

1. Threats to reveal extramarital affairs of Wendell Wilkie were used to counter revelations about this man's relationship with Russian mystic Nicholas Roerich. While serving in the Cabinet, this man formulated legislation that was ultimately ruled unconstitutional in *United States v. Butler*; that law written by him paid farmers subsidies to destroy livestock and reduce crop production, and was the Agricultural Adjustment Act. After serving as Secretary of Commerce, this politician edited *The New Republic* and was nominated for president by the Progressive Party. For 10 points, name this politician from Iowa who served as Franklin Roosevelt's second vice president.

ANSWER: Henry Agard **Wallace**

2. Most sites of the Neolithic Capsian culture are located in the south of this present-day country. Sicilian immigrants built the port of La Goletta in this country's capital, which is home to the Cathedral of St. Vincent de Paul. Villagers live in traditional "troglodyte" structures in this country's southern tourist destination of Matmata. The central thoroughfare of this country's capital, the Avenue Habib Bourguiba, is named for its first president, and its coastal city of Monastir was the site of 2010 Jasmine Revolution protests. A suburb of this country's capital was legendarily sown with salt. For 10 points, name this North African country where Carthage was located.

ANSWER: **Tunisian** Republic [or al-Jumhuriyyah at-**Tunisiyyah**]

3. One statue of this character was discovered in the villa of Gaius Cassius Longinus and exemplifies the "Citharede" depiction. The Louvre contains a depiction of the "Mantua" type of this character originally created by Polykleitos. The pose of one sculpture of this character was copied by Joshua Reynolds in his portrait of the Viscount Keppel and by Antonio Canova in his depiction of Perseus; that sculpture, in which this god extends his left arm with a cloak draped over his shoulders, was created by Leochares and was displayed by Pope Julius II in a namesake courtyard. For 10 points, name this god who, in a Roman copy of a Praxiteles sculpture, kills a lizard, and who appears in a sculpture nicknamed *Belvedere* having just slain Python.

ANSWER: **Apollo**

4. This thinker used the example of Jean Calas as evidence that all men should be brothers in his *Treatise on Toleration*. Historiographers credit this thinker's *Essay on the Universal History, the Manners, and the Spirit of the Nations* for the study of social history. This man frequently used the phrase "Crush the infamy." He popularized the myth of Newton's apple and also fought for inoculation in his *Philosophical Letters on the English*. He wrote that, "If God did not exist, it would be necessary to invent him." This author of a *Philosophical Dictionary* satirized theodicy in a book rationalizing that we "must cultivate our garden." For 10 points, name this Enlightenment wit who wrote *Candide*.

ANSWER: **Voltaire** [or Francois-Marie **Arouet**]

5. One painter from this movement produced a poster based on the Last Supper with himself in place of Jesus, and produced a parody titled *Cardinal and Nun*. The official magazine of this movement, *Ver Sacrum*, was illustrated by its co-founder Koloman Moser. One of this movement's exhibitions featured a painting in which a gigantic furry brown monster represents Typhon. Oskar Kokoschka learned from the leaders of this movement, possibly absorbing the disturbingly erotic output of Egon Schiele. Its leader liberally used gold-leaf in paintings such as *Danae* and his mosaic-like depiction of an embracing couple. For 10 points, name this movement led by *The Kiss* painter Gustav Klimt that consisted of deviants from the status quo of Austrian art.

ANSWER: Vienna Secession [or Wiener Secession; or Union of Austrian Artists; or Vereinigung Bildender Künstler Österreichs]

6. The map between a finite group acting on a set big S over the stabilizer of small s, in big S, to the orbit of small s has this property. If a function of this kind is also homomorphic, it is called an isomorphism. If a function of this kind exists between two sets, they have the same cardinality, which is often used to prove they have the same number of elements. When a function of this type is applied to its own set, the permutation results. For any map from a set X to Y with this property, there must exist an inverse that additionally has this property. For 10 points, name this kind of function where every value in the domain has a unique, corresponding value in the range and vice versa, making it both injective and surjective.

ANSWER: bijjective function [or bijection; or one-to-one correspondent; or word forms of the preceding; or one-to-one and onto; do not accept "one-to-one" or "onto" or "injective" or "surjective"]

7. A story by this author opens with a plane landing in a cornfield and centers on Francis Weed's love for a babysitter. Another of his stories is set on the sort of midsummer day when everyone says, "I drank too much." In a story by this author, a secretary forces her former boss to put his face in the dirt after pulling a gun on him on the train. This author created the town of Shady Hill, and he wrote a story in which Irene Wescott learns her neighbors are secretly miserable by listening to them with the title device. Another of his stories ends with a man reaching his locked and empty house after traveling home on the "Lucinda River." For 10 points, name this author of "The Enormous Radio" who wrote about Neddy Merrill in "The Swimmer."

ANSWER: John Cheever

8. The Darwin term in this system's Hamiltonian corrects its energy from the effect of zitterbewegung. Lamb and Retherford demonstrated a roughly 1 gigahertz energy difference in supposedly degenerate solutions to this system. This system's wavefunction consists of a spherical harmonic multiplied by a Laguerre polynomial. The fine structure constant was first identified from the splitting in this system's spectral lines. An empirical equation modelling this system noted that its emission spectrum was quantized by the reciprocal of perfect squares. The Balmer series arises from this system according to the Rydberg equation, which models only it. This two-body system can be solved exactly by the Schrodinger equation. For 10 points, name this system containing a proton and an electron.

ANSWER: hydrogen atom [or hydrogen-like atoms]

9. In a play by this author, an artillery officer locks up a piano after his wife plays "The Entry of the Boyars." One of his characters is able to sense the collapse of a building because he is a Sunday child, and later meets a parrot-like madwoman. In another play by this author, a man makes up a story about seeing a woman outside a "Turkish pavilion" and attempting to commit suicide in an oat bin. One play by this author is partly set in Fingal's Cave and is about the daughter of Indra, while in another of his plays, two characters decide to open a hotel in Switzerland and a finch's head is cut off by the valet Jean. For 10 points, name this author of *The Ghost Sonata*, *A Dream Play*, and *Miss Julie*, a Swedish playwright.

ANSWER: August Strindberg

10. In mice, a process of this name occurs separately to the Igf2 and Igf2 receptor genes, which lends support to the "conflict" hypothesis about it. The p arm of chromosome 11 and q arm of chromosome 15 are major regions where genes undergo that process, causing various syndromes like Beckwith-Wiedemann, Angel, and Prader-Willi syndromes. That process of this name involves the expression of only an allele inherited from one parent. The reverse form of another process by this name, in which people in close proximity with each other during the early years tend not to be sexually attracted to each other, is known as the Westermarck Effect. That process was observed in migratory birds and geese that regarded Konrad Lorenz as a mother. For 10 points, name this kind of learning based on certain stimuli which is independent of behavior.

ANSWER: genomic imprinting

11. In response to one of these events, albeit decades later, Laurence James Downey hijacked Aer Lingus Flight 164 in 1981 and demanded information be released about it. Mayor Artur Santos tried to cover up one of these events, which culminated in the sun appearing to "zig-zag" in the air. The "three secrets" revealed at one of these events may have predicted the beginning of World War II and an attempted assassination carried out by the Grey Wolves in 1981 at St. Peter's Square. Witnesses to these events included the peasant Bernadette Soubirous and a native named Juan Diego. These events reportedly occurred in 1531 in Mexico City, in 1917 in Fatima, Portugal, and in 1858 at what became the shrine at Lourdes, France. For 10 points, name these events in Catholic lore involving a holy woman appearing as an apparition.

ANSWER: appearances by the Virgin Mary [or Marian apparitions; accept descriptions; prompt on appearances by Our Lady]

12. The shortest of these pieces by this composer, despite being in F major, includes a loud unison on C sharp in its finale. That piece in this set contains the only third movement minuet of the group, and features woodwind accompaniment imitating a metronome. The second movement of another piece in this set, which has 12/8 meter in the key of B-flat major, features two divided muted solo cellos depicting the gentle flowing of water. The finale of the last one includes a 6/8 march "in the Turkish style." The five-movement sixth piece in this set begins by depicting the "awakening of cheerful feelings upon arrival in the countryside." For 10 points, name these nine pieces, the last of which includes a choral setting of Schiller's "Ode to Joy."

ANSWER: Ludvig van Beethoven's symphonies [or symphonies by Beethoven; prompt on partial answer]

13. Leo Strauss accused this thinker of nihilism for claiming that "the individual has to decide which is God for him and which is the devil." At the end of an essay, this writer predicted a "polar night of icy darkness and hardness." This social scientist argued that a "polytheism of values" forced empirical academic research to be "value-free," and defined modernity as "rationalization" and "disenchantment." This thinker described the ideal type of "modern officialdom" in his essay on bureaucracy, whose form of authority differed greatly from his description of charismatic leadership. For 10 points, name this author of *Science as a Vocation*, a German social theorist who defined the state as an entity with a monopoly on legitimate violence in *Politics as a Vocation*.

ANSWER: Max **Weber**

14. This woman's love affairs in a cornfield are described by the line "How loose the silk. How fine and loose and free." A picture of this woman in a newspaper draws the objection "That ain't her mouth" from a male acquaintance. In a controversial passage, several men engage in bestiality while waiting for her to choose one of them. This woman bore sons named Howard and Buglar while married to Halle. A malicious schoolteacher steals breast milk from this woman, who is helped to give birth in a boat by a white girl named Amy. This fugitive from Sweet Home plantation reunites with Paul D at a house called 124 in Ohio. For 10 points, name this mother of Denver, who sawed the throat of her baby in the backstory to Toni Morrison's *Beloved*.

ANSWER: **Sethe** Suggs [prompt on **Suggs**]

15. Prior to this event, three diplomats were sent to the city of Clusium, but ended up killing one of the opposing representatives. Many people escaped to the nearby city of Caere prior to this event. This event was preceded by the Battle of the Allia and an evacuation to a fortress at Veii. In the aftermath of this event, the Volsci, Hernici, and Aequi all revolted. Some accounts of this event say Marcus Furius Camillus came to the rescue during this event, but he was probably unsuccessful. According to one story about this event, an attack up a cliffside against the temple of Carmentis was foiled when a bunch of geese began quacking. Livy recorded that the phrase "vae victis" was spoken by the perpetrator of this event after one side complained of improperly weighted scales during a ransom. For 10 points, identify this action which saw a bunch of Celts partially destroy a city in central Italy in the fourth century B.C.

ANSWER: **390** B.C. Sack of **Rome** [or **387** B.C. Sack of **Rome**; or **Brennus's** Sack of **Rome**; or Sack of **Rome** by the **Gauls**; prompt on partial answer; do not accept descriptions including "Visigoths," "Vandals," "Ostrogoths," or any other year]

16. This thing was done at the *enkoimeterion* facility by sick followers of Asclepius at the holy site of Epidauros in the hopes of receiving a vision. Before Aeneas's helmsman Palinurus falls overboard to his death, the gods force him to do this thing. To retain his eternal youth, Selene's lover Endymion did this thing continually. The Greek god of this deed worked with Thanatos to carry Sarpedon's corpse from the battlefield of Troy. Psyche first sees the face of Cupid by torchlight while he is doing this thing, which is personified by the father of Morpheus. For 10 points, name this activity presided over by Hypnos.

ANSWER: **sleeping** [or **resting**; or **dreaming** or receiving **visions** until "receiving visions" is read; prompt on **prayer** until "force him to do this thing" is read]

17. This character states that he saw "one, two, three canoes" instead of six canoes because he cannot count above three. This character attempts to entertain his companions by luring a bear onto a tree and shaking it. He stumps a character by asking why the God doesn't kill the devil, and he once claims that Benamuckee created the world. This character is reunited with his father after battling a group of cannibals, and his footprint allows another character to become aware of his presence. He is taught the word "master" by a man who is stranded on an island. For 10 points, name this character rescued by Robinson Crusoe.

ANSWER: **Friday**

18. According to anti-Communist historian Karl Wittfogel, this material technology is the best metaphor for the Soviet Union's mode of domination, and its literal form enabled "Oriental despotism" in Chinese and Indian empires. Middle Eastern implements used in this process include the pole-like *shadoof* and a type of wheel called the *noria*. The baray system of the Khmer empire is thought to have served this function, which the Dujiangyan project exemplified in Warring States-era China. The Abbasids overcame geographic impediments to this process by improving upon Archimedes' screw. For 10 points, name this technology whose use in the Virgin Lands program depleted the Aral Sea, which is still used on Asian terraces to create dependable rice paddies.

ANSWER: **irrigation** [or **hydraulics**; or **diverting water**; or **drainage**; or **water management**; or **aquaculture**; or controlled **flooding** of arable land; or creating **reservoirs**; accept any answer indicating the controlled diversion of water from natural sources for human ends; accept **hydraulic power** or **hydraulic despotism**; prompt on "agriculture," "farming," "growing plants," "saving water," "storing water," "pools," "baths", or "lakes"]

19. The process at which superheated water in geysers is ejected upwards was first theorized and tested by this scientist. This chemist discovered that ferric oxide can be used to remove arsenic from water. This man's laboratory assistant at the University of Heidelberg, Peter Desaga, was the one who actually built the working prototype of most famous invention. An award for advances in analytical spectroscopy is named for Gustav Kirchhoff and this man, with whom he discovered cesium and rubidium. This scientist also names a piece of lab equipment that has an adjustable valves at the top for air flow and at the bottom for gas flow. For 10 points, name this 19th century German chemist who invented a device used to create an open flame, his namesake "burner."

ANSWER: Robert **Bunsen**

20. This man's son was an official advisor on Africa, but was later accused of selling guns to Angola with Arcadi Gaydamak. This man worked for the Vichy regime until he noticed Nazi Germany would lose the war, after which he joined the Resistance under the codename "Capitaine Morland." The first female prime minister of France, Edith Cresson, was appointed by this man. He ordered Operation Satanique, which led to the accidental death of Fernando Pereira, a Portuguese photographer. He lost his 1965 bid for the presidency against De Gaulle, and he was defeated in the 1974 election against d'Estaing. For 10 points, name this socialist president of France who ordered the bombing of the Rainbow Warrior, the left-wing half of the cohabitation along with Jacques Chirac.

ANSWER: Francois **Mitterrand**

21. One of this author's plays opens with a scene in which a man tells his wife that she went to Geneva without her passport. In that play by him, Charlotte annoys her playwright husband by supporting a soldier imprisoned for burning a wreath. One character created by this author declares sex to be "the attraction Newton left out" and models a fractal created by a girl who died in a fire on her 17th birthday. In one play by this author of *The Real Thing*, grouse-hunting records reveal that Lord Byron never shot a poet at Sidley Park, and Hannah Jarvis attempts to identify a mysterious "hermit." For 10 points, name this playwright who created Thomasina Coverley in *Arcadia*.

ANSWER: Tom Stoppard

22. During this event, Michael Mallin's position at St. Stephen's Green became unusable after snipers and machine guns were placed in the Shelbourne Hotel. 15 leaders of this event were executed by firing squad at Killingham Gaol. James Connolly led the Citizen Army during this event, while the Volunteers were led by Patrick Pearse. An arms shipment from Germany that was to be given to a side in this uprising was broken up after Roger Casement was captured. For 10 points, name this 1916 uprising in Ireland that took place the week after a major April holiday.

ANSWER: Easter Rising [or equivalents, such as the Easter Uprising or the Easter Rebellion; or Eiri Amach na Casca]

23. For an ideal gas, this quantity is equal to one over the temperature, and this quantity is multiplied by the bulk modulus and divided by the product of heat capacity and density in the definition of the Gruneisen parameter. This quantity is near zero for a single phase alloy of 36% nickel and 64% iron, called Invar. This quantity is almost zero for a material used to make really smooth mirrors, called fused quartz, and for borosilicate glass, which is why pyrex is used in laboratory settings. Converting between volumetric and linear versions of this quantity usually involves multiplying by 3, and those versions of this quantity are symbolized beta and alpha, respectively. For 10 points, name this, which gives the change in length of a one-dimensional rod in response to a change in temperature.

ANSWER: coefficient of thermal expansion [prompt on alpha; prompt on beta]

1. In one of this author's novels, Jem Casey recites a poem claiming that "a pint of plain is your only man." For 10 points each:

[10] Name this Irish author of a novel in which characters rebel against their author, *At Swim-Two-Birds*.

ANSWER: Flann **O'Brien** [or Brian **O'Nolan**]

[10] In *At Swim-Two-Birds*, this figure appears as an old man who relates the story of King Sweeney. This Irish hero was the subject of some poems that James Macpherson attributed to his son, the poet Ossian.

ANSWER: **Finn** McCool [or **Fionn** mac Cumhaill; or **Deimne**]

[10] O'Brien also wrote a novel in which two people of this profession believe that humans become bicycles by riding them. Shakespeare created a man with this job named Dogberry who instructs, "forget not that I am an ass."

ANSWER: **policeman** [or **constable**; or obvious equivalents]

2. According to Pliny the Elder, these people used an anachitis, or stone of necessity, to conjure spirits from water. For 10 points each:

[10] Give this Latin-language term for Zoroastrian priests. They may have been the three wise men that brought gifts to the infant Jesus, who are also known by this name.

ANSWER: **magi** [or **magusian**; or **manji**]

[10] Zoroastrian priests maintain these places of worship, which are more numerous in India than anywhere else in the world.

ANSWER: **fire temples** [or anything with the word **atash** in it]

[10] Modern priests no longer have to collect the material to create *barsoms*, which are these kinds of implements that are used in Zoroastrian rituals, such as recitation of different parts of the *Avesta*.

ANSWER: **bundle of rods** [or **bundle of twigs**; or **bundle of sticks**; prompt on individual **rods**, **twigs**, or **sticks**]

3. This novel features Luigi and Angelo Capello, two Italian twins who are almost identical. For 10 points each:

[10] Name this novel in which the white Tom Chambers and the 1/32nd black "Chambers" are switched as youths, a deception exposed by the title lawyer, who also uses fingerprints to prove the fake Tom is a murderer.

ANSWER: **Pudd'nhead Wilson**

[10] *Pudd'nhead Wilson* is by this author, who also created Tom Sawyer.

ANSWER: Mark **Twain** [or Samuel Langhorne **Clemens**]

[10] David Wilson gets the nickname "Pudd'nhead" after he makes an ill-advised comment about wishing he owned "half" of what thing, so he could kill his half?

ANSWER: a **dog**

4. Examples of these heavy ships, which displaced the carrack in the 16th century, included the vessels which brought goods along a Spanish colonial trade route to Manila. For 10 points each:
[10] Name these huge ships with square-rigged sails, which made up most of the Spanish Armada and the English naval opposition thereto.

ANSWER: **galleons** [prompt on "man o'war"]

[10] This king of Spain sent the galleons of the Spanish Armada against England, only to hear that they were wrecked by a "Protestant wind" and by Francis Drake.

ANSWER: **Philip II** Habsburg [or **Felipe II**]

[10] Pre-industrial naval warfare included this type of cannon strike, in which all the artillery along the length of a boat was fired at once.

ANSWER: **broadside** fire

5. Answer the following about the Book of Mormon, for 10 points each.

[10] Mormons believe that these objects originally had the Book of Mormon written on them in Reformed Egyptian, before Joseph Smith translated these objects using "seeing stones."

ANSWER: the **golden plates**

[10] This son of Lehi names four books within the Book of Mormon, including the first two. His descendants, such as the character Mormon himself, were destroyed at Hill Cumorah.

ANSWER: **Nephi** [those people were the Nephites]

[10] This five-word phrase opens over twenty percent of the verses in the Book of Mormon. In the King James Bible, this phrase is often used to translate the Hebrew word "vayehi."

ANSWER: "**And it came to pass...**"

6. These things are classified as polar or tropical and continental or marine, based on their source region. For 10 points each:

[10] Identify these homogenous bodies of air that are separated by fronts.

ANSWER: **air masses**

[10] The most common type of this front occurs when a cold front overtakes a warm front. On weather maps, it is designated by a solid purple line or by a line with alternating semicircles and triangles.

ANSWER: **occluded** front [or cold **occlusion**; or **TROWAL**; or **trough of warm air aloft**; do not accept "warm occlusion"]

[10] These clouds, along with cumulus congestus and cumulonimbus clouds, are characteristic of an occluded front. These dark, low-level clouds produce precipitation.

ANSWER: **nimbostratus** [or **Nb**; prompt on "stratus"]

7. Name these composers who wrote music in reaction to the death of world leaders, for 10 points each.

[10] This Russian expatriate composed an *Elegy for J.F.K.* a whole half century after premiering *The Rite of Spring*.

ANSWER: Igor Fyodorovich **Stravinsky**

[10] A funeral march for the executed Emperor Maximilian of Mexico appears in the last volume of this composer's *Years of Pilgrimage*. This composer, who is credited with inventing the symphonic poem, transcribed all of Beethoven's symphonies for piano.

ANSWER: Franz Ritter von **Liszt**

[10] Immediately upon hearing of the passing of King George V, this man pulled an all-nighter to compose his *Trauermusik*. An orchestral work of his incorporates themes from an earlier composer's incidental music to *Turandot*.

ANSWER: Paul **Hindemith**

8. Razumikhin, this character's good-natured friend, marries his sister Dunya. For 10 points each:

[10] Name this character who murders a pawnbroker and her sister in Dostoevsky's *Crime and Punishment*.

ANSWER: Rodion Romanovich **Raskolnikov** [or **Rodion** Romanovich Raskolnikov; or **Rodya**]

[10] Sonya eventually sways Raskolnikov to confess his crimes after reading him the story of this Biblical character, which inspires Raskolnikov to be redeemed.

ANSWER: **Lazarus**

[10] Raskolnikov nearly doesn't confess when he finds out that this nihilist has committed suicide. This character attempted to rape Dunya while she worked for him.

ANSWER: Arkady Ivanovich **Svidrigailov** [or **Arkady** Ivanovich Svidrigailov]

9. "Chunking" can increase the capacity of this system, which is the second stage of the Atkinson-Shifflin three-stage model. For 10 points each:

[10] Name this system whose "magic number" is, according to George Miller, seven plus or minus two.

ANSWER: **short-term memory** [or **working memory**; prompt on **memory**]

[10] This condition does not affect short-term memory, since it is a disruption of long-term memory. Its "anterograde" form is an inability to consolidate new memories, and is "retrograde" form involves the loss of existing memories.

ANSWER: **amnesia**

[10] This kind of long-term memory is extremely vivid due to the stress of the circumstances. An example is the memory someone has of where they were on September 11.

ANSWER: **flashbulb** memory

10. The plans for this building called for three segments: a cube that rotated once per year, a pyramid that rotated once per month, and a cylinder that would rotate once a day. For 10 points each:

[10] Name this building that was planned by its namesake Constructivist architect to be built in Petrograd after the Bolshevik revolution.

ANSWER: **Tatlin's Tower** [or **Monument to the Third International**]

[10] Tatlin's Tower was designed to be taller than this iron lattice tower in Paris, constructed in 1889 on the Champ de Mars.

ANSWER: **Eiffel** Tower

[10] A model of Tatlin's Tower can be found in this intensely color-coded complex also in Paris, a collaborative complex designed by Richard Rogers and Renzo Piano named for a former president of France.

ANSWER: **Pompidou Center** [or **Centre Pompidou**; or **Centre Georges Pompidou**]

11. These electrical networks can include voltage sources, resistors, capacitors, and inductors. For 10 points each:

[10] Give the term for these connections of electrical elements. Kirchoff names two laws for solving them.

ANSWER: **circuits**

[10] This man names a theorem which states that for a collection of voltage sources and resistors, one can construct an equivalent circuit consisting of only one voltage source and one resistor.

ANSWER: Léon Charles **Thévenin** [do not not accept "Edward Lawry Norton"]

[10] One can find the Thévenin-equivalent resistance of a circuit by dividing this quantity by the short-circuit current.

ANSWER: **open-circuit voltage** [prompt on **voltage**]

12. This location was where Paul Ciancia killed Gerardo Hernandez with a point-blank shot to the chest. For 10 points each:

[10] Name this facility, where a government employee was killed on November 1, 2013, by Ciancia, who apparently wanted to shoot "pigs."

ANSWER: **Los Angeles International Airport** [or **LAX**]

[10] Hernandez worked for this government agency, a part of the Homeland Security Department that conducts passenger screenings at airports.

ANSWER: **Transportation Security Administration** [or **TSA**]

[10] Current Homeland Security head Jeh Johnson controversially stated in 2011 that this man would have supported the wars in Afghanistan and Iraq because it reflected "the dangerous unselfishness" he promoted.

ANSWER: Martin Luther **King** Jr. [or **MLK**]

13. Identify the following data structures from computer science, for 10 points each.

[10] This data structure is commonly used as a data buffer because the oldest entry is removed from it first. In other words, it is first-in first-out.

ANSWER: queue [do not accept "priority queue"]

[10] This self-balancing binary search tree is often compared to the AVL tree, but has a faster real-time bounded worst case performance for insertion and deletion. It's unique for including a color attribute for leaves.

ANSWER: red-black tree

[10] These bitmaps give a probabilistic representation of a set that supports membership queries. They do not allow false negatives, but false positives can occur if the hash function it uses is not well-spread.

ANSWER: Bloom filter

14. Al-Mu'izz was determined to build this city to be more impressive than that other Muslim capital, Baghdad. For 10 points each,

[10] Name this city which the Fatimids founded as their capital in 969 AD with the name al-Mansuriyah.

ANSWER: Cairo

[10] Cairo supplanted this older nearby city as capital of the Egyptian province under the Umayyads. It was burned to keep it out of the hands of invading crusaders in 1168, and was absorbed into Old Cairo.

ANSWER: Al-Fustat

[10] During his rise to power, Mohammed Ali Pasha massacred many leaders of this state at the Cairo Citadel. Selim I had earlier defeated this state at the 1516 Battle of Marj Dabiq.

ANSWER: Mamluks [or Mamluk dynasty; or Mamluk Sultanate; or Mamluk Egypt]

15. This artificial structure effectively disconnects mainland Denmark from continental Europe. For 10 points each:

[10] Name this canal running from a namesake town on the Baltic Sea to the North Sea, which allows ships to bypass the Kattegat and Skagerrak.

ANSWER: Kiel Canal

[10] The Kiel canal is in this northernmost German state, whose ownership was contested in the nineteenth century.

ANSWER: Schleswig-Holstein [prompt on partial answer]

[10] Speakers of this language's "North" variant live on the western coast of Schleswig-Holstein. This Germanic language, also spoken on outlying islands of the Netherlands, has grammar very close to English.

ANSWER: North Frisian language

16. This painting was published with an essay by Carlos Bulosan, which stated, "The America we hope to see is not merely a physical but also a spiritual and intellectual world." For 10 points each:

[10] Name this painting that was part of a broader 1940s series by the artist. Also known as *The Thanksgiving Painting*, it shows a family preparing to eat a sumptuous looking turkey.

ANSWER: **Freedom from Want** [prompt on **Four Freedoms**]

[10] *Freedom from Want* was part of the *Four Freedoms* series painted by this man, a frequent contributor to the *Saturday Evening Post* magazine.

ANSWER: Norman **Rockwell**

[10] In 1967, Rockwell painted a room in a Russian example of these institutions. In his painting *The Problem We All Live With*, the black girl Ruby Bridges is walking to one of these places.

ANSWER: **schools** [or **classrooms**]

17. A routine walk to the tea-house in Berghof was deemed the ideal time to carry out an SOE-devised plan of this type named Operation Foxley. For 10 points each:

[10] Name this common goal of the Oster Conspiracy, Operation Spark, and the 20 July Plot, the latter of which was the intended precursor to Operation Valkyrie.

ANSWER: **assassinating Hitler** [accept equivalents like **killing Hitler**; also accept **attempting to assassinate Hitler** or similar answers]

[10] The highest profile Nazi to be linked to an assassination plot against Hitler was this "Desert Fox" who commanded forces in North Africa.

ANSWER: Erwin **Rommel** [or Erwin Johannes Eugen **Rommel**]

[10] No fewer than four plots against Hitler, including the famous July 20 one, were carried out at this location in Poland, Hitler's first Eastern Front military headquarters.

ANSWER: **Wolf's Lair** [or **Wolfsschanze**]

18. Answer the following about the history of American polling, for 10 points each.

[10] Elmo Roper and Paul Cherrington developed a 1935 survey for this business magazine, founded after the 1929 stock market crash by Henry Luce. Walker Evans served as its photography editor for twenty years.

ANSWER: **Fortune**

[10] This coiner of the term "stereotype" and founder of *New Republic* expressed his reservations about surveys in the book *Public Opinion*, leading to a debate against John Dewey.

ANSWER: Walter **Lippmann**

[10] This Iowa statistician's prediction that FDR would beat Landon in 1936 cemented the popularity of his namesake statistically-rigorous sampling poll.

ANSWER: George **Gallup**

19. The results of this assay are typically reported as a dilution when it is performed on human serum. For 10 points each:

[10] Name this technique in which enzyme-conjugated antibodies are used to measure the amount of a particular antigen in a sample. It is typically carried out in a 96-well microtiter plate.

ANSWER: **ELISA** [or **enzyme-linked immunosorbent assay**]

[10] ELISA is commonly used to diagnose this class of diseases, which occurs when the immune system attacks "self" antigens. Examples include Type I diabetes, multiple sclerosis, and rheumatoid arthritis.

ANSWER: **autoimmune** diseases

[10] This organ is responsible for removing self-reactive T-cells. Nude mice lack this organ.

ANSWER: **thymus**

20. In one play by this author, Otto Hogan dresses up as a spirit called "The Mysterious Stranger" to stop the construction of a highway. For 10 points each:

[10] Name this author of *Beef, No Chicken* who wrote about the arrest of Makak in his most famous play.

ANSWER: Derek **Walcott**

[10] In this early poem by Walcott, the speaker imagines a body "fallen from evil days, from evil times" and senses the "smell of dead limes" and the "leprosy of empires" at the title place.

ANSWER: "**Ruins of a Great House**"

[10] Walcott is best known for this Iliad-inspired epic in which Achille paints "In God we Troust" on his boat and sails to Africa.

ANSWER: **Omeros**

21. The ship money tax was assessed on people living near the coast during this time period. For 10 points each:

[10] Name this especially-despotic time period which began shortly after the murder of the Duke of Buckingham and ended with the calling of the Short Parliament.

ANSWER: the **personal rule** of Charles I [or the **Eleven Years' Tyranny**; prompt on answers of **Charles I not consulting Parliament**]

[10] Discontent over Charles I's personal rule was a major precipitating cause of this conflict, which ended with the monarch's trial and beheading.

ANSWER: **English Civil War**

[10] This geriatric Archbishop of Canterbury rose to prominence during the personal rule. He initiated a reform that offended many Puritans and made them want to leave England.

ANSWER: William **Laud**