

PACE NSC 2022 - Round 07 - Tossups

1. Swaps minimize the difference between the output of these functions and the final index in a method named for Robin Hood. The optimal number of these functions is the logarithm of the false positive probability for a Bloom filter. When the output of these functions is more uniformly distributed, the probing used for open addressing goes faster. The integrity of a download may be verified by comparing the file's (*) checksum against the output of one of these functions. Birthday attacks target these functions by finding inputs that produce collisions. Use of these functions allow buckets in a namesake data structure to be looked up in constant time. For 10 points, name these one-way functions used to implement namesake tables.
ANSWER: hash functions [or hashes; accept cryptographic hash functions, hash tables or hash maps; prompt on maps]

<Kevin Wang, Science - Computer Science> ~24034~

2. A ruler of this dynasty is seated on an hourglass-shaped throne in a painting that also features two angels and a portrait of King James I of England copied from a work by John de Critz. Another ruler of this dynasty commissioned fifty-two paintings depicting fables told by a parrot to its owner. A complex built by this dynasty contains a "paradise garden" in a layout known as *char bagh*, as well as a large (*) reflecting pool. The artist Basawan was employed by a ruler from this dynasty and helped bring Western techniques to miniature painting. A monumental, octagonal tomb commissioned by a ruler of this dynasty has a pointed white dome that resembles a crown. For 10 points, name this Indian dynasty whose ruler Shah Jahan built the Taj Mahal.

ANSWER: Mughal Empire [or Mogul Empire; or Gurkani Empire]

<Michael Bentley, Fine Arts - World Art> ~22483~

3. Under this country's 1840 constitution, a third of representatives to its House of Nobles were women until an 1850 amendment limited voting to men. In 1849, Louis Tromelin led an attack on this country's capital to secure religious rights for Catholics. A monarch of this country tightly restricted the export of sandalwood to China and abolished its "eating taboo" from its traditional *kapu* system. In 1843, this country was the first (*) indigenous government to be officially recognized by a European nation. Castle & Cooke was one of the Big Five sugar producers in this country that benefited from its 1887 "Bayonet Constitution." This country was ruled by monarchs such as Kalakaua ("kah-LAH-KAH-oo-ah"). For 10 points, name this Pacific island kingdom, now a US state.

ANSWER: Kingdom of Hawaii

<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~22470~

4. The Tolman length describes how this quantity varies between a system with a finite and infinite radius. Pressure difference equals negative this quantity times curvature. A polysorbate sometimes called Tween is a non-ionic compound used to reduce this quantity. The difference between two forms of this quantity plus a third form of it times the cosine of the (*) contact angle equals zero, per Young's equation. This quantity is sometimes given in dated units of dynes per centimeter, but is now reported in newtons per meter, reflecting how it is the force required to expand an interface's length. Surfactants lower, for 10 points, what quantity that measures a liquid-air boundary's cohesion and lets bugs walk on water?

ANSWER: surface tension

<Benjamin Chapman, Science - Chemistry> ~24078~

5. In the Surah al-Baqarah, this prophet is asked to slaughter four birds and place their remains on four different hills when he questions God's ability to resurrect beings. This prophet's namesake *maqam* ("muh-KAHM") is a golden cylinder believed to contain his footprints. This prophet, who survived being catapulted into a fire, won an argument with King Nimrod after the king could not make the sun rise from the West. During (*) Hajj, many Muslims run to and from the hills of Safa and Marwa to commemorate an action of this prophet's wife, Hajar. The holiday 'Eid al-Adha celebrates the day that this builder of the Kaaba obeyed God's command to sacrifice his son. For 10 points, name this prophet, the father of Ishmael and Isaac.

ANSWER: Ibrahim [or Abraham; or Abram]

<Sameen Belal, RMP - Islam> ~17455~

6. In a 2021 translation by Laura Marris, one character in this novel declares that "there is more to admire in humans than there is to scorn." An illegal nighttime swim in this novel involves a character whose diary records two streetcar drivers disputing the death of Camps ("comp"), and an old man on a balcony spitting on cats. A clerk in this novel, who constantly rewrites the first sentence of his book, is called (*) Joseph Grand. The death of a judge's son in this novel causes Father Paneloux ("PAN-uh-loo") to reconsider whether the title event is God's retribution. The journalist Raymond Rambert ("rom-BAIR") sees dead rats around Oran at the beginning of this novel, which features Dr. Bernard Rieux ("REE-ur"). For 10 points, name this Albert Camus ("cah-MOO") novel about a disease outbreak.

ANSWER: *The Plague* [or *La Peste*]

<Michael Bentley, Literature - European - Long Fiction> ~23118~

7. It's not a river, but three women operated the *Dancing Molly* on this body of water during the Oyster Wars. A bridge-tunnel named for this body of water had to get around opposition that it would affect naval traffic at Sewell's Point. Numerous fossils have been found on the western shore of this body of water at the Calvert Cliffs. A seasoning named for this body of water has been marketed by McCormick for use on (*) crab cakes. The French won the Battle of the Capes on this body of water, making Yorktown decisive. The eastern border of this body of water is the Delmarva Peninsula. Half of this estuary's freshwater inflow comes from the Susquehanna River. For 10 points, name this large estuary that forms the coastline of much of Maryland.

ANSWER: Chesapeake Bay [prompt on Old Bay]

<Michael Bentley, Geography - United States> ~22822~

8. These people are sub-divided into categories such as "innovators" and "laggards" in Geoffrey A. Moore's book *Crossing the Chasm*. An "ultimate question" for assessing these people was invented by Fred Reichheld. "Non" versions of these people exist in a different market category according to Six Sigma theory. These people can be divided into "detractors" and "promoters" with a NPS survey. The acronym (*) CAC refers to how much money a firm initially spends on these people. "Relations" with these people can be managed with CRM software such as that offered by Salesforce. These people's "lifetime value" to a firm can be increased through loyalty marketing. For 10 points, name these people who according to some retail maxims are "always right."

ANSWER: customers [or clients or users or consumers; accept promoters before mentioned; prompt on leads]

<Michael Bentley, Social Science - Economics> ~23402~

9. Sir Howard Davies resigned due to ties between members of this family and the London School of Economics. An LSE graduate from this family was photographed surrounded by gunmen from the Zintan Brigades. Another member of this family built a 1,750-mile-long irrigation system called the Great Man-Made River. That same "Brotherly Leader" from this family outlined his socialist theories of the (*) "Third International". The patriarch of this family agreed to pay over two billion dollars to the families of the Lockerbie Bombing victims. That patriarch of this family hid out in a drainage pipe in Sirte before being killed. For 10 points, give this surname of the author of the *Green Book*, a dictator who was killed in 2011 during the Libyan Civil War.

ANSWER: Qaddafi [or Gaddafi; accept Muammar Gaddafi or Saif al-Islam Gaddafi]

<Michael Bentley, History - World - African> ~22882~

10. A character created by this author drops out of Cornell and moves back home to work at a laundromat after becoming an alcoholic. Two people at a tea stall bicker about who will take Tina to the toilet at the start of a story by this author of "Only Goodness." Twinkle finds many Christian trinkets in her Connecticut home in this author's story "This Blessed House." A couple mourns a stillborn baby during nightly (*) power outages in a story by this author of *Unaccustomed Earth*. This author wrote a story in which Mrs. Das accidentally causes monkeys to attack Bobby, who is saved by Mr. Kapasi, the title translator in a doctors' office. For 10 points, name this Indian-American author who included "A Temporary Matter" in her collection *Interpreter of Maladies*.

ANSWER: Jhumpa Lahiri

<Michael Bentley, Literature - World and Miscellaneous> ~22962~

11. This company popularized a compact pan with straight sides and a sliding lid for baking *pain de mie*. According to historian Larry Tye, this company was largely responsible for introducing the practice of tipping by forcing its African-American workers to rely on them. Along with Bayard Rustin, a leader of a union for workers at this company helped plan the 1941 March on Washington. Richard (*) Olney issued a federal injunction against a strike of employees at this company after John Peter Altgeld refused to allow federal troops to break the strike up. A. Philip Randolph formed a union for workers at this company, which hired porters to work on its luxury "palace cars." For 10 points, Eugene Debs led an 1894 strike against what railroad company?

ANSWER: Pullman Company [or Pullman's Palace Car Company; accept Pullman pans]

<Hari Parameswaran, History - American - 1865-1945> ~24202~

12. Defects in nucleotide excision repair greatly increase the risk of cancer of this organ. Cells in this organ are induced to differentiate through a steep calcium gradient. Cells in the superficial layers of this organ undergo a form of programmed cell death called cornification. The mnemonic ABCDE represents signs of a cancer of this organ, including asymmetry and irregular borders. (*) Retinoic acid is used to inhibit production of a structural protein in this organ formed from type I and II intermediate filaments. Cancers of this organ are classified as basal cell, squamous cell, or melanomas. Keratin is found in the epidermis of, for 10 points, what protective organ?

ANSWER: skin

<Michael Bentley, Science - Biology> ~22935~

13. This author described the paradoxical task of forming a society from forgetful "man-animals" as "the breeding of an animal who makes promises." A spirit becomes a camel, then a lion, in a fable included in a book by this author in which the appearances of a snake and eagle at a cave bookend a period of "down-going." This thinker imagined a flock of sheep defining the word "evil" based on their grudge against birds of prey in a parable for how (*) values are born from *ressentiment*. This philosopher described mankind as a rope between animals and a future stage of independently minded "overmen." For 10 points, *The Genealogy of Morals* is by what German philosopher, who envisioned the *Übermensch* in *Thus Spoke Zarathustra*?

ANSWER: Friedrich Nietzsche

<Jordan Brownstein, RMP - Philosophy> ~24119~

14. The only plaster cast of this sculpture is on display at the Maryhill Museum in rural Washington and is dedicated to Loie Fuller. The artist stares at this sculpture in a studio photo combined from two negatives by Edward Steichen which also features the artist's *Monument to Victor Hugo*. The first cast of this sculpture, commissioned by Constantine Alexander Ionides, unusually includes a Florentine cap that more directly references its original title of "The (*) Poet." The figure from this sculpture appears directly below *The Three Shades* in a large sculpture that also features *Ugolino and His Children* and *The Kiss*. For 10 points, name this sculpture adapted from *The Gates of Hell* of a man holding his fist to his chin, by Auguste Rodin.

ANSWER: *The Thinker* [or *Le Penseur*; accept *The Poet* before mentioned; prompt on *The Gates of Hell*]

<Michael Bentley, Fine Arts - Sculpture> ~22654~

15. Seamus Heaney referred to this poet as "durable" in an essay describing how one of his poems centers on "a vivid figure of the union of opposites." Another poem by this author declares that corpses that "sink through the sea ... shall rise again" and claims that "though lovers be lost love shall not." This author described "blind eyes" that could "blaze like (*) meteors and be gay" in a poem in which he claims that "grave men, near death" can "see with blinding sight." That villanelle by this poet of "And Death Shall have no Dominion" urges, "Rage, rage against the dying of the light," leading some to believe that he addressed that poem to his dying father. For 10 points, name this Welsh poet of "Do Not Go Gentle into That Good Night."

ANSWER: Dylan Thomas [or Dylan Marlais Thomas]

<Ridge Ren, Literature - British - Poetry> ~21105~

16. The wife of the chief archon married this god in secret during the An·thes·teria festival. Another festival for this god included a huge procession called the *pompe* ("POMP-ay"), in which citizens carried a statue of this god "Eleuthereus" ("eh-loo-THERE-ee-uss"). A mystery cult centered on this deity ended with an *ōmophagia* ("oh-mo-FOG-ee-uh"), or ritual feast, and involved followers who waved (*) *thyrsoi* (THEER-soy). Athenian men carried around the ritual phalluses of this god during a festival in which judges determined which of three poets had produced the best tetralogy. This god, who punished the Theban king Pentheus, was born from Zeus' thigh. For 10 points, name this Greek god of theater and wine.

ANSWER: Dionysus [or Bacchus]

<Michael Bentley, RMP - Greco-Roman Mythology> ~23287~

17. Particles with this property are the subject of the "reinterpretation principle" proposed by Gerald Feinberg. A so-called "apparent" version of this property arises in Alcubierre ("al-coob-ee-AIR-eh") drives. In the Scharnhorst ("SHARN-horst") effect, particles develop this property in between Casimir plates. In 2011, the OPERA collaboration claimed to have found neutrinos with this property. This property corresponds to a worldline at less than 45 degrees to the space axis of a (*) Minkowski ("mink-OV-skee") diagram, and to an imaginary Lorentz factor. Tachyons ("TACK-ee-ons") have this property, which is thought to be impossible because achieving it would involve getting past an asymptotic divergence in mass. For 10 points, name this property in which particles exceed around 300 million meters per second.

ANSWER: being **faster** than the speed of **light** [or being **superluminal**; or being **faster** than **c**; accept clear equivalents; accept apparent or effective **FTL**; accept **tachyonic** before "tachyons;" accept having **imaginary mass** or **complex mass** or **negative mass** before "mass;" do not accept or prompt on "massless" or "zero mass"] (Gerald Feinberg coined the term "tachyon.")

<Joseph Krol, Science - Physics> ~23561~

18. In a concert band piece named for this city, a French horn imitates the ferocious roar of the title monster. In that piece by Eric Whitacre, this city is the setting of a campy monster movie where it is attacked by Godzilla. A musician who mainly performed in this city was nicknamed "Mr. Showmanship" for wearing over-the-top costumes like a 150-pound mink cape and playing a jewel-encrusted piano. That pianist, (*) Liberace ("lib-uh-RAH-chee"), established this city's tradition of concert residencies. In the late 1960s, Colonel Tom Parker signed a contract with this city's International Hotel that locked Elvis Presley into regularly performing here. For 10 points, name this city where musicians often play on a boulevard nicknamed "The Strip."

ANSWER: Las **Vegas** [or **Sin City**; or **Paradise**; accept **Godzilla Eats Las Vegas!**]

<Jonathan Magin, Fine Arts - Music - Miscellaneous> ~23788~

19. "An Unconscious Determinant" in this novel was explored by anti-comics psychologist Fredric Wertham, who opened the Lafargue public health clinic with its author. The protagonist of this novel "liked to hear of how Japan was conquering China." In a pivotal scene in this novel, a journalist grabs a shovel from its protagonist to clear smoke from a room. A character in this novel "admits the possibility of his being subhuman" according to the essay (*) "Everybody's Protest Novel." This novel's protagonist says "what I killed for, I am" to his Communist lawyer Boris Max and achieves "something that was all his own" after murdering Bess. Mary Dalton is accidentally suffocated in, for 10 points, what novel about Bigger Thomas by Richard Wright?

ANSWER: **Native Son**

<Michael Bentley, Literature - American> ~23108~

20. In 1880, Benjamin Raspail led a campaign to honor this event as a political compromise over more radical options. For decades, the site of this event was guarded by a large plaster elephant. In the immediate aftermath of this event, astronomer Jean Sylvain Bailly was appointed the city's first mayor. Three days before this event, the author of the best-selling *Report to the King* was dismissed as finance minister. A cook used a kitchen knife to cut off the head of the (*) Marquis de Launay during this event. This event was sparked by sans-culottes anger at the dismissal of Jacques Necker and targeted a structure that held just seven prisoners. For 10 points, name this event, celebrated each July 14th as the beginning of the French Revolution.

ANSWER: **storming of the Bastille** [or **Fall of the Bastille**; accept any answer that involves the **taking** of the **Bastille** prison; prompt on **French Revolution**]

<Michael Bentley, History - European - 1500-1900> ~23861~

21. This author was accused of ridiculing his national flag in a novel in which Bonkowski experiences the title *Nights of Plague*. Maureen Freely translated this author's Nobel lecture "My Father's Suitcase," which discusses a form of melancholy called *huzun*. This one-time partner of Kiran Desai was accused of plagiarism for a novel in which a scholar is made to design a war machine for Hoja. This author, who wrote a novel in which a performance of *The (*) Spanish Tragedy* is used to free the radical Blue, was tried under Article 301 after acknowledging the Armenian genocide. In a novel by this author, Ka investigates the suicides of many "headscarf girls." *The White Castle* and *Snow* are by, for 10 points, what controversial Turkish author?

ANSWER: Orhan **Pamuk** [or Ferit Orhan **Pamuk**]

<Joseph Krol, Literature - European - Other> ~23707~

PACE NSC 2022 - Round 07 - Bonuses

1. The first of this novel's hundred-letter "thunder words" evokes the thunderclap associated with the fall of Adam and Eve. For 10 points each:

[10] Name this novel that begins mid-sentence by describing "riverrun, past Eve and Adam's, from swerve of shore to bend of bay."

ANSWER: **Finnegans Wake**

[10] One of James Joyce's more lasting neologisms from *Finnegans Wake* appears in a rhyming lyric describing "Three [of these things] for Muster Mark," which inspired Murray Gell-Mann's name for a subatomic particle.

ANSWER: **quarks**

[10] Joseph Campbell borrowed this other term coined in *Finnegans Wake* to refer to his idea of the "Hero's Journey," divided into stages such as "Belly of the Whale" and "The Ultimate Boon."

ANSWER: **monomyth**

<Rahul Keyal, Other - Other Academic and General Knowledge> ~15440~

2. In these plants, the male gametophyte is much smaller than those found in gymnosperms. For 10 points each:

[10] Name this clade of plants which develop flowers and fruit.

ANSWER: **angiosperms**

[10] Flowering plants develop a triploid endosperm tissue after this process, which involves both polar nuclei undergoing triple fusion.

ANSWER: **double fertilization** [prompt on fertilization]

[10] Most flowers are "perfect," meaning they contain both stamens and carpels, and thus have this property. Many flowers with this property exhibit self-incompatibility to prevent self-fertilization.

ANSWER: **hermaphroditic** [accept word forms such as **hermaphrodite**; accept answers indicating the flower has **both sex organs** or is **bisexual**; accept **monoicous** or **monoicy**]

<Andrew Wang, Science - Biology> ~19318~

3. One film by this director opens with an extremely long tracking shot of Bruce Willis's character riding a golf cart to an awards ceremony. For 10 points each:

[10] Name this New Hollywood director of the infamous film adaptation of *The Bonfire of the Vanities*. He also directed the 1983 film *Scarface*.

ANSWER: Brian **de Palma** [or Brian Russell **De Palma**]

[10] *Bonfire's* scene of the Concorde landing was filmed by Eric Schwab, who directed this group of people on the film. This is the name for the group that operates separately from the main crew, usually to film pick-up shots.

ANSWER: **second unit**

[10] The opening of *Bonfire* was filmed with a Steadicam. One of the earliest uses of a Steadicam was in the training sequence of this 1976 Sylvester Stallone boxing film.

ANSWER: **Rocky**

<Michael Bentley, Fine Arts - Film> ~17899~

4. The title character of this novel has a brief affair with the wounded veteran Teddy Lloyd. For 10 points each:
[10] Name this novel where girls such as Jenny Gray comprise some of the "set" named for the title character.
This novel, set in Edinburgh, was written by Muriel Spark.

ANSWER: The Prime of Miss Jean Brodie

[10] Miss Jean Brodie is forced out of this profession due to her enthusiasm for fascism. Miss Miller is the first person in this profession that Jane Eyre learns under while attending Lowood School.

ANSWER: teacher [or educator or other equivalents]

[10] Sandy Stranger, one of Jean Brodie's pupils, changes her name to Helena when she becomes one of these people. Spark's novel *Symposium* features a group of Marxist examples of these people.

ANSWER: nuns [or sisters]

<Michael Bentley, Literature - British - Long Fiction> ~18105~

5. In 1977, the head of this country's Employers' Union was murdered after the government refused to release imprisoned members of a certain organization. For 10 points each:

[10] Name this country where that same organization had earlier bombed the headquarters of the publisher of the *Bild* ("BUILT") tabloid.

ANSWER: West Germany [or Federal Republic of Germany; or FRG; or BRD; or Bonn Republic; or Bundesrepublik Deutschland]

[10] West Germany was terrorized by the Baader-Meinhof Gang, who are alternatively named for this color. Some "brigades" of this color killed Italian Prime Minister Aldo Moro.

ANSWER: red [accept Red Army Faction or Red Brigades or Brigade Rosse or Rote Armee Fraktion]

[10] These operations helped fund the Red Army Faction. John Dillinger's gang staged 24 of these operations before being caught by the FBI.

ANSWER: bank robberies [prompt on robberies or burglaries]

<Michael Bentley, History - European - 1900+> ~18569~

6. This animal appears in the title of a 1988 play in which René Gallimard commits suicide with a *hara-kiri* knife. For 10 points each:

[10] Name this animal that appears in the title of a play in which the opera star Song Liling unexpectedly turns out to be both a spy and a man.

ANSWER: butterfly [accept *M. Butterfly*]

[10] *M. Butterfly* was written by this Chinese-American playwright who also wrote *F.O.B.* and *Family Devotions*.

ANSWER: David Henry Hwang

[10] *M. Butterfly* won Best Play at the 1988 iterations of these awards, which honor excellence in Broadway theatre. These awards provide the 'T' to the EGOT performance achievement.

ANSWER: Tony Awards [or Antoinette Perry Award for Excellence in Broadway Theatre]

<Elaijah Lapay, Literature - American> ~16953~

7. An *Ancient Aliens* episode discusses a prehistoric site in this state which contains iridium and a strong magnetic field underneath it. For 10 points each:

[10] Name this state where Ephraim Squier and Edwin Davis documented the Great Serpent Mound. The Hopewell culture constructed a similar earthen mound in this state.

ANSWER: Ohio

[10] Squier and Davis's *Ancient Monuments of the Mississippi Valley* was the first archaeological survey published by this institution, whose headquarters is located in "the Castle."

ANSWER: Smithsonian Institution

[10] Another important prehistoric site in Ohio is a "ridge" named after this material, which was used to make sharp tools and start fires when struck in the Stone Age.

ANSWER: flint

<Hari Parameswaran, History - American - Pre-1865> ~18272~

8. An upper bound on this quantity can be computed using the Bogoliubov ("BOG-oh-LYU-bov") inequality. For 10 points each:

[10] Name this thermodynamic potential that can be computed via a Legendre ("luh-ZHAHN-druh") transform of internal energy which removes explicit entropy dependence. This quantity, named for a German scientist, can be denoted F or A.

ANSWER: **Helmholtz free energy** [prompt on free energy]

[10] That Legendre transform shows that the Helmholtz free energy equals the internal energy minus entropy times this quantity, which is measured in kelvins.

ANSWER: **temperature** [prompt on T]

[10] Other methods for computing Helmholtz free energy use the fact that it equals minus Boltzmann's constant times temperature times the log of this function, which normalizes the Boltzmann distribution.

ANSWER: **partition function** [prompt on Z]

<Joseph Krol, Science - Physics> ~18144~

9. The second of these pieces contains an aria subtitled "The Song of Our Land." For 10 points each:

[10] Name this set of nine suites collectively created between 1930 and 1945 and inspired by a namesake German Baroque composer. This collection's composer continued his usage of folk music from earlier works such as *Chôros* ("SHOW-rows").

ANSWER: **Bachianas Brasileiras**

[10] The toccata movement of the second *Bachiana Brasileira* is subtitled for a "little" one of these vehicles "of the Caipira." Steve Reich wrote a piece titled for "Different" examples of these vehicles.

ANSWER: **trains** [accept **rail**ways or similar equivalents; accept "The Little **Train** of Caipira" or *O Trenzinho do caipira*]

[10] Heitor Villa-Lobos was especially inspired by this J. S. Bach collection in composing *Bachianas Brasileiras*. This collection consists of 24 preludes and fugues in every major and minor key.

ANSWER: *The **Well-Tempered Clavier*** [or *Das **Wohltemperierte Klavier***; or **BWV 846–893**]

<Vikshar Athreya, Fine Arts - Music - 1900 to 1970> ~19244~

10. One of the few ancient female poets with surviving works was a woman of this name from Tanagra, who wrote "The Contest of Cithaeron ("kith-EYE-ron") and Helicon." For 10 points each:

[10] Give this name. The main subject of Ovid's *Amores* ("ah-MOR-ays") had this name, which may have inspired a Robert Herrick poem in which a woman of this name is "Going A-Maying."

ANSWER: **Corinna** [or **Korinna**; accept **Corinna**'s Going A-Maying]

[10] The Greek poet Corinna was said to have won a competition against this other lyric poet, who is best known for his *Olympian* and *Pythian Odes*.

ANSWER: **Pindar** [or **Pindaros**]

[10] One of Corinna's largest fragments addresses one of these figures called Terpsichore ("turp-SICK-uh-ree"). A common epithet for female poets is the "Tenth" of these Greek goddesses of the arts and inspiration.

ANSWER: **muses** [or **mousai** or **musae**; accept Tenth **Muse**]

<Joseph Krol, Literature - European - Poetry> ~18352~

11. A once-venerated proclamation by this monarch was known in the 19th century as "India's Magna Carta."

For 10 points each:

[10] Identify this monarch who was eager to achieve the "absolute power" denied to her at home by becoming the first Empress of India in 1877.

ANSWER: Queen **Victoria** I [or Alexandrina **Victoria** Hanover]

[10] Victoria was proclaimed empress during the reign of Viceroy Lord Lytton, who later launched an invasion of Afghanistan as part of this alliteratively named larger conflict with Russia over control of Central Asia.

ANSWER: The **Great Game**

[10] This Viceroy of India represented Edward VII [the seventh] at the 1903 ceremony but was forced to resign two years later. This man supervised the restoration of the Taj Mahal and ordered the partition of Bengal.

ANSWER: Lord **Curzon** [or George Nathaniel **Curzon**, 1st Marquess Curzon of Kedleston; or The Lord **Curzon** of Kedleston; or The Earl **Curzon** of Kedleston; or The Marquess Curzon of **Kedleston**]

<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~17716~

12. The sum of these values equals the ratio of a polynomial's second coefficient to its first, up to a sign. For 10 points each:

[10] Name these values where a polynomial evaluates to zero. They may be found using the quadratic formula.

ANSWER: **roots** [or **solutions**]

[10] This French codebreaker and pioneer in symbolic algebra names formulas that relate the roots of polynomials to ratios of their coefficients.

ANSWER: Franciscus **Vieta** [or François **Viète**; accept **Vieta**'s formulas or **Viète**'s formulas]

[10] The order of the roots in Vieta's formulas may be permuted because they are expressed as polynomials of this kind, which are the subjects of Newton's identities. Every elementary polynomial of this kind is a sum of distinct products.

ANSWER: **symmetric** polynomials [accept elementary **symmetric** polynomials or power-sum **symmetric** polynomials]

<Joseph Krol, Science - Math> ~18739~

13. Nolan McCarty used roll call data to measure how these institutions were growing apart. For 10 points each:

[10] Name these institutions whose moderate members are often targeted in primary elections. These institutions usually have national committees that set caucus rules.

ANSWER: political **parties** [prompt on **factions**]

[10] This *New York Times* columnist and *Vox* cofounder argued that polarization dramatically increased following the 1964 Civil Rights Act in his book *Why We're Polarized*.

ANSWER: Ezra **Klein**

[10] Several scholars trace the rise of polarization to the 1987 repeal of this FCC doctrine that required public broadcasters to devote some air time to differing views on controversial issues. It should not be confused with the equal-time rule.

ANSWER: FCC **fairness** doctrine

<Michael Bentley, Social Science - Sociology> ~18826~

14. Handmade statues and educational books are common *zawadi* or gifts given to children during this holiday.

For 10 points each:

[10] Name this holiday created in the 1960s by Maulana Ron Karenga. One day in this holiday is devoted to cooperative economics.

ANSWER: Kwanzaa

[10] Kwanzaa celebrants are encouraged to take on names from this language. Terms from this *lingua franca* of East Africa name the Seven Principles of Kwanzaa such as *ujamaa*.

ANSWER: Swahili [or Kiswahili]

[10] During the feast on the sixth night of Kwanzaa, Karamu, participants pass around one of these items named for *umoja*, or unity. Liberal Jews may set out one of these objects named for Miriam along with one named for Elijah during the seder.

ANSWER: cups [accept goblet or chalice; accept kikombe or cups of wine]

<Michael Bentley, RMP - Other Religion> ~18756~

15. The common name for these people means "guest people" or "strangers." For 10 points each:

[10] Name this minority ethnic group who fought a bloody "clan war" against the Punti in the 19th century.

Hong Xiuquan ("sh'yoh-ch'wen") was a member of this minority ethnic group.

ANSWER: Hakka [or Hakka Han; or Hakka Chinese; prompt on Chinese; prompt on Han]

[10] Many Hakka converted to this religion in the 19th century and joined the Taiping Rebellion, led by a Hakka man who claimed to be the brother of a central figure of this Western religion.

ANSWER: Christianity [accept Protestantism]

[10] In 1854, the Hakka were massacred by Qing loyalists named for wearing this specific piece of clothing.

The Ming dynasty came to power through a series of rebellions named after this clothing.

ANSWER: red turbans [or hongjin; prompt on partial answer; do not prompt on or accept "yellow turbans"]

<Michael Bentley, History - World - Asian> ~18575~

16. Robert Howarth co-authored a paper questioning the "greenness" of the "blue" form of this product produced in carbon sequestration. For 10 points each:

[10] Name this product whose "black" form comes from burning coal. This product is an input to Toyota's Mirai car.

ANSWER: hydrogen [accept hydrogen fuel or liquid hydrogen]

[10] Gray hydrogen is produced by burning this other fuel. Following the invasion of Ukraine, Germany pulled out of the Nord Stream 2 pipeline transporting this fossil fuel, often billed as a "transition fuel" that's cleaner than oil and coal.

ANSWER: natural gas [or fossil gas]

[10] In 2021, this politician announced plans to build a \$290 million green hydrogen plant. This politician was succeeded by Kathy Hochul.

ANSWER: Andrew Cuomo

<Michael Bentley, Current Events - World> ~18053~

17. Answer the following about fiction that includes photographs, for 10 points each.

[10] This country was the home of Carol Shields, who included photos she found at flea markets in her novel *The Stone Diaries*. Alice Munro is from this North American country.

ANSWER: Canada

[10] This German author also used a photo sourced from a flea market for the cover of his novel *Austerlitz* ("OW-stur-litz"). He also included photos in *The Rings of Saturn*.

ANSWER: W. G. Sebald ("SAY-balt") [or Winfried Georg Sebald or Max Sebald]

[10] An early use of embedded photos was in *The Box Man*, a novel from this country. In a 1956 novel from this country, the protagonist slips a photo of a prostitute into the Superior's newspaper and obsesses over the beauty of the title building.

ANSWER: Japan [or Nippon-koku or Nihon] (The first author is Kobo Abe; the unnamed novel is *The Temple of the Golden Pavilion*.)

<Michael Bentley, Literature - World and Miscellaneous> ~18393~

18. Modern-day celebrations of this deity feature hundreds of actors parading around the Sacsayhuaman complex and a sacrifice of a faux llama. For 10 points each:

[10] Name this god celebrated in the Raymi festival on June 24th, the winter solstice. This son of Viracocha was the preeminent god of the Inca Empire.

ANSWER: Inti

[10] Inti is the Incan god of this domain. The Aztecs practiced human sacrifice to keep the god of this domain from being swallowed by darkness.

ANSWER: the sun

[10] After emerging from Lake Titicaca, this semi-divine son of Inti was given a golden staff. Inti told this man to build a city at the place where the staff sank into the earth.

ANSWER: Manco Capac [or Ayar Manco; or Manco Inca]

<Michael Bentley, RMP - World Mythology> ~18718~

19. While living with artist John Craxton, this man kept a stinky zebra head in his room, an item that can be seen in his *The Painter's Room*. For 10 points each:

[10] Name this artist of *The Painter Surprised by a Naked Admirer* who portrayed a Job Centre supervisor named Sue Tilley asleep on a couch in a 1995 painting.

ANSWER: Lucien Freud [or Lucian Michael Freud] (the other painting is *Benefits Supervisor Sleeping*)

[10] Martin Gayford's book about sitting for a portrait by Lucien Freud is titled for a scarf of this color. A Wassily Kandinsky painting of a "rider" of this color inspired an art movement.

ANSWER: blue [accept *Man with a Blue Scarf* or Blue Rider or Der Blaue Reiter]

[10] This other member of the School of London set auction records for his *Three Studies of Lucian Freud* and also painted the *Screaming Pope* series.

ANSWER: Francis Bacon

<Michael Bentley, Fine Arts - Painting - European> ~18722~

20. Single-atom catalysts can be fabricated using these materials, MOFs ("M-O-Fs"), or COFs ("C-O-Fs") to spatially confine metal atoms. For 10 points each:

[10] Name these materials made up of porous networks of AlO_4 ("A-L-O-4") and SiO_4 ("S-I-O-4") tetrahedra that the petroleum industry uses as catalysts for cracking hydrocarbons.

ANSWER: zeolites

[10] The first single-atom catalysts were created by grafting metallocenes onto this compound. As a gel, this compound is a dessicant used to keep moisture from spoiling sealed products.

ANSWER: silica [or silicon dioxide]

[10] Wu et al. began a synthesis of a platinum single-atom catalyst by dispersing platinum in this material. In standard conditions, this material exists in a I_h ("one-h") form with hexagonal symmetry.

ANSWER: ice

<Jonathen Settle, Science - Chemistry> ~19067~

21. Two streams of water separate three rows of buildings, each of which are made of teak and varieties of concrete, in this architect's design for the Salk Institute. For 10 points each:

[10] Name this American architect who also designed the Jatiya Sangsad Bhaban, Bangladesh's parliament building.

ANSWER: Louis Isadore Kahn [or Itze-Leib Schmuilowsky]

[10] An x-shaped beam of concrete spreads light throughout one of these buildings designed by Louis Kahn. An enormous American flag hangs from the rafters in an I.M. Pei designed building of this type named for JFK in Boston.

ANSWER: library [accept presidential library; accept Phillips Exeter Library; or John F Kennedy Presidential Library and Museum; prompt on museum]

[10] One of Kahn's earliest commissions was for an art museum at this university. Eero Saarinen created the wavy Ingalls Rink for this university in New Haven, Connecticut.

ANSWER: Yale University

<Hari Parameswaran, Fine Arts - Architecture> ~13489~