



1. This man once broke down into tears after listening to the bard Demodokus. He was ordered to found a shrine in a place where the locals would not recognize an oar. Years after this man plundered the city of the Cicones, he was slain with the spine of a stingray by his illegitimate son Telegonus. While on a night raid, this man and Diomedes killed the treacherous Dolon. This man caused the suicide of Ajax by arguing successfully for the armor of Achilles. He sustained an injury while visiting his grandfather Autolycus, allowing him to be recognized years later by his nurse Eurykleia. For 10 points, name this Ithacan hero, the husband of Penelope who spent ten years trying to return home.

ANSWER: Odysseus [or Ulysses; or Ulixes]

105-12-59-17102

2. One possible source of these structures is dense thermochemical piles overlying ultra-low velocity zones. Campbell and Griffith showed that komatiite was probably formed due to these structures. The large positive Clapeyron slope of the post-perovskite transition has a significant impact on their formation. Hans Ramberg pioneered the use of large-scale models to study these structures. W. J. Morgan was the first person to propose the existence of these structures. They consist of a hot tail and a cooler head. These structures explain giant oceanic plateaus, large igneous provinces, continental flood basalts, and hotspot volcanism. For 10 points, identify these columnar upwellings in the mantle.

ANSWER: mantle plume

066-12-59-17103

3. This territory's local government consists of 110 "chapter houses" in such settlements as Shiprock and the town of Chinle. Its inhabitants at Crownpoint suffered a spill from one of many now-closed uranium mines in this place, which caused high rates of lung disease. Hikers can go into Canyon de Chelly ("SHEY") in this territory, whose self-governing 24-member Council meets in its capital city of Window Rock. For 10 points, name this federally-designated area which completely surrounds the Hopi reservation, which is home to its namesake Native American people and contains three of the Four Corners.

ANSWER: Navajo Nation [or Navajo Indian Reservation]

104-12-59-17104

4. This man's second ministry was preoccupied with Charles Bradlaugh's refusal to take the oath of "So help me god." This man was prime minister during the release of the Cuba Five and the arrests of O'Donovan Rossa and James Stephens. No recognition of the "three Fs" were included in this man's Irish Land Act. Following Turkey's suppression of the April Uprising, he published the pamphlet "The Bulgarian Horrors and the Question of the East." This man's ministry adopted the secret ballot and abolished the purchase of commissions. This leader of the Midlothian campaign supported Irish Home Rule. For 10 points, name this British Prime Minister who feuded with Benjamin Disraeli.

ANSWER: William Ewart Gladstone

149-12-59-17105

5. In one aria, this opera's title character angrily rants that a group of courtiers are a vile and damned race. Another character in this opera claims to be a poor student named Gualtier Maldè after giving Giovanna a hefty bribe. Marullo tells everyone about the title character's mistress, and later blindfolds him while forcing him to hold a ladder. The lead soprano announces her love in "Caro Nome," not knowing her would-be lover has been cursed by Count Monterone. The title character hires Maddalena and Sparafucile to kill the Duke of Mantua, who sings "La Donna e Mobile" and thereby reveals that Gilda has died instead. For 10 points, name this Verdi opera about a jester.

ANSWER: **Rigoletto**

015-12-59-17106

6. In one of this author's novels, a visit to the Treasury leads to the conclusion that some sketches of horses with large nostrils, painted in the Chinese style, must have been made by Olive. He created the leftist Sunay Zaim, who is murdered onstage by Kadife, in another work. In the former novel, set during the 16th century, Black tries to marry his cousin Shekure and investigates three miniaturists for the murder of Elegant Effendi. In the latter novel, he wrote about a poet named Ka, who returns from exile to investigate suicides related to a ban on headscarves. For 10 points, name this author of *My Name is Red* and *Snow*, who hails from Turkey.

ANSWER: Orhan **Pamuk**

080-12-59-17107

7. In podospore, one of these molecules called Het-S regulates heterokaryon incompatibility, and in yeast, the PSI one is formed from Sup35p in the presence of the PIN one. One of these molecules contains a PHGGGWGQ repeat at its N-terminus. One disease caused by them has startle myoclonus as a symptom and is diagnosed by assaying for 14-3-3 levels; that disease is linked to polymorphisms at codon 129. Fatal familial insomnia is caused by a mutation in one protein that creates them. One disease caused by these molecules was first found in the Fore tribe, who eat the brains of their dead. These molecules are responsible for transmissible spongiform encephalopathies. For 10 points, name these infectious agents responsible for CJD, Kuru, and Mad Cow.

ANSWER: **prions**

048-12-59-17108

8. In one of this artist's works, smoke billows above a yellow and blue sign that reads "Office & Plant Eshelman Est. 1881 FEED." He referenced a French pastoral romance in the title of his painting of a factory, *Aucassin and Nicolette*. This artist of *Buildings, Lancaster* led the Precisionist movement and painted a grain elevator to resemble the monuments of an exotic country in *My Egypt*. In another of this man's paintings, part of the words "bill" and "Carlos" can be seen, as can three representations of the title number, which is above the initials "W.C.W." For 10 points, name this Philadelphian artist of *I Saw the Figure 5 in Gold*.

ANSWER: Charles **Demuth**

149-12-59-17109

9. The speaker of one of this man's poems sees "six grown men with gaping mouths and eyes" in a rowboat pleading for food. This poet of "For the Commander of 'The Eliza'" recalled "the great slime kings...gathered there for vengeance" in the title poem of one collection. He also described "Big Jim Evans saying it was a hard blow" and "A four foot box, a foot for every year" in a poem about the death of his brother Christopher. This author of "Mid-Term Break" wrote another poem beginning, "Between my finger and my thumb the squat pen rests." For 10 points, name this poet of "Digging," part of the collection *Death of a Naturalist*.

ANSWER: Seamus Justin **Heaney**

149-12-59-17110

10. Hermann Sielcken was brought before anti-trust hearings for his business in this product. A novel written under the pseudonym Multatuli attacked abuses in the production of this good in Dutch colonies. That novel is *Max Havelaar*. In 1906, the government of the largest producer of it embarked upon a "valorization" program to control world prices. Production of this good increased in that country as sugar declined. During that country's Old Republic, the presidency almost always came from Minas Gerais or the largest producer of this good, São Paulo. A devastating leaf rust encouraged Dutch planters to grow the *robusta*, rather than *arabica*, variety of this in Java. For 10 points, name this plant used for a popular beverage.

ANSWER: **coffee** beans [or **coffee** plants; or *Coffea*]

121-12-59-17111

11. This figure was cursed by the gods so that he could never use his powers unless reminded of them by another. By rapidly changing his size, this god dashed in and out of the mouth of Surasa, a demoness blocking his path. This deity once unearthed an entire mountain to bring a life-restoring plant and revive a friend. After the death of Vali, he became counselor to Sugreeva. Indra struck this deity with the vajra after he mistook the sun for a fruit and tried to swallow it. This son of Vayu helps a friend rescue Sita. For 10 points, name this monkey god, the companion of Rama in the *Ramayana*.

ANSWER: **Hanuman**

080-12-59-17112

12. Adding this compound to untreated water can lead to formation of dibromoacetonitrile (die-broh-moh-uh-see-toh-NIGH-try-ihl) during purification processes. This product is produced and consumed in a set of four reactions known as the Chapman mechanism. This compound is the primary component in photochemical smog. Its distinctive odor, often perceived following electrical sparks, is actually due to reactive nitrogen species. In a reaction discovered by Sherwood Rowland and Mario Molina, this compound is consumed in a free radical reaction with chlorofluorocarbons. For 10 points, name this molecule with formula O<sub>3</sub>.

ANSWER: **ozone** [or **O<sub>3</sub>** before read]

003-12-59-17113

13. When forming this mood in Hungarian, verbs that end in "-szit" as well as the word for "to paint" exhibit gemination, causing the characteristic "j" of endings for this mood to drop. In Spanish, "-ir" verbs take the endings "-e, -as" and "-id, -ais" in the familiar form of this mood. In Spanish generally, reflexive pronouns attach to affirmative forms of this mood and precede negative forms of this mood. In Latin, this mood has a third person form used for laws and general rules, and achieves negation using "cave," (CA-way), "ne," or "noli." For 10 points, identify this verb mood used for direct commands.

ANSWER: **imperative** mood

019-12-59-17114

14. In response to some of these events, Charles the Bald issued the Edict of Pistres, which created a system of bridges. Another one of these events led to the accession of the Scottish king Kenneth MacAlpin after the fall of the Pictish kingdom. The annual frequency of these events led to the monastery on the island of Noirmoutier being abandoned in 836. To protect his kingdom from these events, Charles the Simple gave the region of Normandy to Rollo. The bones of St. Cuthbert were moved after another of these events, which targeted a monastery on Lindisfarne. For 10 points, name these hit-and-run attacks conducted by Norsemen on longboats.

ANSWER: **Viking raids** [or equivalents such as **raids by Norsemen**]

080-12-59-17115

15. This material can be characterized by an order parameter that measures deviation from the director. One can prepare this material by placing it between etched indium tin oxide surfaces. Friedrich Reintzer studied the first of these materials to be observed, cholesteryl benzoate. One device that uses this material places its "twisted" form between two perpendicular polarizers. In one of its forms, its particles align in parallel, an example of its orientational but not positional order. A theoretical question about this material concerns phase transitions between its smectic and nematic forms. For 10 points, name this material with properties intermediate between liquid and solid, used in computer and TV displays.

ANSWER: **liquid crystals** [prompt on partial]

132-12-59-17116

16. The death of this composer's mother, Christiane, helped determine the instrumentation of a chamber work in which the cello was replaced with a certain brass instrument. That E-flat work, a modification of a piano trio, is this man's Horn Trio. This composer's late works include eleven chorale preludes, and he used the A-E-F motif in his Double Concerto. One theme in the finale of this composer's first symphony was inspired by an alphorn melody, while another led to its being nicknamed "Beethoven's Tenth." His most famous work was written for Bertha Faber to sing her second child, Hans, to sleep. For 10 points, identify this composer of a namesake Lullaby.

ANSWER: Johannes **Brahms**

066-12-59-17117

17. In this novel, a paralytic communicates with his granddaughter by having her run her fingers down a dictionary and nodding when she reaches the word "notary." Heloise commits a double-suicide with her son in this work after her attempts to poison other members of her household are exposed. The title character of this work leaves a large diamond in an unoccupied room under the name "Sinbad the Sailor" in order to save his old friend, Monsieur Morrel, from suicide. That title character, the former first mate of the *Pharaon*, is educated by the Abbe Faria and pursues Villefort, Danglars, and Morcerf after escaping the Chateau D'If. For 10 points, name this novel about Edmond Dantes's quest for vengeance, written by Alexandre Dumas.

ANSWER: *The **Count of Monte Cristo*** [or *Le **Comte de Monte-Cristo***]

080-12-59-17118

18. One group dedicated to this idea was co-founded by Richard Bland Lee. Both Jehudi Ashmun and Robert Stockton promoted this idea by forcing King Peter to sell land to them. The first president of a group dedicated to this plan was Bushrod Washington, and Henry Clay also led that group from 1836 to 1849. One of the first ventures for it placed 88 people aboard the ship *Elizabeth*. Abraham Lincoln eventually abandoned his support for this plan, which first gained popularity after Gabriel Prosser's rebellion. This plan's most notable result was a colony led by Joseph Jenkins Roberts, which became the future country of Liberia. For 10 points, identify this plan for returning freed blacks in the United States to their home continent.

ANSWER: **African colonization** [or **back to Africa** movement; or anything about blacks going to **Africa**]

052-12-59-17119

19. This man complained that classical utilitarianism does not take the difference between individuals seriously and defended one principle by arguing that it causes a congruence of good for society. In one work, this man argues that the maximin rule would cause "determinate-persons" to discard average utilitarianism in favor of the Difference Principle. This man's "Original Position" involves multiple parties under a "veil of ignorance," such that no party has an advantage in making a choice, part of this man's idea of Justice as Fairness. For 10 points, name this American philosopher of *A Theory of Justice*.

ANSWER: John **Rawls**

105-12-59-17120

20. This man is humiliated by a bartender when he tries to seduce Belle Carpenter. A doctor rushes to tell this man that “the world is Christ and they are all crucified” when the doctor fears he is to be lynched. He decides to fall in love with the banker's daughter to help him write a story, angering his friend Seth Richmond. He worries he “missed something” his former schoolteacher was trying to tell him after she first embraces and then flees from him. A student of Kate Swift, this man has a mother who is loved by Doctor Reefy, who writes down thoughts on bits of paper he stuffs in his pockets. For 10 points, name this reporter for the *Winesburg Eagle*, who leaves his Ohio hometown in a Sherwood Anderson work.

ANSWER: **George Willard** [or George **Willard**]

121-12-59-17121

21. Forces belonging to this ruler aided one king in capturing St. Quentin after the defeat of Anne de Montmorency. During this monarch's rule, the Duke of Guise captured Calais, which was returned several years after this ruler's successor agreed to the Treaty of Cateau-Cambresis. Under this ruler, Stephen Gardiner was made Lord Chancellor and Bloody Bonner burnt such men as Nicholas Ridley and the other Oxford Martyrs at the stake. This ruler executed the Duke of Northumberland and, following the suppression of Wyatt's Rebellion, Lady Jane Grey. This queen quickly became unpopular after her marriage to Philip II of Spain. For 10 points, name this English queen who briefly reinstated Catholicism.

ANSWER: **Mary I** of England [or **Bloody Mary**; prompt on **Mary**]

149-12-59-17122

22. R.A. Fisher calculated there was a 7 in 100,000 chance of this man's results meeting theoretical expectations as well as they did. William Bateson attacked W.R. Weldeon and the biometrician school in a defense of this man's theories two years after their rediscovery by Correns, Tschermak and de Vries. Based on the suggestions of Karl von Nageli, this man tried unsuccessfully to replicate those results in experiments with the *Hieracium* (high-uh-RAY-see-um) genus. His experiments with the *Pisum* genus disproved the pangenesis theory of Darwin and gave evidence for his “law of segregation” and “law of independent assortment.” For 10 points, name this Austrian monk who studied the inheritance patterns of pea plants.

ANSWER: Gregor **Mendel**

121-12-59-17123

23. This poem's images include “theatrical distances, bronze shadows heaped on high horizons, mountainous atmospheres,” and it describes the fixing of “emblazoned zones and fiery poles, arranging, deepening, enchanting night.” At one points in this poem, the speaker recalls asking, “Whose spirit is this?...because we knew it was the spirit that we sought and knew that we should ask this often.” This poem, which makes an ambiguous appeal to Ramon Fernandez, describes a figure who is “the single artificer of the world” that she creates and who “sang beyond the genius of the sea.” For 10 points, name this Wallace Stevens poem titled for an island.

ANSWER: “The **Idea of Order at Key West**”

014-12-59-17124



1. These creatures started a fight with the Lapiths at a wedding. For 10 points each:

[10] Name these creatures, including Chiron, that were half human and half horse.

ANSWER: **centaurs**

[10] This King of the Lapiths was getting married when those centaurs caused trouble. He attempted to abduct Persephone with his friend, Theseus.

ANSWER: **Pirithous**

[10] When Heracles freed Theseus from the underworld, Theseus left some of this part of his body behind. That story explains why this part of the body is slender in Athenians.

ANSWER: his **thighs** [if some 8-year-old gives an inappropriate answer on this bonus part, dock that team 10 points and move on]

124-12-59-17201

2. The discovery of one of this story's three title entities is credited to the "conjunction of a mirror and an encyclopedia." For 10 points each:

[10] Name this short story in which a section on the title land is discovered in an edition of *The Anglo-American Cyclopaedia*. The eleventh volume of an encyclopedia of a fictional world where idealism rules philosophy was found in the possession of Herbert Ashe in this story.

ANSWER: "**Tlon, Uqbar, Orbis Tertius**"

[10] "Tlon, Uqbar, Orbis Tertius" is the first story of *Ficciones*, a collection by this Argentinian author. This author also wrote "The Garden of Forking Paths."

ANSWER: Jorge Luis **Borges**

[10] *Ficciones* also contains a story in which Pierre Menard attempts to rewrite this novel word for word. The Baroness of Bacourt believes that Menard's decision to have this work's title character favor arms over words exemplifies Menard's Nietzschean influences.

ANSWER: **Don Quixote**

149-12-59-17202

3. Name these rivers of Asia for 10 points each.

[10] What river flows through the Wei Valley and forms three sides of the Ordos Loop?

ANSWER: **Yellow** River

[10] The longest river in Asia is what site of the Three Gorges Dam and part of the Three Parallel Rivers?

ANSWER: **Yangtze** River

[10] This river, which discharges "Naga fireballs," flows through the Tonle Sap and is spanned by two Friendship Bridges.

ANSWER: **Mekong** River

147-12-59-17203

4. This man sent a letter to the Irish Catholic Clergy that declared, "You are part of the Antichrist...even the dregs of the cup of the fury and wrath of God will be poured out unto you." For 10 points each:

[10] Name this Lord Protector of England, who launched an extremely bloody invasion of Ireland in 1649.

ANSWER: Oliver **Cromwell**

[10] The most notorious action of Cromwell's invasion was the massacre at Drogheda, on the banks of this river. William III later defeated James II at a 1690 battle named for this river.

ANSWER: **Boyne** River

[10] In the early 1650's, these Irish guerrilla fighters harassed English forces under Henry Ireton. Their name meant "pursuers," but it was later used in English politics to attack those with perceived Catholic sympathies.

ANSWER: **tories** [or **toraidhe**]

080-12-59-17204

5. In one of this man's sculptures, an agonized Hercules strains his muscles to hurl a terrified, upside-down Lichas. For 10 points each:

[10] Name this sculptor of *Psyche Revived by Cupid's Kiss* and *Napoleon as Mars the Peacemaker*.

ANSWER: Antonio **Canova**

[10] In another of Canova's sculptures, this Greek hero holds a sword in his right hand and the head of his enemy in his left. Cellini sculpted him in a similar scene.

ANSWER: **Perseus** [or **Perseus with the Head of Medusa**]

[10] After Canova's death, this Dane became the most prominent Neoclassical sculptor in Rome. He created the statue *Christus* for the Church of Our Lady in Copenhagen and honored the Swiss guards who died during the French Revolution with his *Lion of Lucerne*.

ANSWER: Bertel **Thorvaldsen**

080-12-59-17205

6. One of his poems harangues a "stinking adulteress" for stealing his writing tables, while another accuses Marrucinus Asinus of stealing one of his linen dining napkins. For 10 points each:

[10] Name this man who wrote two poems about a sparrow his lover held to her breast before its death. One hundred sixteen of his *carmina* survived the Middle Ages in a single copy.

ANSWER: Gaius Valerius **Catullus**

[10] Catullus's fifty-first poem is a paraphrase of this Greek female poet of a "Hymn to Aphrodite," who hailed from Lesbos.

ANSWER: **Sappho**

[10] Much like Sappho, Catullus used this non-dactylic meter in forty-three of his poems. He explicitly notes his use of it against rivals in the aforementioned tablet and napkin poems.

ANSWER: **hendecasyllables** [or **hendecasyllabic** meter]

104-12-59-17206

7. This partial differential equation simplifies to Laplace's equation when the right side of the equation equals zero. For 10 points each:

[10] Name this equation that states that the Laplacian of a scalar function is equal to another function. In electrostatics, it states that the negative Laplacian of potential is proportional to charge density.

ANSWER: **Poisson's** equation

[10] In mechanics, Poisson's equation states that the Laplacian of scalar potential equals four pi times density times this constant, approximately 6.67 times ten to the negative eleventh newtons meters squared per kilogram squared.

ANSWER: universal **gravitational constant** [or **Big G**; prompt on **G**; prompt on **gravity**]

[10] The universal gravitational constant is also the coefficient of proportionality in the law of universal gravitation developed by this man. He elucidated three laws of motion.

ANSWER: Isaac **Newton**

003-12-59-17207

8. This set of fourteen takes on a theme was dedicated to the composer's "friends pictured within." For 10 points each:

[10] Name this Edward Elgar piece whose sections are titled with initials of the people they depict. The title riddle is a "dark saying" that is not played.

ANSWER: ***Enigma Variations***

[10] One of the most popular parts of the *Enigma Variations* is this one dedicated to Augustus Jaeger and often played on solemn occasions like Remembrance Sunday.

ANSWER: **Nimrod** [or **Variation 9**]

[10] Elgar originally planned to honor "Chinese" Gordon with this piece, which he dedicated to Hans Richter. Its key switches between the unrelated A-flat major and D minor.

ANSWER: **Symphony No. 1** in A-flat Major

147-12-59-17208

9. Tensions between these two countries rose after one of them killed two of the other's sailors in the *Icarus* Affair. For 10 points each:

[10] Name these two countries that signed an alliance in 1902 based on their mutual interests in Southeast Asia. That alliance staved off fears that one side would take over India.

ANSWER: **England** and **Japan** [accept in either order; accept **United Kingdom** of Great Britain and Northern Ireland or Great **Britain** for England; accept **Nihon**-koku or **Nippon**-koku for Japan]

[10] The two countries would probably have necessarily been driven apart had this Indian nationalist succeeded in getting Japanese military support for Indian independence. He is affectionately known as "Netaji."

ANSWER: Subash Chandra **Bose**

[10] England and Japan were two signatories of the Five Power Treaty, which sought to prevent an arms race in this branch of the military, like the one Britain had earlier precipitated Germany over the construction of dreadnoughts.

ANSWER: **navy** [or **navies**; or equivalents such as **maritime forces**]

020-12-59-17209

10. HVPE and LVPE can both be used to reduce this quantity, although they affect the viscosity of the sample in opposite ways. For 10 points each:

[10] Give this term for the percentage of blood taken up by red blood cells. Its usually about 45% for men and 40% for women.

ANSWER: **hematocrit** [or **HCT**]

[10] Other than the hematocrit, blood consists of this liquid component in which proteins, glucose, and ions are dissolved. It usually appears yellow.

ANSWER: blood **plasma**

[10] Measuring the hematocrit would involve using this technique on a sample of blood. Some protocols use this technique to obtain a "pellet" of DNA at the very bottom.

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

020-12-59-17210

11. This man's successes included foiling the conspiracy of Bigtan and Teresh. For 10 points each:

[10] Name this wise Jew who refused to bow before Persia's vizier Haman. Haman was later executed on the gallows built for this man and his people.

ANSWER: **Mordecai**

[10] This holiday celebrates Mordecai and his cousin Queen Esther in their success at saving the Persian Jews. A *megillah* is read in synagogue on this day, on which drunkenness and costumes are encouraged.

ANSWER: **Purim**

[10] These baskets of candy and food are given to relatives and friends on Purim according to a tradition outlined in rabbinic law.

ANSWER: **mishloach manot** [or **shalach manot**; accept "manos" in place of "manot"]

104-12-59-17211

12. Rebecca Skloot wrote a 2010 history focusing on this black woman, who, before dying at age thirty-one at Johns Hopkins hospital, had tumor tissue extracted from her body by George Gey without informed consent. For 10 points each:

[10] Name this woman. Her tumor cells were the first known cells to divide indefinitely, and have since been used extensively in medical research without any compensation to her family.

ANSWER: Henrietta **Lacks**

[10] This scientist used the immortal cell line from Lacks's tumor, now designated the HeLa cell line, to test his iconic inactivated polio vaccine, which preceded Albert Sabin's oral vaccine.

ANSWER: Jonas **Salk**

[10] In the late 1700s, this British Royal Society member pioneered vaccination by proving that a cowpox inoculation could help protect humans from smallpox.

ANSWER: Edward Anthony **Jenner**

104-12-59-17212

13. During this man's tenure as Prime Minister, MP Stephen Milligan was found dead apparently as a result of a self-bondage act gone wrong. For 10 points each:

[10] Name this Conservative Prime Minister who noted his 1991 negotiations during the Maastricht Treaty were won "game, set, and match for Britain." During his ministry on "Black Wednesday," the UK was forced to withdraw the pound sterling from the European Exchange Rate Mechanism.

ANSWER: John **Major**

[10] Major succeeded this Conservative Prime Minister after previously serving as her Chancellor of the Exchequer. She led the UK during the Falklands War and resigned after a 1990 challenge to her role as party leader.

ANSWER: Margaret Hilda **Thatcher** [or Margaret Hilda **Roberts**]

[10] In the 1992 elections, this newspaper mocked the Labour Party leader with the headline "If Kinnock wins today will the last person to leave Britain please turn out the lights," which this paper later claimed was instrumental in the Conservative victory.

ANSWER: *The Sun*

052-12-59-17213

14. This piece's three movements are titled "America-Before the War," "Europe-During the War" and "After the War." For 10 points each:

[10] Name this minimalist piece, which incorporates the recorded voice of a Pullman Porter to recall its composer's childhood travels. It also incorporates speech from three Holocaust survivors.

ANSWER: *Different Trains*

[10] This composer of *Different Trains* used a cycle of eleven chords in his *Music for 18 Musicians*. He also composed *Drumming* and *Eight Lines*.

ANSWER: Steve **Reich**

[10] Reich influenced this minimalist composer of *On the Transmigration of Souls* and the opera *Nixon in China*.

ANSWER: John Coolidge **Adams**

080-12-59-17214

15. This novel was adapted into a wildly popular 2004 BBC miniseries starring Daniela Denby-Ashe and Richard Armitage as Margaret Hale and John Thornton. For 10 points each:

[10] Name this Victorian novel whose title locations signify the tensions between agrarian England and industrial England. It was written by Elizabeth Gaskell.

ANSWER: *North and South*

[10] *North and South* is thematically similar to this author's novel *Shirley*. Mr. Rochester is the master of Thornfield Hall in her best-known novel, *Jane Eyre*.

ANSWER: Charlotte **Bronte** [prompt on **Bronte**]

[10] The villainous Bounderby and Gradgrind appear in this industrial novel by Charles Dickens. It criticizes utilitarianism and schooling based on "facts."

ANSWER: *Hard Times*

020-12-59-17215

16. Stokes' Theorem can be considered as a generalization of this theorem. For 10 points each:  
[10] Name this theorem, which states that the integral of  $f(x)$  over the interval  $[a,b]$  is equal to the antiderivative of  $f$  at  $b$  minus the antiderivative of  $f$  at  $a$ .

ANSWER: the Second **Fundamental Theorem of Calculus**

[10] Another generalization of the fundamental theorem is the theorem named for this operator. Represented as "del dot," it represents how much is "flowing out" of every point in a domain.

ANSWER: **divergence** [or **div**]

[10] Green's theorem states that for two functions  $P$  and  $Q$ , the double integral of  $dQ/dx$  (" $d$ "-" $Q$ "-" $d$ "-" $x$ ") -  $dP/dy$  (" $d$ "-" $p$ "-" $d$ "-" $y$ "), over some region  $A$ , is equal to the line integral of  $Pdx$  (" $p$ "-" $d$ "-" $x$ ") plus  $Qdy$  (" $q$ "-" $d$ "-" $y$ ") over what construct?

ANSWER: the **boundary** of  $A$  [accept similar answers]

080-12-59-17216

17. One of the longest wars in Classical Europe was fought between Carthage and Greek city-states over control of this island. For 10 points each:

[10] Name this place that was also the site of an ill-fated expedition organized by Alcibiades during the Peloponnesian War. It is the largest island in the Mediterranean.

ANSWER: **Sicily** [or **Sicilia**]

[10] This Sicilian city-state was Athens' main opponent on the island. It enlisted the aid of the Spartan Gylippus to eventually defeat Athens, ending the expedition.

ANSWER: **Syracuse** [or **Siracusa**]

[10] This tyrant of Syracuse and king of Sicily tried to expel Carthage from the island in the late fourth century BCE. After defeat at Himera, he led the first attack of Carthage on the African continent in 307 BCE.

ANSWER: **Agathocles**

121-12-59-17217

18. Answer these questions about architects in literature, for 10 points each.

[10] This Ayn Rand novel follows the architect Howard Roark, who designs Cortlandt Homes for his friend Peter Keating. Howard blows it up because it did not follow his design.

ANSWER: *The **Fountainhead***

[10] This Heinrich Böll novel follows the Faehmel family in postwar Germany. Heinrich Faehmel designed St. Anthony's Abbey, his son Robert blew it up, and his grandson Joseph is rebuilding it.

ANSWER: ***Billiards at Half-Past Nine***

[10] This contemporary author wrote about four lovers of Frank Lloyd Wright in *The Women*. His other works include "Greasy Lake," *The Tortilla Curtain*, and *World's End*.

ANSWER: Tom Coraghessan **Boyle**

080-12-59-17218

19. In this film, two Chechen gangsters are killed in a graphic knife fight in a Turkish bath. For 10 points each:

[10] Name this 2007 film in which Nikolai Luzhin, a driver for the *vory v zakone*, helps midwife Anna Khitrova investigate the history of a sex trafficking victim who died in childbirth.

ANSWER: **Eastern Promises**

[10] *Eastern Promises* was directed by this Canadian who began his career as a pioneer of venereal horror. His other films include *Crash*, *A History of Violence*, and *Videodrome*.

ANSWER: David **Cronenberg**

[10] Cronenberg directed this 1986 film in which Seth Brundle inadvertently alters his DNA while testing his teleportation device, causing him to transform gradually into the title insect.

ANSWER: *The* **Fly**

014-12-59-17219

20. This event began when Marquette Frye was pulled over on suspicion of drunk driving. For 10 points each:

[10] Name this August 1965 civil disturbance that resulted in over \$40 million in property damage. The McCone Commission blamed it on unemployment and poor housing, and police chief William Parker described participants as "monkeys in the zoo."

ANSWER: **Watts Riots**

[10] The McCone Commission was assembled by a California governor with this surname, who had defeated Richard Nixon in a gubernatorial election in 1962. It is also the surname of his son, the current governor of California.

ANSWER: **Brown** [or Pat **Brown**; or Jerry **Brown**; or Edmund Gerald **Brown**, Sr.; or Edmund Gerald **Brown**, Jr.]

[10] In July 1967, major riots broke out in this East Coast city, leaving 26 dead. It began when a black cabdriver was arrested for illegally passing two white police officers. Despite having a majority black population, this city did not feature black leaders in the administration of Mayor Hugh Addonizio.

ANSWER: **Newark**

052-12-59-17220

21. A Bloch sphere is one geometrical representation of this type of system. For 10 points each:

[10] Name this type of two state system that is used to store information by a certain computer. One example of these systems is the polarization of a single photon.

ANSWER: **qubit**

[10] Qubits are the analog of bits for this type of computer. This type of computer can factor integers by using Shor's algorithm.

ANSWER: **quantum** mechanical computer

[10] One commonly used gate in quantum computer designs is this gate, also called the reversible xor gate. This gate can be written as a 4x4 matrix with ones in entries 1,1 2,1 3,4 4,3 and the rest of the entries set to 0, while the classical version of this gate maps x,y to x, x xor y.

ANSWER: **cnot** [or **controlled not**]

149-12-59-17221