Round 4 – Tossups

1. **An earth loop test named for this quantity is used to ensure a component is sufficiently grounded. At low frequencies, this quantity can be measured using the auto balancing bridge method. For a lossless transmission line, the characteristic form of this quantity equals the square root of the quantity "*L-over-C*." The components of this quantity form constant circles on a (*)** Smith chart. Buffer circuits transform this quantity between low and high values to protect a signal from a load. If this quantity for the load equals its complex conjugate for the source, power transfer is maximized and reflection is minimized. The imaginary part of this quantity is the reactance. For 10 points, name this quantity symbolized *Z*, the complex AC analogue of resistance.
ANSWER: **impedance** [accept earth loop **impedance** test, characteristic **impedance**]

2. **A revolt against a ruler from this dynasty began after he was converted by Jesuit missionary Pedro Paez; the Jesuits were kicked out by that ruler's son, Fasilides. This dynasty ruled the largest state targeted by the expansion of a people led by Bifolé and Meslé, which was unsuccessfully opposed by this dynasty's Sarsa the Great. This dynasty constructed the fortress of Fasil Ghebbi at Gondar, its capital during a period where this dynasty's rulers were reduced to figureheads, the (*)** "Era of the Princes." A ruler of this dynasty shot himself with a pistol gifted by Queen Victoria during the siege of Magdala. The *Kebra Negast* lists the genealogy of this dynasty, which was overthrown by the Derg 700 years after defeating the Zagwe Dynasty. For 10 points, name this ruling dynasty of the Ethiopian Empire.
ANSWER: **Solomon**ic Dynasty

3. **A hero from this present-day country was conceived after his mother stepped into a giant's footprint and rode a fire-breathing horse made of metal. A legendary woman from this country who wished to "ride storms" and "kill orcas" threw her meter-long breasts over her shoulders in combat. A king from this country made a magic crossbow from a golden toenail. Another king from this country climbed up a tree to find a jewel-encrusted hilt, then paired the hilt with a (*)** blade that a fisherman found in a lake; thus, he assembled Heaven's Will, a sword gifted by a golden turtle. Per folklore, two elephant-riding heroines of this country drowned themselves rather than surrender after rebelling against Chinese occupiers. For 10 points, name this Asian country home to Lê Lợi ("lay LOY") and the Trung Sisters.
ANSWER: **Vietnam** [or Socialist Republic of **Vietnam**]

4. **The second episode in this piece's finale is a canon in which the right hand plays half notes starting on C in an "up a perfect fourth, down a perfect fifth" sequence. This piece's second movement opens with the right hand notated in bass clef, with the upper fingers playing the melody, and the index finger and thumb alternating sixteenths, in slow 2/4 time. This piece is the second of the composer's three works in the same genre and key, after Opus 10, No. 1 and before his Piano Sonata No. (*)** 32. This sonata's *adagio cantabile* slow movement inspired "Nimrod" from the *Enigma Variations*, and the development of its first movement is interrupted by the return of its slow introduction, marked *Grave* ("GRAH-vay"). For 10 points, name this C-minor piano sonata by Beethoven whose nickname refers to suffering, not pity.
ANSWER: *__Pathétique__ sonata* [or *Sonata __pathétique__*; or Ludwig van **Beethoven's Piano Sonata No. 8** in C minor, Op. 13; reject "Pathétique Symphony"]

5. **After meeting this man, one novel's title character declares that neither wild beasts nor robbers could steal his joy, and then is promptly fatally gored by a cow. In another novel, the protagonist forever remembers this man's glance and half-smile, when this man turns away after saying "Be aware of too much wisdom." The title character dies trying to meet this man in a novel by Karl Gjellerup ("GHEL-uh-roop"). In one novel, an ex-courtesan who has become a follower of this man dies from a (*)** snakebite, near the river where her former lover lives. That novel ends with this man's follower, Govinda, discovering that the title character smiles like this man, after taking over as ferryman from Vasudeva. For 10 points, name this religious figure who shares his name with the protagonist of a Hermann Hesse novel.
ANSWER: **Siddhartha** [or **Buddha**; or **Gautama**; or **Siddhattha**]

6. **The receptor for an enzyme that acts on these molecules is the most common protein targeted by antibodies in membranous nephropathy. Glycated derivatives of these molecules comprise lecithin ("LESS-uh-thin"). These molecules are targeted by antibodies in a condition that causes recurrent miscarriages and thrombi. A sperm-specific enzyme that breaks down these molecules, designated PLC-zeta, triggers the calcium wave after fertilization. Scramblases and flippases move these molecules between (*)** leaflets. One of these molecules is cleaved to form DAG and I·P·3, a second messenger. Choline ("KOH-leen") and serine are often found in their head groups. Like surfactants, they form micelles ("my-CELLS"), but they also often form a bi·layer. For 10 points, name these molecules with polar heads and hydrophobic tails, which form the cell membrane.
ANSWER: **phospholipid**s [prompt on lipids]

7. **Spectroscopic pigment analysis proved that hundreds of these artworks were faked by the Spanish Forger. White cloth surrounds a woman's breasts in one of these works by Sarah Goodridge done in the watercolor-on-ivory format popularized by Rosalba Carriera. In the 11th century, vermilion replaced the red lead pigment that these works are named for. One of these works by Jean Fouquet ("foo-KAY") might be the oldest Western self-portrait. The "cabinet" type of these works were painted by (*)** Nicholas Hilliard, who wrote the treatise *The Art of Limning*. Illustrations accompanying the text of illuminated manuscripts are named for this format. The story of Layla and Majnun ("maj-NOON") and the life of Babur are depicted in albums that collect art in this format. For 10 points, Persian and Mughal narrative scenes often used what small format?
ANSWER: **miniatures** [accept **limnings** before mention; prompt on illuminated manuscripts before mention with "what artworks are part of the manuscript?"; prompt on portraits with "in what format?"]

8. **A story by this author ends with one character joking that they should be polite to people whom they outnumber "only [...] a thousand million to one," followed by the line, "Twenty years afterward, the remark didn't seem funny." In a story by this author, a Jesuit priest discovers a vault in the Phoenix Nebula that was destroyed by an exploding star that appeared to the Magi in Bethlehem. This author's recurring character Harry Purvis appears in his comic *Tales from the White Hart*. This author of** (*) "Rescue Party" and "The Star" created an ape-man who receives an epiphany about using bones as tools. His novel *The Fountains of Paradise* popularized the idea of a space elevator. For 10 points, name this science fiction author whose story "The Sentinel" was adapted into *2001: A Space Odyssey*.
ANSWER: Arthur C(harles) **Clarke**

9. **In his memoir *Company Aytch* ("H"), Sam Watkins wrote that this policy turned him and others into "a machine." A possibly exaggerated uprising against this policy in Pennsylvania was begun by the Fishing Creek Confederacy. Horatio Seymour controversially declared this policy as unconstitutional during an event that destroyed the Colored Orphan Asylum and featured participation from groups like the** (*) "Plug Uglies" and "Dead Rabbits." The so-called "Twenty Negro Law" protected some people from this policy in the Confederate states. People could pay 300 dollars to avoid this policy under the Enrollment Act of 1863, which also allowed for hiring substitutes. July 1863 riots in New York City protested, for 10 points, what policy meant to create soldiers during the Civil War?
ANSWER: **draft** [or **conscription** or militia **draft**; accept answers describing **draft**ing or **conscript**ing people into the US or Union army or military]

10. **According to one book, this concept must be understood alongside the hearing of motorcycles and wagons and not the sensations of their sounds. That book also argues that this concept is "de-severed" from space and instead is found in a "clearing" or "lighting," in a chapter that criticizes the use of Cartesian coordinates. This concept is allowed to be concerned with the world through the process of "disclosedness," according to a work that offers a definition of this concept as** (*) "thrown projection." The originator of this concept said that the essence of this concept "lies in its existence" and that it is defined by its "being-toward-death." For 10 points, give this German term, a neologism for the nature of human existence, which Martin Heidegger coined in *Being and Time*.
ANSWER: *Dasein* (dah-ZINE) [accept **being-in-the-world**; accept **being-there**; prompt on existence or being until read]

11. **A film set in this city switches to black and white for a scene in the back of a taxi where the "Black Spider" removes a man's hand from her black glove. An imagined scene of driving through this city upside-down is shown in a film in which two gay men originally from this city tend to a motion lamp depicting Iguazu ("eeh-gwuh-SOO") Falls. Every day, a police officer buys a tin of pineapples expiring on May 1 in a film from this city whose second section incessantly plays the song** (*) "California Dreamin'." The director of *Happy Together*, who is from this city, also directed a film ending as a journalist whispers a secret into a hollow of a wall at Angkor Wat. *Chungking Express* and *In the Mood for Love* were directed by Wong Kar-Wai, a director from, for 10 points, what home city of John Woo?
ANSWER: **Hong Kong**

12. **This author wrote a poem in which "singing birds" buy "tickets for the tropic zone" to flee "our bankrupt circus." A poem by this author repeats the line, "The telegram says you have gone away." The phrase "scorned the tick of the falling weather" recurs in a poem in which "the sting of bees took away" this poet's entomologist father. This author wrote "I fancied you'd return the way you said, / But I grow old and I forget your name" in a poem that repeats, "I think I (*)** made you up inside my head." "Denouement" and "Mad Girl's Love Song" are villanelles by this writer, who wrote a poem that states "I am your opus / I am your valuable" and ends, "I rise with my red hair / And I eat men like air". For 10 points, name this poet who wrote "Lady Lazarus" the year before she committed suicide.
ANSWER: Sylvia **Plath**

13. **Regulation of a family of enzymes that produce this compound relies on a key lysine ("LYE-seen") residue being modified by sirtuins ("sir-TOO-inns") 1 and 3. The enzyme A·A·N·A·T reacts serotonin with this molecule during melatonin synthesis. Biotin carboxylase ("kar-BOX-uh-lace") and carboxyl·transferase domains are the two key components of an enzyme that converts this compound to a derivative of malonic acid. This is by far the largest compound produced by an enzyme complex that features swinging lipoyllysyl ("lipo-ill-LYE-syle") arms in its (*)** E2 subunit. Two molecules of this compound are Claisen ("KLY-zen")-condensed by thiolase II ("two") to begin the mevalonate ("MEV-uh-LOH-nate") pathway. The reaction of this molecule with oxalo·acetate forms citrate in the first step of the Krebs cycle. For 10 points, name this molecule that uses a thio·ester linkage to transport a namesake CH_3CO group.
ANSWER: **acetyl-CoA** ("uh-SEE-till-co-A") [or **acetyl-coenzyme A**]

14. **This organization's leader influenced Surendranath Banerjee ("SHOO-ren-draw-nawt BAN-er-jee") and Vinayak Savarakar, the latter of whom founded the Free India Society based on his thought. Two naval officers who founded the secret society Esperia had their letters with this organization's leader intercepted by Lord Aberdeen; those men, the Bandiera brothers ("band-YAIR-uh"), were then executed. Members of this organization pledged themselves to the "law of progress and duty" at a meeting of exiles in Marseille ("mar-SAY"). This organization absorbed many members of a more secretive group which had resisted the rule of (*)** Joachim Murat ("mew-RAH"). After a failed 1830 rebellion, many members of the Carbonari joined this organization headed by the "soul" of *Risorgimento*. For 10 points, name this organization headed by Giuseppe Mazzini that fought for a unified Italian republic.
ANSWER: **Young Italy** [or La **Giovane Italia**]

15. **Three of these networks would be united by a project in Clovis, New Mexico that has stalled since 2015, called Tres Amigas. Security flaws in these networks were highlighted by Grizzly Steppe's 2016 attack, centered on Vermont. "Reversible rusting" may help deal with intermittency in these networks caused by new technologies. The NERC monitors the reliability of these networks in North America, where they are maintained by (*)** RTOs such as PJM and ERCOT. "Wide area synchronous" examples of these networks are called "interconnections" in North America, such as one in Texas that partially failed in 2021 due to severe winter. They typically use a three-phase design and have substations with phase-shifting transformers. For 10 points, name these networks that deliver electricity.
ANSWER: power **grid**s [or electricity **grid**s, or electric **grid**s, or energy **grid**s; prompt on power distribution networks or electricity transmission networks]

16. **To achieve this goal, a character offers to be split down the middle like a flatfish and donate one of the halves. A character who thrice sought this goal by bringing a basket to assembly meetings is freed by working men who use ropes to drag boulders away from a cave. The protagonist of that play celebrates achieving this goal by marrying the personification of Harvest after flying to heaven on a dung beetle and seeking aid from the title** (*) **goddess. In another play, people attempting to achieve this goal humiliate a safety commissioner by dressing him in a veil, comb, and basket, after swearing an oath on a jug of Thasian wine and storming a hill to seize a city's treasury. For 10 points, Lampito and Caloniki join a sex strike to achieve what political goal in the play** *Lysistrata* ("lye-SIS-truh-tuh")?
ANSWER: **end**ing the **Peloponnesian** War [accept equivalents such as getting the **Peloponnesian** War to **stop**; accept **peace** between **Athens** and **Sparta**; prompt on peace or truces or treaties by asking "for what conflict?"; prompt on sex strike or not having sex before "sex strike" by asking "what goal is the sex strike trying to accomplish?"]

17. **A David Swinney study of lexical access utilized this phenomenon when asking subjects to quickly identify a word as real after being shown a sentence about bugs in a government building. Michael Hoey's theory of a lexical type of this phenomenon was intended to explain how colligation aids in comprehension. A John Bargh ("barge") study of this phenomenon measured how fast subjects walked down a hallway. Studies of this phenomenon "are not statistical flukes" according to Daniel** (*) Kahneman ("KAH-nuh-mahn") in *Thinking Fast and Slow*, a statement he quickly had to retract in the face of non-replication of nearly all major studies of this phenomenon. A classic example of this phenomenon is the word "doctor" making subjects quicker to recognize the word "nurse." For 10 points, name this phenomenon by which an initial stimulus affects a response to later stimuli.
ANSWER: **priming** [accept **lexical priming**; accept **semantic priming**; accept **social priming**; accept **behavioral priming**]

18. **One of these constructs is applied to elements of a multiset to measure its cardinality by the HyperLogLog algorithm, an extension of the Flajolet–Martin algorithm. A 2-wise independent family of these constructs necessarily forms a universal family of them. With a static input, the FKS method serves as a "perfect" one of these constructs. Knuth ("k'nooth") suggested an optimal constant of one-half times the quantity "square-root-of-5 minus 1" when defining these constructs multiplicatively. The "double" form of these constructs avoids the (*)** primary and secondary clustering that occurs when using linear or quadratic probing. When these constructs assign two keys to one index, a collision occurs. They have constant-time lookup and storage. For 10 points, name these functions that map data to a table.
ANSWER: **hash** function [or **hash** table; or word forms such as **hashing**]

19. **After this man ordered his daughter-in-law to be force-fed to prevent her suicide from starvation, he had her cast to her death down the Stairs of Mourning. This man became lifelong friends with the astrologer Thrasyllus ("thruh-SILL-uss") of Mendes ("MEN-dees") while on voluntary exile in Rhodes. This man purportedly had people dress up as Pans and nymphs to solicit passersby in a forest which locals termed the "old goat's garden." To make sure he was dead, this man was smothered to death under a heap of clothes by the prefect** (*) Macro. Livilla participated in a conspiracy to kill this man's son Drusus the Younger. Suetonius ("sway-TOH-nee-uss") writes that this emperor engaged in depravity with naked children while on the island of Capri, which he retired to, leaving the prefect Sejanus to rule. For 10 points, name this second Roman emperor.
ANSWER: **Tiberius** Julius Caesar Augustus [reject "Julius Caesar" or "Augustus"]

20. **On this holiday, some women put lotion and bath salts on altars and make incense offerings to earn blessings of beauty. A custom of this holiday supposedly began after soldiers put messages into food telling people to start a rebellion at midnight. It never takes place in February, but during this holiday, people often write riddles on paper and leave them on lighting devices for strangers to solve. Parades on this holiday often feature a statue of the Jade (*)** Rabbit. Like its Korean analogue, Chuseok ("choo-suk"), this Chinese holiday takes place on the 15th day of the 8th month. Its chief culinary custom involves pastries that Hou Yi ("hoe yee") made after his wife Chang'e ("chang-uh") floated away. Celebrants eat mooncakes during, for 10 points, what holiday named for taking place around the September equinox?

ANSWER: **Mid-Autumn** Festival [or **Zhōngqiū** jié; or **Jūng-chāu** jit; or **Tson-tsheu** tsìh; or **Chûng-chhiû**-chiet; prompt on Autumn festival or Fall festival; accept **Moon** Festival or **Mooncake** Festival or **Lunar** Festival before "mooncakes"]

Round 4 – Bonuses

1. In this play, one character's cruelty during a game of "Get the Guests" causes another character to vomit. For 10 points each:
[10e] Name this Edward Albee play whose only four characters are the two couples George and Martha and Nick and Honey.
ANSWER: ***Who's Afraid of Virginia Woolf?***
[10h] The 2012-13 Steppenwolf production of *Who's Afraid of Virginia Woolf?* was anchored by a Tony-winning performance by this actor as George. He also starred opposite Annette Bening as Joe Keller in Roundabout's 2019 production of *All My Sons*.
ANSWER: Tracy S. **Letts**
[10m] As an author, Letts is best known for this play, in which the dysfunctional Weston family, including pill-addicted matriarch Violet, gathers together in Oklahoma after the death of patriarch Beverly.
ANSWER: ***August: Osage County***

2. Answer the following about the music of Austrian keyboardist Joe Zawinul ("ZOV-uh-null"), for 10 points each.
[10e] Zawinul was a founding member of Weather Report, a band that played this genre of music. Miles Davis's *Bitches Brew* and Herbie Hancock's *Head Hunters* are major albums in this genre, which combines jazz and rock.
ANSWER: jazz **fusion** [or **fusion** jazz; or **progressive jazz**]
[10m] The opening track of Weather Report's album *Heavy Weather* is a Zawinul song named for this jazz club in New York City, whose name was in turn inspired by a bebop musician.
ANSWER: "**Birdland**"
[10h] Zawinul's best-known composition not written for *Weather Report* is this song that he wrote for Cannonball Adderley. It titles an Adderley album that is subtitled *Live at "The Club."*
ANSWER: "**Mercy, Mercy, Mercy**"

3. Gilbert Stork developed a reaction that alkylates ("AL-kuh-lates") a carbonyl by forming one of these compounds and reacting it with a Michael acceptor. For 10 points each:
[10h] Name these compounds formed by condensing a carbonyl with a secondary amine ("AY-meen"). They are the tautomeric ("TAW-toh-MER-ick") forms of imines ("IM-eens") and act as good nucleo·philes.
ANSWER: **enamine**s ("EEN-uh-meens")
[10e] The enamine–imine tautomerism is analogous to the relationship between the "keto" form of carbonyls and the "enol" form, which contains an alkene and one of these functional groups symbolized -OH.
ANSWER: **alcohol** [or **hydroxyl** group]
[10m] As the only proteinogenic ("protein-oh-JEN-ick") amino acid with a secondary amine functional group, this amino acid is commonly used in organic catalysis to produce asymmetric products via enamine intermediates.
ANSWER: **proline** [or **Pro**; or **P**]

4. To garner Latino support, Edward Roybal and Mexican-American politicians created "Viva [this president]" clubs; Roybal would later be sent and lose a 15-pound tamale courtesy of Alberto Gomez. For 10 points each:
[10e] Name this president who did not actually claim to be a donut when he declared "Ich bin ein Berliner" ("eek bin ein bair-LIN-er").
ANSWER: John F. **Kennedy** [or John Fitzgerald **Kennedy**; or **JFK**]
[10m] This politician embarrassingly tried to eat a tamale with the corn husk still on during a campaign stop at the Alamo. During a debate, this politician claimed that "there is no Soviet domination of Eastern Europe."
ANSWER: Gerald **Ford** [or Gerald Rudolph **Ford** Jr.; or Leslie Lynch **King** Jr.]
[10h] Gomez claimed to have sent Richard Nixon a big enchilada, a reference to John Erlichman calling this man the big enchilada in the Watergate tapes. This lawyer ran Nixon's campaigns in 1968 and 1972.
ANSWER: John (Newton) **Mitchell**

5. In one dialogue, this character argues that observable qualities like heat are not different than pleasure and pain and cannot be contradictory in an object, as people may disagree whether something is hot or cold. For 10 points each:
[10h] Name this character who argues that mind-independent material substance does not exist, convincing a different character who is named for the Greek word for "matter."
ANSWER: **Philonous** ("FILL-oh-NOO-uss")
[10e] This 18th-century Irish philosopher created the characters of Hylas and Philonous and wrote *A Treatise Concerning the Principles of Human Knowledge*.
ANSWER: George **Berkeley** ("BARK-lee")
[10m] Berkeley's stance is often inaccurately summarized as "*esse* ("ESS-say") is *percepi* ("purr-KIH-pee")," a phrase that is the target of this English philosopher's 1903 essay "The Refutation of Idealism."
ANSWER: G(eorge) E(dward) **Moore**

6. This text is key to the two-source hypothesis proposed to resolve the synoptic problem. For 10 points each:
[10m] Name this hypothetical document first proposed around 1900, which was accepted by scholars who increasingly challenged the Augustinian hypothesis.
ANSWER: **Q** source [or **Q** document or **Q** gospel]
[10e] According to the two-source hypothesis, the gospel named for this disciple and tax collector was based on both the Gospel of Mark and the hypothetical "Q source."
ANSWER: Saint **Matthew** [or **Levi**; accept the Gospel According to **Matthew**]
[10h] This apocryphal gospel contains the story of the Harrowing of Hell within its Acts of Pilate section. It's named for a member of the Sanhedrin that helped Joseph of Arimathea prepare Jesus's body for burial.
ANSWER: Gospel of **Nicodemus**

7. The real and imaginary parts of a function with this property are harmonic conjugates. For 10 points each:
[10m] Name this property of functions that are complex-differentiable in a neighborhood of each point in a domain. It is equivalent to analyticity.
ANSWER: **holomorphic** [accept word forms]
[10e] This French mathematician proved that in simply connected domains, closed integrals of holomorphic functions vanish. With Hermann Schwarz, he names an inequality relating the product of two vectors' norms to their dot product.
ANSWER: Augustin-Louis **Cauchy** ("koh-SHEE") [accept **Cauchy**–Schwarz inequality]
[10h] If two holomorphic functions are equal over a set which has one of these points, then they are equal over the whole domain. For a set S, one of these points can be arbitrarily-closely approximated by other members of S.
ANSWER: **limit** point [or **accumulation** point or **cluster** point; reject "boundary point"]

8. Music theoretical principles derived from this man's thought were propagated in medieval times by Boethius's ("bo-EE-thee-uss's") *Fundamentals of Music*. For 10 points each:
[10m] Who is this Ancient Greek thinker who names a tuning system based on a ratio of 3:2 ("three-to-two") for perfect fifths? That tuning produces his namesake "comma" of about 23.46 cents between en·harmonic pitches.
ANSWER: **Pythagoras** of Samos [accept **Pythagorean** tuning; accept **Pythagorean** comma]
[10e] Pythagorean tuning, like all standard Western tuning systems, uses a ratio of 2:1 ("two-to-one") for this interval. This is the interval between a pitch and the nearest pitch of the same letter name, such as between middle C and the C above it.
ANSWER: **octave**
[10h] Pythagorean tuning has the same ratios as just intonation for octaves, perfect fifths, and perfect fourths, but diverges at the major third, which is this ratio in just intonation.
ANSWER: **5:4** ("five-to-four") [or **4:5** ("four-to-five")]

9. In a novel set in this country, a magistrate tries to destroy the reputation of Dr. Veraswami to gain admission to the European Club. For 10 points each:
[10m] Name this present-day country. In an essay by the same author, a policeman in this country is encouraged by villagers to kill an aggressive animal experiencing *musth* ("must").
ANSWER: **Burma** [or **Myanmar**]
[10e] Those works, *Burmese Days* and "Shooting an Elephant," are by this British author who created the characters of Winston Smith and Big Brother.
ANSWER: George **Orwell** [or Eric Arthur **Blair**]
[10h] This other author's memoir *The Gentleman in the Parlour* recounts an overland journey from Burma to the Vietnamese city of Haiphong, which he made with his partner Gerald Haxton.
ANSWER: W. Somerset **Maugham** [or William Somerset **Maugham**]

10. This kingdom lost a war with Dai Viet after responding to a diplomatic request with a container of elephant dung. For 10 points each:
[10h] Name this kingdom, which was founded after Fa Ngum ("fah ung-oom") conquered Luang Prabang ("loo-ong PRAH-bong") and made it his capital.
ANSWER: **Lan Xang** ("Lahn Sahng") [or **Lan Xang** Hom Khao or **Lan Chang** Rom Khao]
[10e] Fa Ngum was the first monarch to unite this ethnic group, who ruled the Kingdom of Vientiane, which is also the capital of its modern-day country.
ANSWER: **Lao** [or **Lao**s; or **Laotian**s; or **Leo** People's Democratic Republic]
[10m] Likely the only woman to rule Lan Xang used a title with this Sanskrit prefix for "great" while repeatedly installing her relatives as puppet kings then killing them. It appears in the name for Buddhist universities like Nalanda.
ANSWER: **maha**- [or *Maha*devi or **maha**vihara] (The Queen is Nang Keo Phimpha)

11. Name these characters who are transformed into a different gender in Ovid's *Metamorphoses*, for 10 points each.
[10m] This youth's body is combined with that of the nymph Salmacis after the latter wishes for them never to be parted. This youth's name is derived from the names of his parents, two Olympian gods.
ANSWER: **Hermaphroditus**
[10e] This prophet changes genders on two occasions, seven years apart, when he strikes a pair of copulating snakes. This blind Theban seer also informs Oedipus that he murdered king Laius in *Oedipus Rex*.
ANSWER: **Tiresias**
[10h] After being raped, this Thessalian is granted their wish for an impenetrable, male body. Centaurs kill this Lapith warrior by crushing their body under a pile of trees.
ANSWER: **Caeneus** [or **Caenis**]

12. This period began after president-elect Luis Mena began a revolt to seize power and was initially guided by "dollar diplomacy" principles. For 10 points each:
[10m] What period was at times enforced by as few as one hundred Marines, and achieved policy goals such as the signing of the Bryan-Chamorro Treaty prohibiting the building of any European-financed canal?
ANSWER: **United States occupation** of (the Republic of) **Nicaragua** [accept **U.S.** or other synonyms for "United States"; prompt on partial answers]
[10h] The original U.S. intervention in Nicaragua was invited by this outgoing president, whose term was then extended by four years. In 1926, the US-backed Pact of Espino Negro re-installed him after a civil war.
ANSWER: Adolfo **Díaz** Recinos
[10e] A guerrilla leader who opposed the Pact of Espino Negro became the namesake of this later Marxist movement in Nicaragua, which came to power in 1979 and again in 2007 under Daniel Ortega.
ANSWER: **Sandinista**s [or **Sandinista** National Liberation Front; or Frente **Sandinista** de Liberación Nacional; or **FSLN**]

13. This poem envisions a room where "ornate ceilings" and "limpid mirrors" will give an aura of "oriental splendor." For 10 points each:
[10m] Name this poem from *Les fleurs du mal* ("lay FLURR doo MAHL"), which begins by asking a "sister" "child," "think how sweet to go out there and live together" on the title journey.
ANSWER: "**Invitation to the Voyage**" [or "**L'invitation au voyage**"]
[10e] This French Symbolist poet included "Invitation to the Voyage" in his collection *Les fleurs du mal*.
ANSWER: Charles **Baudelaire** ("boh-du-LAIR")
[10h] Three short stanzas of "Invitation to the Voyage" imagine a place where all is "order" and "beauty," which is followed by three adjectives. Give the last adjective, which is also the last word of the poem. You may give either the original French word or its English cognate, which is the most common translation.
ANSWER: **volupté** ("voh-loop-TAY") [or **voluptuous**]

14. This phenomenon names the lower limit temperature achieved by Sisyphus cooling, typically on the order of microkelvins. For 10 points each:
[10h] Name this phenomenon in which an incident or emitted energetic particle transfers its momentum to a nucleus, atom, or electron.
ANSWER: **recoil** [or atomic **recoil**, nuclear **recoil**, electron **recoil**]
[10m] This phenomenon is the recoil-free absorption or emission of radiation from a nucleus like iron-57. A form of spectroscopy named for this effect measures the isomer shift and quadrupole splitting.
ANSWER: **Mossbauer** ("MOSS-bow-er") effect [or **Mossbauer** spectroscopy]
[10e] The Mossbauer effect typically emits or absorbs this form of electromagnetic radiation, which has wavelength shorter than X-rays.
ANSWER: **gamma** ray [or **gamma** radiation]

15. The national emblem of Indonesia is one of these creatures with a shield on its chest displaying the Pancasila ("pan-cha-SEE-lah"). For 10 points each:
[10h] Name these mythical creatures, which also name Indonesia's second-largest airline after Lion Air. Jakarta's planned multibillion-dollar seawall is shaped like one of these creatures.
ANSWER: **garuda**s ("GUH-roo-duhs") [accept **Garuda** Indonesia; prompt on eagles or birds]
[10e] A garuda is also the symbol of this country's monarchy, currently led by Rama X ("the tenth").
ANSWER: **Thailand** [or Kingdom of **Thailand**, or **Siam**, or Ratcha-anachak **Thai**]
[10m] This city's official symbol is a garuda called the Khangarid ("han-gah-rid"), believed to watch over it from the sacred mountain to its south. Most people in the suburbs of this metropolis live in residences called *gers* ("gairs").
ANSWER: **Ulaan·baatar** [or **Ulan Bator**; prompt on khot or UB] (The mountain is Bogd Khan.)

16. Michael Porter's seven categories of supplier power include this concept, which firms may create by offering repeat-purchase discounts. For 10 points each:
[10h] Name this concept, which tech companies attempt to raise by creating "walled gardens." The prospect of losing connections may create "relational" examples of this concept.
ANSWER: **switching cost**s [or **switching barrier**s; accept **relational switching cost**s; prompt on answers including substitution]
[10e] Another of Porter's "Five Forces," the threat of new entrants, is opposed by this ubiquitous three-word term from economics for impediments to starting a business. They tend to be high in oligopolistic markets.
ANSWER: **barriers to entry** [or **barrier to entry**]
[10m] Though barriers to entry in this market structure are low, firms may try to create them through differentiated products and relational switching costs. This structure features many firms, highly elastic demand, and no long-run economic profit.
ANSWER: **monopolistic competition** [prompt on imperfect competition; reject "monopoly"; reject "perfect competition"]

17. Ribosomal skipping can cause a form of this phenomenon, which allows a single RNA to code for multiple proteins. For 10 points each:
[10m] Name this phenomenon in which an insertion or deletion of nucleotides changes all downstream amino acids of the corresponding protein.
ANSWER: **frameshift**ing [accept but DO NOT REVEAL **frameshift** mutation]
[10e] Insertions and deletions are two types of these things. This is the general term for any changes in a DNA sequence, which can be induced by chemicals or UV light.
ANSWER: **mutation**
[10h] Frameshifting can be dealt with using this kind of mutation, in which a second mutation in the same gene restores the original phenotype.
ANSWER: **revertant** [prompt on suppressor mutation]

18. Four children cope with their mother's disappearance on a train in a novel from this country titled *Please Look After Mom*. For 10 points each:
[10h] Name this country. In another novel from here, a woman born in 1982 experiences dissociative episodes after being mocked by office workers as a "mum-roach."
ANSWER: **South Korea** [or **Republic of Korea**; or **ROK**; or **Daehan Minguk**] (The latter novel is *Kim Ji-Young, born 1982*.)
[10m] In 2016, Han Kang became the first South Korean to win the Man Booker International Prize with this novel in which Yeong-hye ("young-hay") starves herself and starts to conceive of herself as a plant after having a dream about animal slaughter.
ANSWER: The *__Vegetarian__* [or *__Chaesik-juui-ja__*]
[10e] The protagonist of Sang Young Park's novel *Love in the Big City* calls this disease's vector "Kylie." Prior Walter and Roy Cohn both suffer from this disease in Tony Kushner's *Angels in America*.
ANSWER: **AIDS** [or **acquired immunodeficiency syndrome**; prompt on HIV]

19. The artist of this painting expressed his intention to depict the "absolute repose" found in Japanese interiors. For 10 points each:
[10m] Name this 1889 painting of a trapezoidal interior space. In a letter to his brother Theo ("tay-OH"), the artist of this painting explained his decision to paint the walls lilac and the sheets "lemon-green."
ANSWER: *__Bedroom in Arles__* [or *__Bedroom at Arles__* or *La __Chambre à Arles__*]
[10e] *Bedroom in Arles* was painted by this artist, whose stay in Arles was marred by an unfortunate episode in which he cut off his ear.
ANSWER: Vincent **van Gogh**
[10h] In Arles, van Gogh executed a series of portraits of this family, including one depicting the postal worker Joseph. This family's matriarch is painted in vivid green, holding the string of a cradle, in van Gogh's *La Berceuse* ("bear-SUHZ").
ANSWER: **Roulin** ("roo-LAHN") Family

20. Two members of this family, Mikołaj ("mee-KOH-why") "the Red" and Mikołaj "the Black," were the favorite advisors of Sigismund II ("the second") Augustus, who also married a woman from this family, Barbara. For 10 points each:
[10h] Name this family, the largest landowners in medieval Lithuania. Giovanni Bernardoni built the Corpus Christi Church for a member of this family outside of their castle in Nesvizh ("nyah-SVEEZH").
ANSWER: **Radziwiłł** ("rod-ZEE-veew")
[10m] The Radziwiłłs were the largest beneficiaries of the enfeoffment ("in-FEFF-mint") campaign pursued by this Lithuanian Grand Duke, who fought his brother Jogaila ("yo-GUY-luh") with Teutonic support then helped defeat the Teutonic Knights at Grunwald.
ANSWER: **Vytautas** ("VEE-taw-tass") the Great
[10e] Apocryphally, the Radziwiłłs descended from the last pagan arch·priest of this city. After dreaming of an iron wolf, Gediminas ("geh-duh-MIN-uss") founded this capital of Lithuania.
ANSWER: **Vilnius** [or **Vil'nya**; or **Wilno**]