," are the most recognizable.
ANSWER: Wolfgang Amadeus **Mozart**
[10] Mozart's fortieth and twenty-fifth symphonies were composed in this key.
ANSWER: **G minor** [prompt on partial answer]

6. The haggadah lists the order of events during this meal. For 10 points each:
[10] Name this ritual meal in Judaism, in which young children pose the Four Questions and participants eat matzah and drink four cups of wine.
ANSWER: **seder**
[10] The seder meal is eaten at the start of this holiday, which commemorates the exodus of the Jews out of Egypt. During the seder, individuals are encouraged to recline in their seats to celebrate their freedom.
ANSWER: **Passover** [or **Pesach**]
[10] At the end of the seder, the haggadah dictates that participants utter this phrase, which expresses the desire to celebrate in a holy city.
ANSWER: "**Next year in Jerusalem**" [or "**L'shanah haba'ah b'Yerusahalayim**"]

7. Commissioned by Nelson Rockefeller, this mural was replaced by one painted by Josep Maria Sert called *American Progress*. For 10 points each:
[10] Name this painting, controversial for its depiction of Lenin celebrating May Day. It was later recreated, on smaller scale, for the Palacio de Bellas Artes.
ANSWER: ***Man at the Crossroads*** [or ***Man, Controller of the Universe**; or *El **hombre controlador del universo***; or ***Man in the Time Machine**; or *El **hombre en la maquina del tiempo***]
[10] *Man at the Crossroads* was painted by this Mexican muralist. He housed Leon Trotsky for a few months in the 1930s.
ANSWER: Diego **Rivera**
[10] While living with Rivera, Trotsky carried on an affair with this other Mexican painter, Rivera's wife. She painted lots of self-portraits after a bus accident.
ANSWER: Frida **Kahlo**

8. This physicist's namesake wavelength is contrasted with one calculated from the speed of light named for Compton. For 10 points each:

[10] Name this French physicist whose namesake hypothesis stated that all matter behaves as both a particle and a wave.

ANSWER: Louis **de Broglie**

[10] The de Broglie wavelength for a particle is calculated as Planck's constant over this quantity.

ANSWER: linear **momentum**

[10] De Broglie's hypothesis was confirmed by this 1927 experiment in which electrons were diffracted by a nickel crystal.

ANSWER: **Davisson-Germer** experiment

9. His economic policy is the "four arrows." For 10 points each:

[10] Name this head of government who led his party to electoral victory in December 2012 over the party of Yoshihiko Noda.

ANSWER: Shinzo **Abe**

[10] Shinzo Abe thus became this country's Prime Minister again, after a yearlong stint as Junichiro Koizumi's successor in 2006.

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

[10] Shinzo Abe is the leader of this centre-right Japanese political party, which has formed government for every year but four since 1955.

ANSWER: **Liberal Dem**ocratic Party of Japan [or **LDP**; or **Lib Dem**s; or **Jiminto**; do not prompt on "Liberal" or "Democratic"]

10. This man's journal was transcribed by Bartolome de las Casas. For 10 points each:

[10] Name this Genoese explorer who led a 1492 voyage that stumbled upon the West Indies.

ANSWER: Christopher **Columbus** [or Cristoforo **Colombo**; or Cristobal **Colon**]

[10] The first people Columbus encountered were the Taino, a subgroup of these peaceful indigenous peoples of the Caribbean.

ANSWER: **Arawak**

[10] During his first voyage, Columbus set up a fort called La Navidad on this large island in the Greater Antilles. The Duvaliers and Rafael Trujillo were twentieth-century rulers on this island.

ANSWER: **Hispaniola**

11. Fluorine has the highest value of this quantity, approximately 4, on the scale designed by Linus Pauling. For 10 points each:

[10] Name this tendency of an atom to attract electrons.

ANSWER: **electronegativity**

[10] Electronegativity can also be approximated by averaging the electron affinity with this quantity, the amount of energy required to remove an electron from an atom in the gas phase.

ANSWER: **ionization energy**

[10] This important quantity for describing bonds between elements with different electronegativities is calculated as the magnitude of the partial charge on one of the atoms times the distance between them.

ANSWER: electric **dipole moment**

12. The title character of this book adopts the name "Desdichado" at a jousting tournament. For 10 points each:
[10] Name this book about a medieval knight who loves Lady Rowena. He is disowned by his father Cedric at this novel's opening.
ANSWER: *Ivanhoe*
[10] In *Ivanhoe,* Richard the Lionheart disguises himself as this character, and helps Robin of Locksley in the siege of Torquilstone Castle.
ANSWER: the **Black Knight**
[10] *Ivanhoe* was written by this Scottish novelist of *Rob Roy* and *Waverley.*
ANSWER: Sir Walter **Scott**

192-14-86-05212

13. For 10 points each, answer the following about buildings that have been the tallest in the world.
[10] Currently, the world's tallest skyscraper is this highest manmade structure in history. This three-lobed tower in the UAE is fronted by an amazing fountain.
ANSWER: **Burj Khalifa** [or **Burj Dubai**]
[10] Burj Khalifa took the title from this pagoda-inspired tower designed by C.Y. Lee. This building's spherical tuned mass damper is the largest in the world.
ANSWER: **Taipei 101** [or **Taipei World Financial Center**]
[10] This architect of the tallest twinned structure in the world, the Petronas Towers, also designed UChicago's cable-stayed Ratner Athletics Complex and Tokyo's NNT Headquarters.
ANSWER: Cesar **Pelli**

195-14-86-05213

14. A short-lived communist government in this country was led by Bela Kun, until his 1919 ouster by Romanian forces. For 10 points each:
[10] Name this country that was ruled by Matyas Rakosi until 1956, when a revolution was suppressed by Soviet invasion. It had earlier fought Russia in World War I while it was united with Austria.
ANSWER: **Hungary** [or **Magyaryorszag**]
[10] The Soviet Union at the time was led by this politician, who gave a "Secret Speech" denouncing Stalin's personality cult.
ANSWER: Nikita Sergeyevich **Khrushchev**
[10] This politician briefly led Hungary during the 1956 revolution. This predecessor of Janos Kadar pursued liberalizing policies like releasing political prisoners, but was eventually executed by the Soviets.
ANSWER: Imre **Nagy** ("NAJ", but accept phonetic pronunciations)

232-14-86-05214

15. The protagonist of this story believes that Shirley T. is the daughter of Mr. Whitaker. For 10 points each:
[10] Name this short story in which the arrival of Stella-Rondo causes the Sister to move to the title location.
ANSWER: "**Why I Live at the P.O.**"
[10] "Why I Live at the P.O." is a short story by this Mississippian author who also wrote *The Optimist's Daughter.*
ANSWER: Eudora **Welty**
[10] In "Why I Live at the P.O.," Stella-Rondo arrives on this patriotic holiday, which features displays of fireworks.
ANSWER: the **Fourth of July** [or **Independence Day**]

227-14-86-05215

16. The motion of these bodies produces hills and ridges such as drumlins and moraines. For 10 points each:
[10] Name these giant bodies of ice that form on land and evolve over centuries.
ANSWER: **glacier**s
[10] This name is given to the sediment deposited by glacial ice to form drumlins and moraines.
ANSWER: **till**
[10] Glaciers can also create these concave landforms at the heads of valleys bounded on one side by a steep cliff called a headwall.
ANSWER: **cirque**s

17. This experiment's results were less powerful when it was conducted in an office building in Bridgeport rather than at Yale University. For 10 points each:
[10] Name this experiment that used participants as "teachers" and Mr. Wallace as the "learner" to test the effect of authority figures.
ANSWER: **Milgram** obedience experiment [or **obedience** experiment]
[10] In Milgram's experiment, participants were told to do this action to the learner every time he got an answer wrong in a paired-association language test.
ANSWER: **shock** [or **electrocute** or other equivalents]
[10] Milgram was a student of Solomon Asch, who ran an experiment testing this concept. That experiment judged if a person did this action when asked to match lines with other people.
ANSWER: **conform**ity [or word forms]

18. This President created the Department of Energy and the Department of Education. For 10 points each:
[10] Name this Georgia native, elected in 1976, who suffered in popularity for his handling of the Iran hostage crisis.
ANSWER: Jimmy **Carter**
[10] Only months before the Iran hostage crisis, Carter gave a popular speech in which he claimed America was faced with a "crisis of confidence." The speech is usually referred to by this term, although the word didn't appear in the speech.
ANSWER: the "**Malaise**" speech
[10] Carter participated in the SALT II talks with Leonid Brezhnev, intended to accomplish this international goal also addressed in the START and ABM treaties.
ANSWER: **arms reduction** [or **arms limitation**; or **reduction in nuclear weapons** or equivalents; prompt on more general answers such as **avoiding war** or establishing **peace**]

19. He was syncretized by the Greeks with Hephaestus. For 10 points each:
[10] Name this Egyptian creation god often depicted as a mummy. He was worshipped at Memphis, and was either the biological or adopted father of Imhotep.
ANSWER: **Ptah** [or **Pteh**; or **Peteh**]
[10] Ptah's scepter incorporated this Egyptian symbol of life, a cross with a loop at its top.
ANSWER: **ankh**
[10] While many ancient Egyptians believed that Ptah created man, others attributed the feat to this sun god, who created humans with his tears. In the New Kingdom, his role was joined with Amun's.
ANSWER: **Ra**

20. This man relocated the Delian League's treasury to his home city. For 10 points each:
[10] Name this Greek statesman and orator who ruled Athens at the beginning of the Peloponnesian War.
ANSWER: **Pericles**
[10] Pericles's famous funeral oration was recorded by this historian in his *History of the Peloponnesian War.*
ANSWER: **Thucydides**
[10] This other historian described the end of the Peloponnesian War in his *Hellenica.* He also wrote *On Horsemanship* and recounted the expedition of the Ten Thousand in his *Anabasis.*
ANSWER: **Xenophon**

21. The Lualaba River becomes contiguous with this river at the Boyoma Falls. For 10 points each:
[10] Name this African river, the namesake of two countries whose capitals are Brazzaville and Kinshasa.
ANSWER: **Congo** River
[10] Some of the water in the Congo River flows from this second-largest African lake, whose largest inflow is the Ruzizi River.
ANSWER: Lake **Tanganyika**
[10] Tanganyika was the name of one of the constituents that formed Tanzania. The other was this archipelago, whose largest island is Unguja and where Stone Town is found.
ANSWER: **Zanzibar**