

## Tossups

- 1. Performing the triple product on three of these entities gives the volume of a parallelepiped. The right hand rule can be used when performing an operation on them, and these entities can be added using the (\*) parallelogram rule. Two of them are perpendicular if their dot product equals zero. For 10 points, name these mathematical entities that have both magnitude and direction and are contrasted with scalars.**  
 Answer: vectors
- 2. One person with this family name published *The National Herald*; that man's son died in an LTTE suicide bombing. Another person with this name ruled by decree during "The Emergency" and was killed by her guards for ordering Operation (\*) Blue Star. Besides Ferdoze and Rajiv, one person with this name preached ahimsa and satyagraha and resisted British rule in India. For 10 points, give this name of Indian leaders like Indira and Mahatma.**  
 Answer: Gandhi
- 3. This deity was tricked by Nephthys, and by her husband, who caused this god to become encased in a tree trunk holding up a palace in Byblos. His wife recovered thirteen pieces of this god after he was dismembered by his brother, (\*) Set. This god held a crook and flail, and was the father of Anubis and Horus, who was born before this god became the lord of the dead. For 10 points, name this Egyptian god, the husband of Isis.**  
 Answer: Osiris (accept Asar or Usire)
- 4. In one work with this title a woman wears a dress decorated with circles and ovals and a man wears a robe with black and white rectangles while standing on the edge of a flowery meadow. That work is by Gustav (\*) Klimt. Another work with this name depicts Paolo and Francesca da Rimini embracing, and was part of *The Gates of Hell*. For 10 points name this work by Rodin that depicts a couple performing the title act of love.**  
 Answer: The Kiss (accept Der Kuss; accept Le Baiser)
- 5. This scientist built on the work of Wilhelm Roentgen by using Crookes tubes to experiment with X-rays. With support from George Westinghouse, he advocated a substitute for the Edison-backed DC power transmission: (\*) alternating current. This physicist gives his name to the SI unit of magnetic field. For 10 points, identify this scientist who built a high-current device that produces a plasma discharge called his namesake coil, a Serbian-American.**  
 ANSWER: Nikola Tesla
- 6. This novel's title man exposes the betrayal of Ali Pacha and allows Eugénie to run away with Louise. The protagonist of this novel attempts to deliver a letter from Napoleon, for which Caderousse, Mondego, and Danglars have him sent to the (\*) Château d'If [deef]. Abbé Faria advises the title man, who seeks revenge for his separation from his fiancée, Mercédès. For 10 points, name this novel about Edmond Dantès, written by Alexandre Dumas.**  
 Answer: The Count of Monte Cristo (accept Le Comte de Monte-Cristo)
- 7. One form of this process is regulated by aquaporins. This process causes gas exchange in alveoli, and it distributes nutrients in flatworms. Protein channels are required for a "facilitated" form of this to occur. Oxygen (\*) enters the cell via this process, and osmosis is a type of this process involving water. For 10 points, name this movement of particles from regions of higher concentration to regions of lower concentration.**  
 Answer: diffusion (accept passive transport; accept osmosis before "gas exchange")

8. **This author added the essay "An Attempt at Self-Criticism" to his first book. In another work, he notes that "when you gaze into an abyss, the abyss gazes into you." This philosopher, who contrasted Dionysian and Apollonian conceptions of reality in (\*) *The Birth of Tragedy*, wrote *Beyond Good and Evil* to expand on an earlier work that described the Ubermensch. For 10 points, name this German philosopher of *Thus Spoke Zarathustra*.**  
Answer: Friedrich Nietzsche
9. **The organization that participated in this event had burned the HMS *Gaspée* the prior year. It was caused by Thomas Hutchinson's refusal to return the *Dartmouth* to Great Britain, and the Coercive Acts were passed in the wake of this event. Its participants (\*) disguised themselves as Mohawk Indians on the night of December 16th, 1773. For 10 points, name this protest by the Sons of Liberty where shiploads of a certain drink were thrown into Boston Harbor.**  
Answer: Boston Tea Party
10. **Calixta agrees to marry Bobinôt after Clarisse removes Alcée from the title ball in a short story by this author. In another story, Armand is shocked by letters from his mother after his wife walks into the bayou with their child. (\*) Adèle Ratignolle is contrasted with a woman who has an affair with Robert Lebrun and drowns herself in the sea; that woman is Edna Pontellier. For 10 points, name this author of "Desirée's Baby" and *The Awakening*.**  
Answer: Katherine O'Flaherty "Kate" Chopin (accept At the 'Cadian Ball before "this author" is read)

Half Time

11. **One of these stories concerns a wedding feast that the guests refuse to attend, and in another, some "evil" farmers conspire to murder their landlord's son. In one tale of this type, a young man wastes his inheritance, but is happily (\*) welcomed back to his father's home, and in another, a priest and a Levite ignore a wounded man, who is saved by a "Good Samaritan." For 10 points, the "Prodigal Son" is one of these allegorical stories told by Jesus.**  
Answer: parables of Jesus (prompt on descriptions like "stories told by Jesus" before "Jesus" is read)
12. **This song's title character, known as the Old Man of the Dovre, yells "Ice in your blood!" at the end of this song. After this song ends, the title character's daughter dances for a man who had earlier abducted (\*) Solveig. This piece opens with cellos and bassoons, then steadily increases volume and tempo as the title troll pursues Peer Gynt. For 10 points, name this piece of incidental music by Edvard Grieg.**  
Answer: In the Hall of the Mountain King (accept I Dovregubbens Hall)
13. **Coccoliths formed the chalk beds that name this period of time. The Alvarez hypothesis uses shocked quartz and iridium concentration to explain how this period of time ended. Bees aided the spread of (\*) flowering plants which first appeared in this period, whose geologic strata ends at the K-T boundary. Placental species coexisted with dinosaurs during, for 10 points, what last period of the Mesozoic era whose dinosaur species included T-rex?**  
Answer: Cretaceous Period

14. **When given temperatures and enthalpy values, the Clausius–Clapeyron equation estimates this value, which, for volatile substances, is higher at low temperatures. At equilibrium, the partial pressure of a substance is equal to its mole fraction times this quantity, according to (\*) Raoult’s Law. A boiling substance will have equal values for atmospheric pressure and, for 10 points, what other type of pressure exerted when a gas co-exists with its liquid or solid phase?**  
Answer: vapor pressure (do not accept or prompt “pressure”)
15. **[NOTE: The answer line for this tossup is complex, so please look it over before the tossup is played. Be lenient in both accepting and prompting.]**  
**Happy Chandler inspired this movement by condemning the "gentleman's agreement" of his predecessor, Kenesaw Mountain Landis. Larry Doby of Cleveland was the second subject of this movement, which began when a member of the (\*) Kansas City Monarchs was signed by General Manager Branch Rickey in 1945. For 10 points, name this event of the civil rights movement, in which the Brooklyn Dodgers signed eventual Hall of Famer Jackie Robinson.**  
Answer: Integration (or Desegregation) of Major League Baseball (or MLB) (accept Jackie Robinson debuting in MLB or Jackie Robinson breaking the color line or equivalents; accept breaking the color line after Jackie Robinson is mentioned; accept any equivalent that describes black players first playing in the Major League(s) of baseball; prompt on partial answers like "integration" or "desegregation")
16. **This work’s protagonist discovers that Brom Dutcher and Nicholas Vedder have died, and is shocked by a picture he finds hanging on the outside of the Union Hotel. In this story, a man in Dutch clothing invites this tale’s protagonist to play (\*) nine-pins. The title man mourns the loss of Wolf but happily discovers that his tyrannical wife has died in his absence. For 10 points, name this short story in which the title man falls asleep for twenty years.**  
Answer: Rip Van Winkle
17. **This Supreme Court case was not considered moot because its issue was "capable of repetition" while "evading review," according to Justice Blackmun's opinion. *Doe vs. Bolton* was decided with this case; in each case, Justices White and (\*) Rehnquist dissented from the expansion of *Griswold v. Connecticut's* finding of a "right to privacy." For 10 points, name this 1973 Supreme Court case that established a trimester-based system for legalizing abortion.**  
Answer: Roe vs. Wade
18. **Father Gapon organized a march on this ruler’s Winter Palace, where his Imperial Guard killed roughly 1,000 people on Bloody Sunday. He abdicated to a provisional government led by Alexander (\*) Kerensky during the February Revolution, and was assassinated with his family, including his daughter Anastasia, by Bolshevik forces in 1918. For 10 points, name this last Romanov Tsar of Russia.**  
Answer: Tsar Nicholas II (prompt on Nicholas)
19. **This author dreams of a ritual surrounding the Valentine’s Day mating of the birds in one work. In a poem by this author, three brothers attempt to kill Death, and an old woman teaches a knight what women want in marriage. A group of travelers gather in the (\*) Tabard Inn to hear stories from the Pardoner and the Wife of Bath in one of this man’s works. For 10 points, name this English author of *The Parliament of Fowls* and *The Canterbury Tales*.**  
Answer: Geoffrey Chaucer

20. **The Bay of Puck indents the coast of this country, and its southern border features the Western Tatra mountains. The Russian exclave of Kaliningrad has this country on its southern border. Part of this country's western border is formed by the (\*) Oder River, and its longest river is the Vistula, which flows into the Baltic Sea near Gdansk. For 10 points, name this country that lies east of Germany with capital Warsaw.**

Answer: Republic of Poland (accept Rzeczpospolita Polska)

## Bonuses

1. Different types of this material include Wootz and Damascus. For 10 points each,  
[10] Name this solid iron-carbon material, another variety of which is "stainless".  
Answer: **Steel**  
[10] Steel, like bronze and brass, is a mixture of metals which are known by this term.  
Answer: **Alloys**  
[10] The cost of producing steel decreased dramatically with the introduction of this process named for an English engineer. In it, oxidation removes impurities in molten pig iron.  
Answer: **Bessemer** process (accept **Gilchrist Thomas** process)
2. This opera's overture includes a cattle call before ending with a famous galop. For 10 points each,  
[10] Name this 1829 opera whose characters include Gessler, an Austrian officer, and the title Swiss archer, who is ordered to fire an arrow at an apple on his son's head.  
Answer: **William Tell** (accept **Guillaume Tell**)  
[10] William Tell was the last opera by this Italian master of opera buffa such as *The Barber of Seville*.  
Answer: Gioacchino **Rossini**  
[10] This character, the titular Barber of Seville, sings "Largo al factotum" in his first appearance in the opera and assists Count Almaviva in his attempts to woo Rosina.  
Answer: **Figaro**
3. This ruler's most significant victory was preceded by a landing at Pevensey. For 10 points each,  
[10] Name this Norman who was crowned on Christmas 1066 after winning the Battle of Hastings over Harold Godwinson.  
Answer: **William I** (accept **William the Conqueror**; accept **William the Bastard**)  
[10] William I built this fortress which saw later use as a prison that held Anne Boleyn.  
Answer: **Tower of London**  
[10] This loser at Bosworth Field allegedly seized the throne by imprisoning Edward V and his younger brother Richard in the Tower.  
Answer: **Richard III** York (prompt on Richard)
4. This woman angers her husband by telling her she slept with Skipper. For 10 points each,  
[10] Name this title figure of *Cat on a Hot Tin Roof*, the wife of Brick who lies about being pregnant to stop Mae and Gooper from inheriting Big Mama and Big Daddy's money.  
Answer: **Margaret** "**Maggie**" Pollitt (accept either underlined name; accept **Maggie** the Cat; prompt on Pollitt)  
[10] In this work by the author of *Cat on a Hot Tin Roof*, Blanche DuBois goes insane after moving to New Orleans to live with Stella and Stanley Kowalski.  
Answer: A **Streetcar Named Desire**  
[10] This American playwright wrote *Cat on a Hot Tin Roof* and *A Streetcar Named Desire*.  
Answer: (Thomas Lanier) Tennessee **Williams**

5. Pizza holds a special place in our culture. For 10 points each, identify some things about it.  
 [10] Woody and Buzz attempt get home to Andy by using a PizzaPlanet delivery van in this 1995 Disney-Pixar animated film co-written by Joss Whedon.  
 Answer: **Toy Story**  
 [10] Philip J. Fry, the protagonist of this animated series, works at Panucci's Pizza until January 1, 2000. His taste for anchovy pizza later brings him into conflict with Mom.  
 Answer: **Futurama**  
 [10] This actor, who played Captain Malcolm Reynolds and currently stars in ABC's *Castle*, played jukebox repairman Johnny Donnelly on *Two Guys, a Girl, and a Pizza Place*.  
 Answer: Nathan **Fillion**
6. For 10 points each, name the following American astronauts.  
 [10] This commander of the *Apollo 11* mission, the first man to set foot on the moon, passed away in August 2012.  
 Answer: Neil **Armstrong**  
 [10] This first female American astronaut flew on two *Challenger* missions and served on the commission investigating the 1986 *Challenger* disaster. She passed away in July 2012.  
 Answer: Sally **Ride**  
 [10] This *Mercury* astronaut was the first American to orbit the Earth. At age 77, during his career in the U.S. Senate, he flew on the Space Shuttle *Discovery*.  
 Answer: John **Glenn**
7. After its massive 1883 eruption, world climate didn't return to normal until 1888. For 10 points each,  
 [10] Name this volcano located on an island between Java and Sumatra.  
 Answer: **Krakatoa** (accept **Krakatau**)  
 [10] This other volcano on the island of Sumbawa ejected over 150 cubic kilometers of material in its 1815 eruption. That eruption caused the "year without a summer."  
 Answer: **Tambora**  
 [10] Both Krakatoa and Tambora are found in this country that consists of over seventeen thousand islands. Its island of Java contains its capital, Jakarta.  
 Answer: (Republic of) **Indonesia**
8. The Miraj portion of this event saw Muhammad ascend to Heaven after falling asleep near the Ka'aba. For 10 points each,  
 [10] Name this holy event. In the part of this event known as the Isra, Muhammad rode Buraq to al-Aqsa, the Farthest Mosque.  
 Answer: **Night Journey**  
 [10] During the Night Journey, Muhammad received the order from Allah to perform this action five times every day.  
 Answer: **Salat** (accept **Salah**; accept **pray** or word forms; accept **praying** toward Mecca or the Ka'aba; accept **bowing** toward Mecca or the Ka'aba; prompt on worship or similar)  
 [10] The place from which Muhammad departed on the Night Journey is commemorated with this building on Jerusalem's Temple Mount.  
 Answer: **Dome of the Rock** (accept **Qubbat as-Sakhrah**)

9. Orville Babcock served as this general's aide-de-camp in the Civil War and his private secretary in the White House. For 10 points each,  
[10] Name this Commanding General of the Union Army and 18th U.S. President. His time in office was marked by, among others, the Credit Mobilier scandal.  
Answer: Ulysses S Grant  
[10] Babcock was indicted for his role in a "ring" of fraud involving taxes on this liquor. Grant's testimony helped acquit Babcock, harming both of their reputations.  
Answer: Whiskey Ring  
[10] In 1873, Grant signed a controversial bill giving Congressmen a pay raise, including a retroactive bonus; such "self-authorized" pay raises are now unconstitutional according to this amendment.  
Answer: 27th Amendment to the U.S. Constitution
10. In this novel, the title figure becomes an ascetic and a wealthy merchant before finding enlightenment. For 10 points each,  
[10] Name this Herman Hesse novel, whose title character is consulted by Govinda for religious advice after his varied life leads him to find peace with the ferryman Vasudeva.  
Answer: Siddhartha  
[10] Herman Hesse's novels, including *Siddhartha* and *Steppenwolf*, were written in this language. "Sturm und Drang" was an important 18th century movement in this language's literature.  
Answer: German language (accept Deutsche)  
[10] This poem by German poet Friedrich Schiller refers to the title concept as "Daughter of Elysium." It was famously set to music by Beethoven in his ninth symphony.  
Answer: Ode to Joy (accept Ode an die Freude)
11. KV62 is the designation for this ruler's burial tomb, which was in remarkably good condition when it was discovered in 1922 by an archaeologist supported by Lord Carnarvon. For 10 points each,  
[10] Name this Egyptian pharaoh, a "boy king" who came to power at the age of nine and died at 19.  
Answer: Tutankhamun or Tutankhaten (accept King Tut)  
[10] Tutankhamun's tomb was discovered in the Valley of the Kings by this archaeologist.  
Answer: Howard Carter  
[10] As ruler, Tutankhamun reversed the religious reforms of his father, Akhenaten. One such reform moved his capital from Akhetaten to this city on the east bank of the Nile near the Valley of the Kings.  
Answer: Thebes
12. For 10 points each, answer the following about polysaccharides.  
[10] Polysaccharides are a biological example of this type of macromolecule made up of repeated structural units. Synthetic examples include PVC and polyethylene.  
Answer: polymers  
[10] This polysaccharide presents with a purple-black color in the iodine test. This energy-storing carbohydrate is commonly found in root vegetables such as potatoes.  
Answer: Starch  
[10] This polysaccharide has amino acids and can be found in the cell walls of some bacterial strains. This polysaccharide turns blue or purple with Gram staining.  
Answer: Peptidoglycan (accept murein)

13. In the adolescent stage of an eight-stage model of psychosocial development, a crisis about this concept can lead to role confusion. For 10 points each,  
 [10] Give this term for a person's conception of their individuality.  
 Answer: **identity** (accept things like ego **identity**, personal **identity**, and social **identity**; accept **identity** crisis; accept word forms)  
 [10] The phrase "identity crisis" was coined by this American psychologist, who developed the aforementioned eight-stage model. He also wrote the "psychobiographies" *Young Man Luther* and *Gandhi's Truth*.  
 Answer: Erik **Erikson**  
 [10] Erikson was influenced by Freud's three-part model of the psyche. This instinctual part of Freud's model acts from the pleasure principle and often opposes the ego and super-ego, which consider the reality principle.  
 Answer: the **id**
14. One verse of this collection reads "A Book of Verses underneath the Bough, / A Jug of Wine, a Loaf of Bread--and Thou / Beside me singing in the Wilderness-- / Oh, Wilderness were Paradise enow!" For 10 points each,  
 [10] Name this collection of quatrains, famously translated by Edward FitzGerald.  
 Answer: The **Rubaiyat**  
 [10] *The Rubaiyat* was written by this Persian poet and polymath.  
 Answer: Omar **Khayyam**  
 [10] Khayyam's verse inspired the form of this Robert Frost poem, which opens "Whose woods these are I think I know. / His house is in the village though" and notes that "I have promises to keep / and miles to go before I sleep."  
 Answer: **Stopping by Woods on a Snowy Evening**
15. Safe houses along this path were known as "stations," and its "conductors" included William Still and Harriet Tubman. For 10 points each,  
 [10] Give this two-word term for the system used by thousands of slaves attempting to escape to freedom in the North.  
 Answer: **Underground Railroad**  
 [10] One legend of the Underground Railroad says that the folk song "Follow the Drinkin' Gourd" refers to this seven-star constellation, which can be used as a guide to find the North Star.  
 Answer: The **Big Dipper** or **Ursa Major** or **Great Bear**  
 [10] Canada became the primary destination of the Underground Railroad thanks to this 1850 law that forced policemen, even in the North, to arrest anyone alleged to be an escaped slave.  
 Answer: **Fugitive Slave** Act (accept Law or Bill) of 1850
16. This figure wasn't Narcissus, but was in love with Narcissus. For 10 points each,  
 [10] Name this oread [OH-ree-ad] who wasted away until she could only repeat the words of others.  
 Answer: **Echo**  
 [10] Oreads, like dryads and Dionysus's maenads [MAY-nads], were this type of minor female spirit associated with natural features like mountains and rivers.  
 Answer: **nymphs**  
 [10] This nymph turned into reeds after being pursued by the satyr Pan. Pan used the reeds to make a Pan pipe out of this nymph.  
 Answer: **Syrinx**

17. At the molecular level, it is proportional to the average kinetic energy per degree of freedom. For 10 points each,  
[10] Name this quantity that can be measured in Kelvins or degrees Fahrenheit.  
Answer: **temperature**  
[10] The zeroth law of thermodynamics concerns this phenomenon, which relates two systems that are at the same constant temperature and have no net heat flow between them.  
Answer: thermal **equilibrium**  
[10] Planck's law governs the temperature-dependent radiation emitted by one of these objects in thermal equilibrium. They are perfect absorbers and emitters of light.  
Answer: **black body** (accept **black bodies**)
18. Two cobras, Nag and Nagaina, are slain by the valiant mongoose, Rikki-Tikki-Tavi, in this book. For 10 points each,  
[10] Name this collection of tales about Indian wildlife. This book includes stories about Mowgli, a human boy raised by wolves, who comes into conflict with Shere Khan.  
Answer: The **Jungle Book**  
[10] *The Jungle Book* is by this Indian-born English author of *Kim*, who promises, "You'll be a Man, my son!" in his poem "If--."  
Answer: (Joseph) Rudyard **Kipling**  
[10] This Kipling work is addressed to "Best Beloved" and includes stories about "How the Leopard Got His Spots" and "How the Alphabet Was Made."  
Answer: **Just So Stories**
19. In graph theory, the "adjacency" type of this entity can be used to show which vertices are connected by which edges. For 10 points each,  
[10] Name these rectangular arrays of numbers.  
Answer: **matrices** or **matrix**  
[10] This property of a matrix can be calculated via expansion by minors and cofactors. For a two-by-two matrix with entries  $a$ ,  $b$ ;  $c$ ,  $d$ , it is equal to  $a d$  minus  $b c$ .  
Answer: **determinant**  
[10] This type of matrix is often used to solve systems of equations in reduced row-echelon form. Its number of columns is typically one more than the number of rows, with the extra column representing constant terms.  
Answer: **augmented** matrix
20. Its construction has been contributed to Nebuchadnezzar II. For 10 points each,  
[10] Identify this wonder of the ancient world that the king of Babylon supposedly built for his wife.  
Answer: the **Hanging Gardens** of Babylon  
[10] The only remaining wonder of the ancient world is this structure, which was built for Pharaoh Khufu [koo-foo] at Giza.  
Answer: The Great **Pyramid** of Giza (accept The Great **Pyramid** of Khufu or reasonable equivalents)  
[10] Once believed to straddle the harbor of its namesake island, this enormous statue is also counted among the wonders of the ancient world.  
Answer: the **Colossus** of Rhodes