



1. A Middle Ages trade route in this country was changed in 1950 into a 210-mile scenic drive called the Romantic Road. This country's largest amusement park is called Europa-Park. The capital of this country is home to Museum Island, which includes the Pergamon Museum. This country was where one of the first cuckoo clocks was made; that occurred in its Black Forest. For 15 points, name this country that inspired Sleeping Beauty's Castle with its Bavarian Neuschwanstein (noish-VON-shtein) Castle.

ANSWER: Federal Republic of **Germany** [or Bundesrepublik **Deutschland**]

023-13-104-22101

BONUS: What text fundamental to Daoism was written by Lao Tzu?

ANSWER: the ***Dao De Jing*** [or the ***Tao Te Ching***; or the ***Book of the Way and its Power***]

014-13-104-2210-11

2. The speaker of this poem is angry that "some officious fool" made a gift of a bough of cherries. Artwork described in this poem includes a bronze of Neptune by Claus of Innsbruck and a painting of the title character by Fra Pandolf. The speaker of this poem is angry that the title character was "too soon made glad," so he ensured that "all smiles stopped together." For 15 points, name this poem that implies the title noblewoman was murdered by her husband, and which was written by Robert Browning.

ANSWER: "**My Last Duchess**"

023-13-104-22102

BONUS: What German composer wrote the *Academic Festival Overture* and a famous lullaby?

ANSWER: Johannes **Brahms**

023-13-104-2210-11

3. A city from this modern-day country names a major chord built on the lowered second scale degree. The NBC Symphony Orchestra was established for a conductor from this country. A composer from this country supposedly saved polyphony with a performance of the *Pope Marcellus Mass*. A Baroque composer from this country wrote a set of four violin concerti that depict events such as a thunderstorm and hunting in his *The Four Seasons*. For 15 points, name this country, the setting of Ottorino Respighi's *Pines of Rome*.

ANSWER: **Italy** [or **Italian** Republic; or Repubblica **Italiana**]

140-13-104-22103

BONUS: What element with atomic number 5 is used to absorb neutrons in nuclear reactors?

ANSWER: **boron**

014-13-104-2210-11

4. According to one story, this hero performed a katabasis (KAH-tuh-BAH-sis) by being eaten and regurgitated by a dragon. In another story, this hero attacked Iolcus (ee-OL-kus) with Peleus after his cousins were tricked into boiling his uncle, thinking that it would make him younger. This hero successfully yoked two fire-breathing bulls, and he lost a sandal while helping a disguised Hera cross a river. For 15 points, name this husband of Medea who led the Argonauts in their quest for the Golden Fleece.

ANSWER: **Jason**

227-13-104-22104

A politician with this last name crashed a car in the Chappaquiddick incident. Another politician with this last name gave a speech at the Ambassador Hotel after winning the California primary before being assassinated by Sirhan Sirhan. Abraham Zapruder filmed a president with this last name being shot in Dealey Plaza in Dallas. For 15 points, give this last name of a political family that included Senators Ted and Robert F., as well as assassinated President John F.

ANSWER: **Kennedy** [or Edward Moore **Kennedy**; or Ted **Kennedy**; or Robert Francis **Kennedy**; or John Fitzgerald **Kennedy**]

023-13-104-2210-11

5. This molecule is the most common source of the group that kinases transfer. The synthase that creates this molecule has F-sub-zero and F-sub-one subunits. A cyclase transforms this molecule into cAMP. The consumption or production of this molecule determines the investment and pay-off phases of glycolysis. The hydrolysis of this molecule yields -30.5 kilojoules per mole and ADP. For 15 points, identify this energy currency of the cell.

ANSWER: **ATP** [or **adenosine-5 prime-triphosphate**]

066-13-104-22105

BONUS: What instrument was primarily played by Thelonious Monk, Count Basie, and Fats Waller?

ANSWER: **piano**

015-13-104-2210-11

6. Buildings in this city include James Deering's Tuscan Style mansion, which is now known as the Vizcaya Museum. This city has neighborhoods named Coconut Grove and Coral Gables, which houses its namesake university. Sitting on Biscayne Bay, this city lies thirty miles south of Fort Lauderdale on the Atlantic Coast. This city is known for the night life on its South Beach and for its Cuban plurality. For 15 points, name this most populous city of southern Florida.

ANSWER: **Miami**

015-13-104-22106

This artist's alter ego, Rose Selavy (SAY-la-VEE), was often photographed by Man Ray. This artist chose to abbreviate a dirty French phrase for the title of an image of the Mona Lisa with facial hair. This artist's *L.H.O.O.Q.* is an example of a genre of artworks he pioneered by restructuring ordinary objects. For 15 points, name this French creator of readymades, who signed a urinal "R. Mutt" and named it *Fountain*, and painted *Nude Descending a Staircase*.

ANSWER: Marcel **Duchamp**

120-13-104-2210-11

7. Craig Robinson's guest spot as Doug Judy on this TV show involved him tricking characters into thinking his Asian barber is the Pontiac Bandit. "Mouth feel" is a component of the pizza rankings sent out in e-mail blasts on this show by Boyle, who has a crush on, and takes a bullet for, Diaz. A mental breakdown following the birth of Cagney and Lacey occurred for this show's character Terry. In the first episode of this show, Peralta finds out that new captain Ray Holt is openly gay. For 15 points, name this Fox TV show starring Andy Samberg, about a New York police precinct.

ANSWER: **Brooklyn Nine-Nine**

023-13-104-22107

Four times this quantity times mutation rate gives the parameter theta. The Chapman estimator is commonly used in one technique to measure this quantity, which involves tag, release, and recapture. Hardy-Weinberg equilibrium assumes it to be infinite. The change in this quantity over time is given by the Logistic equation, and Malthus predicted dire consequences if this value became too high for humans. For 15 points, name this value for a given environment is maximal at the carrying capacity.

ANSWER: **population** size [or obvious equivalents, such as how large a **population** is]

048-13-104-2210-11

8. This region was the subject of a Marjory Stoneman Douglas book which referred to it as the "river of grass," and it contains the almost entirely uninhabited Ten Thousand Islands. The Tamiami Trail, eventually known as "Calle (KAI-yay) Ocho," runs through it. Over twelve hundred invasive Burmese pythons have been removed from this region since 2009. Napoleon Bonaparte Broward proposed draining it. This region is fed by the Kissimmee River, which empties directly into Lake Okeechobee. For 15 points, name this large tropical wetlands region in southern Florida.

ANSWER: **Everglades**

052-13-104-22108

A subclass in this phylum has saliva that contains the peptide hirudin, which is an anticoagulant. A class in this phylum is characterized by the presence of a thickened, glandular section of body wall that is used for reproduction and known as the clitellum. Chitinous bristles known as chaetae that appear on parapodia characterize the polychaete class of this phylum. This phylum contains the leeches. For 15 points, identify this phylum of segmented worms that includes the earthworms.

ANSWER: **annelids** [or **Annelida**; or **segment worms** until it is read]

066-13-104-2210-11

9. The competition for designing what became this monument was overseen by George Howe. This monument was built by the MacDonald Construction Company and used the Pittsburgh-Des Moines Steel Company for its stainless steel exterior. This monument was one of the first solo designs done by Finnish architect Eero Saarinen. Underneath this monument is the Museum of Westward Expansion. For 15 points, name this 630-foot tall and 630-foot wide catenary arch located next to the Mississippi River in St. Louis.

ANSWER: **Gateway** Arch

023-13-104-22109

A compound of this element bound to three oxygens, one of which is bound to a hydrogen, is important in the blood buffer system. Molecules composed entirely of this element are called fullerenes, such as the one named for Buckminster Fuller. An alloy of this element and iron is known as steel. A single-layered honeycomb lattice of this element is known as graphene. This element's 14 isotope has a half-life of 5,730 years, which is why it is commonly used for radiometric dating. For 15 points, name this element with atomic number six whose chemical symbol is C.

ANSWER: **carbon**

066-13-104-2210-11

10. In this play, the servants Launcelot and Old Gobbo defect from their master. In another scene from this play, the Princes of Aragon and Morocco, two suitors, fail to guess which of three caskets contains a wealthy woman's portrait. That woman and her maidservant Nerissa dress up as men to appear in a trial in its fourth act, concerned with an unusual demand of a "pound of flesh." For 15 points, the rich Portia and the miserly Jew Shylock appear in what Shakespeare play?

ANSWER: *The **Merchant of Venice***

020-13-104-22110

BONUS: What Polish anthropologist examined the kula exchange system in his *Argonauts of the Western Pacific*?

ANSWER: Bronislaw **Malinowski**

227-13-104-2210-11

11. This poet wrote of a man who returns from being lost at sea to find that his wife has married his childhood friend in "Enoch Arden." He wrote a dramatic monologue where the title character begs Eos for death, "Tithonus." In one of his last poems, he compares life to a boat which is captained by God. His most famous poem begins "Half a league, Half a league, half a league onward" and describes a disastrous cavalry charge against Russian soldiers. For 15 points, name this Victorian-era poet of "Crossing the Bar" and "Charge of the Light Brigade."

ANSWER: Alfred **Tennyson**, Lord **Tennyson**

230-13-104-22111

The Grothuss-Draper (GROW-tiss DRAY-per) law states that a reaction can only occur when a target molecule is affected by this phenomenon. On a Feynman (FINE-man) diagram, this phenomenon is represented by a wavy line in the center. Albert Einstein was awarded his Nobel when he demonstrated that this phenomenon was quantized. When 7-dehydrocholesterol in the skin is exposed to this phenomenon, vitamin D is synthesized. Two organs in the human body detect this phenomenon using rod and cone cells. For 15 points, identify this phenomenon which stimulates phototropism in plants.

ANSWER: visible **light** [or **photons**; or **UV** radiation; prompt on "electromagnetic radiation"]

239-13-104-2210-11

12. This element links three to five benzene rings in Salvarsan, a drug discovered by Paul Ehrlich that was the first effective treatment for syphilis. This element is used in a III-V semiconductor with gallium. Groundwater contamination of this element is a serious problem in Bangladesh. In 2010, NASA scientists incorrectly announced the discovery of a bacteria that incorporated this element into its DNA instead of the element above it on the periodic table, phosphorus. For 15 points, identify this poisonous element with symbol As.

ANSWER: **arsenic** [or **As** until it is read]

234-13-104-22112

BONUS: What letter denotes the speed of light in physics and is given to a vitamin also known as ascorbic acid?

ANSWER: **c**

014-13-104-2210-11

13. In a play by this author, the title character steals morphine from a doctor to kill himself and proves unable to successfully shoot a professor. This man once remarked "if in Act One, you have a pistol hanging on the wall, then it must fire in the last act," a principle known as his "gun." He wrote about Konstantin Treplyov killing himself some time after shooting the title bird in one play. For 15 points, name this Russian author of such plays as *Uncle Vanya* and *The Seagull*.

ANSWER: Anton Pavlovich **Chekhov**

052-13-104-22113

Aldous Huxley satirized this man's utopianism found in novels like *Men Like Gods*. Hilaire Belloc and G.K. Chesterton attacked the dismissal of Christianity and belief in human progress in his *Outline of History*. In a novel by this writer, the upper-class and working-class evolve into separate species, the childish Eloi and underground-dwelling Morlocks. Those groups are found by a traveler to the year 802,701. For 15 points, name this author of *The Time Machine*.

ANSWER: Herbert George **Wells**

121-13-104-2210-11

14. This element is present in the active site of rubisco, bound to a lysine. This element and zinc block transport through NMDA receptors. It is the central atom of the porphyrin ring in chlorophyll. This element is the most common divalent cation to which ATP binds to make it active. The hydroxide of this element is a common antacid and laxative that resembles milk in appearance. For 15 points, identify this element with symbol Mg.

ANSWER: **magnesium** [or **Mg** until it is read]

066-13-104-22114

BONUS: What chemist came up with namesake laws of diffusion that can be used to solve for the diffusion coefficient, D?

ANSWER: Adolf **Fick**

052-13-104-2210-11

15. Though he sided with the Greeks during the Trojan War, this god escorts Priam to Achilles's camp in the *Iliad*. Odysseus was descended from this god, as his grandfather was Autolycus (AH-tow-LYE-kuss). Two snakes intertwined around a staff, or a caduceus, is a symbol of this deity. His mother was the eldest of the Pleiades and was named Maia (MY-uh). As a child, this god used the entrails of Apollo's cattle to fashion a lyre. For 15 points, name this god depicted with winged sandals, a trickster and messenger god.

ANSWER: **Hermes**

190-13-104-22115

BONUS: What last-in-first-out data structure uses "push" and "pop" operations?

ANSWER: **stack**

014-13-104-2210-11

16. Bourdon gauges are used to measure this quantity. This quantity can be measured in units of length by dividing it by fluid density and by gravitational acceleration. Add 760 torr to the "relative" value of this quantity in order to get its "absolute" form, which takes into account the atmospheric component. Other units to measure this quantity include millimeters of mercury, bars, and atmospheres. For 15 points, name this quantity equal to force over area.

ANSWER: **pressure**

190-13-104-22116

BONUS: Which French short story writer wrote about the prostitute Elizabeth Rousset in *Ball of Fat*?

ANSWER: Henri Rene Albert Guy de **Maupassant**

186-13-104-2210-11

17. This poem describes a group of "good men" who cry because of "how bright their frail deeds might have danced in a green bay." The speaker of this poem also describes "grave men" whose "blind eyes could blaze like meteors and be gay." The author of this villanelle addressed his father in the last stanza, urging him to fight against his looming death. For 15 points, name this poem by Dylan Thomas that commands its addressees to "rage, rage against the dying of the light."

ANSWER: "**Do Not Go Gentle into That Good Night**"

023-13-104-22117

BONUS: What Greek letter denotes a change in a quantity as well as identifying functions named for Kronecker and Dirac?

ANSWER: **delta**

014-13-104-2210-11

18. This statesman was descended from the Alcmaeonidae. The expulsion of Cimon and Ephialtes's murder let him to consolidate power in 461 BCE. This leader's efforts saw the Delian League turn into an empire that rivaled Sparta and led to the Peloponnesian Wars. Three years before defeating Thucydides in 444 BCE, he started the building of the Acropolis and Parthenon. For 15 points, name this Athenian statesman and leader of that city's Golden Age.

ANSWER: **Pericles**

147-13-104-22118

Early rulers of this empire were called "labarna" after its apocryphal founder, and it reached its apex under the reigns of Suppiluliumas I and Mursilis II. Bogazkoy served as the capital of this empire, that fought Ramses II at Kadesh, and its power began to wane with attacks from the Assyrians and the Sea Peoples. For 15 points, name this fourteenth century BCE empire in Turkey that crafted iron artifacts.

ANSWER: **Hittite** empire

144-13-104-2210-11

19. Escaped slaves living in this area inspired Harriet Beecher Stowe's novel *Dred*. This area contains the larger of only two natural lakes in its state, Lake Drummond. George Washington surveyed it and suggested building a canal connecting the Albemarle Sound with the Chesapeake Bay. This marsh's current borders touch Camden County in the south and the cities of Chesapeake and Suffolk in the north. For 15 points, name this swamp in southeast Virginia and northeast North Carolina.

ANSWER: **Great Dismal** Swamp

121-13-104-22119

After reading Svante (suh-VON-tay) Arrhenius's work on the greenhouse effect, this inventor of an electric piano proposed setting coal mines on fire to increase global temperatures. Though not Jewish, the Nazis forced him into retirement because his three daughters all had Jewish husbands. His observations on approaching absolute zero became the third law of thermodynamics. For 15 points, identify this scientist whose namesake equation is used to calculate the reduction potential of an electrochemical half-cell.

ANSWER: Walter **Nernst**

019-13-104-2210-11

20. An officer of this state's military had his head thrown into the camp of his older brother after his defeat at Metaurus. This city was home to Hamilcar, a patriarch whose progeny included Mago and Hasdrubal Barca. Cato the Censor repeatedly advocated for the destruction of this city. This civilization's downfall was ensured when Scipio Africanus won the Battle of Zama against its general Hannibal. For 15 points, identify this Phoenician city that fought the Punic Wars against Rome.

ANSWER: **Carthage** [or **Carthago**; or **Kart-hadasht**]

195-13-104-22120

BONUS: What state is the site of Omaha and is known as the Cornhusker state?

ANSWER: **Nebraska**

015-13-104-2210-11

21. Instead of copper, this element is used for overhead power lines due to its lower density. All feldspars contain an atom of this element bonded to a silicate. An atom of this element is found in cryolite, which is melted with this element's oxide in the Hall-Heroult process. Like boron, this element usually forms plus three ions, and its principal ore is bauxite. For 15 points, identify this light metal with atomic number thirteen and symbol Al.

ANSWER: **aluminum** [or **aluminium**; or **Al** until it is read]

234-13-104-22121

BONUS: Marina Abramovic is a practitioner of what type of art form, which is carried out directly in front of an audience?

ANSWER: **performance** art

140-13-104-2210-11

22. This man sings "aviator shades, cause she shine so bright, beats on the G5, songs I write" in "She's Like a Star." In his debut single, he worries that "when I touched your hand, you didn't wanna hold" and says "If you're leaving me, baby, I just wanna know." In another song, he claims "I came to dance, dance, dance, dance," and says "I wanna celebrate and live my life, saying ayo, baby let's go." For 15 points, name this British singer of Nigerian descent who recorded "Dynamite."

ANSWER: Jacob Taio **Cruz**

080-13-104-22122

Like Thomas Jefferson, this man wrote one of the Virginia and Kentucky Resolutions that opposed the Alien and Sedition Acts. A Supreme Court case sought to get a writ of mandamus to force this man to deliver a commission to William Marbury. A Gilbert Stuart portrait of George Washington was saved by this President's First Lady before the White House was burned during the War of 1812. For 15 points, name this husband of Dolley who succeeded Thomas Jefferson as President.

ANSWER: James **Madison**

023-13-104-2210-11

23. A poem inspired by the death of this man includes a carol praising death as "lovely and soothing." That poem describes this man as a "powerful western fallen star." Another poem about this man's death states, "the ship has weathered every rack, the prize we sought is won," before recognizing that the title man has "fallen cold and dead." For 15 points, name this man elegized by Walt Whitman in "When Lilacs Last in the Dooryard Bloom'd" and "O Captain! My Captain!"

ANSWER: Abraham **Lincoln**

014-13-104-22123

Charlie Duke served as the CAPCOM on this mission. A member of this mission described a surface as "fine and powdery." A Jules Verne novel inspired the name of this mission's vehicle *Columbia*, which was piloted by Michael Collins. Two other members of this mission were transported by the *Eagle*, including Buzz Aldrin. For 15 points, name this NASA mission during which the quote "That's one small step for man, one giant leap for mankind" was said by Neil Armstrong on the moon.

ANSWER: **Apollo 11** [prompt on **Apollo**; prompt on such answers as first **moon landing**]

023-13-104-2210-11

24. Protein transport in this organelle is governed by the TIC and TOC complexes. The transfer of electrons from a quinone to a copper protein in this organelle is catalyzed by the cytochrome b6f complex. The splitting of water in this organelle reduces P680+ to P680. The stroma of this organelle contains grana, which are stacks of thylakoids. This organelle is thought to have evolved from endosymbiosis with cyanobacteria. For 15 points, identify this plant organelle where photosynthesis occurs.

ANSWER: **chloroplasts**

066-13-104-22124

This god was unable to lift a cat in the home of a giant in whose glove he had previously spent the night. He once dressed as Freya to retrieve his weapon from the giant Thrym. This deity had received that object after his wife's golden hair was cut off. This husband of Sif has a chariot pulled by two goats and will kill and be killed by the Midgard Serpent at Ragnarok. For 15 points, name this wielder of the hammer Mjolnir (mee-OLE-near), the Norse god of thunder.

ANSWER: **Thor**

141-13-104-2210-11

25. A king of this name died from food poisoning after eating an excess of lampreys. An emperor of this name was forced to abdicate in 1105. A 1587 namesake war was fought between three men of this name, and a French king of this name enacted the Edict of Nantes. Another person with this name was the first monarch of the Tudor dynasty. For 15 points, give this name shared by many European rulers, including an English king with six wives.

ANSWER: **Henry**

145-13-104-22125

BONUS: What process in computer science is accomplished using algorithms called “shell,” “bubble,” and “radix”?

ANSWER: **sorting**

014-13-104-2210-11

26. This publication contains such regular features as "Charlemagne," an opinion column on France, and "Bagehot" (BAA-jet), a column on Britain. This magazine has a longstanding policy of complete editorial anonymity, with even editor John Micklethwait's name absent. It was founded by James Wilson in 1843 to support the repeal of the Corn Laws. This publication's traditional liberal views led to it being dubbed the "European organ of the aristocracy of finance" by Karl Marx. For 15 points, name this English publication whose title reflects its general interest in monetary policy.

ANSWER: *The **Economist***

052-13-104-22126

BONUS: What curve names a class of galaxies lying on the fork of Hubble's sequence and has a variety named for Archimedes?

ANSWER: **spiral**

014-13-104-2210-11



27. The portion of these things where the rate of deposition is greater than ablation is the accumulation zone. Erosion due to these things is divided into abrasion and plucking. The action of these things turns stream-formed V-shaped valleys into U-shaped valleys. A characteristic deposit of these things is a mixture of boulders and clay, also called till, which is deposited in moraines. When these things calve (KAHV), they form icebergs. For 15 points, name these dense accumulations of ice that flow like very, very slow rivers.

ANSWER: **glaciers** [or **ice sheets**]

066-13-104-22127

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