

1. **This protein is found in all eukaryotes except for nematode sperm and is degraded by the interleukin ICE/ced-3 proteases during apoptosis. The bacterial MreB gene is a homologue of this protein, which is bounded by profilin. The latrunculin toxin, as well as cytochalasins, inhibit this protein which can form a cleavage furrow to begin cytokinesis. This protein comes in a globular form as a monomer, and can be polymerized to form thin filaments and microfilaments. For ten points, name this protein that binds to myosin during muscle contraction.**

Answer = Actin

2. **This man argued for abolitionism in the “Barnburner Manifesto.” The Treaties of New Echota was signed by this man’s nation, and he led a political faction called the Bucktails. This man’s daughter-in-law was the youngest ever White House hostess. This man’s “regal splendor” was attacked in Charles Ogle’s Gold Spoon Oration. Following the Panic of 187, this President lost a reelection bid to William Henry Harrison, and he formed the Albany Regency. The first President to have English as a second language was, for ten points, what eighth U.S. President?**

Answer = Martin Van Buren

3. **The “Scott-T” variety of these devices is used to produce two-phase power from three-phase, and vice versa. Low values of the “leakage” type of a certain quantity are needed for the “pulse” kind of these devices. These devices’ “balun” type can be used to link lines with different impedance. The same magnetic flux passes through the two types of winding coils in these devices, which is known by Faraday’s law of induction. Electrical energy can be transferred between circuits by, for ten points, what passive devices used to “step up” or “step down” voltage?**

Answer = Transformer

4. **This state is home to Brunswick Landing, as well as the headquarters of T.D. Bank and L.L. Bean. A 31-foot-high statue of Paul Bunyan is present in this state’s city of Bangor, part of its Penobscot County. This state contains Husson University as part of its Presque Isle city, and it is the closest U.S. state to Africa. This state contains Cumberland County, as well as Aroostook territory. It is bordered by New Hampshire to the west and Québec to the northeast. For ten points, what “Pine Tree” state known for its seafood industry contains Portland and Augusta?**

Answer = Maine

5. **Bhima fought on this deity’s behalf after he challenged Jarasandha to a duel. This deity lifted the Govardhana hill to protect a village from a destructive thunderstorm. After defeating his evil uncle Kamsa, this deity reinstated Ugrasena as the king of the Yadavas. A human pyramid was used to steal butter by this deity, the eighth child born to Devaki and Vasudeva. This man’s advice as a**

charioteer during the Kurukshetra War to Arjuna is the subject of the *Bhagavad Gita*.

For ten points, name this avatar of Vishnu, the namesake of a “Hare” religious sect.

Answer = Krishna (prompt on Vishnu” or “avatar of Vishnu” before said)

6. In a novel by this author, what a girl views as “princesses” and “castles” are actually pigs, and a man states that the gibberish word “BGWJJILLIGKKK” is actually the name of a demon. George describes a romance as a “natural process” in this author’s novel *My Platonic Sweetheart*. A man predicts an eclipse and is known as “The Boss” in a novel by this author that centers around Merlin and Hank Morgan in Camelot. For ten points, what American novelist wrote *A Connecticut Yankee in King Arthur’s Court* as well as *The Adventures of Tom Sawyer*?

Answer = Mark Twain

7. This man argued that “confusion between positive and normative economics is [...] inevitable” and that an economic theory should be judged by its simplicity and fruitfulness in *The Methodology of Positive Economics*. This economist stated that the draft was “inconsistent with a free society” and famously remarked “We are all Keynesians now!” He names a utility function with Leonard Savage, coined the term “stagflation”, and developed the permanent income hypothesis. For ten points, name this American, a founder of monetarism who wrote *Capitalism and Freedom*.

Answer = Milton Friedman

8. The “cadexomer” variety of this element is produced by the reaction of dextrin with epichlorohydrin. An anion of this element and oxygen oxidizes a vicinal diol during the Malaprade reaction. The catalytic cycle for the Cativa process begins with a reaction of this element and methane to form octahedral iridium. The trapping agent of Gram staining is usually this element, which is used to test for starches in Lugol’s solution. Enlargement of the thyroid gland can be caused by, for ten points, what heaviest stable halogen, with atomic number 53 and symbol “I”?

Answer = Iodine

9. This work was reproduced by Banksy in Bristol in 2014, who replaced a piece of jewelry in it with an alarm box. A 1994 restoration of this work revealed that its dark background was originally a deep green, and its subject notably lacks eyebrows. This 1665 painting was one of two tronies “painted in the Turkish fashion.” In this painting, a female wears a white collar, ruffled dress, and a blue and yellow turban, as well as a pear-shaped, abnormally large piece of jewelry. Johannes Vermeer painted, for ten points, what painting of the title female staring at the viewer?

Answer = Girl with a Pearl Earring (accept *Meisje met de parel*)

10. This poem, which titles a novel about Charles Philips by Robert Silverberg, discusses a “form as Grecian goldsmiths make / Of hammered gold and gold enamelling”, as well as “Fish, flesh, fowl” which “commend all summer long.” This poem’s narrator’s heart is “fastened to a dying animal.” The phrase “artifice of eternity” ends this poem which states “an aged man is but a paltry thing, / A tattered coat upon a stick” and begins with the line “That is no country for old men.” For ten points, name this W.B. Yeats poem about the title travel to a “holy city.”

Answer = “Sailing to Byzantium”

11. During a siege in this event, Pope Pius IX declared himself a prisoner in the Vatican, and Erik af Klint was killed during the Battle of Lissa as part of this event. Following the publication of “The Roman Question” in the *Westminster Review* during this event, the Lateran Pacts were signed. During this event, the Carbonari were formed. During this period, Giuseppe Garibaldi led the “Expedition of a Thousand” and made Victor Emanuel II a king. For ten points, name this 19th-century movement revolving around a European nation with capital at Rome.

Answer = Risorgimento (accept Italian (re)unification and clear equivalents around the idea of Italy being consolidated/made independent, such as Consolidation of Italy or Independence of Italy)

12. One composer from this nation wrote the opera *The Duenna* and the cantata *The Plague*, and an artist from this nation depicted a man on a white horse cutting off a green cloak in *Saint Martin and the Beggar*. This home of Robert Gerhard was also home to a composer who included two bars of octave chords and “Ah!”s in a *Ritual Fire Dance*. An artist from this nation showed Saints Augustine and Stephen lowering the corpse of the Count of Orgaz in one painting. The *Three Cornered Hat* was composed in, for ten points, what nation home to Manuel de Falla and El Greco?

Answer = Spain

13. This company invested \$1 billion in the Chinese transportation company DiDi in 2016, and in 2020 it acquired Dark Sky as well as NextVR. In 2017, this company launched Clips, which allows users of its products to edit videos, and in that same year it acquired Shazam. This company operates the largest music retailer in the world, and it manufactures the HomePod. “GarageBand” is an app created by this company. Partially founded by Steve Wozniak, its current CEO is Tim Cook. For ten points, what Silicon Valley company’s products include the iPhone?

Answer = Apple

14. The “Alliance for the Future” was formed in this nation, where the *sol* currency was introduced to choke inflation. Jaime Salinas led a failed coup in this country, where the Tarata bombing occurred days before the La Cantuta massacre. This

nation fought its northern neighbor in the Cenepa War. The Grupo Colina death squad operated in this nation home to the Abimael Guzmán-led Shining Path as well as the Japanese-origin President Alberto Fujimori. Francisco Pizarro discovered the Inca civilization in, for ten points, what South American nation with capital at Lima?

Answer = Peru

15. A type of these objects with coefficients as Laurent polynomials is split into three products by the Birkhoff factorization. The “Rule of Sarrus” is a mnemonic device for calculating one value for these objects that can also be given by the Laplace expansion. Markov chains with finitely many states can be described by stochastic types of these objects, which are used to solve linear equations during Gaussian elimination. These constructs come in “Jacobian” and “identity” types. A determinant is computed using the elements of, for ten points, what constructs?

Answer = Matrix or Matrices (prompt on “array”, accept any specific kind of matrix, e.g. Identity Matrix or Jacobian Matrix)

16. One ruler of this name defeated King Peter of Castile with the help of Bertrand du Guesclin at the Battle of Nájera. The *Quia Emptores* statute was passed during the rule of another man of this name who chose among competitors like John Balliol and John Hastings during the “Great Cause.” King Philip IV was defeated by a ruler of this name at the Battle of Crécy. Rulers of this name had nicknames like “the black Prince” and “the Hammer of the Scots.” For ten points, give this name of 13th-century English kings such as one called “Longshanks.”

Answer = Edward (accept any number or (descriptive) nickname accompanying “Edward”)

17. This composer used a “motto” theme of fourths with cadences in F and E Major in one work, and in another, an ascending C-G#-B-E-A “Farben” chord is used in an eponymous section that precedes “Peripatie” and “Das obligate Rezitativ”. This man composed *Five Pieces for Orchestra*, as well as the section “Drunk with Moonlight” for a work that includes the singing-speaking *sprechstimme* technique. For ten points, what Second Viennese School composer created the twelve-tone system, pioneered atonality, and wrote the *Pierrot Lunaire*?

Answer = Arnold Schoenberg

18. In one work by this author, Dolon wears the skin of a wolf and walks on all fours to deceive an enemy, and in another play, the Chorus curse the sea breeze after Polyxena is sacrificed to Achilles. The roaring of a bull frightens horses, causing Hippolytus’s death, in another work by this playwright. The protagonist rides a chariot with the bodies of her children in another work by this playwright; that Colchis princess gives Glauce a poisoned robe after Jason marries her. For ten points, name this Greek playwright who wrote about the title sorceress in *Medea*.

Answer = Euripides

19. One thinker from this nation published a *Manual of Mental and Moral Science*; that man was Alexander Bain. Another thinker from this nation adopted the term “sensus communis” from Cicero and stated that men must agree in first principles before they can reason together in a 1785 book. A namesake “fork”, as well as the is-ought problem was formulated by one thinker from this nation who wrote *A Treatise Concerning Human Nature* and *An Enquiry Concerning Human Understanding*. David Hume was from, for ten points, what nation home to Glasgow?
Answer = Scotland (prompt on U.K. or United Kingdom or Great Britain or Britain, do NOT accept or prompt on England)

20. In this work, a multi talented man is described as “an-an-extremist” who “electrifies large meetings”. A character who notices the Chapman light-house in this work finds a book titled “AN INQUIRY INTO SOME POINTS OF SEAMANSHIP” by a man named “Tower, Towson.” This novella was criticized by the Chinua Achebe essay *An Image of Africa*, and it includes a “cruising yawl” called the Nellie, as well as an ivory trader who exclaims “exterminate all the brutes!” Marlow and Kurtz sail down a river in, for ten points, what Joseph Conrad novella?
Answer = Heart of Darkness

Tiebreaker

1. Fluorapatite is treated with a 93% solution of this compound to produce phosphoric acid during the “wet method.” This compound is mixed with hydrogen peroxide to form Piranha etch, and it begins the Mannheim process with sodium chloride. Because platinum tends to react with arsenic impurities, vanadium oxide is used as a catalyst to produce this compound during the contact process. This acid is the electrolyte in lead-acid batteries and is produced via the lead-chamber process. For ten points, what strong acid has chemical formula H_2SO_4 ?
Answer = Sulfuric Acid (accept Oil of Vitriol, accept “Sulfuric” alone after “acid” is read)