



1. The protagonist of this poem cries out, “O, shrieve me, shrieve me, holy man!” when he is discovered by a hermit. This poem ends by describing a character who rose the next day “a sadder and a wiser man.” This poem describes “water, water, everywhere, nor any drop to drink” as a curse begins to be enacted. The central narrative is recounted to the Wedding-Guest by the title figure. For 10 points, name this ballad whose title character shoots an albatross, a poem by Samuel Taylor Coleridge.

ANSWER: “The **Rime of the Ancient Mariner**”

014-12-71-12101

2. The inflammation of one region of this body part is called plantar fasciitis. Amoebas create an extension of their cell named for this body part that can surround food or be used for locomotion. In humans, this body part contains the metatarsals. The phylum Gastropoda is named for the Greek for stomach and this body part. For 10 points, identify this body part found below the ankle in humans that is the measure of distance in the Imperial system.

ANSWER: **foot**

066-12-71-12102

3. A pair of members of this profession engage in nuclear disarmament negotiations that involve playing Risk and Trivial Pursuit in one movie about a pair of these individuals “...Like Us.” George Lazenby is most famous for playing a member of this profession in only one movie. A member of this profession is a colleague of Vanessa Kensington and Basil Exposition and has enemies that include Frau Farbissina and the Fembots. For 10 points, name this profession, a member of which has been played by Roger Moore and Sean Connery and is James Bond.

ANSWER: **Spy** or **spies** [accept reasonable equivalents, including secret agents]

030-12-71-12103

4. This author created a restaurant that contains free coupons owned by George Kroll in *The Black Obelisk*. In a different work by this author, a former drill sergeant is berated by the protagonist before being made staff cook. That character is named Himmelstoss. Throughout that work by this author, the protagonist and his friends, such as Tjaden, are mentored by Kat. This author is most famous for a work about Paul Baumer’s experience during World War I. For 10 points, name this German author of *All Quiet on the Western Front*.

ANSWER: Erich Maria **Remarque**

149-12-71-12104

5. In a system of small volume, this quantity can be calculated using Kundt's tube, and one person to attempt to calculate this quantity was William Derham. The Newton-Laplace equation states that this quantity equals the square root of bulk modulus over density, and another formula states that, in air, it can be calculated as 0.606 times the temperature plus 331.3. It is equal to about 768 miles per hour, or 343 meters per second. For 10 points, identify this quantity which is equal to Mach 1.

ANSWER: **speed of sound** [accept early buzz of **Mach 1**]

189-12-71-12105

6. This poet's sonnets include one beginning, "Fly, fly, my friends, I have my death wound, fly!" He asked, "Are beauties there as proud as here they be?" in another sonnet that begins by noting "with how sad steps, O Moon, thou climb'st the skies!" He also wrote a prose romance which provided plot elements for *The Winter's Tale* and *King Lear*. For 10 points, name this noble Elizabethan poet of *Astrophil and Stella* and *Arcadia*.

ANSWER: Philip **Sidney**

014-12-71-12106

7. In an octahedral compound, this many molecules of ethylene diamine can bind to the central cation. Chromium ions with this oxidation state exhibit a green color. The reaction of nitric oxide and oxygen gas is a common example of a reaction of this numbered order. Phosphoric acid has this many equivalence points, while boron and aluminum have this oxidation number. Tritium has an atomic mass of this number, and there are this many quarks in a proton and neutron. For 10 points, name this number, the atomic number of lithium.

ANSWER: **three** [accept **plus three** or **three plus**; do not accept "three minus"]

140-12-71-12107

8. This man defeated his rival Licinius at the battle of Chrysopolis. This man's army carried symbols unfamiliar to the enemy when he won a victory over Maxentius at the Milvian Bridge after envisioning the words "in hoc signo vinces." That dream and accompanying victory caused him to issue his Edict of Milan that mandated religious toleration throughout the Empire. For 10 points, name this Roman emperor who converted to Christianity on his deathbed.

ANSWER: **Constantine** the Great [or **Constantine I**; or Flavius Valerius **Constantinus**]

153-12-71-12108

9. During World War II, this man got his soldiers to safety after the sinking of PT 109. This man first got into the Senate by unseating Henry Cabot Lodge, Jr. This president signed the Nuclear Test-Ban Treaty with the Soviet Union and promoted a set of policies called the "New Frontier." In his inaugural address, this President declared, "Ask not what your country can do for you, ask what you can do for your country." For 10 points, name this first and only Catholic president, who was killed by Lee Harvey Oswald in 1963.

ANSWER: John Fitzgerald **Kennedy** [or **JFK**]

080-12-71-12109

10. The namesake parameter, or frequency, associated with this effect is proportional to the sine of latitude. When the pressure gradient force of a substance is balanced by this effect, the substance is termed "geostrophic." One structure that forms due to this effect is the Ekman spiral. This effect results in the apparent deflection of a moving object in a rotating reference frame. For 10 points, identify this fictitious force that results in deflection to the right in the Northern Hemisphere and to the left in the Southern.

ANSWER: **Coriolis** effect [or **Coriolis** force]

066-12-71-12110

11. This country's Gandaki River flows through the deepest gorge in the world; its other two major rivers are the Kosi and the Karnali. In this country, the Outer Terai region ends at the Sivalik Hills. This country still supplies the British army with *khukhuri*-wielding soldiers called "gurkhas." This country is home to the Sherpa ethnic group, including Tenzing Norgay, who assisted Edmund Hillary. For 10 points, name this landlocked nation in-between India and China where Mount Everest is located.

ANSWER: Democratic Republic of **Nepal**

080-12-71-12111

12. This organization created the Fourth New Army and the Eight Route Army. This party held the 7,000 cadres conference to deal with the unexpected criticism arising from the Hundred Flowers campaign, which this party launched. This party resisted the Extermination Campaigns before it moved its base of operations to Yan'an during the Long March. This party defeated Chiang Kai-shek and the Kuomintang. For 10 points, name this party that established the People's Republic of China under Mao Zedong.

ANSWER: **Communist** Party of China [or Chinese **Communist** Party; or **CCP**; or **CPC**; or Zhongguo **Gongchandang**; or Chungkuo **Kungch'antang**; or Chinese **Communists**]

153-12-71-12112

13. The Rop protein regulates the concentration of the coLE1 example of these objects. These biological objects can be isolated through miniprep. BACs are large examples of these objects used in genomic libraries. The F example of these can be generated through recombinational excision in HFR strains of *E. coli*. The R type of these objects contain antibiotic resistance genes and they can be transferred through conjugation. For 10 points, name these small circular pieces DNA found in bacteria that are that replicate independently from the bacteria's main chromosome.

ANSWER: **plasmid** [or **episome**; prompt on **DNA**; prompt on bacterial **chromosomes**]

001-12-71-12113

14. The title character of this work performs in a play called *The Enchanted Hunters*, which is written by Vivian Darkbloom and the man whom her father-in-law later murders. The title character is abandoned by Clare Quilty for refusing to make pornographic films and is taken away from camp after her mother Charlotte is killed by a car. For 10 points, name this novel about Humbert Humbert's infatuation with the adolescent Dolores Haze, who bears the title nickname, a work by Vladimir Nabokov.

ANSWER: **Lolita**

014-12-71-12114

15. A logic circuit that conducts this operation consists of two inputs put into an XOR and AND gate. This operation can be easily performed on vectors by using the parallelogram rule. When this operation is performed on two rational numbers of the form  $\frac{a}{b}$  and  $\frac{c}{d}$ , it yields  $\frac{ad + bc}{bd}$ . A series is defined using a capital sigma, which represents repeated applications of this operation. The identity element for this operation is zero. For 10 points, identify this mathematical operation represented with a plus sign.

ANSWER: **addition**

066-12-71-12115



1A. Name this English painter whose depictions of the Stour River area include *Dedham Vale* and *The Hay Wain*.

ANSWER: John **Constable**

1B. What midwestern city is found north of the River des Peres and is home to the Gateway Arch?

ANSWER: **St. Louis**, Missouri

2A. Galileo rolled balls down an inclined plane in an attempt to determine what physical constant?

ANSWER: **g** [or the **acceleration due to gravity**; or **standard gravity**; do not accept "Big G"]

2B. Plumpy, Gramma Nutt, and Queen Frostine are characters in what board game that includes locales such as Lollipop Woods and Gumdrop Mountains?

ANSWER: **Candy Land**

3A. What author of *Player Piano* and *Breakfast of Champions* used recurring characters such as painter Rabo Karabekian and science fiction novelist Kilgore Trout in his books?

ANSWER: Kurt **Vonnegut**

3B. This is a 20-second calculation question. What is the measure, in degrees, of an exterior angle of a regular pentagon?

ANSWER: **72** degrees

4A. This is a 20-second calculation question. What is the domain of the function  $f$  of  $x$  equals the square root of  $2x - 8$ ?

ANSWER: all real numbers **greater than or equal to 4**

4B. What author wrote about Edmond Dantes's escape from jail and the adventures of d'Artagnan (dar-TAN-yan) in his novels *The Count of Monte-Cristo* and *The Three Musketeers*?

ANSWER: Alexandre **Dumas** (doo-MAH)

5A. Name this Pablo Picasso painting in which two of the five title prostitutes from Barcelona wear African masks.

ANSWER: *Les **Demoiselles d'Avignon*** [or *The **Young Ladies of Avignon***]

5B. What physical law governs the behavior of springs and states that force is equal to the negative product of a constant and the displacement?

ANSWER: **Hooke's** law

6A. What NFL team with receivers Darrius Heyward-Bey and Denarius Moore played through the 2011 death of the team's long-time owner, Al Davis?

ANSWER: **Oakland Raiders** (accept city or team name)

6B. What term is popularly used to describe a large predicted reduction in the federal budget deficit beginning in 2013 that will occur if certain tax and spending laws are allowed to expire or go into effect?

ANSWER: **fiscal cliff** [prompt on "sequestrations"]

7A. Name the early June 1942 battle in the Pacific at which American forces defeated a Japanese carrier group despite the sinking of the *Yorktown*.

ANSWER: Battle of **Midway**

7B. What composer of operas created *The Mastersingers of Nuremberg* and all four parts of *The Ring* cycle?

ANSWER: Wilhelm Richard **Wagner**

8A. Prokofiev's first symphony pays homage to what era of music, situated between the Baroque and Romantic eras?

ANSWER: **Classical** era

8B. What type of graph shows all maximum outputs available for two or more goods, such as guns and butter, using a given set of inputs.

ANSWER: **production possibility** frontier [or **PPF**; accept reasonable equivalents, including **production possibility** curve or **production possibility** boundary]

9A. What word, also a punctuation mark, refers to when a literary character addresses their speech to an figure or person that is imaginary or not present?

ANSWER: **apostrophe**

9B. This is a 30-second calculation question. If the cosine of  $x$  is equal to  $1/4$ , what is the cosine of  $2x$ ?

ANSWER:  **$-7/8$**  [or **.875**]

10A. This is a 30-second calculation question. Four fair coins are flipped. Find the probability that there are the same number of heads as tails.

ANSWER:  **$3/8$**  [or  **$6/16$** ; or **0.375**]

10B. Give the name for the set of beliefs, which begins with "existence is suffering" and ends with "the Eightfold Path is the route to nirvana," which form the core dogma of Buddhism.

ANSWER: the **Four Noble Truths** [or **Chattariyasaccani**; or **Chatvariaryasatyani**]



1. Austro-Hungarian Foreign Minister Berchtold implied that this regular patron of the Cafe Central in Vienna would never be a significant leader. This man led the forces at Polkovo that defeated Alexander Kerensky. This leader of the Fourth International argued for Permanent Revolution rather than the policy of "Socialism in One Country." That position led to this man being exiled to Mexico, where he was killed with an ice axe. For 10 points, name this founder of the Red Army and rival of Stalin.

ANSWER: Leon **Trotsky** [or Lev Davidovich **Bronstein**]

153-12-71-12117

2. In Japan, these items are "kutsushita," and in Arabic they are "jawrab." While they are called "peyga" in Portuguese, they are called by the unrelated term "calcetines" in Spanish. In English, this term is derived through German from Latin and ultimately Greek, where it referred to a shoe typical of comedic actors. For 10 points, give this word which refers to a type of punch thrown in such comedies or to a garment worn under the shoes.

ANSWER: **socks**

019-12-71-12118

3. One work in this language features a character who rejects a scimitar and other weapons because they are too light. That work's title character is placed under a five-peaked mountain prior to going on a journey with Pigsy and Tripitaka. The Monkey King is one character in *Journey to the West*, which one of this language's "Four Classic Novels." For 10 points, name this language that was used *Romance of the Three Kingdoms*, which was written by Luo Guanzhong.

ANSWER: **Chinese**

149-12-71-12119

4. Frank J. Sprague designed an electric trolley system for this city, the first in the United States to have one. 62 women in this city were killed by an explosion at the Tredegar Iron Works. The Seven Days Battles took place during a campaign to capture this city. Retreating soldiers set fire to this city in response to the Battle of Petersburg. This city was the headquarters for Jefferson Davis and his cabinet. For 10 points, name this capital of the Confederate States of America.

ANSWER: **Richmond**

080-12-71-12120

5. Fixed point combinators can be used to implement this concept anonymously. Lazy evaluation means this concept can be used to create lists whose values are generated only as they are needed, and data types often defined using this concept include linked lists and trees. The "tail" variety can be optimized and it's commonly illustrated with the Towers of Hanoi or the factorial function. Often defined using one or more base cases, for 10 points, name this computer science technique wherein a function calls itself.

ANSWER: **recursion** [or **recursive** functions; or word forms]

201-12-71-12121

6. Characters in this work include a physician who imagines he is being hunted by a lynch mob and a farmer who thinks of himself as a Biblical figure appointed by God. In addition to Doctor Parcival and Jesse Bentley, this novel features an ex-schoolteacher accused of molesting a male student named Wing Biddlebaum and a young reporter linking many of the stories together named George Willard. For 10 points, name this novel by Sherwood Anderson set in the title Midwest town.

ANSWER: Winesburg, Ohio

014-12-71-12122

7. The interstellar medium contains a diffuse form of this substance that is responsible for absorbing optical and UV radiation and reradiating it as far-infrared. The Jovian ring system is mostly made of this substance. A haboob is a type of storm named for this substance. Black-lung disease results from breathing in the coal and graphite forms of this substance. For 10 points, years of drought and destructive agricultural practices created a "bowl" named for what word in the southern Great Plains?

ANSWER: dust

066-12-71-12123

8. This practice is named after a judge in colonial Virginia who presided over trials of Loyalists during the Revolution. The Dyer Bill was introduced to prevent this practice, documented in *The Red Record* by Ida B. Wells. Emmet Till was the victim of one of these events. These events were the inspiration for the song "Strange Fruit" by Billie Holiday. These events were defended as a method of protecting white women and symbolized by nooses hanging from trees. For 10 points, name these instances of mob violence by whites against African-Americans.

ANSWER: lynchings

080-12-71-12124

9. A longtime employee of this company known as "Mr. Fixit" received keys to patient rooms while chairing a task force on the management of Broadmoor Psychiatric Hospital. This organization inaccurately implied that politician Alistair McAlpine had abused children in care homes; thus, Tony Hall has replaced its longtime head, George Entwistle. This company employed Jimmy Savile, who has been accused of hundreds of instances of sexual abuse over a period of sixty years since his death. For 10 points, name this London-based public broadcasting company.

ANSWER: the BBC [or the British Broadcasting Corporation]

080-12-71-12125

10. The atomic subshell denoted by this letter can contain up to six electrons and has three orbitals at each energy level. This letter names a dumbbell-shaped orbital with an azimuthal quantum number of 1 that, by the Aufbau principle, begins to fill with electrons after the 2s orbital is full. This letter also stands for the atomic symbol of an element whose white variety is highly flammable when exposed to air. For 10 points, give this letter used as the symbol for phosphorus.

ANSWER: P [or p orbital]

023-12-71-12126

11. In Orphic mythology, Zeus fathered Zagreus with Persephone as one of these creatures. The mother of Ladon and the Nemean lion was half woman and half one of these animals. Melampus received the ability to communicate with animals from two of these beings. Heads of these creatures grew on the back of the watchdog of Hades, Cerberus. The son of Alcmene killed two of these creatures that were sent to his cradle by Hera. For 10 points, the infant Hercules strangled two of what type of animals that constitute the hair of Medusa?

ANSWER: snakes [or serpents]

030-12-71-12127

12. This is the most famous kind of organism to grow a prothallus. The marattioid and ophioglossoid organisms of this type form, along with horsetails, the taxonomic group that these organisms are the most prominent part of. These organisms form a tiny, heart shaped gametophyte, form the majority of the group pteridophyta, and possess xylem and phloem, unlike bryophytes. However, they have neither flowers nor seeds, reproducing instead with the spores found in their fronds. For 10 points, name these plants that evolved early, much like mosses.

ANSWER: **ferns** [or **pteridophyte** and **Pteridophyta** before mentioned]

020-12-71-12128

13. At the end of this work, the fellows of the protagonist all wear sashes matching his to commemorate his deeds. The potential mistress of one character in this work gives him a girdle that she claims will render him invulnerable. After one title character interrupts the New Year's feast with which this work opens, the other title character accepts his challenge to a beheading contest. For 10 points, name this Arthurian romance by the Pearl Poet featuring a magical warrior of a certain color.

ANSWER: ***Sir Gawain and the Green Knight***

014-12-71-12129

14. Cities along this lake's shore include Cheboygan, Alpena, and Bay City, the last of which is on its extension, Saginaw Bay. The Bruce Peninsula juts into this lake, separating it from its large extension, Georgian Bay. An island in this lake, the largest freshwater island in the world, is Manitoulan Island. This lake is connected to another lake to the west by the Straits of Mackinac; for that reason, it is sometimes considered to be part of a larger lake with Lake Michigan. For 10 points, name this Great Lake south of Lake Superior, named after a Native American tribe.

ANSWER: Lake **Huron**

080-12-71-12130

15. The eagle-giant Thiazzi forced this god to help him in capturing Idunn. This figure is punished by being bound below a venomous snake that drips poison into a bowl. At Ragnarok, Heimdall kills this figure and then dies from his own wounds. That punishment came after this deity gave a sprig of mistletoe to Hoder, who accidentally killed his brother Balder with it. For 10 points, name this father of Fenrir and Hel, a Norse trickster deity.

ANSWER: **Loki**

194-12-71-12131



1. Elevated levels of a peptide produced in this organ that relaxes the smooth muscles in the GI tract can cause WDHA syndrome. That peptide is VIP. Epsilon cells in one structure found in this organ produce ghrelin. Another 28 amino acid long hormone produced by this organ inhibits growth hormone. This organ's delta cells produce somatostatin. Cell clusters of alpha and beta cells in this organ are known as Islets of Langerhans and produce glucagon. For 10 points, name this organ that produces insulin.

ANSWER: **pancreas**

149-12-71-12132

2. This man's pamphlet on the "Question of the East" opposed Turkish massacres that he called the "Bulgarian Horrors" in one campaign. This man devised the Midlothian campaign and was publicly blamed for the death of Charles Gordon at Khartoum. His partnership with Charles Parnell to support Irish home rule led to the Unionist split in his Liberal party. For 10 points, name this "Grand Old Man" and four-time British prime minister who was the rival of Benjamin Disraeli.

ANSWER: William Ewart **Gladstone**

186-12-71-12133

3. This phenomenon creates the Airy disk, and its Fraunhofer variety is governed by an equation which relates relative intensities. In crystals it is governed by Bragg's law, and this phenomenon was observed in electrons in the Davisson-Germer experiment. This phenomenon is a consequence of Huygens's principle, and this concept in optics can be studied using a namesake dispersive grating. For 10 points, identify this bending of light around obstacles.

ANSWER: **diffraction**

189-12-71-12134

4. This author was inspired by the murder of Medgar Evers to write a story narrated by a resident of Thermopylae who kills a black man with his rifle. This author of "Where Is the Voice Coming From?" also wrote about Phoenix Jackson's trip to get medicine for her grandson and about the arrival at China Grove of Sister's sister from Illinois named Stella-Rondo. For 10 points, name this Southern author of *The Optimist's Daughter*, "A Worn Path," and "Why I Live at the P.O."

ANSWER: Eudora **Welty**

014-12-71-12135

5. BCG is an example of these medical entities. The effectiveness of these medical tools are increased by adjuvants. Attenuation is used to create "live" examples of these entities. The MMR one is given to children in order to fight three separate diseases. New ones against influenza must be formulated each year. For 10 points, name these prophylactics that use biological material derived from a pathogen to get the body to attack the pathogen, thus providing a measure of preventive immunity.

ANSWER: **vaccines** [prompt on **prophylactics**]

001-12-71-12136

What Norwegian composer's *Peer Gynt Suite* includes "Morning Mood" and "In the Hall of the Mountain King"??

ANSWER: Edvard **Grieg**