

## 2023 IQBT Undergraduate Championship

Questions written by: Mike Cheyne, Erik Christensen, Kurtis Droge, Joseph Krol, James Lasker, Leo Law, Jonathan Magin, Ben Miller, Matt Weiner, and Chandler West

Questions edited by: Will Alston, Matt Bollinger, Emmett Laurie, John Lawrence, Evan Lynch, Eric Mukherjee, and Ryan Rosenberg

### Round 6 – Tossups

1. Scholars debate whether a half-hidden object in the bottom right of this artwork is an enema syringe or a part of a bellows. In this work, an emaciated dog curls up next to an upturned, chipped millstone, upon which an ugly *putto* sits scribbling on a tablet. In the top-left background of this work, a comet radiates light that creates a rainbow; underneath, a bat unveils a (\*) banner with this work's title. In this work, a skull can be faintly seen on a truncated rhombohedron that blocks off the horizon. The title allegorical figure of this engraving is a brooding woman with angel wings, who sits beside a building inscribed with a four-by-four magic square. For 10 points, name this engraving by Albrecht Dürer depicting a temperament linked to depression.

ANSWER: Melencolia I (“one”) [prompt on Melancholy or Melencolia]

2. Some members of this family have mutations in *Pax7* causing the O·B and W·B blotch polymorphisms. Several species within this family, including *Para-chromis friedrichs-thalii*, play dead to attract prey. A tribe within this family called *haplo-chromini* forms a superflock, which includes the *mbuna* (“um-BOO-nuh”). Some males in this family have round colored dots on their anal fins called egg spots, which attract mates. This family unusually has decoupled oral and pharyngeal jaws, a “key innovation” that helped drive rapid evolution of hundreds of species in less than 100,000 years. In a canonical example of (\*) sympatric speciation, many species of this family in Lakes Malawi, Tanganyika, and Victoria have evolved via adaptive radiation. For 10 points, name this family of fish that includes angelfish and tilapia.

ANSWER: cichlids (“sick-lids”) [or cichlidae; prompt on fish or bony fish or ray-finned fish or Actinopterygii or osteichthyes or teleost or cichliformes or percomorpha or ovalenteria]

3. In a novel by this author, a teenage couple play a game in which they each fill in blank speech bubbles in the other's drawings, called their “bubble game.” In an abandoned churchyard, a woman created by this author spitefully tells her boyfriend that another woman thinks his drawings of imaginary animals are laughable. In a novel by this author, a Cootings Machine is destroyed in a bargain to cure Josie's illness by a genetically-engineered (\*) Artificial Friend. A boarding school displays student art in a gallery to show that the students have souls, in a novel by this author of *Klara and the Sun*. A song by Judy Bridgewater titles a book by him in which Tommy is a clone bred to donate organs and Kathy is his “carer.” For 10 points, name this Japanese-born British author of *Never Let Me Go*.

ANSWER: Kazuo Ishiguro

4. This event was set in motion after Daniel Weyenberg reported a postal worker's suspicions about a store called the "Mag-Bag." During this event, Steve Schneider may have killed his superior, and then himself. David Thibodeau ("TIB-uh-doh") chronicled his time at the location of this event, which James Tabor blamed on the reckless ideas of Rick Alan Ross, a "de-programmer." The Danforth Report investigated the use of pyrotechnic tear gas during this event. This event destroyed a group led by a man dubbed the (\*) "Sinful Messiah." The Mount Carmel Center was the target of this event, on whose second anniversary Timothy McVeigh bombed Oklahoma City. For 10 points, name this event during which the Branch Davidians, led by David Koresh, were raided by the FBI.

ANSWER: Waco siege [accept equivalents for "siege"; prompt on descriptions of a raid on the Branch Davidians or Mount Carmel before mention]

5. This thinker partly titles a book that suggests that the information value of a singular term is simply the term's referent, a "modified naive theory" proposed by Nathan Salmon. Separating the psychological form from the logical and never asking for the meaning of a word in isolation are two of the "three fundamental principles" of enquiry this thinker introduced in a work that defines numbers as extensions of concepts. This inventor of a formal system of (\*) "concept notation" called *Begriffsschrift* ("buh-GRIFFS-shrift") illustrated the difference between what a name denotes and the thought it expresses, in an essay that introduced the example of Venus being called the morning star and evening star. For 10 points, name this father of logicism who wrote *The Foundations of Arithmetic* and "On Sense and Reference."

ANSWER: Gottlob Frege [or Friedrich Ludwig Gottlob Frege] (Salmon's book is *Frege's Puzzle*)

6. A 1928 work in this genre ends with 12 bars of triplet quarters in 2/4 time, with an upper mordent on every quarter, and was its composer's penultimate instrumental work, before *Vzpomínka* ("Spom-Inca"). An E-minor work in this genre unusually has a slow movement in F minor, following a movement marked *Allegro moderato à la Polka*. The nickname of a piece in this genre refers to its composer's long correspondence with Kamila Stösslová. A solo violin E7 note near the end of a piece in this genre represents its composer's (\*) syphilis-induced tinnitus. A Czech composer wrote a piece in this non-orchestral genre that got its nickname from being written in Spillville, Iowa. For 10 points, Janáček's ("yuh-NAH-check's") "Intimate Letters," Smetana's ("SMEH-tuh-nuh's") "From My Life," and Dvorak's "American" are in what most popular chamber music genre?

ANSWER: string quartet

7. After holding one of these creatures, a character mocks another for walking around like Hamlet, muttering "words, words, words." A character compares a woman's odd habit of signing her letters as one of these creatures to the miller's behavior in the play *Rusalka*. After seeing a dead one of these creatures, a character writes down an idea for a story in which a man is motivated by boredom to destroy a woman who grew up by a lake. In a speech about the difficulty of performing on the (\*) stage, a woman declares "I am" one of these animals, "no--no, I am an actress." Shamrayev ("shahm-RAH-yiff") presents a stuffed one of these animals to a writer shortly before Konstantin Treplev ("TREP-lyoff") shoots himself. For 10 points, Nina has an affair with the author Trigorin in an Anton Chekhov play titled for what kind of bird?

ANSWER: seagulls [or chaika; prompt on birds before read]

8. *Description acceptable.*

A man supported this goal by enlisting Theodor de Bry to engrave an artist's watercolors for a version of Thomas Harriot's *A briefe and true report*. John Dee invented a story about the Welsh prince Madoc's achievements to promote this goal, which was promoted by *Discourse on Western Planting* by Richard Hakluyt ("HACK-lut"). A group who succeeded at this goal was the intended recipient of supplies aboard the (\*) *Sea Venture*. Wingina was killed by people attempting this goal who were accompanied by Manteo and Wanchese, who had lived at Durham House with a man who employed John White in an attempt to do it. Virginia Dare was born at a place established in pursuit of this goal by people who disappeared, leaving behind just the word "CROATOAN." For 10 points, name this goal achieved by settlements like Roanoke and Jamestown.

ANSWER: British colonization of North America [accept more specific places in North America or the New World; accept any answer indicating establishing a permanent settlement or colony in the North America; accept answers specifying establishing or surviving at specific colonies like Jamestown]

9. The book *Other-Worldly* discusses how trans-local entanglements of this practice have contributed to its worlding, exemplified by a "California Garden" housing complex that conducts this practice to evoke cosmopolitanism. *Tui na* ("tway nah") is part of this practice. As part of eight opposing principles, this non-Ayurveda practice defines foods like beef and chilies as "warming" and melons and greens as "cooling." One activity in this broader practice is often accompanied by moxi-bustion and seeks to balance a system of (\*) meridians. The use of wormwood in this practice inspired Tu Youyou to develop the antimalarial drug artemisinin ("ar-tuh-MISS-uh-nin"). For 10 points, name this field of pseudo-scientific therapeutic practice that seeks to nurture *qi* ("chee") through methods such as acupuncture.

ANSWER: traditional Chinese medicine [accept TCM; prompt on medicine or traditional medicine or alternative medicine or complementary medicine; prompt on acupuncture by asking "What broader cultural practice is that a part of?"]

10. It's not category theory, but a functor used to quantize objects in this theory is the subject of the Goddard-Thorn theorem, which was surprisingly used to prove the monstrous moonshine conjecture. It's not QCD, but a precursor to this theory was the dual resonance model, which arose from *S*-matrix theories. The gauge groups  $SO(32)$  ("S-O-thirty-two") and *E8*-cross-*E8* underlie heterotic ("HET-uh-ROT-ic") versions of this theory. This theory predicts the existence of around 10-to-the-500 false vacua in a (\*) landscape, leading some to label it "not even wrong." Using *S*- and *T*-duality, Edward Witten unified five versions of this theory into the 11-dimensional *M*-theory, which may unify quantum physics and relativity. For 10 points, name this family of theories which posits that elementary particles are different vibrational modes of the namesake one-dimensional objects.

ANSWER: string theory [or M-theory before mention; accept superstring theory; accept bosonic string theory; accept heterotic string theory]

11. In one poem, this figure "Resituated in the West" to win a debate, after saying "Give of thine an Acre unto me" to Passion. In another poem, this figure is told, "Sir / I have another Trust," after he tells The Spirit to dissolve. The original version of a poem partly titled for this figure describes children who "played, / Their lessons scarcely done," describes a "cornice" as "but a mound" instead of "in the Ground," and omits a stanza that includes the line, "The (\*) Dewes drew quivering and Chill." In that poem, the speaker puts away their "labor" and "leisure too" for this figure's civility, while riding in a carriage with this figure and Immortality. For 10 points, name this allegorical figure who "kindly stopped for" the speaker of an Emily Dickinson poem.

ANSWER: Death [accept "Said Death to Passion"; accept "Death is a Dialogue Between"; accept "Because I Could Not Stop for Death"]

12. Lyndal Roper discussed this man's story of a woman farting to shoo away a poltergeist in an anal-humor-filled collection edited by John Aurifaber ("OW-ree-FAH-ber"). Johannes Mathesius, the author of the Formula of Concord, wrote a popular biography of this man; Mathesius also transcribed some of this man's saying from the book *Table Talk*. John the Steadfast gifted this man the Black Cloisters after returning from a period of exile during which he went by (\*) "Junker Jörg ("YOONG-ker YERK")." This man prepared a summary of his teachings for a meeting of the Schmalkaldic League. This self-proclaimed "stout doctor" was often depicted next to the thinner Philip Melanchthon ("muh-LANK-thun"). This man legendarily declared "Here I stand, I can do no other" at the Diet of Worms ("vormz"). For 10 points, name this man whose 95 Theses spurred the Protestant Reformation.

ANSWER: Martin Luther

13. Two different classes of objects made from this material are separated by the Movius line. Grahame Clark developed a classification of five "modes" of this material, the fourth of which includes burins and endscrapers. François Bordes ("bord") and Lewis Binford debated how to classify certain objects made from this material by the Mousterian ("moos-TAIR-ian") culture. This was the primary material in the Acheulean ("uh-SHOOL-ian") industry, which used core reduction to produce (\*) bi-faces. The Levallois ("luh-vah-LWAH") technique removes flakes from this material in the process of knapping. Mary and Louis Leakey's discoveries of tools of this material at Olduvai Gorge led them to name *Homo habilis* for the ability to use tools of this material. For 10 points, which material made up most tools in the age prior to the Bronze Age?

ANSWER: stone [accept types of stone such as flint; reject "obsidian"] (Grahame Clark was the Disney Professor of Archaeology at Cambridge.)

14. The limit inferior of the quantity, "this-function-of- $n$ , times log-of-log-of- $n$ , all over  $n$ ," yields "*e*-to-the-negative-gamma." Kevin Ford proved that for every integer  $k$  greater than one, there exists  $y$  for which the equation "this-function-of- $x$  equals  $y$ " has  $k$  solutions. This function of  $n$  gives the order of the multiplicative group mod  $n$ . Gauss proved that an  $n$ -gon is (\*) constructible if this function of  $n$  is a power of 2. Every natural number  $n$  is equal to the sum of this function over all divisors of  $n$ . For co-prime  $a$  and  $n$ ,  $a$  raised to the power of "this-function-of- $n$ " is congruent to 1-mod- $n$  in a version of Fermat's little theorem. For a prime  $p$ , this function returns " $p$ -minus-1." For 10 points, name this function which returns all positive integers less than and co-prime to  $n$ .

ANSWER: totient ("TOH-shunt") function [or Euler totient function or Euler phi; prompt on phi or Euler alone]

15. In a story from this text, a miracle worker lights lamps with vinegar bought by his daughter and concentrates on prayer after a snakebite, leading to the snake's death. In another story from this text, a wife leaves her home in ragged clothing to greet her husband when he returns from his 24-year-long studies with 24,000 disciples. This text explains ethical maxims with stories in its Chapters of the Fathers. In a tale originally from this text, a man meets a Roman's challenge to (\*) convert him by reciting several books while standing on one foot. This text, which consists of 63 tractates, includes a number of stories in exegeses ("ex-uh-JEE-sees") called *aggadot* ("ah-gah-DOTE"), which were added by the scholars who compiled this text in Babylon. The *Gemara* ("guh-mah-RAH") and *Mishnah* ("mish-NAH") are sections of, for 10 points, what chief source of Rabbinic law?

ANSWER: Talmud [or Babylonian Talmud; accept Talmudic mythology; accept Oral Torah; accept Gemara or Mishnah before "Gemara"; reject "Torah" or "Bible" or "Tanakh" or "Midrash"] (The first clue refers to Chanina ben Dosa, while the second refers to Rabbi Akiva.)

16. *Note to players: Two answers required.*

**800 soldiers from one of these two countries defeated 10,000 from the other at the Battle of Las Carreras. Urged by the bank that later became Citigroup, William B. Caperton led the American invasion of one of these countries, and deposed Desiderio Arias from the presidency of the other. A president of one of these countries ceased supporting rebels in the other country after the execution of Francisco del Rosario Sanchez, a member of the latter's revolutionary group (\*) La Trinitaria. Woodrow Wilson oversaw successive U.S. occupations of both of these countries. Many people tried to flee across the Dajabon ("dah-hah-BON") river which separates these two countries during a massacre in which soldiers asked people to pronounce the Spanish word for parsley. For 10 points, name these two countries that share Hispaniola.**

ANSWER: Dominican Republic and the Republic of Haiti [or Republica Dominicana and République d'Haïti] (Speakers in Haiti say the ⟨r⟩ in *perejil* 'parsley' as in French [ʁ], and not as in Spanish [r].)

**17. A god in this text outwits his murderous ancestor by magically putting him to sleep, stealing his halo, and threading a rope through his vizier's nose. At a banquet in this text, another god demonstrates his power by commanding either a robe or a constellation to disappear and reappear. In this text, Lahmu and Lahammu acclaim a four-eared, four-eyed deity who wields a net and the (\*) imhullu wind during a climactic battle. The antagonist of this poem gives birth to eleven monsters, including the dragonfly and the scorpion-man, to avenge the dead Apsu, and puts them under the command of her new mate Kingu. This text depicts the creation of heaven and earth from the corpse of a primordial sea dragon. For 10 points, name this Babylonian creation epic that depicts the slaying of Tiamat by Marduk.**

ANSWER: Enuma Elish [or When on High]

**18. The main use of thorium oxide in organic chemistry is as a catalyst for a type of this reaction, which was first demonstrated by preparing civetone ("SIV-uh-tone"). The steric effects of geminal di-methyl groups can accelerate the kinetics of this type of reaction in the Thorpe–Ingold effect. An oxyallyl ("oxy-AL-ill") cation ("KAT-eye-on") intermediate forms from a di-vinyl ketone in a type of this reaction developed by Ivan Nazarov. A condensation reaction named for (\*) Dieckmann ("DEEK-mahn") is also this type of reaction, and as the enolate ("EEH-noh-late") in that reaction undergoes a 5-exo-trig attack, it is allowed under Baldwin's rules for these reactions. An aromatic compound is formed by alkyne trimerization, which is a type of this reaction. For 10 points, name this type of reaction, which connects organic chains to create closed loops within molecules.**

ANSWER: cyclization reactions [or ring formation; accept large ring synthesis or ring closure or similar answers that clearly indicate the creation of a ring; accept electrocyclization, cycloaddition or electrocyclic reaction; accept lactonization or macrolactonization; prompt on "pericyclic" or "intramolecular reactions" with "What general sort of reaction is taking place?"]

**19. A posthumous 2018 collection of this author's articles takes its title from pieces about the death of Wilma Montesi. While working as a journalist, this author purportedly saw a skull with copper hair tumble out of a crypt that was being destroyed to make way for a hotel. In 1955, this author wrote 14 newspaper articles about the sole survivor of a ship that sank from the weight of its contraband. *The Scandal of the Century* and *The Story of a* (\*) *Shipwrecked Sailor* collect this man's journalism, which may have inspired his novel in which Sierva Maria is sent to a convent to be exorcized of rabies, titled *Of Love and Other Demons*, and his novella in which the Vicario twins avenge their sister by stabbing Santiago Nasar. For 10 points, name this Colombian author of *Chronicle of a Death Foretold*.**

ANSWER: Gabriel Garcia Marquez

20. A place of this type in Paris was originally meant to include a garden called *Choral Work*, which would have contained a lyre-shaped sculpture sketched by Jacques Derrida. That site of this type, a work of Deconstructivist architecture by Bernard Tschumi (“choo-MEE”), is called La Villette. Another of these places contains a “Hypostyle Hall,” featuring 86 Doric columns and a ceiling decorated with (\*) tiles called *trencadís* (“trung-kuh-DEESS”). A curving bench shaped like a sea serpent appears in one of these places, whose entrance features a sculpture of a mosaic salamander. Antoni Gaudi designed one of these places on the commission of Eusebi Guell (“yoo-ZEB-eeh gwell”). For 10 points, Frederick Law Olmsted and Calvert Vaux (“vawks”) designed what type of public space at the center of Manhattan?

ANSWER: parks [accept Parc de la Villette or Parc Guell]



## Round 6 – Bonuses

1. This text is divided into a well-arranged “white” section and a poorly-arranged “black” section. For 10 points each:

[10h] Name this compilation of mantras offered during fire worship ceremonies. The *Brāhmaṇa of One Hundred Paths* is a commentary on this text.

ANSWER: **Yajurveda** (“YUH-joor-VAY-duh”) [prompt on Veda]

[10m] One section of the Yajurveda details how to construct an eagle-shaped altar to this god. The first word of the Rigveda is the name of this god.

ANSWER: **Agni**

[10e] In one of these ceremonies, a pillar of fire is circled seven times, so that Agni can serve as a witness. After that, the participants in this ceremony exchange garlands.

ANSWER: **wedding** [or **marriage**]

2. With Harold Arlen, this lyricist wrote the Oscar-nominated song “The Man that Got Away” for the Judy Garland version of *A Star Is Born*. For 10 points each:

[10h] Name this lyricist who co-wrote *Lady in the Dark* with Kurt Weill (“vile”) and the songs for the movie *Cover Girl* with Jerome Kern, which included the hit “Long Ago (and Far Away).”

ANSWER: **Ira Gershwin** [or **Israel Gershovitz**; prompt on Gershwin; prompt on Gershovitz]

[10e] Ira contributed a few songs to this opera by his brother George, which is titled for two Black residents of Catfish Row. The rest of its libretto was written by DuBose Heyward.

ANSWER: **Porgy and Bess**

[10m] The most successful song of the 1930s that Ira wrote without George was “I Can’t Get Started with You,” which he co-wrote with Vernon Duke for a 1936 edition of the “Follies” named for this Broadway producer.

ANSWER: Florenz (Edward) **Ziegfeld** Jr. [accept **Ziegfeld** *Follies of 1936*]

3. Harvey Washington Wiley enlisted chemists Arvil and Katherine Bitter to test the claims of this company that its main product could be made without preservatives. For 10 points each:

[10h] Name this company, whose founder was influential in the passing of the Pure Food and Drug Act and led the charge against benzoate use in its main product, killing rivals like Blue Label.

ANSWER: H. J. **Heinz** Company

[10e] Wiley was the first head of this agency which is responsible for safeguarding public health in consumable products.

ANSWER: **Food and Drug Admistration [or **FDA**]**

[10m] Oversight of misleading advertising was given to this other agency via the Wheeler-Lea Act. Dick Morgan wrote the bill that created this agency tasked with enforcing antitrust law.

ANSWER: **Federal Trade Commission** [or **FTC**]

4. This poem’s speaker hears monkeys make “sorrowful noises overhead” while lamenting “you have been gone five months.” For 10 points each:

[10m] Name this Chinese poem. Its speaker reminisces upon how bangs covered her forehead when she married “My Lord You” at age 14, and plans to “come out to meet you / as far as Cho-fu-sa.”

ANSWER: “The **River-Merchant’s Wife: A Letter**” [or “**Parting at Chang’an**”; or “The **Ballad of Chang’an**”; or “**Chánggān Xíng**”]

[10e] Ezra Pound translated “The River-Merchant’s Wife” from the work of this Tang-era poet, known for his many poems celebrating wine and for writing about gazing at the moon in the poem “Quiet Night Thought.”

ANSWER: **Li Bai** [or **Li Bo**; or **Li Po**; or **Rihaku**; prompt on **Li**]

[10h] Pound translated this other Li Bai poem which, like “The River-Merchant’s Wife,” is styled as an epistle. Its speaker recalls how “So-hin of Rakuho” built him a tavern and traveled with him through a “thousand valleys.”

ANSWER: “**Exile’s Letter**” [or “The **Exile’s Letter**”; or “**Letter from an Exile**”; or “**Sent to the Commissary Yüan of Ch’iao City, in Memory of Former Excursions**”]

5. The “specific” form of this quantity can be determined for a material using the Brunauer–Emmett–Teller, or B·E·T, isotherm. For 10 points each:

[10m] Name this quantity that is increased in the activated form of carbon. Raschig (“RASH-ick”) rings are used to increase this quantity for a distillation setup.

ANSWER: **surface area** [accept specific **surface area** or **SSA**; prompt on **area**]

[10e] The BET and Langmuir (“LANG-mure”) isotherms calculate specific surface area using this physical process, in which atoms or molecules adhere to a surface to create a film.

ANSWER: **adsorption** [or **adsorbing**; reject “absorption” or word forms]

[10h] The BET isotherm differs from the Langmuir isotherm in this main manner, which allows the value of theta to be above one and accounts for extended physisorption. A description is acceptable.

ANSWER: **multi-layer** adsorption [or anything indicating that the adsorbates form **more than one layer** or that the adsorption is “**not monolayer**”]

6. The figures in this painting are grouped into two pyramids, the smaller of which points towards the *Argus* as it approaches in the distance. For 10 points each:

[10e] Name this painting by Théodore Géricault (“tay-oh-DOR zhay-ree-KOH”), which depicts the survivors of a shipwreck off the coast of Mauritania.

ANSWER: *The **Raft of the Medusa*** [or *Le **Radeau de la Méduse***]

[10h] *The Raft of the Medusa* influenced the composition of this painting from the 1820s, which was based on accounts from William Edward Parry. This painting in turn inspired Paul Nash’s World War II painting, *Dead Sea*.

ANSWER: *The **Sea of Ice*** [or *Das **Eismeer***; or *The **Polar Sea***; or ***Ice Picture: The Failed Expedition to the North Pole***] (by Caspar David Friedrich)

[10m] *The Raft of the Medusa* inspired the two pyramidal arrangements of figures in this 1824 French painting, in which a baby tries to suck at the breast of a woman’s corpse underneath the rearing horse of a turbaned soldier.

ANSWER: *The **Massacre at Chios*** (“KYE-oss”) (by Eugene Delacroix) [or ***Scene des Massacres des Chios***]



7. According to Vitruvius, one of these items called the *clipeus* (“clip-ay-oos”) was suspended from the roof of a dry sweating room and adjusted to modify the temperature. For 10 points each:

[10m] Name these items. Livy records that the *clipeus* was phased out in favor of another of these items, the *scutum*, after soldiers began receiving pay.

ANSWER: **shields**

[10e] The Thracian type of this profession used a short *sica* blade and a *parmula* shield. They fought at the Coliseum.

ANSWER: **gladiators**

[10h] The only extant *scutum* was found at this city, which was founded by Seleucus I Nicator. Palmyrene archers commissioned a shrine to Mithras in this city which was, unusually, not underground.

ANSWER: **Dura-Europos**

8. When this character is first encountered, he is described as squatting “on a bench in much the same attitude as Rodin’s ‘Thinker.’” For 10 points each:

[10h] Name this character who is enraged by the protagonist’s offer of a handshake, mockingly called “de secret grip of our order,” leading this character to crush the protagonist to death.

ANSWER: the **gorilla** from *The Hairy Ape* [or the hairy **ape** from *The Hairy Ape*]

[10e] Yank, and not the gorilla, is arguably the true title character of *The Hairy Ape* by this American playwright, who also wrote *Long Day’s Journey into Night*.

ANSWER: Eugene (Gladstone) **O’Neill**

[10m] In *The Hairy Ape*, Yank has this profession. So does Mat Lucas, who attempts to wed the title character of O’Neill’s *Anna Christie*, despite her father’s objections that she should never marry anyone of this profession.

ANSWER: **sailor** [or ship **stoker**]

9. This protein is inhibited by carboxyatractyl-oxide and bongkrek acid. For 10 points each:

[10h] Name or describe this protein found in the inner mitochondrial membrane, an antiporter that exchanges a minus-3 anion for a minus-4 anion.

ANSWER: **ADP/ATP translocase** [or **ADP/ATP exchanger** or **ADP/ATP carrier** protein or **AAC** or **adenine nucleotide translocator** or **ANT**; accept any answer mentioning a protein that **exchanges ATP and ADP**]

[10e] Bongkrek acid is created by the bacterium *Burkholderia gladioli*, which grows on coconuts undergoing this process. This process is a form of anaerobic respiration that produces lactic acid or ethanol.

ANSWER: **fermentation**

[10m] In humans, glycolysis (“gly-KAH-luh-siss”) followed by lactic acid fermentation produces a net of this many ATP. It may help you to note that the point of fermentation is to regenerate N·A·D-plus, not to create more ATP.

ANSWER: **two**

10. In January 2022, a judge in this county imposed a fine of \$50,000 per day on the ballot auditing firm Cyber Ninjas after finding it in contempt of court. For 10 points each:

[10m] Name this county. About 25% of its voting centers encountered a printing error on Election Day 2022, delaying the count of some of its 1.5 million votes, which narrowly split in favor of Katie Hobbs.

ANSWER: **Maricopa** County

[10e] Maricopa County is centered on this metropolis, whose suburbs include Scottsdale.

ANSWER: **Phoenix**, Arizona

[10h] This representative wrote a letter to Merrick Garland warning about voter intimidation stemming from ballot monitoring efforts in Maricopa. This Democrat, who represents southwestern Arizona, is a longtime progressive voice in the House.

ANSWER: Raúl **Grijalva** (“gruh-HAL-vuh”)

11. This method approximates the potential energy of a gas as a sum over the pair-potential interactions of all pairs of particles. For 10 points each,

[10h] Name this method in statistical mechanics used to simplify the configuration integral. The Mayer f-function is used as a substitute variable in this method.

ANSWER: **cluster expansion** [or **high temperature expansion** or **hopping expansion**; prompt on “expansion” or “Mayer expansion”; reject “perturbation expansion”]

[10m] For an N-particle gas, the configuration integral is divided by 1 over N factorial and Planck’s constant to the 3 N power to get this function, which describes the thermodynamic variables of a given ensemble.

ANSWER: **partition** function [accept types of **partition** function such as “canonical **partition** function” or “grand canonical **partition** function”]

[10e] A truncated cluster expansion is used to derive this equation of state. This law, named for a Dutch physicist, adds "a" and "b" terms to the ideal gas law.

ANSWER: **van der Waals** equation of state

12. For 10 points each, answer the following about references in British literature to *The Pilgrim’s Progress*.

[10e] A city of unbounded vice in *The Pilgrim’s Progress* gives its name to this William Makepeace Thackeray novel featuring the unscrupulous Becky Sharp.

ANSWER: **Vanity Fair**

[10m] Allegorical locations such as Puritania and Eschropolis appear in this author’s book *The Pilgrim’s Regress*, which shares Christian overtones with this writer’s autobiography *Surprised by Joy*.

ANSWER: C. S. **Lewis** [or Clive Staples **Lewis**]

[10h] This novel’s themes of journeying and pilgrimage begin with its first sentence, “There was no possibility of taking a walk that day,” and end with its closing passages, which claim that a missionary has the “sternness of the warrior Greatheart” in a direct reference to *The Pilgrim’s Progress*.

ANSWER: **Jane Eyre**

13. In Japanese, interrupting words called *aizuchi* (“AYE-zoo-chee”) are examples of these expressions that indicate that a listener is paying attention. For 10 points each:

[10h] Give this term for linguistic expressions with mainly social functions, as they convey little meaning. Examples in English include “What’s up?” and “You’re welcome.”

ANSWER: **phatic** (“FAT-ick”) expressions [or **phatic** talk; prompt on **small talk**]

[10m] Geoffrey Leech suggested adding a “phatic maxim” to the four maxims that comprise this philosopher’s “cooperative principle” of conversation. This philosopher formulated a theory of conversational implicature.

ANSWER: Paul **Grice** [or Herbert Paul **Grice**; accept **Gricean** maxims]

[10e] Phatic talk is one way to “preserve” or “save” this concept. In many studies of Asian cultures, this concept refers to a person’s social image.

ANSWER: **face** [accept saving **face**]

14. This approach is named for the Greek author of a utopian *Sacred History*, whose protagonist travels to an island in the Indian Ocean and learns that many gods are deified kings. For 10 points each:

[10h] Name this approach to interpreting mythology in which myths are regarded as tales of historical people that were exaggerated over time.

ANSWER: **euhemerism** (“yoo-HEE-mer-ism”) [accept word forms such as **euhemerization** or **euhemerizing**; accept **Euhemerus**]

[10e] Euhemerism abounds in this Greek author’s *Histories*, which also describes gold-digging ants in India and the battles of the Greco-Persian Wars.

ANSWER: **Herodotus**

[10m] *Place and action required.* An anti-euhemerism poem by Callimachus insists that people from *this place* always do *this action*, referring to claims that a king named Zeus was buried near Mount Ida. The Epimenides (“epi-MEN-uh-dees”) paradox concerns people from this place doing this action.

ANSWER: **Crete** AND **lying** [accept answers such as “**Cretans** always **lie**” or “All **Cretans** are **liars**”]

15. After bulldozing some berms upon capturing Mosul, ISIS claimed to have ended this agreement. For 10 points each:

[10m] Name this agreement, named for the British and French officials who created it, by which France and the U.K. partitioned the Middle East.

ANSWER: **Sykes-Picot** (“sykes pee-co”) Agreement

[10h] The French invaded this ruler’s short-lived Arab Kingdom of Syria to enforce the Sykes-Picot Agreement. As King, he clashed with Rashid Rida about Congressional supremacy over the monarch.

ANSWER: **Faisal I** (“fay-SAHL the first”) [accept **Faisal I** of Iraq; prompt on **Faisal**]

[10e] Faisal delivered a speech in favor of Arab independence at the Paris Peace conference, which culminated in the signing of this Treaty ending World War I.

ANSWER: Treaty of **Versailles**

16. In *The Magic Mountain*, the fictional Lodovico Settembrini is a student of this real-life poet. For 10 points each:

[10h] Name this poet of the *Barbarian Odes* who wrote “Matter, exalt thyself! ... A fair and terrible / Monster unchained / Courses the oceans” in a “Hymn to Satan.” A patriotic hymn by this poet about the White Cross of Savoy may have led to the adoption of the Italian flag.

ANSWER: Giosue **Carducci**

[10e] *The Magic Mountain* is a novel by this German author of *Death in Venice*.

ANSWER: Thomas **Mann** [or Paul Thomas **Mann**]

[10m] In real life, Carducci edited and published the *Zibaldone* (“zib-al-DOH-nay”), a reflection-filled diary by this earlier Italian writer and classicist. The poems “To Silvia” and “The Infinite” appear in his collection *Canti*.

ANSWER: Giacomo **Leopardi**

17. This author analyzed Artemidorus’s *Oneirocritica* (“oh-NAY-roh-CRITIC-uh”) in *The Care of the Self*, part of his *The History of Sexuality*. For 10 points each:

[10e] Name this French postmodernist philosopher, the author of *Discipline and Punish*.

ANSWER: Michel **Foucault** (“foo-KOH”) [or Paul-Michel **Foucault**]

[10h] While researching *The History of Sexuality*, Foucault discovered the memoirs of this 19<sup>th</sup>-century French intersex person, who lived their early life as female before being declared male by the government. Foucault controversially described them as living in the “happy limbo of a non-identity” in his introduction to their memoirs.

ANSWER: Herculine (Adélaïde) **Barbin** (“bar-BEN”)

[10m] Foucault is criticized for romanticizing Barbin’s intersexuality in the chapter “Subversive Bodily Acts” in this 1990 book, which also introduced the concept of the “heterosexual matrix.”

ANSWER: **Gender Trouble**: *Feminism and the Subversion of Identity* (by Judith Butler)

18. Siciliana rhythms are used in Part I of this piece to portray the formation of the first plants, and in Part II to portray the birth of cows and sheep. For 10 points each:

[10m] Name this oratorio, whose libretto by Gottfried van Swieten (“ZVEE-ten”) was partly inspired by *Paradise Lost*. It begins with “The Representation of Chaos.”

ANSWER: *The Creation* [or *Die Schöpfung*; accept *Schöpfungsmesse*]

[10e] *The Creation* was one of the late choral works that this Classical-era composer wrote after his *London Symphonies*, which includes the “*Surprise*” *Symphony*.

ANSWER: Franz Joseph Haydn [or Joseph Haydn]

[10h] In 1798, the same year that he finished *The Creation*, Haydn wrote this choral work, his only completed minor-key mass, whose dark tone was inspired by the turmoil of Napoleon’s invasions of Austria and Egypt.

ANSWER: *Lord Nelson Mass* [or *Missa in Angustiis*, Hob. XXII/11; or *Mass for Troubled Times*; or *Nelsonmesse*; reject “Mass in (the) Time of War”]

19. In the *Zhufan Zhi* (“zhoo-fahn zhee”), Zhao Rukuo described how in this kingdom, both the accuser and accused would be made to walk through a crocodile pool, because the crocodiles wouldn’t eat the person telling the truth.

For 10 points each:

[10m] Name this kingdom south of Dai Viet (“dye VEE-it”) composed of loosely affiliated cities like Indrapura and Vijaya (“vuh-JYE-uh”), which was located on the southeastern coast of modern-day Vietnam. It names a strain of drought-resistant rice.

ANSWER: Champa [or Cham kingdom]

[10h] Yao Silian’s *Liangshu* (“lyong-shoo”) describes this state keeping crocodiles in ditches outside of cities, which accused people would be thrown into, being declared innocent if they emerged in three days. This state’s capital may have been Oc Eo (“op AY-oh”).

ANSWER: Funan

[10e] In this modern-day country’s Srivijaya (“sree-vuh-JYE-uh”) kingdom, crocodiles refused to attack people across an iron chain revered like the Buddha, according to the *Zhufan Zhi*. Majapahit (“mah-jah-PAH-it”) was based on this country’s island of Java.

ANSWER: Republic of Indonesia

20. This kind of computation can be described using pi calculus. For 10 points each:

[10h] Name this property of some computer systems which allows them to execute code out-of-order without affecting the output. The language Rust implements this property “fearlessly.”

ANSWER: concurrency [or word forms like concurrent]

[10m] In Rust, the “spawn” command is used to create one of these things, which are the smallest unit of execution that can be fed into a scheduler. A piece of software is said to be “[these things]-safe” if it avoids race conditions.

ANSWER: thread

[10e] Schedulers are typically managed by these pieces of software, which interfaces between software and hardware. Examples include Android and Windows.

ANSWER: operating system [or OS]