

2022 Winter Closed

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Packet M

Tossups

1. **After reading a book by this thinker, Richard Wagner changed the ending of the *Ring Cycle* to reflect its ideas, though he later changed it back. This thinker called space and time by the Scholastic term “principle of individuation” because he believed multiplicity did not exist outside of them. According to this thinker, the Platonic forms arise from a central concept’s “objectification,” which also occurs when that concept is perceived. A book by this thinker repeatedly quotes a “Great Saying” he translated as (*) “this thou art.” This thinker called listening to music “an unconscious exercise in metaphysics” since its structure reflects the true structure of the world. This thinker repeatedly quoted the *Chandogya Upanishad* in a book that claims all reality is the manifestation of an irrational, amoral “will to life.” For 10 points, name this pessimistic author of *The World as Will and Representation*.**

ANSWER: Arthur **Schopenhauer**

<Kulkarni, Philosophy>

2. **A poem by Marilyn Chin titled for one of these things recalls her father’s “obsession with a bombshell.” A boy who feels shame over one of these things and idolizes Fred Astaire helps his family prepare for the Lunar New Year in Frank Chin’s debut novel. The author’s aunt, who lacked one of these things, drowns her child in a well upon giving birth in a pigsty in the talk-story that opens (*) Maxine Hong Kingston’s *The Woman Warrior*. A boy who doesn’t find one of these things when making grave rubbings on a field trip keeps one when his grandmother dies without sending a letter, but gets a new one before studying architecture at Yale. In that novel, a father decides one of these things after surviving a train crash while reading “The Overcoat.” For 10 points, Nikolai Gogol inspires Ashoke Ganguli’s choice of what thing for his newborn son in a novel by Jhumpa Lahiri?**

ANSWER: **name** [accept first **name**; accept “How I Got That **Name**” or “No-**Name** Woman” or *The **Namesake***]
(The Frank Chin novel is *Donald Duk*.)

<R. Keyal, Long Fiction>

3. **A quantum field theory based on these phenomena is renormalized by adding counterterms to the Lagrangian (“luh-GRAHN-jee-in”). In the absence of degeneracy, these phenomena result in an eigenket (“EYE-gun-keet”) whose approximate formula is: [read slowly] sum over “ k not equal to n ” of a matrix element over “ E -sub- n minus E -sub- k .” An operator corresponding to one of these phenomena in the interaction picture is time-ordered in the integrals that make up a Dyson series. When these phenomena are time-dependent, (*) transition probabilities are approximated with Fermi’s golden rule. Including Coulomb repulsion as one of these phenomena improves the predicted ground state energy of helium. These phenomena are introduced by writing the Hamiltonian as H -sub-zero plus epsilon times an operator representing these phenomena. For 10 points, name these small deviations of a system from a simpler one.**

ANSWER: **perturbations** [accept time-dependent or time-independent **perturbations**; accept **perturbing** a system or a **perturbed** system; accept **perturbative** expansions or solutions; accept renormalized **perturbation** theory]

<Morrison, Physics>

4. A military leader of this country, upset at the lack of sanitation and civic responsibility, launched the War Against Indiscipline, which included whippings for not forming orderly lines and 21 years in prison for students caught cheating. A leader of this country who was overthrown in 1985 by Ibrahim Babangida later became a self-proclaimed (*) “converted democrat” and lost several presidential elections before winning on an anti-corruption platform in 2015. In order to leave its overcrowded largest city and heal ethnic divisions, the military governments of Murtala Mohammed and Olusegun Obasanjo decided to build a new capital in the middle of this country, in between the Christian south and Muslim north. For 10 points, name this most populous African country, which is led by Muhammadu Buhari from Abuja.

ANSWER: Nigeria [or Federal Republic of Nigeria]

<Raje, World History>

5. Transcriptional activation of genes by these compounds is impaired in *nph4* mutants. The creation of an asymmetric distribution of these compounds is regulated by autophosphorylating serine/threonine kinases with LOV1 and LOV2 domains that bind to flavin mononucleotide. The binding of these compounds to TIR1 or TIR1-like receptors causes the rapid degradation of repressor proteins that would otherwise dimerize and inactivate ARFs. The PID kinase regulates the transport of these compounds by controlling the apical polarity of (*) PIN proteins. Gradients of these compounds cause coleoptiles to curve. Tropisms are caused by these compounds lowering cell wall pH, thereby stimulating expansins to elongate cells. The most common of these compounds is indole-3-acetic acid, or IAA. For 10 points, name these hormones that regulate plant growth.

ANSWER: auxins [prompt on plant hormones until “hormones” is read] (The second sentence refers to phototropins. The repressor proteins are Aux/IAA proteins.)

<Settle, Biology>

6. In the *Aethiopica*, Chariclea was taken to Egypt and then this place, where she fell in love with Theagenes. Mythical structures at this place were built from feathers and beeswax by the Hyperboreans, with whom the patron of this place spent the winter months. According to Ovid, a creature born from slime left behind after the Great Flood was slain at this place. “No bright chariot will clash” at this place according to (*) Telphusa, who urged one deity to settle there. Neoptolemus died at this place where he demanded retribution for his father’s death, while Orestes received purification at this place. A group of Cretans landed near this place after a god disguised as a dolphin guided them there. Two eagles sent by Zeus met at this place, indicating the location of the *omphalos*. For 10 points, the serpent Python was slain by Apollo at what site home to an oracle?

ANSWER: Delphi [accept the oracle at Delphi; accept Pytho until “Python” is read; prompt on Crissa]

<Kulkarni, Mythology>

7. According to the Parian Chronicle, a ruler of this city minted the first silver coins and devised pre-Solonian units of measurement. The largest Greek theater was excavated near this city, which was also home to the author of the *Kanon*, Polykleitos. Because of supposed descent from the Temenids this city inspired the name of Philip II’s dynasty. A tyrant of this city, who won the Battle of Hysiae (“HIGH-see-ay”) with hoplite phalanx tactics he is credited with developing, was named Pheidon. That battle led to the adoption of the phalanx by this city’s rival for control of the Peloponnese, (*) Sparta. During a siege of this city, a soldier’s mother threw a deadly roof tile at Pyrrhus of Epirus. For 10 points, name this city from which Homer derived the name for Greek forces in the Trojan War.

ANSWER: Argos [accept the Argives; accept the Argead Dynasty]

<Evans, Other History>

8. Derek Walcott modeled Makak on this writer's image of a "hallucinated person" who hears the "voice of an angel" in his play *Dream on Monkey Mountain*, which quotes this writer's idea that "the status of 'native' is a nervous condition." An essay by this writer inspired the name of a journal of African literature founded by Ulli Beier. That essay by this writer analyzes poems like "Black Woman" and asks "When you removed the gag that was keeping these black mouths shut, what were you hoping for?" This author, who wrote the introduction to (*) Frantz Fanon's book *The Wretched of the Earth*, described the Négritude movement as "anti-racist racism" in the essay "Black Orpheus." The Eurocentrism of the Swedish Academy led this French writer to decline the 1964 Nobel Prize in Literature. For 10 points, name this author of *Nausea* and *No Exit*.

ANSWER: Jean-Paul Sartre ("sahrt") [or Jean-Paul Charles Aymard Sartre] (The quote in the first sentence provided the title for Tsitsi Dangarembga's novel *Nervous Conditions*.)

<R. Keyal, Misc. Literature>

9. An architect from this city wrote the article "In Search of a National Architecture," which influenced his design for the Castle of the Three Dragons. One architect used hemp ropes tied to sandbags to model the catenaries used for two buildings in this city that are toured in a Hiroshi Teshigahara documentary. A "palace of music" in this city, which was designed by Lluís Domènech ("l'yo-EESE doo-MEN-uck"), contains mosaics made from broken tile and china. That style from this city, (*) *trencadis* ("trun-ka-THESE"), was also used to sculpt a multicolored salamander. The Passion Façade of a building in this city contains a magic square whose elements add up to 33. Park Güell is located in this city, whose most famous building is slated to have eighteen spires upon completion. For 10 points, name this city home to Antoni Gaudí's Sagrada Família.

ANSWER: Barcelona

<Parameswaran, Other Arts>

10. A four-movement cello sonata by a composer from this country features a passionate major-key slow movement whose opening melody is "four repeated B-flats, down to two E-flats, back up to B-flat." A musical philanthropist from this country hosted "Quartet Fridays" that were often attended by composers from his namesake "Circle." A composer from this country used the structure of a recently deceased composer's Piano Trio in A minor as a model for his second (*) *Trio élégiaque*. A different composer from this country wrote a String Quartet No. 2 in D major dedicated to his wife, which is most famous for its "Nocturne" third movement. A composer from this country used an inverted melody in D-flat major for the 18th variation of his *Rhapsody on a Theme of Paganini*. For 10 points, name the home country of Alexander Borodin and Sergei Rachmaninoff.

ANSWER: Russia [or Russian Empire; reject "USSR" or "Soviet Union"] (The philanthropist is Mitrofan Belyayev.)

<Holtzman, Classical Music>

11. Herbert Lottman's history of this company implicates several of its engineers in a 1937 bombing carried out by the fascist CSAR. Wilbur Wright won the first of this company's long-distance aviation competitions. This company uses the letter "X" to market a product patented in 1946, which arranges cord plies radially. This company's anonymous "inspectors" are often blamed for the 2003 suicide of Bernard Loiseau ("lwa-ZO"). The two (*) brothers who founded this company invented an easily removable pneumatic design. This company produces Green and Red Guides, the latter of which has given its top designation to places like Alinea and The French Laundry. This company's mascot Bibendum is a humanoid figure made of stacked white rings. For 10 points, fine restaurants are awarded namesake "stars" by what French tire company?

ANSWER: Michelin [or *Compagnie Générale des Établissements Michelin SCA*]

<Morrison, Other Academic>

12. Architects John Carrere and Arnold Brunner authored this city's Group Plan of 1903, which called for the creation of a large green area in it known as "the Mall." The van Sweringen brothers constructed Terminal Tower in this city to provide power to its first electric rail system. This city's mayor Tom Johnson gained a reputation for battling a streetcar monopoly owned by William McKinley's campaign manager Mark Hanna. This city is named after a general who surveyed the Connecticut (*) Western Reserve. During the Progressive Era, this city's *Plain Dealer* newspaper helped support women's suffrage. Since 1868, this city's main waterway has caught on fire thirteen times, and a 1969 fire in this city inspired the creation of the EPA. For 10 points, name this Ohio city that served as an industrial center due to its position at the mouth of the Cuyahoga River on Lake Erie.

ANSWER: Cleveland, Ohio

<Parameswaran, American History>

13. The refinement of methods such as excitation sculpting and WET for this technique has enabled its coupling to HPLC. One form of this technique makes a series of measurements with PFGSTE sequences and then uses pulse attenuation to calculate diffusion coefficients. The stereochemistry of the sample can be determined in a form of this technique in which through-space interactions create off-diagonal peaks. By varying the evolution time, forms of this technique like (*) NOESY ("nosy") and COSY ("cozy") obtain correlation data that is displayed on two-dimensional spectra. In this technique, the free induction decay observed in the time domain due to relaxation processes is Fourier transformed to give the desired power spectrum as a function of chemical shift. For 10 points, name this technique that perturbs nuclear spins with RF pulses to analyze chemical structure.

ANSWER: NMR [or nuclear magnetic resonance spectroscopy; or MRI or magnetic resonance imaging; accept DOSY or diffusion-ordered spectroscopy; accept NOESY or nuclear Overhauser effect spectroscopy until read]
<Settle, Chemistry>

14. This poem is sung by a young milkmaid at the request of Piscator in a scene from *The Compleat Angler*. The predatory ski jumper Nils recites this poem to Libby during a date in Mary McCarthy's novel *The Group*. John Donne wrote "That fish, that is not catch'd thereby / alas, is wiser far than I" to end a poem inspired by this one, titled "The Bait." This poem's speaker lists "fair lined slippers for the cold / with (*) buckles of the purest gold" and "a belt of straw and Ivy buds" among a set of "pleasures." A poem inspired by this one opens "If all the world and love were young" and imagines a scenario in which "these delights my mind might move." Walter Raleigh wrote a "Nymph's Reply" to, for 10 points, what pastoral love poem that opens "Come live with me and be my love," written by Christopher Marlowe?

ANSWER: "The Passionate Shepherd to His Love"

<Morrison, Poetry>

15. Douglas Fry separates systems named for this concept into passive and active versions, the latter of which requires interdependence and rituals supporting this concept. Negative and positive forms of this concept were theorized by Johan Galtung. A pun on a 17th-century event named for this outcome titles a Susan Strange article which deems that event a failure. Monadic and dyadic kinds of this concept form part of a namesake theory about relations between (*) democratic countries, which was introduced in a 1795 “philosophical sketch” by Immanuel Kant titled for a “perpetual” kind of this concept. Ironically, accusations of sexual violence abound against blue-beret-wearing UN “keepers” of this concept. For 10 points, Abiy Ahmed, Juan Manuel Santos, and Malala Yousafzai are laureates of a Nobel Prize dedicated to advancing what state of nonviolence?

ANSWER: **peace** [accept **peace** systems; accept democratic **peace** theory; accept **Peace** Research Institute; accept **Peace** of Westphalia; accept *Perpetual Peace*; accept **peace**keepers; accept *friede*; prompt on treaties or treaty] <R. Keyal, Social Science>

16. The cause of one of these events in Milan was attributed to *untori*, or “greasers,” in the essay “A History of the Column of Infamy.” Servicemen known as *beccamorti* charged exorbitant prices to help people during these events as recounted in the chronicle of Baldassarre Bonaiuti (“bo-na-YOO-tee”). In response to these events, one city forced residents to carry *bollettini* and ordered the construction of *lazaretti*. The Erfurt Massacre during one of these events prompted (*) Clement VI (“the sixth”) to issue two bulls condemning the rise of the Flagellant movement. Jani Beg, Khan of the Golden Horde may have caused that event of this kind while laying siege to the Genoese colony of Kaffa. Professionals who combated these events wore a bird-beak mask due to a belief in the miasma theory. For 10 points, what events that ravaged Europe include the Black Death?

ANSWER: **pandemics** [accept **epidemics**; accept **plagues**; accept descriptions like **disease outbreaks**; accept **Black Death** or bubonic **plague**] <Parameswaran, European History>

17. Mathematicians from this country often wrote problems in a thick notebook named for the Scottish Café. This country names topological spaces that are both separable and completely metrizable, which were studied by a native son who names a theorem similar to Wagner’s theorem about planar graph characterization. Two mathematicians from here name a result proved by finding a free subgroup of $SO(3)$ (“S-O-three”) with two generators. A mathematician from this country worked with (*) John von Neumann (“NOY-mahn”) to invent cellular automata at Los Alamos. Two mathematicians from this country name the paradox that a ball can be decomposed into five pieces and then reassembled into two copies of itself. This country names a notation contrasted with infix notation that was used in old calculators. For 10 points, name this home country of Alfred Tarski, part of its Lwów (“l’voof”)–Warsaw School.

ANSWER: **Poland** [or Republic of **Poland**; or Rzeczpospolita **Polska**; accept **Polish** space; accept **Polish** notation or reverse **Polish** notation] (The mathematicians are Kazimierz Kuratowski, Stanislaw Ulam, and Stefan Banach.) <Morrison, Other Science>

18. Cennino Cennini's ("cheh-NEE-no cheh-NEE-nee's") treatise on skin color may explain small examples of these objects, such as a rectangular one in an oil painting by Caterina van Hemessen. Portraits in the Uffizi's Corridoio Vasariano inspired one artist to show a woman sticking her thumb through one of these objects in front of a chalk drawing of Marie Antoinette. The S-shaped line of beauty appears on one of these objects in William Hogarth's *The Painter and His Pug*. One of these objects is cradled by a woman wearing a (*) straw bonnet in a self-portrait by Elisabeth Vigée Le Brun ("vee-JAY luh BRUN"). These objects share their name with ones used by Egyptians to grind cosmetics, a famous one of which is named after Pharaoh Narmer. A putty-knife-shaped blade named for these objects mixes paints before these objects are used. For 10 points, name these wooden boards used to hold paint, which can also refer to the variety of colors used by artists.

ANSWER: **palettes** [accept cosmetic **palettes**; accept **palette** knives]

<Evans, Painting and Sculpture>

19. This character sarcastically remarks, "We are the queen's abjects and must obey" after calling that queen "well struck in years." In an earlier scene, this character scoffs at a "piping time of peace" where he has "no delight to pass away the time." This character exclaims, "Tellest thou me of 'ifs'? Thou art a traitor" before executing a man who did not believe that this character's arm was "wither'd up" by witchcraft. This character sees (*) ghosts including Rivers, Vaughan, and Hastings in a dream in which he is repeatedly told to "Despair, and die!" This character concludes, "Since I cannot prove a lover... I am determined to prove a villain" in a speech that begins with a pun on the "sun of York." That speech opens, "Now is the winter of our discontent." For 10 points, name this duke who murders his rivals to become king in a Shakespeare history.

ANSWER: **Richard III** [or Richard, Duke of **Gloucester**; prompt on **Richard**]

<French, Drama>

20. An object symbolic of guarding people with this status is inscribed with the word *shadai* ("sha-DYE") and contains a sole piece of parchment with the Shema ("sh'MA"). The Israeli Mint makes sets of holy coins that meet the required 102 grams of silver offered at an event about people with this status. At a *pidyon haben* ("peed-YONE ha-BEN"), five shekels "redeem" a person with this status. While faking this status, one man says that "God granted good fortune" for him to quickly prepare a meal. (*) Rebecca uses goatskin to help a person impersonate this status. After returning from a hunt, a person foolishly trades this status away for a "mess of pottage." *Mezuzot* ("meh-zoo-ZOTE") symbolize the lamb's blood that the Israelites smeared on their doorposts to save people with this status from the Angel of Death. For 10 points, people with what familial status were killed by the Tenth Plague?

ANSWER: **first-born** [or *bechor*; accept **first-born** son or **first son**; accept **primogeniture**; prompt on **child** or **son**; prompt on **older sibling** or **oldest sibling**; prompt on **heir**]

<Egol, Religion>

Bonuses

1. Answer the following about theatrical depictions of the Japanese occupation of China, for 10 points each.

[E] Patrons of the title establishment in this city discuss their suffering during the occupation in Lao She's ("lao shuh's") play *Teahouse*. This city names a style of opera that includes *Farewell My Concubine*.

ANSWER: **Beijing** [or **Peking**]

[M] This actress starred in the play *Put Down Your Whip*, which became widely popular during the Second Sino-Japanese War. Later in life, she used her political influence to organize eight "model operas." You may give her real name or her common nickname.

ANSWER: **Jiang** Qing [or **Madame Mao**; or **Chiang** Ch'ing; accept **Lan** Ping; prompt on Mao Zedong's wife or Mao's wife]

[H] Resistance fighters during the occupation are the subject of a model opera about the "legend" of one of these objects. Zhang Yimou ("jong ee-MOH") adapted the novel *Wives and Concubines* into a film titled for one of these objects.

ANSWER: **red lantern** [accept *The Legend of the **Red Lantern***; accept *Raise the **Red Lantern*** or *Raise High the **Red Lanterns***; accept **hóng dēng jī** or **hóng dēnglong**; prompt on lantern or dēng]

<Morrison, Other Academic>

2. A treaty signed at Rarotonga in the Cook Islands bans the use of this technology within the South Pacific Zone. For 10 points each:

[E] Name this technology that in the 1940s and '50s was frequently tested by the US and UK in explosions on Pacific islands.

ANSWER: **nuclear** bombs [or **nuclear** energy; accept South Pacific **Nuclear** Free Zone; accept **atomic** bombs]

[H] After the US took over this country during World War II, it conducted nuclear tests at Bikini Atoll. During World War I, Japan took over this country and the Caroline Islands from Germany.

ANSWER: **Marshall Islands** [or Republic of the **Marshall Islands**]

[M] In 1985, French intelligence sank this flagship of the Greenpeace fleet that was on its way to protest French nuclear testing in the Pacific.

ANSWER: **Rainbow Warrior**

<Raje, Other History>

3. In his essay "Apropos of 'Readymades,'" Marcel Duchamp imagined a "reciprocal readymade" that involves using a painting by Rembrandt for this activity. For 10 points each:

[H] Identify this activity. Erik Satie helped another artist acquire nails, glue, and a device intended for this activity at a Parisian hardware store to create his readymade *The Gift*.

ANSWER: **ironing**

[M] *Exact word required.* Man Ray's *The Gift* inspired a fur-covered teacup that Méret Oppenheim titled for this noun, which is "to be destroyed" in a Man Ray sculpture of a metronome with an eye. Readymades exemplify "found" examples of this noun.

ANSWER: **objects** [accept ***Object** to Be Destroyed* or found **objects**; accept ***objet** trouvé*; reject synonyms such as "items"]

[E] The quintessential "found object" is Duchamp's *Fountain*, made from one of these objects turned on its side and signed "R. Mutt."

ANSWER: **urinal** [or **toilet**]

<R. Keyal, Painting and Sculpture>

4. Louis Aragon's novel about a "peasant" of this city inspired the method of "literary montage" that Walter Benjamin ("BEN-ya-meen") used to capture its "rags [and] refuse" in his *Arcades Project*. For 10 points each:
[E] Name this capital city whose 19th-century modernization led the poet Charles Baudelaire, and later Benjamin, to write about the *flâneurs* ("fla-NURR") that roamed its streets.

ANSWER: **Paris**

[M] Inspired by cinema, this author used montage to render turn-of-the-century New York in *Manhattan Transfer*. He inserted collage-like "Newsreel" and stream of consciousness "Camera Eye" sections into a series of novels.

ANSWER: John **Dos Passos** (The series is the *U.S.A. Trilogy*.)

[H] In "The Crisis of the Novel," Benjamin says montage "explodes the framework" of this novel. Often compared to *Ulysses*, this novel opens as its protagonist finishes a prison stint for killing his girlfriend with an eggbeater, only to re-enter a world of crime.

ANSWER: **Berlin Alexanderplatz**, (by Alfred Döblin)

<R. Keyal, Long Fiction>

5. John Watson's studies influenced this psychologist to conduct the "Little Peter" experiment, in which food was presented alongside a rabbit to reduce a subject's fear. For 10 points each:

[H] Name this psychologist whose studies helped her develop the idea of desensitization, inspiring Joseph Wolpe's systematic desensitization therapy. Wolpe christened her the "mother of behavior therapy."

ANSWER: Mary Cover **Jones**

[E] Jones dubbed her fear reduction method in the "Little Peter" experiment a "counter" form of this stimulus-based procedure. Pavlov's experiments on dogs exemplify its "classical" form.

ANSWER: **conditioning** [accept counter-**conditioning**; accept classical **conditioning** or operant **conditioning**]

[M] For sixty years, Jones directed a study of this type that examined the growth of adolescents in Oakland. A popular method for studying developmental trends, this study design is contrasted with cross-sectional studies.

ANSWER: **longitudinal** studies

<R. Keyal, Social Science>

6. The last two lines of this poem read, "a woman's trying to erase names: / No, she's brushing a boy's hair." For 10 points each:

[H] Name this poem that describes a "black face... hiding inside the black granite" as its speaker looks at his reflection in the Vietnam Veterans Memorial.

ANSWER: "**Facing It**" (by Yusef Komunyakaa)

[M] Augustus Saint-Gaudens's bronze memorial for Colonel Shaw's all-Black regiment is called "a fishbone / in the city's throat" in this poem, which describes "the old South Boston Aquarium" standing "in a Sahara of snow."

ANSWER: "**For the Union Dead**" (by Robert Lowell)

[E] Dead soldiers from this war are marked by "crosses, row on row" in John McCrae's poem "In Flanders Field." Wilfred Owen wrote the poem "Dulce et Decorum Est" during this war.

ANSWER: **World War I** [or **WWI** or the **First World War** or the **Great War**]

<French, Poetry>

7. In aqueous solutions, the majority of glucose molecules exists as a cyclic form of this functional group, while the majority of fructose molecules exist as the cyclic form of this other functional group. For 10 points each:

[H] Name [emphasize] *either* of these two functional groups. Cyclic sugars that differ only in their configuration at the carbon atom in one of these two functional groups are anomers.

ANSWER: **hemiacetal** (“hemi-ASS-uh-tal”) OR **hemiketal** (“hemi-KEE-tal”)

[E] In glucose, the intramolecular nucleophilic attack of one of these functional groups at the carbonyl carbon forms the hemiacetal. This functional group is found in all alcohols.

ANSWER: **hydroxyl** [or **hydroxy**]

[M] Open-chain glucose is an aldose and is therefore this type of sugar that causes a precipitate to form in Benedict’s and Fehling’s tests. All common monosaccharides are this type of sugar, but the disaccharide sucrose is not.

ANSWER: **reducing** sugar

<A. Keyal, Chemistry>

8. This man defeated his brother Bharata in a staring contest, a water fight, and a wrestling match. For 10 points each:

[H] Name this son of Rushabhdev (“ROOSH-ahb-dave”). After defeating his brother, this man grew disgusted with the world and meditated standing up for a year, attaining *keval gyan* (“KAY-vall gyahn”), or omniscience, and becoming a *siddha* in the process.

ANSWER: **Bahubali** (“BAH-hoo-buh-lee”) [accept **Kammateswara** or **Gommateshwara**]

[E] Becoming a *siddha* like Bahubali requires Jains to destroy all of their accumulated pollution, known by this word. More broadly, this term, which literally means “action,” refers to how good and bad deeds affect one’s future.

ANSWER: **karma**

[M] Every twelve years, Jain worshippers perform this action upon the massive Bahubali Gommateshwara statue in Karnataka. This action is similarly performed during *abhishekam* for Hindu *murtis* and temples.

ANSWER: **anointing** the statue [accept **bathing** or **washing** the statue with any of water, sandalwood, vermilion, turmeric, milk, sugarcane juice, or saffron]

<Karim, Religion>

9. Governor William Shirley was forced to flee this city during 1747 riots over impressment. For 10 points each:

[E] Name this city where the Sons of Liberty dressed up as Native Americans to dump tea in this city’s harbor in 1773.

ANSWER: **Boston**, Massachusetts

[M] After this American ship lost a naval engagement off Norfolk, its soldiers were forcibly impressed into the British navy. The incident on this American ship led Jefferson to pass the Embargo Act of 1807.

ANSWER: USS **Chesapeake**

[H] Shanghaiing, another form of forced ship labor, was organized by this city’s mobster Joseph “Bunko” Kelly. Contrary to popular belief, this city’s Shanghai Tunnels did not facilitate shanghaiing, but rather illegal gambling and opium dens in the late 1800s.

ANSWER: **Portland**, Oregon (Portland was known as the “Forbidden City of the West.”)

<Parameswaran, American History>

10. The balanced cantilever method constructs these structures without installing any scaffolding. For 10 points each:

[M] Name these structures that are designed so that the load of their superstructure is safely transferred to piers and abutments and then to their foundation, which usually consists of piles.

ANSWER: **bridges** [accept any specific type of **bridge**]

[H] When building a concrete bridge with the incremental launching construction method, this type of concrete must be used. This type of concrete can be created by casting around already tensioned tendons.

ANSWER: **prestressed** concrete [prompt on **pre-tensioned** concrete]

[E] These bridges attach the bridge deck to catenary-shaped main cables, unlike cable-stayed bridges that attach the deck to towers. The Golden Gate Bridge is one of these bridges.

ANSWER: **suspension** bridges

<Settle, Other Science>

11. This phenomenon occurs on a “microscale” in a biophysical assay in which it is induced by focusing an IR laser onto a capillary containing fluorescent molecules. For 10 points each:

[H] Name this phenomenon whose effect on particle transport is indicated by the magnitude and sign of the Soret (“SOH-ray”) coefficient.

ANSWER: **thermophoresis** (“thermo-for-EE-sis”) [or **thermomigration**; accept **Ludwig–Soret** effect; accept **microscale thermophoresis** or **MST**; accept, but DO NOT REVEAL, **thermodiffusion**]

[E] The shell formed during this process affects microscale thermophoresis. When water performs this process on NaCl (“N-A-C-L”), sodium ions are surrounded by water molecules with the oxygen atoms pointing inward.

ANSWER: **solvation** [or **dissolution** or **dissolving**; accept **hydration**]

[M] In one dimension, thermophoresis causes a flux proportional to this operation applied to temperature.

Analogously, this operation is applied to concentration in Fick’s first law in one dimension.

ANSWER: (partial or total) **derivative** with respect to **position** [or **d/dx** (“D-D-X”); prompt on **derivative** or **spatial derivative**]

<Settle, Physics>

12. Answer the following about the influence of Edgar Allan Poe’s short stories on world literature, for 10 points each.

[M] A rendering of Poe’s name inspired the pseudonym of an author from this country who wrote the story “The Human Chair.” A Poe superfan from this country wrote a horror story in which an artist inadvertently causes his daughter to be burned alive in order to complete his depiction of the underworld.

ANSWER: **Japan** [or **Nihon-koku** or **Nippon-koku**] (The pen name is Edogawa Ranpo. The story in the second sentence is “Hell Screen” by Ryūnosuke Akutagawa.)

[H] This author listed Poe as a master whom one should believe in “as in God himself” in his *Ten Rules for the Perfect Storyteller*. Critics often note Poe’s influence on a story by this author in which a woman is sapped of life by a mysterious creature on her honeymoon.

ANSWER: Horacio **Quiroga** (“kee-ROH-gah”) (The story is “The Feather Pillow.”)

[E] This author helped popularize Poe’s stories among the Latin American Boom with his complete translation of Poe’s prose works. This Argentine author also wrote the novel *Hopscotch*.

ANSWER: Julio **Cortázar**

<Morrison, Short Fiction>

13. Georg Philip Telemann composed a Burlesque about this character in which violins play “amorous sighs” during a sarabande to depict him longing for a peasant princess. For 10 points each:

[E] Name this literary character. In another movement from that suite, sequences of ascending sixteenth notes portray this companion of Sancho Panza.

ANSWER: Don **Quixote** [accept *Burlesque de Quixotte* or *Don Quixote Overture-Suite*]

[M] Cervantes also inspired Telemann to compose the serenata *Don Quixote at Camacho’s Wedding*, which was a precursor to this larger genre. A later work in this comedic genre included Masonic symbols in its libretto by Emanuel Schikaneder.

ANSWER: **singspiele** (“ZING-shpeel-uh”) [accept **sing-plays**; prompt on **operas**; prompt on **singegedicht** or **sing-poem** by asking “what genre did that precede?”] (The second work is *The Magic Flute*.)

[H] This other composer collaborated with Luigi Boccherini’s brother to write his own opera about Camacho’s wedding. This composer of *Axur, re d’Ormus* served as the Austrian imperial Kapellmeister for three decades.

ANSWER: Antonio **Salieri**

<Egol, Classical Music>

14. Answer the following about Zoe Porphyrogenita, one of the few women to hold the title of *basilissa* of the Byzantine Empire, for 10 points each.

[M] Zoe was of the Macedonian dynasty, so named because its founder Basil I was born in one of these administrative and military divisions of the Byzantine Empire named Macedonia.

ANSWER: **themes** (“THEE-mees”) [or **themata**]

[H] Much of what we know about Zoe’s reign comes from the *Chronographia* of a historian with this first name. Zoe began ruling after banishing, blinding, and castrating the fifth emperor with this name who had the epithet Kalaphates.

ANSWER: **Michael** [accept **Michael** Psellos or **Michael** V Kalaphates]

[E] Zoe is described as the “most pious Augusta” in a mosaic in this church. Justinian I constructed this church that was turned into a mosque by Mehmet II.

ANSWER: **Hagia Sophia**

<Parameswaran, European History>

15. This instrument carries the melody in “Yumeji’s Theme” by Shigeru Umebayashi, which plays throughout the film *In the Mood for Love*. For 10 points each:

[M] Name this instrument that plays the opening melody in “The History of the Ring,” which plays over the title cards of all three *Lord of the Rings* movies. John Corigliano’s score for a movie titled for this instrument contains a chaconne (“shah-KUN”) for it and orchestra.

ANSWER: **violin** [accept *The Red Violin*; prompt on **Stradivarius**]

[E] This composer arranged movements from many of his iconic film scores, including *Star Wars* and *Raiders of the Lost Ark*, for the violinist Anne-Sophie Mutter.

ANSWER: John **Williams** [or John Towner **Williams**]

[H] The third movement of Brahms’s Violin Concerto is played in this film after the out-of-breath protagonist says “I’m finished” at its end. This film is the first of composer Jonny Greenwood’s many collaborations with its director.

ANSWER: ***There Will Be Blood***

<Golden, Other Arts>

16. This author rekindled interest in Zora Neale Hurston's writing after publishing the essay "Looking for Zora," which recounts a trip to place a tombstone at her unmarked grave. For 10 points each:

[E] Name this author who coined the term "womanism" and received the Pulitzer Prize for her novel *The Color Purple*.

ANSWER: Alice **Walker**

[M] Valeria Luiselli's essay collection *Sidewalks* opens by discussing a visit to San Michele to see the grave of this Russian émigré who became US Poet Laureate in 1991. He wrote "Elegy for John Donne" and *A Part of Speech*.

ANSWER: Joseph **Brodsky** [or Iosif Aleksandrovich **Brodsky**]

[H] A book by Sean Prentiss recounts his futile attempt to locate where this author's friends secretly buried him. This "Thoreau of the American West" reflected on his time as a ranger at Arches National Park in a 1968 memoir.

ANSWER: Edward **Abbey** [or Edward Paul **Abbey**] (Those two books are *Finding Abbey* and *Desert Solitaire*.)

<R. Keyal, Misc. Literature>

17. Answer the following about the metaphor of a circle with center everywhere and circumference nowhere, for 10 points each.

[E] In his essay "Pascal's Sphere," Jorge Luis Borges ("BOR-hess") supposed that the metaphor began to be applied to the universe after this astronomer formulated a heliocentric model of the Solar System.

ANSWER: Nicolaus **Copernicus**

[M] Borges identified this author of *The Ash Wednesday Supper* as the first thinker to describe the universe as having center everywhere and circumference nowhere. This Italian was burned at the stake for heresy in 1600.

ANSWER: Giordano **Bruno**

[H] Against Borges, Karsten Harries contends that this German cardinal made way for the Copernican Revolution by applying the metaphor to the universe a century before Bruno in his 1440 book *On Learned Ignorance*.

ANSWER: **Nicholas of Cusa** [or Nicolaus **Cusanus** or **Nicholas of Kues**; prompt on **Nicholas** or **Nicolaus**]

<French, Philosophy>

18. The first of this type of vaccine to use recombinant DNA technology was developed in the 1970s for immunization against hepatitis B. For 10 points each:

[H] Name this type of vaccine that contains an antigenic fragment of the pathogen rather than the whole pathogen. As a result, it is less likely to cause immunological memory to form, but also poses less risk of side effects.

ANSWER: **subunit** vaccine [or protein-based **subunit** vaccines; or **polysaccharide** vaccines; or **conjugate** vaccines]

[M] These substances are employed in subunit vaccines to enhance immune response. Examples of these substances include monophosphoryl lipid A and a water-in-oil emulsion containing killed *Mycobacterium*.

ANSWER: **adjuvants** [accept Freund's Complete **Adjuvant**]

[E] Polysaccharides from this bacterial structure are employed in some subunit vaccines. This structure mainly consists of peptidoglycan.

ANSWER: bacterial **cell wall**

<Settle, Biology>

19. After suppressing a major revolt in 1988, this organization continued to rule until eventually losing the 2015 elections to the National League for Democracy. For 10 points each:

[H] Give this name for the armed forces of Myanmar, which carried out a coup against the country's civilian government in 2021.

ANSWER: **Tatmadaw**

[E] The Tatmadaw re-imprisoned this woman, who had previously been imprisoned for most of the 90s by the Burmese government before becoming State Counsellor in 2016.

ANSWER: **Aung San Suu Kyi** ("owng san soo chee") [reject "Aung San"]

[M] Before being deposed, Aung San Suu Kyi faced increasing criticism for inaction over the Rohingya genocide being carried out in this state. This western state borders Bangladesh.

ANSWER: **Rakhine** ("ruh-KYNE") State [accept **Arakan** State]

<Parameswaran, Current Events>

20. A prince of this dynasty who preferred to live in yurts and dress in the Turkic style was exiled by his father for plotting to overthrow him. For 10 points each:

[M] Name this dynasty whose co-founder Lǐ Shīmín ("shurr-MEEN") was heavily influenced by his time on the frontier and brought many Turkic arts and fashions to China.

ANSWER: **Tang** dynasty (The prince is Lǐ Chéngqián.)

[H] The Eastern Turkic Khaganate was formed from this group who were led by the Ashina clan and formed a namesake Khaganate after succeeding the Rouran ("ROH-ran").

ANSWER: **Göktürks** [or **Blue Turks** or **Celestial Turks** or **Tūjué**; accept **Göktürk** Khaganate]

[E] The Tang dynasty was devastated by the rebellion of the half-Göktürk general An Lushan, after which they lost the territory that today forms this autonomous region of northwestern China populated by Uyghurs ("WEE-gurs").

ANSWER: **Xīnjiāng** ("shin-jyong") [accept **Xīnjiāng** Uygur Autonomous Region or **XUAR**]

<Raje, World History>