



**ACADEMIC
COMPETITION
FEDERATION**

ACF NATIONALS 2022

PACKET 1

Packet by

Purdue

Authors

Sarah Benner, Lalit Maharjan, Stan Melkumian, Quynh Phung, Patrick Quion, Bailey Runyan, Matt Schiavone, Pranav Veluri

TOSSUPS

1. Bergsieker et al. discussed creating these entities “by omission” in a paper whose title alludes to Johnny Mercer’s song “Ac-cent-tchu-ate the Positive.” Alex Koch included “communion” in an ABC model of these entities, whose “ambivalent cluster” kind occurs more in societies with high inequality, per studies by Federica Durante. One paper opens by invoking Philip Roth to call the effect of these things a “predicament”; that paper’s co-author later wrote the book *Whistling Vivaldi*. Before her disgraced work on “power poses,” Amy Cuddy co-devised a “content model” with Susan Fiske in which these constructs have two axes: warmth and competence. A largely non-replicating 1995 study by Aronson and Steele found that awareness of these constructs affected results on GRE questions. For 10 points, a type of “threat” is named for what generalizations about groups?

ANSWER: **stereotypes** [accept **stereotype** threat or **Stereotype** Content Model; prompt on races, ethnicities, identity groups, or prejudices by asking “What construct related to that?”; prompt on biases or judgments; prompt on warmth or competence by asking “What other construct is that sometimes a component of?”] (“Ambivalent cluster” stereotypes label a group as high in warmth but low in competence, or as low in warmth but high in competence.)

<Social Science>

2. In a novel set in this city, “dishwasher boys” pick the phrase “Your eyes are like ensorcelled arrows” to start a love letter to a girl their street vendor friend saw at a wedding. A man fixates on the stories of Sohrab (“so-h’ROB”) and Rustam (“roo-STAHM”) and of Oedipus (“ED-uh-puss”) after leaving this city to become a well-digger’s apprentice in a novel by an author who discussed “the weight of literature” in a lecture. Comments in the Swiss outlet *Das Magazin* (“mah-gah-DZEEN”) led to the trial of an author from this non-capital city who wrote the 2016 novel *The Red-Haired Woman* and the lecture “My Father’s Suitcase.” That man set a book in this city in which a man who despises the Frankish style of art deliberately blinds himself with a needle, and whose narrators include a tree, a coin, and the murdered miniaturist Elegant Effendi. For 10 points, *My Name Is Red* is set in what birth city of Orhan Pamuk (“or-HAHN pah-MOOK”)?

ANSWER: **Istanbul** [accept **Constantinople**; accept **Kostantiniyye**] (The first novel is *A Strangeness in my Mind*. Pamuk was tried for “insulting Turkishness” by telling *Das Magazin* that “a million Armenians and 30,000 Kurds were killed” in his country.)

<World Literature>

3. A honeycomb-shaped anodic (“uh-NOD-ik”) membrane made from this compound templates the electro-deposition of nano-wires. An isomorph of this compound is the solid electrolyte in a sodium–sulfur battery. Another of this compound’s six meta-stable “transition” phases, labeled gamma, is the most common solid support for heterogeneous catalysts. Calcination of gibbsite (“GIB-zite”) produces beads of this compound, which are used to adsorb fluoride and remove it from drinking water. Because this ionic compound is amphoteric (“AMPH-uh-TAIR-ik”), it’s the preferred polar stationary phase for column chromatography when purifying bases. Forming a mole of this compound evolves 850 kilo-joules of heat in the thermite reaction. The output of the Bayer process, this compound is dissolved in molten cryolite (“CRY-uh-lite”), then electrolyzed, in the Hall–Heroult (“hay-ROH”) process. For 10 points, name this metal oxide found in corundum (“kuh-RUN-dum”).

ANSWER: **aluminum oxide** [or **alumina**; or **Al₂O₃**; prompt on corundum until it is read; reject “bauxite”; reject “aluminum”; reject “aluminum hydroxide”]

<Chemistry>

4. In 2016, a painting with this title held at Norwich Castle was found to have been painted over part of a larger work called *The Enchanted Pose*. That painting with this title shows a distant castle rising above white chalk cliffs, which are visible through the mouth of a cave. In the lecture “The Life Line,” an artist of four paintings that have this title called them a response to the “problem of the window.” Those works with this title are conceptually similar to their artist’s *The Fair Captive* and *Euclidean Walks*. This is the title of a painting in which a cannonball sits in an archway looking out on a beach. Another painting with this title shows a tree under a cloudy blue sky, and like the others, it shows an easel at its center. For 10 points, give this common title of paintings by René Magritte in which a canvas seems to merge with the background landscape.

ANSWER: *The Human Condition* [or *La condition humaine*]

<Painting/Sculpture>

5. The *Historia Augusta* claims that soldiers led by this emperor sang “Thousand, thousand, thousand we’ve beheaded now,” celebrating this emperor’s deed of killing 48 Sarmatians. After sacking every other city in his path, this emperor spared the city of Tyana after having a vision of the dead philosopher Apollonius. The secretary Eros engineered this emperor’s death by forging a list of generals targeted for execution and giving the list to the Praetorian prefect Mucator. At the Battle of Immae (“IM-mye”), this emperor’s generals exploited the desert to tire the cataphracts of the general Zabdas. A triumph of this emperor included Tetricus I and a chained-up daughter of Vaballathus (“wah-BAH-lah-tus”). He was called *Restitutor Orbis* or “Restorer of the World.” For 10 points, what emperor of the late 3rd century C.E. conquered the Gallic empire and defeated Queen Zenobia?

ANSWER: Aurelian [or Lucius Domitius Aurelianus]

<Ancient History>

6. Instances of this quantity are the edge weights in a BK tree. If this quantity equals X , it is computed in $O(NX)$ (“big-O of N-X”) time by counting non-diagonal edges in the Myers algorithm. Two is the largest value for this quantity allowed by Apache Lucene’s (“uh-PATCH-ee loo-SEEN’s”) FuzzyQuery search. This quantity is computed by flood-filling a matrix of partial results in the Wagner–Fischer dynamic programming algorithm. Unix’s ispell (“I-spell”) program only makes suggestions for which this quantity equals one. The Jaro (“jair-oh”) type of this quantity only uses transpositions and can be inverted to give a similarity score. A type of this quantity that permits insertions and deletions is never greater than another type that counts substitutions. For 10 points, what number of changes needed to turn one string into another has Levenshtein and Hamming types, and shares its name with a Euclidean quantity for points in space?

ANSWER: edit distance [accept distance between two strings; accept Hamming distance or Levenshtein distance or Damerau–Levenshtein distance or Jaro–Winkler distance; prompt on string similarity before “similarity”]

<Misc. Science>

7. *Description acceptable.* An essay on economics written under this government, which likens it to a fictional “republic of Utopia,” has a title that translates to “Gold and Work.” This government’s sole leader was treated by a new foreign doctor, Georg Zachariae (“GAY-ork zah-KAR-ee-uh”), who curbed that leader’s excessive milk-drinking. This was the [emphasize] *later* of two governments that issued propaganda through a Ministry of Popular Culture, or MinCulPop. The paramilitary Black Brigades backed this government, which largely enacted the suggestions of plenipotentiary Rudolf Rahn and was run from a small town on Lake Garda. Its only *de jure* leader had his body hung upside-down after Communists shot him by Lake Como. For 10 points, name this Nazi puppet state created in 1943, which was nominally led by Mussolini after the Allies took southern Italy.

ANSWER: Salò (“sah-LOH”) Republic [or Italian Social Republic, or Repubblica di Salò, or RSI; or Repubblica Sociale Italiana; accept any answer indicating Nazi Germany’s occupation of northern Italy; or the Nazi German puppet state in northern Italy; prompt on Fascist Italy or Mussolini’s Italy; reject “Kingdom of Italy” or “Regno d’Italia”] (“Oro e Lavoro,” or “Gold and Work,” was written in Italian by Ezra Pound.)

<European History>

8. In November 2021, this world leader inaugurated a billion-dollar partnership with China's CRI and CCI firms to upgrade 108 kilometers of track to high-speed rail. In 2020, Richard Grenell brokered an agreement between this leader and a smaller neighboring country to restore flights between their capitals for the first time in two decades. This leader, who has guest-judged on the music show *Zvezde Granda* ("ZVIZ-day GRAHN-dah") several times, leads the largest of the three "stabilitocracies" ("stuh-bill-uh-TOK-ruh-sees") that form the "Mini Schengen Zone." During a March 2022 rally, this politician cited the death of an 11-year-old girl named Bojana ("boh-YAH-nah") as a reason that his country will never join NATO. In April 2022, this pro-Russian, populist leader of the SNS party defeated retired general Zdravko Ponoš ("ZDRAHV-koh POH-nish") to win re-election in a landslide. For 10 points, name this current president of Serbia.

ANSWER: Aleksandar **Vučić** ("VOO-cheech")

<Current Events>

9. In a book-length study of this poem's author, Harold Bloom suggested that its mention of "The rendezvous, when she came alone, / By her coming became a freedom of the two" refers to the author's courtship of his wife. This poem evokes Matthew 5:45 in its description of an imagination "that sits enthroned / As grim as it is benevolent, the / just and unjust." The lines "The necklace is a carving not a kiss. / The soft hands are a motion not a touch" refer to the poet's mother in the third of this poem's ten cantos, three of which begin "Farewell to an idea." This poem, which begins with the line "This is where the serpent lives, the bodiless," titles its author's final original collection, which also contains "An Ordinary Evening in New Haven" and fittingly succeeds *Transport to Summer*. For 10 points, name this Wallace Stevens poem whose title refers to the Northern Lights.

ANSWER: "The **Auroras of Autumn**"

<American Literature>

10. A publication from this denomination, *The Gentile Times Reconsidered*, suggests that the destruction of Jerusalem occurred in 607 BCE, 20 years before the accepted date. This denomination produced a work about a boy playing with a Sparlock the Warrior Wizard doll to explain its edicts against magic. The neologism "PIMO" ("PEE-moh"), or "physically in, mentally out" originally referred to closeted ex-members of this denomination, who often call its leadership "the Borg." This denomination currently suggests that "The King in the North" may be Russia and the "scarlet-colored wild beast" is the United Nations. Unrepentant members of this religion may undergo disfellowshipping, which requires their family to break contact. Charles Taze Russell founded, for 10 points, what religious sect known for conscientious objection, refusal to take blood transfusions, and door-to-door preaching?

ANSWER: **Jehovah's Witnesses** [accept **JW**]

<Religion>

11. In a dynamical system's configuration space, these events occupy a "fat diagonal" that is not intersected by trajectories called choreographies. The Levi-Civita ("LEH-vee CHEE-vee-tah") and Kustaanheimo–Stiefel ("KOO-stahn-hye-moh SHTEE-ful") methods rescale time to regularize these events, which are singularities of the equations of motion. Extreme types of these events are ignored to set the upper and lower integration bounds of the Coulomb logarithm. Divergent singularities *without* these events exist for systems of four or more bodies according to the Painlevé ("PAHN-leh-vay") conjecture. In the Drude ("DROO-duh") model, conductivity is proportional to the time between these events. The coefficient of restitution is typically less than 1 during these events, whose limiting cases involve bodies sticking together or kinetic energy being conserved. For 10 points, momentum is always conserved during what brief interactions between two bodies?

ANSWER: **collisions** [accept **scattering** events; accept **collision** singularities; accept inelastic **collisions**; accept elastic **collisions** before "less than 1"; accept **close encounters** before "time between these events"]

<Physics>

12. This artist's designs for a story book include tiny red stopwatches that appear in each illustration and a stainless-steel cover embedded with a digital clock for keeping the reader's time. A faux-Neoclassical statue by this artist shows J. Edgar Hoover kissing Roy Cohn, who is in high heels. This sculptor of *Justice*, who also illustrated Stephen King's *My Pretty Pony*, referred to a trademark case as a "ridiculous clusterfuck of totally uncool jokers." A detail from *The Creation of Adam* appears behind black bars in this artist's *You Invest in the Divinity of the Masterpiece*. In a work by this artist, a hand holds a card reading "I shop therefore I am." A woman's face appears behind the words "Your body is a battleground" in another work by this artist, whose style was copied by the clothing brand Supreme. For 10 points, name this American artist known for her use of white text on a red background.

ANSWER: Barbara **Kruger**

<Other Fine Arts>

13. The infamous claim that the "broad masses" in this area were "perfectly content, perfectly happy" was made by Manie Mulder. This area's namesake Civic Association included a "Committee of Ten" that advocated rent boycotts in the 1980s. Personnel carriers called "hippos" were first domestically deployed during an event in this area which was investigated by the Cillie Commission. In 1985, clergy sympathetic to liberation theology met in this area to start drafting the Kairos Document. A march to Orlando Stadium began an event named for this area, during which a photo was taken of Hector Pietersen's corpse. That June 16 protest named for this area is commemorated on Youth Day and opposed a decree mandating instruction in Afrikaans. For 10 points, what area, now merged with Johannesburg, names a 1976 student uprising against apartheid?

ANSWER: **Soweto** [or **South Western Townships**; accept **Soweto** uprising, protest, etc.; prompt on **South Africa**; prompt on **Gauteng** province; prompt on **Johannesburg** metropolitan area, which it was later merged with; prompt on **West Rand** Administrative Board; anti-prompt (ask "Can you be less specific?") on **Orlando** or **Naledi**] (Mulder made his claim a month before the 1976 uprising.)

<World History>

14. According to Pausanias, this figure was buried in a shield-shaped tomb near the shrine of Pandion in Megara, having died there of a broken heart. In the *Argonautica*, Lycus relates how a hero who was returning from a quest targeting this person helped expand the lands of the Mariandyni ("mary-ann-dih-NEE"). After a disguised Hera raised the false alarm that this person had been abducted, a ship harboring in the mouth of the Thermodon was attacked. The *Posthomerica* ("post-hoh-MER-ica") states that this woman was slain in a hunting accident by Penthesilea ("PEN-thuh-SILLY-uh"), who went to Troy to be purified by Priam. The Attic War was fought over either this woman or her sister Antiope ("ann-TYE-uh-pee") after she was taken by Theseus. A clothing item called a *zoster* owned by this child of Otrera and Ares was desired by Admete ("add-MEE-tee"), the daughter of Eurystheus. For 10 points, Heracles' ninth labor targeted the girdle of what queen of the Amazons?

ANSWER: **Hippolyta** [or **Hippolyte**; reject "Hippolytus"]

<Mythology/Legends>

15. Near the end of this play, one character criticizes another for making them live in front of a mirror that "throws our likeness back at us with a horrible grimace." A girl in this play reminisces about how a man used to wait for her outside her school every day, until he gave her a straw hat and a bouquet of flowers in a paper parcel. A man in this play gets irritated at another man's use of the word "illusion," countering that "we [...] have no reality outside of this illusion." The act of hanging women's hats and coats on racks summons a brothel madam in this play, which ends with The Child drowning in a fountain and The Boy shooting himself with a revolver, while the Manager complains that he "lost a whole day" trying to tell their story. For 10 points, a rehearsal of the play *Mixing It Up* is interrupted by the title people in what play by Luigi Pirandello ("pee-ron-DEL-loh")?

ANSWER: **Six Characters in Search of an Author** [or **Sei Personaggi in Cerca d'Autore**]

<European Literature>

16. This thinker examined the difference between claiming that you dropped a tray because “an emotional storm was about to break out” or because there was a wasp. That paper by this thinker suggests that the correct opposite of “involuntarily” is “deliberately” rather than “voluntarily.” That paper by this thinker, who declared that “The theory of truth is a series of truisms,” examines the real-life case of an asylum attendant who accidentally scalded an inmate to death with hot bathwater. He wrote a book in which the Sincerity Condition is among the criteria that determine if a request is “felicitous.” He included commissives and verdictives as among the five categories of what he called illocutionary acts in that book, which coined the terms “performative utterance” and “speech act.” For 10 points, name this English philosopher who wrote *How to Do Things with Words*.

ANSWER: J(ohn) L(angshaw) **Austin** (The paper described in the first two lines is “A Plea for Excuses”)
<Philosophy>

17. After criticizing Nixon’s “do-nothing” policy on inflation, a senator with this surname lost re-election in 1970 to Republican Bill Brody. During a 1984 hearing, Dee Snider said a woman with this married surname was “looking for sadomasochism... [and] found it,” responding to criticism of the song “Under the Blade.” Estes Kefauver (“ESS-tiss KEE-faw-ver”), Lyndon Johnson, and a senator with this surname were the only three Southern Democrats not to sign the Southern Manifesto. The wife of a senator with this surname co-founded the Parents Music Resource Center. The High Performance Computing Act was commonly named for a senator with this surname, who called digital communications an “information superhighway” and was joked to have “invented the Internet.” For 10 points, give this surname of the vice president who lost the 2000 presidential election.

ANSWER: **Gore** [accept Al **Gore**, Sr. /Jr. or Tipper **Gore**]
<American History>

18. After a lightning strike during a storm causes this woman to back away from a window, her future husband reflexively clasps her hand, and they share their first kiss, before sitting side-by-side until the storm abates. The final lines of the novel she appears in describes this woman’s “full nature” spending itself “in channels which had no great name on the earth.” This woman becomes delirious after discovering her husband’s dead body sitting on a bench surrounded by yew trees. This character is obsessed with improving the cottages of the tenants of her uncle’s land. Her first husband, who writes a will that disinherits her if she marries his younger cousin, rebuffs this woman’s attempts to help him write *The Key to All Mythologies*. For 10 points, Will Ladislav and the pedantic clergyman Edward Casaubon both marry what female protagonist of *Middlemarch*?

ANSWER: **Dorothea Brooke** [accept either name]
<British Literature>

19. This molecule can be removed by ABHD17 (“A-B-D-H-17”). Th17 (“T-H-17”) differentiation is partly driven by adding this molecule to position 108 of STAT3 (“stat-three”). This molecule is added to the yeast casein kinase Yck2p (“Y-C-K-two-P”) by Akr1p (“A-K-R-one-P”), which contains several copies of a conserved DHHC (“D-H-H-C”) motif common in enzymes that transfer this molecule. A version of phosphatidylcholine (“FOSS-fuh-tid-ull-COAL-teen”) that has two of this molecule attached is a major component of lung surfactant. It’s not farnesyl (“FAR-nuh-sil”), but the addition and removal of this molecule from Ras (“rass”) causes it to cycle from the Golgi (“GOHL-jee”) to the membrane. A derivative of this molecule with CoA (“koh-A”) attached can yield a net of 106 ATP after it undergoes 7 rounds of beta-oxidation to produce eight molecules of acetyl-CoA (“uh-SEE-til-koh-A”). Unlike prenyl (“PREN-ul”) and myristoyl (“MEE-rist-oh-il”) groups, adding this molecule to thiol (“THIGH-all”) groups on proteins via S-acylation (“S-ass-uh-LAY-shun”) is reversible. For 10 points, name this 16-carbon saturated fatty acid originally isolated from palm oil.

ANSWER: **palmitic acid** [or **palmitate** or **palmitoyl** group or **hexadecanoic** acid or **C16:0** prompt on acyl or fatty acid]
<Biology>

20. The rondo finale of this composer's final piano trio is primarily in 2/4 ("two-four"), but is thrice interrupted by sections in 3/2 ("three-two") time. In a C-minor chamber work by this composer, the secondary theme begins in A-flat major in the exposition but in the bizarre key of B-flat major in the recapitulation. This composer added an extra violin to the instrumentation of Beethoven's Septet to create the earliest major mixed wind and string octet in the standard repertoire. The second movement of this composer's String Quartet No. 13 re-uses a melody he had earlier used in incidental music for a Helmina von Chézy ("hel-MEE-nah fon CHAY-zee") play. This composer of the *Quarttetsatz* ("kvar-TET-zotz") in C minor and the *Rosamunde Quartet* replaced the second violin with a double bass in a piano quintet he wrote, which adapts a melody from his *lied* ("leed") "*Die Forelle*" ("dee foh-REL-uh"). For 10 points, name this Austrian composer of the *Trout Quintet*.

ANSWER: Franz (Peter) **Schubert**

<Classical Music>

BONUSES

1. This movement's founder took daily walks along a cherry-tree-lined canal with fellow adherent Hajime Tanabe ("hah-JEE-may tah-NAH-bay"), on a path now called the Philosopher's Walk. For 10 points each: [10m] Name this philosophical movement, founded by Kitaro Nishida ("kee-TAH-roh nee-SHEE-dah"), who created a dialectical "logic of place," or *basho no ronri* ("bah-shoh noh ron-ree").

ANSWER: **Kyoto** School [or **Kyōto**-gakuha]

[10h] A central tenet of Nishida's logic of place is that all of reality is located within this indescribable place that is itself indeterminate but in which all things are determined. Nishida also described it as "a negation of negation."

ANSWER: **absolute nothingness** [or *zettai-mu*; prompt on nothingness; prompt on *mu*]

[10e] Nishida frequently clarified that the logic of place's dialectic returns things to a pre-opposition state, unlike this German philosopher's version of dialectic, in which opposites are sublated or synthesized.

ANSWER: Georg Wilhelm Friedrich **Hegel**

<Philosophy>

2. For 10 points each, answer the following about "self-criticism" in various political movements.

[10e] A full chapter of this widely-distributed book by Mao Zedong is devoted to self-criticism and provided the foundation for the "Hundred Flowers" movement.

ANSWER: *The **Little Red Book*** [or ***Quotations from Chairman Mao Tse-tung*** or ***Máo Zhǔxí Yǔlù***]

[10m] This theorist proposed limits to self-criticism in the book *One Step Forward, Two Steps Back*. A set of ten statements by this theorist urges "no support" for a bourgeois Provisional Government.

ANSWER: Vladimir **Lenin** [or Vladimir Ilyich **Ulyanov**] (The second clue refers to the *April Theses*.)

[10h] This American text's section "Arm the Spirit" includes self-criticism which evaluates its writers' failure to follow up on the Days of Rage. Bill Ayers contributed to this manifesto of the Weather Underground.

ANSWER: ***Prairie Fire***

<Other History>

3. This volcano's slopes contain Fang Ridge, which is probably the remnant of an earlier caldera. For 10 points each:

[10m] Name this volcano, home to one of the world's five lava lakes, as well as many thirty-foot-tall fumarolic ice towers produced by outgassing. Air New Zealand Flight 901 crashed on this volcano in 1979.

ANSWER: Mount **Erebus** ("AIR-uh-buss") [accept Mount **Erebus** disaster]

[10e] The U.S. Navy's main Antarctic research station, which is named for this Royal Navy sailor, is beneath the slopes of Mount Erebus.

ANSWER: Archibald **McMurdo** [accept **McMurdo** Station]

[10h] You can also find fumarolic ice towers on Mount Berlin, which is in this region of Antarctica. This region is the largest unclaimed territory on Earth.

ANSWER: **Marie Byrd** Land

<Geography>

4. Two cysteine (“SIS-teen”) residues found on the surface of one of these structures in *Thermotoga maritima* (“ther-moh-TOH-gah mah-ree-TEE-mah”) enable it to bind the hepato-cellular carcinoma (“kar-sin-OH-muh”) marker SP94 (“S-P-94”). For 10 points each:

[10h] Name these capsid-like structures. These icosahedral (“eye-koss-uh-HEED-rul”) protein cages are studied for potential use in drug delivery and were discovered in bacterial culture supernatants (“super-NATE-intz”).

ANSWER: **encapsulins** [or **encapsulin** nanocompartments]

[10e] Encapsulin nano-compartments structurally resemble the viral capsid of HK97 (“H-K-97”), which is one of these organisms. These viruses are used in a namesake display technique and infect bacteria like *E. coli*.

ANSWER: bacteri**ophages** [accept **phage** display]

[10m] A type of encapsulin that can be loaded with IMEF (“I-M-E-F”) cargo proteins facilitates the bio-mineralization of this element. *Vibrio vulnificus* (“VIB-ree-oh vul-NIF-uh-kuss”) and other siderophilic (“CIDER-uh-fill-ik”) bacteria thrive in high concentrations of this element.

ANSWER: **iron** [or **Fe**] (The 24-subunit protein complex is ferritin.)

<Biology>

5. This play opens with the journalist Bitoy Camacho introducing the setting of this play within the walls of the Intramuros (“een-trah-MOO-rohss”). For 10 points each:

[10h] Name this play by Nick Joaquin (“hwah-KEEN”) subtitled “An Elegy in Three Scenes.” This play centers on the Marasigan sisters and Paula, who debate selling the title object.

ANSWER: *A **Portrait of the Artist as Filipino**: An Elegy in Three Scenes*

[10e] Nick Joaquin’s *Portrait* is written in this language. Joaquin spearheaded writing Filipino literature in this language, which succeeded Spanish as the main colonizer language.

ANSWER: **English**

[10m] The title work of the play is a double self-portrait that depicts its artist saving a younger version of himself during this conflict. The lead-up to this conflict is depicted in a play that Christopher Fry translated as *Tiger at the Gates*.

ANSWER: **Trojan** War [or siege of **Troy**]

<World Literature>

6. British colonial doctor Cicely (“SISS-uh-lee”) Williams gave this condition a name from the language of Ghana’s Ga people. For 10 points each:

[10m] Name this type of malnutrition whose sufferers often present with distended stomachs. Unlike marasmus, it is believed to result from protein deficiency.

ANSWER: **kwashiorkor** (“KWAH-shee-OR-kor”)

[10e] Williams later railed against this product. Though this product is meant to help with nutrient deficiency, Nestlé has made many lives worse by selling it to mothers who can’t refrigerate it or mix it with clean water.

ANSWER: infant **formula** [or baby **formula**; prompt on **condensed milk** or **milk powder**; reject “milk”]

[10h] This product, which is used to medically treat child malnutrition abroad, adds powdered milk to sugar, vegetable oil, and paste from a legume. You may give either the name trademarked by French company Nutriset or its generic name.

ANSWER: **Plumpy’nut** [or **Ready-to-Use Therapeutic Food** or **RUTF**]

<Other Academic>

7. In a miniature by Hashim (“hah-SHIM”) showing this ruler as the “Master of the Globe,” he wears flowery pink pajamas and stands atop a sphere on which a sheep and a lion sleep. For 10 points each:

[10h] Name this ruler who admires jewels with his son in a miniature by Nanha. Both of those miniatures appear in a *muraqqa* (“moo-RAH-kah”) named for this man that is sometimes called the Kevorkian Album.

ANSWER: Shah **Jahan** [or Shahab-ud-din Muhammad **Khurram**; accept Shah **Jahan** Album]

[10e] The Shah Jahan Album also contains miniatures by Mansur (“man-SOOR”) that depict different species of these animals. Shah Jahan also commissioned a jeweled throne named for a type of these animals.

ANSWER: **birds** [accept **Peacock** Throne; accept any specific type of birds, such as **hornbills** or **vultures**]

[10m] In a watercolor that shows James I of England in the corner, Shah Jahan’s father, Jahangir (“jah-hahn-GEER”), sits on a giant one of these objects. One of these objects sits on a table surrounded by musicians in Veronese’s (“vay-roh-NAY-zay’s”) *The Wedding at Cana*.

ANSWER: **hourglass** [accept **sandglass**, **sand timer**, **sand clock**; prompt on **timer** or **clock**; reject “glass”]

<Painting/Sculpture>

8. This city is partly named for a protective Buddha statue brought here around 1360 by founding monarch

Fa Ngum (“fah ung-oom”). For 10 points each:

[10m] Name this capital of the Lan Xang (“lan shang”) kingdom. Though it’s not a capital city today, it was a royal court town until Communists abolished the monarchy at the end of Laos’s Secret War.

ANSWER: **Luang Prabang** (“loo-ong PRAH-bong”) [or **Louangphrabang**; accept **Mwang Sua** or **Muang Xieng Thong**] (The statue is the Phra Bang, or “Delicate Buddha.”)

[10e] “Lan Xang” translates to “Land of a Million” of these animals, which are trained by mahouts (“muh-HOUTZ”).

ANSWER: **elephants** [accept Asian **elephants**, or **Elephas maximus**; reject “African elephant” or “Loxodonta”]

[10h] The great king Souligna Vongsa (“soo-lee-nyah vong-sah”) welcomed the first European traders to Lan Xang in this Gregorian decade. Elsewhere in Asia, the Chongzhen (“chong-zhen”) emperor abdicated during this decade.

ANSWER: **1640s** CE [accept any answer indicating a ten-year time span with the year **1641** in it] (The Ming dynasty ended with the Chongzhen emperor’s abdication in 1644.)

<World History>

9. Answer the following about the propagation of electromagnetic waves in a conducting waveguide, for 10 points each.

[10e] Rectangular waveguides admit waves for which this quantity is less than twice the guide’s width. Microwave ovens use 9-centimeter guides to contain waves for which this quantity is about 12 centimeters.

ANSWER: **wavelength** [prompt on **lambda**]

[10m] The electric field has this property at the surface of a waveguide. Waveguide modes have two-letter names noting whether the electric or the magnetic field has this property in the waveguide’s interior.

ANSWER: **transverse** [accept **transverse** electrical modes or **transverse** magnetic modes; prompt on answers like **longitudinal component is zero** or **z-component is zero** by asking “What is the one-word name for that condition?”; prompt on, but do NOT otherwise reveal, **TE** modes or **TM** modes]

[10h] In particular, the lowest-frequency mode in a rectangular waveguide has this name. Your answer should consist of two letters and two numbers.

ANSWER: **TE₁₀** (“T-E-one-zero”) [accept **H₁₀** (“H-one-zero”); reject “T-E-ten” or “H-ten”]

<Physics>

10. In this author's story "A Village Romeo and Juliet," two young lovers flee due to their fathers' quarrel over a field rightfully owned by the "Dark Fiddler," and then drown themselves after slipping off a hay barge. For 10 points each:

[10m] Name this Swiss author who modeled the painter Heinrich Lee on himself, in his semiautobiographical novel *Green Henry*.

ANSWER: Gottfried **Keller**

[10h] "A Village Romeo and Juliet" is part of a Keller cycle titled for this fictional town. In Keller's story "Clothes Make the Man," the inhabitants of Goldach mistake a poor tailor from this town for a Polish count due to his sumptuous clothing.

ANSWER: **Seldwyla** ("zelt-VEE-luh") [or *The People of Seldwyla*; or *Die Leute von Seldwyla*]

[10e] Another of Keller's stories from *The People of Seldwyla* is about Mirror, an animal of this kind. Behemoth is this kind of animal in *The Master and Margarita*.

ANSWER: **cat** [or **kitten**; or **Katz**; accept *Spiegel, das Kätzchen*]

<European Literature>

11. The *Hymiskviða* ("HOO-may-SKVEE-thuh") follows the Aesir's ("acer's") quest to find a kettle large enough to be used at one of these events, which they eventually obtain from Hymir ("HOO-mair"). For 10 points each:

[10m] Name these events hosted by a sea god at Hlsey (L'YES-ay"). Another one of these events is the setting of the *Lokasenna* ("LOH-kah-sen-uh"), in which Loki insults the attendants and kills the servant Fimafeng ("FEE-mah-feng").

ANSWER: **Aegir's** ("AH-year's") **feasts** [accept answers that describe a **meal** hosted by **Aegir**; prompt on **feasts** or equivalents by asking, "Who was the host?"]

[10e] In the *Skáldskaparmál* ("SKAL-skap-ur-mall"), Aegir is told about how the gods started to age when the kidnapping of Idunn ("EE-thohn") deprived them of these fruits. Hippomenes ("hih-PAH-muh-neeZ") threw these fruits on the ground to distract Atalanta in a footrace.

ANSWER: **golden apples** [prompt on **apples**]

[10h] The *Skáldskaparmál* also tells the story of these two giantesses with rhyming names, who ran a mill to create gold for King Fróði ("FROH-thee"), and later salt for the sea-king Mysing. Name either.

ANSWER: **Fenja** or **Menja** [accept **Fenia** or **Menia**]

<Mythology/Legends>

12. A 1913 article by Edward Payson Morton claims that Robert Aylett, Richard Fanshawe, Henry More, Eirenaeus Philalethes ("eye-ruh-NEE-us phil-uh-LETH-eez"), and Samuel Woodford were the only five authors in the entire 17th century who used this English verse form. For 10 points each:

[10m] Name this verse form that consists of eight iambic pentameter ("eye-AM-bik pen-TAM-uh-ter") lines rhymed ABAB-BCBC followed by an alexandrine rhymed C.

ANSWER: **Spenserian stanza** [prompt on **Spenser** or **Spenserian**; reject "Spenserian sonnet"]

[10e] Edmund Spenser first used his namesake stanza form in this epic poem. In the first of its six books, Una is accompanied by the Redcrosse Knight.

ANSWER: *The Faerie Queene*

[10h] This epic poem in Spenserian stanzas was originally titled for its protagonists, Laon and Cythna, who overthrow the tyrant Othman in an allegory for the French Revolution.

ANSWER: *The **Revolt of Islam*** (by Percy Bysshe Shelley)

<British Literature>

13. Ray Pierrehumbert (“pierre-humbert”) suggested that liquid water at the substellar point of Gliese (“GLEE-zuh”) 581g might lead it to resemble one of these objects. For 10 points each:

[10h] Name these objects, common on Earth but less well-attested elsewhere, that lend their name to a class of hypothetical exoplanets with strong temperature gradients between their star-facing and rear sides.

ANSWER: **eyeballs** [accept **eyes**; accept **eyeball** planets or **Eyeball** Earth]

[10m] Eyeball planets maintain permanent star-facing and rear sides due to this process. This process occurs when a strong gravitational gradient gradually syncs a moon or planet’s rotation rate with its orbit.

ANSWER: **tidal locking** [prompt on **tides** or **tidal forces**]

[10e] Eyeball planets may lie in the remarkably small instances of these zones around red dwarfs. This is the region around a star within which planets with an atmosphere can maintain liquid water.

ANSWER: circumstellar **habitable** zone [or **Goldilocks** zone; or **CHZ**]

<Misc. Science>

14. This song titles a book that contains the three lyric-writing maxims “Content Dictates Form,” “Less Is More,” and “God is in the Details.” For 10 points each:

[10m] Name this song from *Sunday in the Park with George*. In this song, Georges Seurat (“zhorzuh suh-RAH”) sings of “reaching through the world” of the title object as he paints it into existence.

ANSWER: “**Finishing the Hat**”

[10e] The book *Finishing the Hat* is an annotated collection of lyrics by this late Broadway composer who also wrote *Into the Woods* and *Company*.

ANSWER: Stephen (Joshua) **Sondheim**

[10h] In *Finishing the Hat*, Sondheim gives this song from *Pacific Overtures* as his favorite of his lyrics. In this song, a ten-year-old and his future self describe what they saw at the signing of a treaty while another man describes what he heard.

ANSWER: “**Someone in a Tree**”

<Other Fine Arts>

15. This tsar (“zar”) established the Third Section, a model for later Russian secret police forces. For 10 points each:

[10e] Name this tsar who took a severely reactionary attitude after being confronted by the Decembrist Revolt upon his ascent to the throne.

ANSWER: **Nicholas I** [or **Nikolai I**; prompt on **Nicholas**]

[10h] Nicholas I’s regime was summarized by his conservative minister Sergei Uvarov (“oo-VAH-roff”) in three principles. In any order, please give all three of those principles.

ANSWER: **autocracy** AND **orthodoxy** AND **nationality** [or **Pravoslávie**, **samoderzhávie**, **naródnost**!; accept **nationalism** for “nationality”]

[10m] Uvarov famously remarked that there should be no examples of this person “in universities.” This person was captured in an iron cage and sent to Moscow after being defeated by Peter Panin’s forces.

ANSWER: Yemelyan **Pugachev** [accept “No **Pugachevs** in universities” or **Pugachev**’s rebellion]

<European History>

16. The 1972 paper introducing this concept used FORTRAN (“FOR-tran”) code to model different “access structures” as rectangular arrays of 0s and 1s. For 10 points each:

[10h] Name this model devised by Michael D. Cohen, James March, and Johan Olsen. In it, problems, solutions, and participant energy are separate, non-sequential inputs to organizational decision-making.

ANSWER: **garbage can** model of organizational choice

[10e] The garbage can model assumes an “organized” form of this leaderless condition. In international relations, this term denotes a world order without a sole supranational authority.

ANSWER: **anarchy**

[10m] Cohen also studied the “organizational” type of this process, whose “situated” form was theorized by Jean Lave (“jeen layv”) and Étienne Wenger (“WENG-er”). One theory of individuals undergoing it uses an analogy to “scaffolding.”

ANSWER: **learning** [or organizational **learning** or situated **learning**; prompt on zone of proximal development; prompt on answers like teaching, education, or instruction by asking “What cognitive process does that facilitate?”]

<Social Science>

17. A 1993 demonstration that one of these proteins accelerated cocaine hydrolysis (“hye-DRAWL-uh-sis”) spawned several futile attempts to use them to treat drug addiction. For 10 points each:

[10m] Name these proteins whose use as enzymes was pioneered by Peter Schultz and Richard Lerner, who took advantage of their high affinity at the paratope (“PAIR-uh-tope”) for small molecule epitopes (“EP-uh-topos”) called haptens (“HAP-tens”).

ANSWER: **antibodies** [or catalytic **antibody**; or **abzymes**; or **catmabs**; or **immunoglobulins**; or **Igs**]

[10e] In reality, the cocaine abzymes just sped up the non-enzymatic reaction by stabilizing this structure, the configuration of atoms at the local maximum of energy.

ANSWER: **transition state** [or **TS**]

[10h] *Description acceptable.* In another landmark 1993 paper, Lerner showed that abzymes can catalyze a stereo-selective 6-endo-tet reaction with this property. By definition, 4-exo-dig and 3-exo-trig reactions also have this property.

ANSWER: **anti-Baldwin** ring-closing reactions [accept any answers indicating reactions that do **not** obey Jack **Baldwin**’s rules; prompt on forbidden or unfavorable]

<Chemistry>

18. This character is blamed when a man chokes to death on a chicken bone after seeing her near his porch. For 10 points each:

[10m] Name this character from a 1973 novel. Nel feels “magic” when this character returns amid a “plague of robins.” Some residents of The Bottom regard her funeral as the “burial of a witch.”

ANSWER: **Sula** Peace [prompt on Peace]

[10e] After *Sula*, Toni Morrison wrote this novel in which Pilate’s magical powers include using a voodoo doll of her brother to magically ensure that her then-*in utero* nephew, Milkman Dead, gets born.

ANSWER: **Song of Solomon**

[10h] In Morrison’s novel *Paradise*, this blind, Brazil-born woman has a supernatural “in sight” that lets her save people from death. After Mary Magna’s death, she is the *de facto* leader of an all-female house called the Convent.

ANSWER: **Consolata** “**Connie**” **Sosa** [accept any underlined portion]

<American Literature>

19. These creatures inspired a piece in which the pianist makes sound effects using a paper clip, chisel, and solid glass rod. For 10 points each:

[10h] Name these creatures that partly title a piece for electric flute, cello, and amplified piano that begins with a "Vocalise ("voh-kuh-LEEZ") (...for the beginning of time)" and ends with a nocturne "...for the end of time."

ANSWER: **whales** [or *Balaenae*; accept *Vox Balaenae*]

[10m] This avant-garde American composer wrote that whale-inspired piece, *Vox Balaenae* ("vox bah-LAY-nay"). He responded to the Vietnam War with his electric string quartet *Black Angels*.

ANSWER: George **Crumb**

[10e] A symphonic poem titled *And God Created Great Whales* was composed by Alan Hovhaness ("hoh-VAH-nis"), whose father hailed from this country. This country was also home to a composer who included a "Sabre Dance" in his ballet *Gayane* ("gah-yah-neh").

ANSWER: **Armenia** [prompt on the Soviet Union or the USSR or the Union of Soviet Socialist Republics or the CCCP] (That composer is Aram Khachaturian.)

<Classical Music>

20. James Crawford co-authored a *New York Times* bestseller titled "Forget [this place]" which examines "the Rise and Fall of an American Myth" in historical records. For 10 points each:

[10e] Name this place where the pioneers James Bowie and Davy Crockett died at an 1836 battle, after which the phrase "Remember [this place]" became a rallying cry.

ANSWER: **Alamo** Mission [accept Battle of the **Alamo** or *Forget the Alamo* or "Remember the **Alamo**"; prompt on San Antonio]

[10m] This three-word vow concludes William B. Travis's letter "To the People of Texas & All Americans in the World," which became a smash-hit propaganda piece after Travis's death at the Alamo.

ANSWER: "**Victory or Death!**"

[10h] This Texas businesswoman led the fight to preserve the Alamo mission in the early 20th century. She helped fund the museum where the "Victory or Death!" letter is preserved.

ANSWER: Clara **Driscoll**

<American History>