

# 2022 SHOW-ME

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## Packet 1

1. **Lehmer’s algorithm speeds up the calculation of this function by considering leading digits only. Bézout’s [beh-zoo’s] identity states that this function’s output can be expressed as a linear combination of its inputs. This function can be calculated using repeated subtraction via the Euclidean algorithm. For coprime inputs, this function returns one. For two numbers, the value of this function is their product divided by their (\*) LCM. Reducing a fraction involves dividing by this function of the numerator and the denominator. For 10 points, name this function that, for a group of numbers, gives the largest positive integer that evenly divides all of them.**  
ANSWER: **greatest common divisor** [or **GCD**; accept **highest** in place of “greatest”; accept **factor** in place of “divisor”; accept **HCF** or **GCF** or **HCD**]  
<Math — Joy An> [Ed.]

1. Michael Feldberg argued that the Jewish sculptor Moses Jacob Ezekiel helped establish statues as a way to advance this belief. For 10 points each:

[H] Name this belief established by Alexander Stephens and supported by the Dunning School which presents the Confederacy as a “heroic defender” against Northern Aggression during the Civil War.

ANSWER: **Lost Cause** of the Confederacy

[M] Lost Cause supporters point to this scorched earth campaign as Northern Aggression. Savannah, Georgia was presented as a “Christmas gift” at the end of this 1864 campaign across Georgia led by William Tecumseh Sherman.

ANSWER: Sherman’s **March to the Sea** [prompt on Sherman’s **March**]

[E] Thomas Dixon Jr. advanced the Lost Cause with a book trilogy glorifying this organization that was adapted into the film *Birth of a Nation*. Nathan Bedford Forrest founded this white supremacist organization.

ANSWER: **Ku Klux Klan** [or the **KKK**; prompt on the **Klan**]

<American History — Ganon Evans> [Ed. Louis Li]

2. **A dead soldier from this country is dragged by an armored vehicle in a photo by Kyoichi Sawada. The Art Workers’ Coalition captioned a photograph of a massacre in this country “Q. And Babies? A. And Babies.” Eddie Adams captured the moment a handcuffed man was executed in the street in this country. A gas can sits next to a man on (\*) fire in a Malcolm Browne photo from this country, which is where Robert Capa died from a landmine. Children in this country flee a bombing in Nick Ut’s “The Terror of War.” For 10 points, name this country where a helicopter was photographed above an apartment building evacuating Americans from Saigon.**  
ANSWER: **Vietnam** [or Socialist Republic of **Vietnam**; or **SRV**; or **Viet Nam**; or Cong Hoa Xa Hoi Chu Nghia **Viet Nam**; accept South **Vietnam**; accept North **Vietnam**]  
<Other Fine Arts — Connor Lee> [Ed. Ganon Evans]

2. For 10 points each, answer the following about the crinoid [CRY-noyd], the state fossil of Missouri:

[M] Crinoids are members of this invertebrate phylum whose name means “rough-skinned.” Its other members include starfish and sea cucumbers.

ANSWER: **echinoderms** [ih-KAI-noh-dermz] [or **Echinodermata**]

[H] Crinoid biodiversity sharply decreased following the mass extinction at the end of this geologic period, which killed 95 percent of all species and marked the end of the Paleozoic era.

ANSWER: **Permian** period

[E] Crinoid fossils are made of this metal’s carbonate [CAR-buh-nayt], which is also used by corals to build their skeletons.

ANSWER: **calcium** [or **Ca**]

<Biology — June Yin> [Ed.]

3. **The Knights Templar made profits from weighing this good from Flemish cities during Champagne Fairs. Owlin was the crime of smuggling this good. The Medicis built their banking empire from profits of trade in this good by the Arte Della Lana guild. An export tax called the Great Custom was placed on this good that makes up the (\*) seat for the Lord Speaker. Afonso X created the Mesta to compensate for decreased export of this good from England, possibly due to scrapies. Cottage industries emerged across Britain to make products from this good like tweed sweaters and kilts. For 10 points, name this good sheared from sheep.**

ANSWER: **wool** [accept the **Wool**stack; prompt on **cloth** or **textiles** or **clothing** with “What is it made from?”]

<European History — Ganon Evans> [Ed. Louis Li]

3. In a story by this author, Eddie shows the poem “Why Must it Always Be Tomato Soup?” to Bertha Young, who is continually overcome with the title emotion. For 10 points each:

[H] Name this author of the story “Bliss,” who described Laura breaking down and repeating “isn’t life—” after she delivers a basket of leftovers to the late Mr. Scott’s house in another story.

ANSWER: Katherine **Mansfield**

[E] Mansfield was from this country. In her story “How Pearl Button Was Kidnapped,” she describes two women belonging to this country’s indigenous Māori population taking a little girl to the sea for the first time.

ANSWER: **New Zealand** [or **Aotearoa**]

[M] Mansfield wrote her story “Prelude” after this author asked her for material for the Hogarth Press. The title character sleeps with Elizabeth I and wakes up as a woman in this author’s novel *Orlando: A Biography*.

ANSWER: Virginia **Woolf**

<Mixed Literature — Rachel Ezrielev> [Ed. Joel Miles]

4. **The finale of a symphony in the minor key based on this note plays every tone in the chromatic scale except for this key. A symphony in the major key based on this note ends with a “reverse recapitulation” and is based on an Italian overture. The title “surprise” of Haydn’s Surprise Symphony is in the major key based on this note. (\*) E minor is the relative minor of this note’s major key. Mozart wrote “Little” and “Great” symphonies in the minor key based on this note, which has two flats and whose relative major is B-flat major. This note is a perfect fifth above C. For 10 points, give this note whose major scale has one sharp.**

ANSWER: **G** [accept **G** major or **G** minor; accept Little **G** Minor Symphony; or Great **G** Minor Symphony]

<Auditory Fine Arts — Ganon Evans> [Ed.]

4. In one experiment, Schachter and Singer injected participants with a false drug called Suproxin to test a two-factor theory of these things. For 10 points each:

[H] Name these things that were found to depend on environmental cues, causing people to misattribute and mislabel them. Alexithymia [uh-LEX-ih-THY-mee-uh] is the inability to identify these things.

ANSWER: **emotions** [or **feelings**]

[E] In one study, participants were more likely to find a woman attractive if they met her while walking across a suspension bridge because of the misattribution of this emotion. Horror movies tend to cause this emotion.

ANSWER: **fear** [or being **scared**; accept synonyms]

[M] Some researchers believe that a “normative” type of alexithymia appears more often in these people. A “toxic” form of a certain trait can cause these people to be more susceptible to depression and substance abuse.

ANSWER: **males** [or **men**; accept word forms such as being a **man**; prompt on toxic **masculinity**]

<Social Science — Joy An> [Ed. Ganon Evans]

5. In one play from this country, a Sarah Vaughn song is played to cheer up the target of a racist joke. In another play by that author from this country, a visit from the pen pal Ethel leads half-brothers Morris and Zechariah to take each other's places. A play from this country is set in a Port Elizabeth Tea Room, where two men discuss the boxer Max Schmeling and practice ballroom dancing. The play (\*) *Blood Knot* is from this country, the setting of a play in which Sam and Willie are verbally abused by Hally, *Master Harold... and the Boys*. For 10 points, name this home of Athol Fugard, who often wrote plays in opposition to apartheid.

ANSWER: **South Africa** [or the Republic of **South Africa** or **RSA**]

<Drama — Braden Booth> [Ed. Joel Miles]

5. In the 2010s, this manufacturer's Formula One team was sponsored by Mission Winnow, a shell corporation created by Phillip Morris to dodge bans on tobacco advertising. For 10 points each:

[E] Name this Italian sports car manufacturer whose logo features a prancing horse. Ford's attempt to defeat this manufacturer at the 1966 24 Hours of Le Mans was chronicled in a 2019 film starring Matt Damon.

ANSWER: **Ferrari** [accept Scuderia **Ferrari** or *Ford v Ferrari*]

[M] Recent Formula One seasons have featured title battles between Ferrari and this German constructor, which Lewis Hamilton won six championships driving for. This manufacturer's teams are nicknamed the “silver arrows.”

ANSWER: **Mercedes-Benz** [accept **Mercedes-AMG Petronas**]

[H] Between 2010 and 2014, this Spanish driver drove for Ferrari, having previously won two championships with Renault [renn-oh]. This driver has entered the Indianapolis 500 three times, shockingly failing to qualify in 2019.

ANSWER: Fernando **Alonso** Diaz

<Popular Culture — Joel Miles> [Ed. Ganon Evans]

6. An actress born at one of these locations plays Naru in a 2022 film. The largest uranium spill in history released 94 million gallons of radioactive fluid that contaminated one of these places' water supply. The largest casino in the world, the WinStar, is located in another one of these places. One of these places with a capital at Window Rock is the only place to observe Daylight Saving Time in (\*) Arizona. Due to its course, protests against the Keystone XL pipeline have occurred around these places, including one called “Standing Rock.” These places occupy about half of Oklahoma. For 10 points, the Navajo Nation is the largest of what places with high Native American populations?

ANSWER: Native American **reservations** [or **rez**; accept Indian **reservations**]

<Geography — Andrew Gao> [Ed. Ganon Evans]

6. In 1998, Aretha Franklin stepped in to perform this aria after its original performer was too sick. For 10 points each:

[H] Name this aria delivered by Prince Calaf about a princess who has three riddles. This aria ends with the word “Vincerò” sustained on B then up a note to A.

ANSWER: “Nessun Dorma”

[E] “Nessun Dorma” appears in *Turandot*, an opera by this composer of *La Bohème* and *Madame Butterfly*.

ANSWER: Giacomo Puccini

[M] This opera singer’s last performance was “Nessun Dorma.” This singer was nicknamed for his ability to handle the high C’s in *La Fille du Regiment* and formed the Three Tenors with Plácido Domingo and José Carreras.

ANSWER: Luciano Pavarotti

<Other Fine Arts — Ganon Evans> [Ed.]

7. **Many sections in this text begin with “mysterious letters” such as A.L.M. The Mu’tazila School argues against the “uncreatedness” of this text. The last chapter of this text begins with “I seek refuge in the Lord of Humankind” and is preceded by its daybreak chapter, which is often read for the sick. A commonly memorized section of this text begins by calling God “Beneficent” and “The Merciful” and is known as the (\*) Throne Verse. This text can be recited according to the rules of *tajweed* by a *hafiz*. *Hadiths* in this text document the *sunnah* across its 114 chapters, which are known as *surahs*.** For 10 points, name this holy book of Islam.

ANSWER: Ouran [or Qu’ran; or Koran]

<Religion — Braden Booth> [Ed. Ganon Evans]

7. Answer the following about *damnatio memoriae*, or the literal erasure of public figures in ancient Rome. For 10 points each:

[M] Erasing the memories of people sometimes meant re-arranging homes to disrupt the technique of “memory palaces” illustrated by this man in *De Oratore*. Mark Antony’s wife Fulvia stabbed the tongue of this master orator.

ANSWER: Cicero

[E] Erasing the images of governors or emperors was often difficult because they appeared on these objects like the denarius or libra. These objects were commonly minted in silver and used to purchase in Roman forums.

ANSWER: coins

[H] After burying the Vestal Virgin Cornelia alive amongst other cruel acts, this dynasty’s last member Domitian was subject to a *damnatio memoriae*. This dynasty arose under Vespasian after the Year of the Four Emperors.

ANSWER: Flavian dynasty

<European History — Ganon Evans> [Ed. Louis Li]

8. **This book’s protagonist is frustrated at not knowing the characters’ fates after reading *Robinson Crusoe*. This book’s protagonist recalls how his abusive mother sent him to a quack doctor as he elopes with teacher Alice Kinnian. After this book’s protagonist is fired from his bakery job, he finds that doctors Strauss and Nemur made a mistake in their experiment. In this book’s final (\*) “progress report,” the protagonist requests that the grave of the title mouse be adorned.** For 10 points, in what short-story-turned-novel by Daniel Keyes is the intellectually disabled Charlie Gordon given a surgery that makes him a genius?

ANSWER: Flowers for Algernon [AL-jur-non]

<Long Fiction — June Yin> [Ed. Joel Miles]

8. For 10 points each, answer the following about antimatter:

[E] Compared to ordinary matter, antimatter particles have the opposite value of this quantity measured in coulombs.

ANSWER: electric **charge**

[M] This antimatter particle, whose charge is plus-one, is the counterpart to an electron. One of these particles is emitted in beta-plus decay.

ANSWER: **positrons** [prompt on **antielectrons**]

[H] Antimatter was first imagined by this physicist, who thought of positrons as “holes” in a space-filling “sea” of neutral particles. This Englishman’s namesake equation describes the wavefunction of spin one-half particles.

ANSWER: Paul **Dirac** [dih-RAK] [accept **Dirac** sea or **Dirac** equation]

<Physics — June Yin> [Ed.]

9. **A woman from this state founded the women’s newspaper *The Lily* and developed her namesake “bloomer” suits. The M’Clintock family helped organize an event at this state’s Wesleyan Church which hotly debated an “elective franchise.” Ward Hunt ordered a jury to find a woman from this state guilty of registering to vote in the 1872 election. Frederick (\*) Douglass supported a voting resolution at an 1848 event in this state organized by Lucretia Mott and Elizabeth Cady Stanton that produced the Declaration of Sentiments. The Seneca Falls Convention took place in, for 10 points, what state where Susan B. Anthony was arrested in Rochester?**

ANSWER: **New York** [or **NY**]

<American History — Ganon Evans> [Ed. Louis Li]

9. In one poem, this poet described a girl who “befriended a stranded star whose rays five languid fingers were.” For 10 points each:

[M] Name this poet who wrote about “maggie and milly and molly and may” in one poem. Another work by this poet describes how “anyone lived in a pretty how town... with up so floating many bells down.”

ANSWER: e.e. **cummings** [or edward estlin **cummings**]

[H] In “maggie and milly and molly and may,” “may [comes] home with a smooth round stone as small as a world and as large as alone” from this place. The poem ends with the line “it’s always ourselves we find in [this place].”

ANSWER: the **sea** [or the **ocean**; accept the **beach** or **shoreline** or **coast**]

[E] cummings largely did not use letters with this property in his poems, including in the names of maggie, milly, molly, and may. The first letter of a sentence or a name generally has this property.

ANSWER: **capitalized** letters [or **uppercase** letters or **capitalization**]

<Poetry — Joy An> [Ed. Joel Miles]

10. **This condition may be indicated by a bluish discoloration known as Chadwick’s sign. A tightening sensation named for John Braxton Hicks occurs in some people with this condition. Many tests for this condition look for high levels of the hormone hCG [H-C-G]. People with this condition are advised to take folic acid supplements to reduce the chance of (\*) spina bifida [SPY-nuh BIH-fih-duh] and anencephaly [AN-in-SEF-uh-lee]. This condition’s ectopic [ek-TOP-ik] form, which can be deadly if untreated, may result from implantation in the Fallopian tube. An obstetric ultrasound is used to detect, for 10 points, what condition of having developing offspring in the uterus?**

ANSWER: **pregnancy** [accept **gestation**; accept answers indicating a person is **pregnant**]

<Biology — Neal Joshi> [Ed. June Yin]

10. For 10 points each, answer the following about Ino [AI-no], a legendary queen of Boeotia [bee-OH-schuh] who was transformed into the goddess Leucothea [lay-co-THEE-ah] after jumping into the sea:

[M] Ino was the daughter of Harmonia and this founder of Thebes. This hero earned the ire of Ares after killing a sacred dragon and sowing its teeth.

ANSWER: **Cadmus**

[E] Ino appears to this hero and guides him to the island of Corfu. This hero struggles to return home to Ithaca and his wife Penelope after the Trojan War.

ANSWER: **Odysseus** [or **Ulysses**]

[H] Ino is said to be the ancestor of several members of this group. The rituals of this group often climaxed with the rites of *sparagmos* [spah-rag-moes] and *omophagia* [oh-moe-fah-gee-ah], or tearing apart a living thing and eating its flesh raw.

ANSWER: **maenads** [or **Bacchae** or **Bassarids** or **Bacchantes**; prompt on **Thiasus**]

<Mythology — Joy An> [Ed. Ganon Evans]

11. The “substantial disruption” test from an earlier case involving these locations was used to determine if a banner reading “BONG HiTS 4 JESUS” could be displayed near them. *New Jersey v. T.L.O.* concerned Fourth Amendment rights for people at these locations. The case *Tinker v. Des Moines* questioned whether black (\*) armbands could be worn as political protest in these locations. *West Virginia v. Barnette* concluded that in public examples of these locations, it was optional to recite the Pledge of Allegiance. For 10 points, name these locations integrated after the “separate but equal” doctrine was overturned in *Brown v. Board of Education*.

ANSWER: public **schools** [accept **high-**, **middle-**, or **elementary** schools; accept other synonyms like **junior high schools**; reject “universities” or “colleges”]

<American History — Andrew Gao> [Ed. Louis Li]

11. Answer the following about the ultra-diffuse galaxy NGC 1052-DF2 [N-G-C one-oh-five-two D-F-two], for 10 points each:

[E] Like all ultra-diffuse galaxies, DF2 has an extremely low luminosity and thus emits very little of this phenomenon, which is carried by photons.

ANSWER: **light** [accept **electromagnetic waves** or equivalents]

[M] DF2 is a candidate for the first known galaxy with none of this substance. Vera Rubin found evidence for this substance from its gravitational effect on galaxy rotation curves.

ANSWER: **dark matter** [reject “dark energy”]

[H] DF2 is also known for having an extremely luminous population of these large, spherical star clusters that are rich in Population II [two] stars.

ANSWER: **globular** [GLOB-yoo-lur] clusters

<Astronomy — Joy An> [Ed. June Yin]

12. In a story by this author, “Nothingheads” who don’t take “ethical birth control” include Billy the Poet, who rapes a Suicide Parlor hostess. In another story in this author’s collection *Welcome to the Monkey House*, ballerinas must wear weights and masks due to equality amendments. This author’s novel (\*) *God Bless You, Mr. Rosewater* features his alter-ego, Kilgore Trout. This author’s character George witnesses the Handicapper General shoot their son Harrison Bergeron. The phrase “so it goes” is uttered upon death by Tralfamadorians, who kidnap Billy Pilgrim in a novel by this author. For 10 points, name this author of *Slaughterhouse-Five*.

ANSWER: Kurt **Vonnegut** (Jr.)

<Mixed Literature — Andrew Gao> [Ed. Joel Miles]

12. Answer the following about Ostalgie [OHSS-tal-gee], for 10 points each:

[M] Ostalgie is nostalgia for things made in this country. The “chemical breakdown” tactics of psychological torture were used by this country’s Stasi secret police.

ANSWER: **East Germany** [or **German Democratic Republic**; or **GDR**; or **Deutsche Demokratische Republik**; or **DDR**; reject “West Germany”; reject “Federal Republic of Germany”; reject “Germany” alone]

[E] Ostalgie includes a fondness for one of these products called Vita. In Nazi Germany, a formula for this product called Fanta was created after a trade embargo with Coke.

ANSWER: **soda** [accept **pop**; accept Vita **Cola**]

[H] A caricature of this leader in a straw hat appeared on East German traffic lights and is appreciated by Ostalgie enjoyers. This last head of state of East Germany was depicted kissing Leonid Brezhnev in a Berlin Wall mural.

ANSWER: Erich **Honecker**

<European History — Ganon Evans> [Ed. Louis Li]

13. **This country acquired a border with Denmark in June 2022 to resolve the Whisky War. In 2021, this country released a Chinese national nicknamed the “Princess of Huawei [WAH-way].” Pope Francis visited this country in July 2022 to apologize after mass graves were found at some of its indigenous (\*) residential schools. This country’s New Democratic Party leader Jagmeet Singh discussed a “pattern of behavior” when a yearbook photo emerged of this country’s PM in blackface. This country’s capital was the site of “Freedom Convoy” protests by truckers over vaccine mandates. For 10 points, name this Commonwealth country led by Justin Trudeau.**

ANSWER: **Canada**

<Current Events—Connor Lee> [Ed.]

13. You're trying to emulate a violin. For 10 points each:

[H] You might use this flexible electronic instrument championed by Wendy Carlos that creates waveforms and uses filters and envelopes to change its characteristics.

ANSWER: **synthesizer** [accept specific types of synthesizers such as analog **synthesizer** or Moog **synthesizer**]

[E] Like violins, most synthesizers are able to produce sounds with varying levels of this property. This property related to frequency determines how "low" or "high" a sound is.

ANSWER: **pitch**

[M] You might use low-frequency oscillations to emulate this effect on a synthesizer. Violinists create this pulsating change in pitch by wobbling their fingers from side to side.

ANSWER: **vibrato**

<Auditory Fine Arts — Vincent Wang> [Ed. Ganon Evans]

14. **Jean Jouvenet's paintings were copied into this medium at the Gobelins [go-buh-LAW] Manufactory. 90 scenes of the Apocalypse appear in a 14th-century artwork in this medium held at Angers [on-ZHER] Cathedral. Millefleur [mee-FLUR] artworks in this medium include a series that ends with a golden fence surrounding a unicorn. Halley's Comet appears in an artwork in this medium which depicts an arrow entering a king's eye at the (\*) Battle of Hastings. Colored weft threads are weaved through plain warp threads on a loom to create these artworks, which include one named for Bayeux [by-YOO]. For 10 points, name these fabric artworks which, unlike carpets, hang on the walls of castles.**

ANSWER: **tapestries** [accept the Bayeux **Tapestry**; prompt on weavings; prompt on carpets before mention]

<Visual Fine Arts — Ganon Evans> [Ed. Gabe Forrest]

14. Influencer “hauls” from brands that follow this business model have been criticized for promoting waste. For 10 points each:

[M] Name this business model, in which trendy clothing styles are mass-produced and cycled rapidly through retail stores. Brands that follow this business model include Zara and H&M.

ANSWER: **fast fashion**

[H] Diane von Fürstenberg, Gwen Stefani, and Anna Sui are among the many designers that have sued this fast fashion brand for copying their designs. This brand gives customers bright yellow plastic bags with John 3:16 printed on the bottom.

ANSWER: **FOREVER 21**

[E] Alternatives to partaking in fast fashion include shopping at these stores that recycle donated clothes. Examples of these stores include Salvation Army and Goodwill.

ANSWER: **thrift** stores [or **thrift** shops; or **charity** shops; or **opportunity** shops]

<Other — Joy An> [Ed. Ganon Evans]

15. **“Herkimer diamonds” are actually crystals of this mineral that have double termination points. This mineral has the lowest potential for weathering in the Goldich dissolution series. Microscopic crystals of this mineral comprise agate [ah-get], chert, and flint. This mineral can form “ametrine” [AM-ih-treen] crystals that have orange and purple sections, displaying two of its variants, (\*) citrine and amethyst.** Generally, sandstones are made of either feldspar or this mineral. A Mohs hardness of seven is defined by this most abundant mineral in Earth’s crust. For 10 points, name this mineral with the formula SiO<sub>2</sub> [S-I, oh two].

ANSWER: **quartz**

<Earth Science — Vik Wei> [Ed. June Yin]

15. This character requires that any two eggs he eats must be of equal size. For 10 points each:

[H] Name this man, who refers to his intelligence as his “little grey cells.” In one novel, this character unknowingly encounters the gangster Lanfranco Cassetti.

ANSWER: Hercule **Poirot** [pwaa-ROH]

[M] In this novel, Poirot solves a murder while stranded in Croatia due to a snowdrift. In this novel, it is determined that all twelve possible suspects in the stabbing of Samuel Ratchett committed the crime.

ANSWER: **Murder on the Orient Express**

[E] *Murder on the Orient Express* is a crime novel by this English writer. This prolific murder mystery author also created Miss Marple.

ANSWER: Agatha **Christie** [or Agatha Mary Clarissa **Christie**; accept Agatha Mary Clarissa **Miller**]

<Long Fiction — Vik Wei> [Ed. Joel Miles]

16. **In Slavic myth, the dragon Veles lives in one of these objects and is chased around the world by Perun. The enchanted land of Brocéliande [bro-see-lee-ANDE] is home to one of these non-fountain objects in which the Lady of the Lake trapped Merlin. Sigurd draws the sword Gram from one of these objects called Barnstokkr. To survive the Fimbulwinter preceding Ragnarok, Lif and Lifthrasir hide in one of these objects that is home to (\*) Ratatoskr and Nidhogg. Odin hanged from one of these objects for nine days to gain knowledge of runes.** For 10 points, the worlds of Norse mythology are connected by Yggdrasil [igg-drah-SIL], the “world” example of what kind of plant?

ANSWER: **trees** [accept specific types of trees, such as world **trees** or oak **trees**; accept **Yggdrasil** before “Yggdrasil”]

<Mythology — Tanay Bodducherla> [Ed. Ganon Evans]



16. Answer the following about electrolysis, for 10 points each:

[M] In contrast to a galvanic cell, an electrolytic cell requires energy to be inputted because the change in this quantity is greater than zero, meaning the reaction is not spontaneous.

ANSWER: **Gibbs free energy** [prompt on delta **G**]

[E] The Castner-Kellner process uses electrolysis to isolate sodium and chlorine from salt water, using a cathode of this metal that is liquid at room temperature.

ANSWER: **mercury** [or **Hg**]

[H] This English scientist pioneered the use of electrolysis to isolate various metals. This man discovered sodium, potassium, and calcium, among other elements.

ANSWER: (Sir) Humphry **Davy**

<Chemistry — June Yin> [Ed.]

17. **The Palace of the Golden Gate was at the center of this city's original "Round" design. This city's Nahrawan Canal was destroyed by Turkish *ghulams* revolting with the Buyid dynasty. The Barmakid family financed the Translation Movement of Greek Texts in this city at an institution rumored to serve as a (\*) library for Al-Mansur. The last ruler of a dynasty based in this city was wrapped in a carpet and trampled by the horses of Hulegu Khan. Harun al-Rashid established the House of Wisdom in this city. For 10 points, name this capital of the Abbasid Caliphate during the Islamic Golden Age that now serves as the capital of Iraq.**

ANSWER: **Baghdad**

<World History — Ganon Evans> [Ed. Louis Li]

17. Freddie Mercury was born to a Farsi family living on this archipelago. For 10 points each:

[M] Name this archipelago where the spice trade center of Stone Town can be found on Unguja island. This archipelago's House of Wonders was a palace where Omani sultans ruled over the coast of modern-day Tanzania.

ANSWER: **Zanzibar** [or **Zanjibar**]

[E] Down the coast from Zanzibar is this island home to the Malagasy people and the lemur. The Avenue of the Baobabs is also located in this country, which is across the Mozambique Channel from mainland Africa.

ANSWER: **Madagascar** [or Republic of **Madagascar** or Republique de **Madagascar** or Repoblikan'i

**Madagasikara**]

[H] A flaperon from Malaysian Airlines Flight 370 was found on this island, around 400 miles east of Madagascar. This French overseas territory with its capital of Saint-Denis is located near Mauritius.

ANSWER: **Réunion** Island

<Geography — Andrew Gao> [Ed. Ganon Evans]

18. **In this novel, the ghost of Communist revolutionary Joseph D'Costa inspires one character to confess to a crime. In this novel, Wee Willie Winkie plays the accordion for William Methwold. One character in this novel falls in love with a landowner's daughter after examining her through a perforated sheet. (\*) Mary Pereira switches the protagonist of this novel with Shiva-of-the Knees at birth. The protagonist of this novel falls in love with Parvati-the-Witch and gains telepathic powers from his large, constantly runny nose. For 10 points, Saleem Sinai is born at the exact moment India gains independence in what novel by Salman Rushdie?**

ANSWER: ***Midnight's Children***

<Long Fiction — Athena Liu> [Ed. Joel Miles]

18. Answer the following about Marshal Phibun, for 10 points each:

[E] After a 1932 coup in which Phibun came to power in this country governed from Bangkok, he changed its official name from Siam to a name meaning “land of the free.”

ANSWER: **Thailand** [or Kingdom of **Thailand**; or Ratcha-anachak **Thai**]

[H] After a failed monarchist revolt, Phibun installed to the throne a boy studying in Switzerland, Ananda Mahidol, who then gained this regnal name. The current king of Thailand also has this regnal name.

ANSWER: **Rama** [accept **Rama** VIII; accept **Rama** X]

[M] During World War II, Phibun negotiated an alliance with this country, allowing its troops to pass through Thailand during the Burma Campaign.

ANSWER: **Japan** [or **Nihon**-koku; or **Nippon**-koku; or Empire of **Japan**; or Dai **Nippon** Teikoku; or **Japanese** Empire]

<World History — June Yin> [Ed. Louis Li]

19. **This quantity decreases in photoconductors when high-energy photons strike their surface. In a diode, the forward-biased version of this quantity is significantly less than its reverse-biased version. Devices that passively increase this quantity indicate their strength with colored bands. In a parallel circuit, this non-inductance quantity can be calculated by adding the (\*) reciprocals of the individual values and then taking a second reciprocal. The power in a circuit is given by this quantity times current squared, while voltage equals the product of this quantity and current.** For 10 points, name this quantity measured in ohms.

ANSWER: electrical **resistance** [reject (electrical) “resistivity”]

<Physics — Brendan Fuller> [Ed. June Yin]

19. *Banna’i* tilework and *hazarbaf* brickwork were developed in Iran to display this artform’s evenly thick Kufic style. For 10 points each:

[E] Name this Islamic artform in which a kalam pen is used to create artistic handwriting in ink.

ANSWER: **calligraphy** [accept word forms like **calligraphic** writing; prompt on writing alone]

[M] Ilkhanid artists incorporated calligraphy into depictions of the Shahnameh in these artworks. Marginalia and heavy use of gold foil appear in these artworks, which include the Lindisfarne Gospel and Books of Hours.

ANSWER: **illuminated manuscripts** [prompt on partial answers; prompt on codex, codices, books or similar answers referring to writing collections]

[H] The calligraphic signature of Syrian artisan ibn al-Zayn appears on a silver object used for this purpose named after Saint Louis. Lorenzo Ghiberti sculpted the *Gates of Paradise* for a building with this purpose.

ANSWER: **baptisms** [accept word forms such as **baptizing** people; accept the **Baptistère** de Saint Louis; accept the Florence **Baptistery**; accept the Baptistery of **St. John**]

<Visual Fine Arts — Ganon Evans> [Ed. Gabe Forrest]

20. **A painting of this philosopher grimacing while tasting vinegar represents his negative views on the goodness of life. According to this thinker, an ethical ruler should radiate moral goodness in a way similar to the north star. A work by this non-Aristotle philosopher may contain the first occurrence of the golden rule. This thinker’s Four Books includes a work by the (\*) “second sage” that succeeded this philosopher, Mencius.** This philosopher’s belief that children should respect their elders is known as filial piety [PIE-uh-dee]. For 10 points, the *Analects* is a compilation of the sayings of what ancient Chinese philosopher?

ANSWER: **Confucius** [or **Kongzi** or **Kong** Fuzi or **Kong** Qiu or Master **Kong** or **Zhongni**]

<Philosophy — Joel Miles> [Ed.]

20. Maria Headley translated this word as “Bro!”, describing its speaker as a man in a bar “pounding a glass and demanding another.” For 10 points each:

[H] Name this Old English word. It opens a work that describes the “Spear-Danes in days gone by.”

ANSWER: **Hwæt** [“wet”]

[E] Seamus Heaney, an author from this country, translated “Hwæt!” as “So!” in his version of *Beowulf*. Jonathan Swift suggested that residents of this island eat their babies amidst a famine that preceded a potato blight.

ANSWER: **Ireland** [or Republic of **Ireland** or **Eire**]

[M] This author described “Hwæt!” as “a note ‘striking up’ at the beginning of a poem” and translated it as “Lo!” This author of *The Silmarillion* gave the lecture “Beowulf: the Monsters and the Critics.”

ANSWER: J.R.R. **Tolkien** [or John Ronald Reuel **Tolkien**]

<Mixed Literature — Joy An> [Ed. Joel Miles]