



1. The protagonist of one work set in this country writes the poem "15/3" about his time spent with Rosario. Later on that character roams around this country with Lupe and the visceral realist Arturo Belano. This country is the setting of Roberto Bolano's books *The Savage Detectives* and *2666*. One author from this country wrote a novel in which the title character's son Lorenzo is killed in the Spanish Civil war. The love triangle between the teacher Harriet Winslow, Thomas Arroyo, and the title character is central to another novel by an author from this country, whose title refers to Ambrose Bierce. For 10 points, what country is home to the author of *The Old Gringo* and *The Death of Artemio Cruz*, Carlos Fuentes?

ANSWER: **Mexico** [or **United Mexican States**; or **Estados Unidos Mexicanos**]

149-12-59-18102

2. The Sao civilization flourished near this lake, whose floating islands are home to the Buduma people. Fish caught in this lake are sold as *banda* and *salanga*. The town of Bol lies on the shore of this lake. This lake's northern and southern sections are divided by a ridge of swampland. The Ngadda and Yobe Rivers both flow into this lake, but the Chari (SHA-ree) River provides ninety percent of its water. Over the past forty years, its surface area has shrunk from 15,000 to 500 square miles. For 10 points, name this African lake surrounded by Cameroon, Niger, Nigeria, and its namesake country, which is directly south of Libya.

ANSWER: Lake **Chad**

080-12-59-18103

3. This medium was used by Marc Chagall for *The Four Seasons*, which is displayed in Chicago's Chase Building. French street artist Invader uses this medium to tag buildings with images from *Space Invaders*. This medium is used to depict Jerusalem in the Madaba Map, which is located in the Church of St. George in Jordan. Another work in this genre was discovered in the House of the Faun in 1831 and depicts the Battle of Issus. Works in this medium, which are formed from tesserae, line the side of the benches in Gaudi's Parc Guell. For 10 points, name these works found on the floor of many houses in Pompeii, which are formed from small stones stuck onto a surface.

ANSWER: **mosaics**

015-12-59-18104

4. The original plan for this city was drawn out in grains of barley, which were predictably eaten by surrounding birds. This city was connected to a nearby island by the Heptastadion. After this city's inhabitants mockingly compared Caracalla to Oedipus, he massacred its youth in a rage. The modern word "museum" comes from this city's "Institution of the Muses," or Mouseion. The Septuagint was produced here for the use of Greek-speaking Jews in its Delta Quarter. This city was the intellectual capital of the Hellenistic world because it was home to scholars such as Callimachus and Euclid. For 10 points, name this capital of the Ptolemaic Kingdom, an Egyptian city named for a great conqueror.

ANSWER: **Alexandria** [or **Al-Iskandariyyah**]

080-12-59-18105

5. This thinker made a distinction between actions and underlying motives which he called exterior and interior acts. He separated out eternal, divine, natural, and human forms of law, of which eternal law consists of the mind of God. He remarked that all his work seemed like “straw,” refusing to write for the last four years of his life. His typical formula was saying “On the contrary” and “I respond that...” after giving several objections to a problematic question. One section of his major work lays out the criteria for “just war.” For 10 points, name this student of Albertus Magnus, a Dominican friar who created the *Summa theologiae*.

ANSWER: Saint Thomas **Aquinas** [or Tomaso **Aquino**; or Saint **Thomas of Aquin**; prompt on Saint **Thomas**]

104-12-59-18106

6. One emerald-shaped type of these objects was found in the constellation Eridanus. The number of these objects with a certain mass can be found by the Press-Schechter formalism. These objects are the smallest objects that overcame the Jeans criterion during virialization. It is believed that these objects formed out of early density fluctuations, which are evident in the CMBR. The lack of a drop-off in the rotation curves of these objects led to the prediction of dark matter. Narrow line emissions dominate the type 2 of the Seyfert types of these objects. Most of these objects should contain a supermassive black hole at their center. For 10 points, the Milky Way is an example of what massive collections of stars?

ANSWER: **galaxy** [do not accept or prompt on spiral **galaxies** or elliptical **galaxies**]

149-12-59-18107

7. In the *Poetic Edda*, Attila partakes in this activity before dying. A group of Arcadian shepherds of the oak cult uniquely performed this activity to honor Zeus Lycaeus. Atreus punished his brother for sleeping with Aerope by tricking that brother, Thyestes, into doing this. Humans turn into Wendigos by participating in this activity. In order to get revenge on Tereus, Procne tricks him into partaking in this activity. This activity is performed by Antiphates and his underlings, the Laestrygonians. For 10 points, name this action that Tantalus tried to trick the gods of Olympus into performing when he served them his son, Pelops.

ANSWER: **cannibalism** [or **eating humans**; or more specific answers, like **eating a son**, **eating a friend**, etc.]

020-12-59-18108

8. During this battle, one side failed to successfully use bags of sugarcane to fill Rodriguez Canal under the leadership of Thomas Mullins. Samuel Woodworth celebrated this battle with his song "The Hunters of Kentucky." Fort Bowyer was captured shortly after this battle by Admiral Cochrane. Fighting at this battle occurred near Chalmette Plantation, and it saw the death of Edward Pakenham. Pierre and Jean Lafitte were both pardoned for fighting in this battle, which occurred two weeks after the signing of the Treaty of Ghent. For 10 points, name this rout of the British by Andrew Jackson during the War of 1812.

ANSWER: Battle of **New Orleans** [or Siege of **New Orleans**]

149-12-59-18109

9. In one infection, this condition is triggered by an inflammatory response to *Wolbachia pipentis*, which is carried by *Onchocerca volvulus*. Anton's syndrome is a phenomenon in which patients refuse to believe they have this condition after brain damage. A transient form of this condition is called amargosis fugax, which is caused by transient ischemic attacks. Mutations in complex I of the electron transport chain cause this condition in a mitochondrially inherited syndrome named for Leber. Another infectious cause of it is caused by *C. trachomatis*, a subspecies of chlamydia, in infants. Most instances of this condition are caused by glaucoma or cataracts. For 10 points, name this condition in which patients are unable to see.

ANSWER: **blindness** [or equivalents; accept anything involving the optic nerve, eye, lens, or retina being damaged]

048-12-59-18110

10. The protagonist of this work has fun instead of an aesthetic experience in a church when her companion, the "lady writer" Miss Lavish, wanders off with their Baedeker guidebook. In this work, the protagonist witnesses a stabbing that results in her photographs of art being ruined by splattered blood. A man kisses the protagonist after she falls into a bed of violets in this novel, in which Freddy dismisses the medieval-sounding request of Cecil Vyse for his sister's hand. For 10 points, name this novel by E. M. Forster in which Lucy Honeychurch marries George Emerson, who offered her the title location.

ANSWER: A ***Room with a View***

105-12-59-18111

11. A work sometimes considered to be an unnumbered one of these includes a movement named for the title character and his sister. The fifth of these works ends with five dominant chords separated by grand pauses, followed by a final tonic E-flat chord. In the first of these works, the finale opens with the violins repeating a melody that was first heard as an extended clarinet solo over timpani at the beginning of the first movement. Some critics suggest that the second of these works depicts the struggle for freedom in Finland. For 10 points, name these seven orchestral works, not counting *Kullervo*, by the composer of *The Swan of Tuonela*.

ANSWER: ***symphonies*** by Jean ***Sibelius***

142-12-59-18112

12. One character in this novel wears clothes of mourning every April 30th in memory of Marguerite de Navarre's burial of the head of her lover. Based on the real-life story of Antoine Berthet, this novel opens in the town of Verrieres, whose mayor, the owner of a nail factory, dismisses the main character after receiving a letter from Monsieur Valenod. The protagonist of this novel is executed for shooting his former lover in church while the assembly's heads are bowed before the host. This work follows an admirer of Napoleon who studies in the seminary under Abbe Pirard and seeks to rise through society by sleeping with Madame de Renal and Mathilde de la Mole. For 10 points, name this "Chronicle of 1830" about Julien Sorel written by Stendhal.

ANSWER: *The ***Red and the Black**** [or *Le ***Rouge et le Noir****; or *The ***Red and Black****; or *The ***Scarlet and Black****]

080-12-59-18113

13. This man served as the Mayor of Plymouth while living in the manor Buckland Abbey, which he had obtained with some trickery from Richard Grenville. This man had Thomas Doughty executed for mutiny on an expedition this man led to "find out places meet to have traffic." On the *Revenge*, this man served under Charles Howard and fought directly against the *San Martin* of the Duke of Medina Sidonia; that fight occurred during the Battle of Gravelines against the Spanish Armada. This man led an attack on Cadiz that was described as "singeing the King of Spain's beard." For 10 points, name this admiral who sailed for Elizabethan England and, on his ship the *Golden Hind*, circumnavigated the world.

ANSWER: Francis ***Drake***

023-12-59-18114

14. John Koch suggested that Tartessian was the earliest member of this language group, and its “tree alphabet” was used in many of its medieval inscriptions; that alphabet is called ogham. This language group is broken into continental and insular branches, and the insular branch is further broken into P- and Q- groups. The most widely spoken language in this group includes digraphs like “dd,” “ff,” and “rh” in its alphabet, and that language is thought to be related to Cumbric, an extinct member of this group. Manx is a recently revived language in this group, and the Goidelic and Brythonic branches of this language group were used to write the Mabinogion and the Tain bo Cuailnge, respectively. For 10 points, name these languages that are spoken in places like Cape Breton Island, Wales, and Ireland.

ANSWER: **Celtic** languages [or **Celtic** language group or **Celtic** language family]

148-12-59-18115

15. One problem encountered during this process is called tailing and is caused by a lack of an isotherm. One type of this process is governed by an equation which sets the HETP equal to the sum of terms representing mass transfer, eddy diffusion, and longitudinal diffusion. Several forms of this process calculate the ratio of the distance traveled by the analyte to the distance traveled by the solvent as the retention factor. Types include ion-exchange and high-performance liquid forms. The gas form of this technique is performed prior to mass spectroscopy. In another kind of this technique, the eluent is drawn up a column of a namesake kind of paper. For 10 points, name this lab technique which uses a stationary phase and a mobile phase to separate chemical mixtures.

ANSWER: **chromatography**

003-12-59-18116

16. In one of this man's earliest military actions, he commanded his people at Rephidim, a battle at which his forces only did well when his superior's arms were held up. This commander's defeat in his attempted conquest of Ai is attributed to one of his soldiers, Achan, pillaging gold and silver. One of this man's victories against a coalition of Amorite rulers is notable since it is the only occurrence in the Bible in which God kept the sun from setting. He was among the twelve spies sent to report on Canaan; Caleb and this man were the only ones to return with positive reports. For 10 points, name this character in the Old Testament who led the Israelites after the death of Moses.

ANSWER: **Joshua** [or **Yehoshu'a**; or **Hoshe'a**]

064-12-59-18117

17. This man's supporters constructed large floats of his opponent that featured bags of money on his opponent's shoulders and naked blonde women in his arms. The CIA-liason to the coup against this man was Lucien Conein. One protest was organized in response to this man's Decree No. 10, which prohibited the display of religious flags. That led to this man's government's denial of misconduct in the killing of 9 unarmed citizens by Matthew Dang Sy, which led to the Buddhist Crisis. This man let "strategic hamlets" be built in his country, and gained power after pledging to ignore the Geneva Accords during a fraudulent 1955 referendum in which he defeated Bao Dai, the last Nguyen emperor. For 10 points, name this first president of South Vietnam.

ANSWER: Ngo Dinh **Diem** [or **Ngo** Dinh Diem]

149-12-59-18118

18. This property can be observed in collagen because dipoles within it form a biological electret. This phenomenon is observed in twenty of the twenty-one non-centrosymmetric crystal classes. It is described by a set of four coefficients, two for its direct form and two for its converse form. One material with this property provides the balancing force to control height in an atomic force microscope. Another material with this property, barium titanate, is used in microphones. The mathematical description of this phenomenon relates a material's electric displacement to a quantity calculated by Hooke's law. For 10 points, name this phenomenon wherein a solid acquires a voltage in response to strain.

ANSWER: **piezoelectricity**

132-12-59-18119

19. This poem describes the "sluggish clod, which the rude swain turns with his share, and treads upon" and "Old Ocean's gray and melancholy waste." The speaker notes how "each one as before will chase his favorite phantom" after the central event. This poem advises that one "go forth, under the open sky, and list to Nature's teachings" when feeling "sick at heart." This poem instructs the addressee to act "like one who wraps the drapery of his couch about him" in contrast to "the quarry-slave at night, scourged to his dungeon," and concludes by comparing death to lying down to pleasant dreams. For 10 points, name this poem by William Cullen Bryant.

ANSWER: "**Thanatopsis**"

014-12-59-18120

20. Examples of these works include *The Argonauts*, *Carnival*, *Actors*, and *Acrobats*, which the Expressionist Max Beckmann created in Amsterdam. The Furies of the *Oresteia* inspired the disturbing creatures in another work of this type, exhibited near the end of World War II. Francis Bacon used this form to depict "Figures at the Base of a Crucifixion." A famous example of these works, when closed, depicts the Creation, but when opened, depicts Earth, Heaven, and Hell. For 10 points, name this type of painting exemplified by *The Garden of Earthly Delights*, which consists of three panels.

ANSWER: **trptych** [do not accept "altarpiece"]

080-12-59-18121

21. The Refuse-nik Natan Shransky was one of the figures associated with monitoring compliance with this agreement, and Enver Hoxha refused to allow his country to be party to this agreement. Henry Kissinger called this agreement "a bunch of crappy ideas." The organization Human Rights Watch arose out of this non-binding agreement, which was divided into three "baskets." This agreement occurred at the conclusion of the first Conference on Security and Co-operation in Europe. It attempted to reduce tension between the Soviet and Western blocs by securing acceptance of post-war borders and by promoting political freedom. For 10 points, name this 1975 diplomatic agreement that was signed in the capital of Finland.

ANSWER: **Helsinki** Accords

030-12-59-18122

22. At the end of this novel, one character wears a vial filled with morphine crystals around her neck. In this novel, a prostitute named Ethel extorts a hundred dollars a month from that character, who gets beaten up by the righteous pimp Mr. Edwards. Another character in this novel burns fifteen thousand dollars that he intended to give his father, who lost all his family's money in a business venture involving the shipping of refrigerated vegetables. Earlier in this novel, Abra Bacon begins dating Aron, who enlists in World War I after learning that his mother is the brothel owner Cathy Ames. The housekeeper Lee defines *timshel* while discussing the Cain and Abel story in this novel. For 10 points, name this John Steinbeck novel about the Trask family.

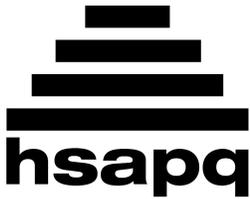
ANSWER: **East of Eden**

079-12-59-18123

23. A generic chart version of these constructs can be described using Harel notation. One can convert between the two main types of these constructs by using the subset construction. The delta functions for these constructs are a mapping from the cross product of capital sigma and S to S. Two popular models of designing these constructs are the Mealy and Moore models. They aren't languages, but these objects correspond to the smallest set in the standard Chomsky hierarchy. The diagrams used to depict these constructs and their more powerful relatives often use a double circle to indicate an accept state. For 10 points, identify these constructs that hold a limited amount of information and change states according to their transition function.

ANSWER: **FSMs** [or **finite-state machines**; or **finite-state automata**; accept deterministic/nondeterministic **finite-state automata**, **DFA**, or **NFA** before "deterministic and nondeterministic types" is read]

066-12-59-18124



1. These boundaries are responsible for forming mid-ocean ridges. For 10 points each:

[10] Name this type of plate boundary that results from two separating tectonic plates.

ANSWER: **divergent** plate boundary

[10] This process, which helps explain continental drift, occurs at mid-ocean ridges. One test of this process was provided by the Morley-Vine-Matthews hypothesis.

ANSWER: **seafloor spreading**

[10] When seawater is heated above 150 Celsius, hydroxides of this element precipitate, causing the recharge seawater to be more acidic. Below 200 C, those precipitates are smectites, while above 200 C they are generally chlorites.

ANSWER: **magnesium** [or **Mg**]

149-12-59-18201

2. One of these beings named Babalu Aye is connected to disease and healing, and one named Eshu represents death. For 10 points each:

[10] Name these manifestations of the Yoruban deity Olorun in a syncretic religion.

ANSWER: **Orishas**

[10] Orishas are spirits from this religion practiced in West Africa and the Caribbean. Some of its practitioners controversially sacrifice chickens.

ANSWER: **Santeria**

[10] The Orisha Shango is often conflated with this Catholic saint. She was tortured and killed by her father Dioscurus, who was subsequently struck by lightning.

ANSWER: Saint **Barbara**

015-12-59-18202

3. In response to this decision, a ballot initiative in Ware, New Hampshire proposed to build the "Lost Liberty Hotel" atop David Souter's home. For 10 points each:

[10] Name this Supreme Court case, arising from plans to build a shopping center in Connecticut.

ANSWER: **Kelo** v. *City of New London*

[10] *Kelo* involved the use, for private benefit, of this action, by which a state seizes a citizen's private property with due compensation but without consent.

ANSWER: **eminent domain** [or **compulsory purchase**; or **resumption**; or **compulsory acquisition**; or **expropriation**; or **condemnation**]

[10] Eminent domain is often used to build these structures, part of a system named for Dwight D. Eisenhower.

ANSWER: interstate **highways**

020-12-59-18203

4. This man created a *Portrait of Painter Bazille* and in his old age, he hired Richard Guino to follow his sculpting instructions. For 10 points each:

[10] Name this French painter of *Luncheon of the Boating Party*.

ANSWER: Pierre-Auguste **Renoir**

[10] This other French painter was a longtime owner of Renoir's *Moulin de la Galette*, and that painting can be seen in this man's self-portrait. He is perhaps more famous for *The Floor Scrapers* and *Paris Street: Rainy Day*.

ANSWER: Gustave **Caillebotte**

[10] Renoir also painted this Impressionist painter of *The Boat During the Flood, Port-Marly*. This English painter also created a series of paintings of the Thames.

ANSWER: Alfred **Sisley**

030-12-59-18204

5. A smear campaign from the 1840s claimed this family's member Nathan made his fortune through speculation after learning the outcome of Waterloo before the general public. For 10 points each:

[10] Name this banking family whose English branch was elevated to the peerage and whose member Walter was the recipient of the Balfour Declaration.

ANSWER: **Rothschilds**

[10] The Rothschilds funded this man when he started the De Beers diamond company. His British South Africa Company administered the colony named for him that became Zimbabwe after independence.

ANSWER: Cecil **Rhodes**

[10] This company was the Rothschilds largest rival until 1890, when Argentina nearly defaulted on the many loans this bank had made to the country. A consortium of English banks provided funds to prop up this company to prevent it and the rest of the banking system from collapsing completely.

ANSWER: **Barings** Bank [or **Baring** Brothers and Company; or John and Francis **Baring** and Company]

121-12-59-18205

6. Answer the following about opium production in the present day, for 10 points each.

[10] This Central Asian country is the largest opium producer in the world, particularly in its Helmand and Kandahar provinces along the southern border with Pakistan.

ANSWER: Islamic Republic of **Afghanistan** [or Jomhuri-ye Eslami-ye **Afganistan**; or Da **Afganistan** Islami Jomhoriyat]

[10] This Indian state's city of Ghazipur contains a legally-licensed opium factory. It lies in India's northeast on the border with Nepal and has a capital at Lucknow.

ANSWER: **Uttar Pradesh**

[10] This mountainous area of Thailand, Laos, Myanmar, and Vietnam is so named because of the extremely high, but declining, profits made from opium production. It also names the Indian tourist circuit of Delhi, Agra, and Jaipur.

ANSWER: **Golden Triangle**

104-12-59-18206

7. One example of this type of reaction is the Briggs-Rauscher reaction. For 10 points each:

[10] Name these chemical reactions which oscillate periodically between two states.

ANSWER: **clock** reactions [or **chemical clocks**]

[10] In one common clock reaction, a triatomic anion of this element forms a dark blue color. In its elemental form, this halogen is solid and sublimates into a purple vapor.

ANSWER: **iodine**

[10] The dark blue color comes from triiodide complexing with this carbohydrate that is broken down by the enzyme amylase (AH-mih-lays)

ANSWER: **starch** [or **amylum**]

132-12-59-18207

8. In one work, this author said that he was sure that Moby-Dick was a symbol, but he was not sure of what. For 10 points each:

[10] Name this author of *Studies in Classic American Literature* who also wrote about the title character tormenting his orderly until he snaps and kills him in "The Prussian Officer."

ANSWER: David Herbert **Lawrence**

[10] In this novel by Lawrence, the title gamekeeper, Oliver Mellors, is a former miner and soldier who is separated from his wife when he begins an affair with Constance.

ANSWER: ***Lady Chatterley's Lover***

[10] The protagonist of this Lawrence short story predicts the outcome of races in order to win money for his poor but greedy mother.

ANSWER: "The **Rocking-Horse Winner**"

105-12-59-18208

9. The armor worn by participants in this sport could weigh up to 50 kilograms. For 10 points each:

[10] Name this sport played between two lance-wielding horsemen, a staple of popular culture depictions of medieval knights.

ANSWER: **jousting**

[10] Regarded as the greatest jousting of his time, this Anglo-Norman soldier took as his name the position of English household security, serving four Plantagenet kings.

ANSWER: Sir William **Marshal**, 1st Earl of Pembroke [or William the **Marshal**; prompt on **William**]

[10] This more disorganized form of tournament combat that preceded jousting eventually came to denote close-range combat in general.

ANSWER: **melee**

020-12-59-18209

10. Name these Jewish authors, for 10 points each.

[10] This author fictionalized the life of his friend Allan Bloom in *Ravelstein*. He also wrote *Herzog* and *The Adventures of Augie March*.

ANSWER: Saul **Bellow**

[10] This Lithuanian-born author wrote *Yekl: A Tale of the New York Ghetto* and created a Russian immigrant who builds a profitable suit business by exploiting his employees in *The Rise of David Levinsky*.

ANSWER: Abraham **Cahan**

[10] This author dealt extensively with the experience of Jews in America in his novels *The Promise, My Name Is Asher Lev*, and *The Chosen*.

ANSWER: Chaim **Potok** [or Herman Harold **Potok**]

080-12-59-18210

11. The Hamming type of this function between two strings is equal to the number of symbols that are different. For 10 points each:

[10] Name this type of function, which satisfies criteria of non-negativity, symmetry, and the triangle inequality. On the real line, this function is the absolute value of the difference of two points.

ANSWER: **distance** function [or **metric**]

[10] In this type of metric space, every Cauchy sequence has a limit inside the space. The reals are an example of this type of space, while the rationals are not.

ANSWER: **complete** [or word forms]

[10] A generalization of the Heine-Borel theorem states that any space will be compact if and only if it is complete and has this property. This property implies a set can be covered with a finite number of balls of fixed size, but does not necessarily fall within a single ball.

ANSWER: **totally bounded** [do not accept or prompt on "bounded"]

121-12-59-18211

12. Identify the following allies of the Trojans, for 10 points each:

[10] Penthesileia, the queen of these warrior women, came to the assistance of the Trojans.

ANSWER: the **Amazons**

[10] Sleep and Death carry away the body of this son of Zeus for burial in Lycia after he is killed by Patroclus. This great warrior is described as falling like struck timber.

ANSWER: **Sarpedon**

[10] The Greeks kill this Thracian king in a night raid shortly after his arrival because of a prophecy stating that Troy would not fall if this man's horses drank from the Xanthus.

ANSWER: **Rhesus**

105-12-59-18212

13. This poem ends by describing how "an image enters in, rushes down through the tense, arrested muscles, plunges into the heart and is gone." For 10 points each:

[10] Name this poem whose title figure's "vision, from the constantly passing bars, has grown so weary that it cannot hold anything else."

ANSWER: "The **Panther**" [or "Der **Panther**"]

[10] This German poet of the *Duino Elegies* wrote "The Panther."

ANSWER: Rainer Maria **Rilke**

[10] This sequence of fifty-five poems by Rilke was written at the same time as the *Duino Elegies*. Several of these poems concern poetry itself and invoke the title Greek musician.

ANSWER: **Sonnets to Orpheus**

105-12-59-18213

14. Answer these questions about Gothic architecture, for 10 points each.

[10] These arches redirected the weight of the cathedral downward, which allowed architects to construct taller buildings.

ANSWER: **flying buttresses**

[10] This section of the church, the main body where parishioners stood, extended from the narthex to the transepts.

ANSWER: the **nave**

[10] This late-Gothic style of French architecture grew out of the Rayonnant style. It takes its name from the flame-like ogee arch seen frequently in its buildings.

ANSWER: **flamboyant** style

080-12-59-18214

15. This movement was divided between those who promoted "physical force," like Feargus O'Connor, and those who advocated "moral force," like William Lovett. For 10 points each:

[10] Name this British social movement of the 1830s and '40s, which was organized into local "Working Men's Associations." It championed a namesake document that proposed six reforms.

ANSWER: **Chartism** [or **Chartist** Movement]

[10] This author of a pamphlet on Chartism coined the phrase "a whiff of grapeshot" in his history of the French Revolution. He also espoused the "great man" theory of history in *On Heroes and Hero Worship*.

ANSWER: Thomas **Carlyle**

[10] All or nothing, name any three of the six reforms proposed in the People's Charter. You have 10 seconds.

ANSWER: any three of **universal male suffrage**, **equal electoral districts**, **allowing those without property to serve in Parliament**, **payment of M.P.'s**, **annual parliamentary elections**, and the **secret ballot**

080-12-59-18215

16. Their first collaboration was a work called *Thespis, or the Gods Grown Old*. For 10 points each:

[10] Name these two men, the composer and librettist of operettas including *Iolanthe*, *The Yeomen of the Guard*, and *The Pirates of Penzance*.

ANSWER: W(illiam) S(chwenck) **Gilbert** and Arthur Seymour **Sullivan** [both required; accept in either order]

[10] In *The Pirates of Penzance*, the Major-General boasts that he can "whistle all the airs" from this earlier Gilbert and Sullivan work, which he refers to as "that infernal nonsense." In this work, Ralph Rackstraw marries the daughter of the captain of the title ship, and Sir Joseph Porter sings the song "When I was a lad."

ANSWER: *H.M.S. **Pinafore**: or, The Lass That Loved a Sailor*

[10] Like the Major-General's song, "When I was a lad" is an example of this type of musical number common in Gilbert and Sullivan's works, characterized by comical lyrics sung very fast. Another example is the "Nightmare Song" from *Iolanthe*.

ANSWER: **patter** song

142-12-59-18216

17. A Scottish man with this last name lost a libel suit to *Lambton Observer* editor Malcolm Cameron before becoming a politician. For 10 points each:

[10] Give this name shared by the Canadian prime minister who introduced the secret ballot and the leader of the Upper Canada rebellion who fought the Battle of Montgomery's Tavern.

ANSWER: **Mackenzie** [or Alexander **Mackenzie**; or William Lyon **Mackenzie**]

[10] Alexander Mackenzie became Canadian prime minister following this man's downfall due to the Pacific Scandal. This man formed the Great Coalition with George Brown and authorized the Wolseley expedition against the Red River Rebellion.

ANSWER: John **Macdonald**

[10] While serving as prime minister, John Macdonald handled raids by this group of Irish patriots. The Niagara Raid by this group involved fighting at Ridgeway and was led by T.W. Sweeny.

ANSWER: **Fenian** Brotherhood

149-12-59-18217

18. For a mechanical system, this quantity is equal to force divided by velocity; for an electrical system, it equals voltage divided by current. For 10 points each:

[10] Name this complex analog of resistance, denoted Z, that is used in place of resistance when analyzing AC circuits.

ANSWER: **impedance**

[10] This device contributes a reactance proportional to one over the angular frequency to the impedance. The voltage drop across it is equal to charge divided by a quantity measured in farads.

ANSWER: **capacitor**

[10] In a mechanical system, this device contributes a frequency-independent impedance, denoted mu. This device is usually added to a spring in a model of a damped oscillator.

ANSWER: **dashpot**

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19. This novel's author based the character of Squire Hawkins on his own cousin, James Lampton, who similarly tried to make a fortune by speculating in land in Tennessee. For 10 points each:

[10] Name this novel, in which a boiler explosion during a steamboat race orphans Laura, who later goes on trial for shooting the bigamous Colonel Selby.

ANSWER: *The **Gilded Age***

[10] *The Gilded Age* was a collaboration between Charles Dudley Warner and this author of *The Innocents Abroad* and "The Man That Corrupted Hadleyburg."

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

[10] A boiler explosion on a steamboat also occurs in this Mark Twain work, which describes the author's own experiences learning to pilot the *Pennsylvania* and the *Gold Dust*.

ANSWER: **Life on the Mississippi**

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20. Answer some questions about protein structure determination, for 10 points each:

[10] X-ray crystallographers constantly seek to minimize this value, which is a factor giving the degree of agreement a structure has with the diffraction data.

ANSWER: **R-factor** [or **residual** factor; or **reliability** factor; or **R-value**; or **R_{work}**; or **discrepancy** index]

[10] Protein structure determination is sometimes pretty annoying; David Eisen may have felt that way when he solved the structure of this enzyme, the first involved in carbon fixation, completely backwards.

ANSWER: **Rubisco** [or **Ribulose-1,5-bisphosphate carboxylase oxygenase**]

[10] Protein determination uses X-ray crystallography, much like the determination of DNA structure did. This scientist actually produced the diffraction images of DNA, but was not credited in the Nobel.

ANSWER: Rosalind Elsie **Franklin**

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21. Aristotle's *Poetics* focuses on this genre, discussing the role of *hamartia* and *catharsis*. For 10 points each:

[10] Name this dramatic genre, Jacobean examples of which include *Coriolanus* and *Antony and Cleopatra*.

ANSWER: **tragedy**

[10] In this other Jacobean tragedy by John Webster, the title widow is murdered at the behest of her brothers, Ferdinand and the Cardinal, for defiantly marrying her steward Antonio.

ANSWER: *The **Duchess of Malfi***

[10] In *The Duchess of Malfi*, Bosola is surprised that the Duchess is not terrified of this object, in response to which she notes that "death hath ten thousand several doors for men to take their exits."

ANSWER: a **cord** [or a **rope**]

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