PACE NSC 2022 - Round 10 - Tossups

1. The result of this phenomenon is concentrated by using the Littrow configuration for an "echelette" ("ESH-uh-let") **or "blazed" device. James Gregory's observations of how a bird's feather caused this phenomenon can be explained by noting that it affects opaque objects and identically shaped holes similarly, by Babinet's** ("BAB-in-ay's") **principle. The (*)** far-field and near-field versions of this phenomenon are described respectively by the Fraunhofer ("FROWN-hoff-ur") and Fresnel ("fray-NELL") equations. This phenomenon is created by a device with many parallel grooves called a "grating." This phenomenon creates a maximum when *n* times wavelength equals "2 d sine theta," where d is the gap between the slits light passes through. For 10 points, name this phenomenon in which light bends as it goes through a gap.
ANSWER: **diffraction** [accept **diffraction** grating or X-ray **diffraction** or far-field **diffraction** or near-field **diffraction**]
<Joseph Krol, Science - Physics> ~23029~

2. A "Coalition" of churches in the Reformed tradition named for this concept was founded by D. A. Carson and Tim Keller. In Romans, Paul proclaims that he is not ashamed of this concept, for it is the "power of God for salvation to everyone who believes." This word is derived from the Old English translation of the Greek term *euangélion* ("yoo-ehn-GEH-lee-ahn"). It is not "soul" or "spirituals," but this word names a genre of religious (*) music that broadly incorporates call and response and that may be sung in large choirs. The Great Commission is the command of Jesus to preach this concept, which means "good news," to all parts of the world. For 10 points, the first four books of the New Testament are known by what term, each "according" to Matthew, Mark, Luke, and John?
ANSWER: **gospel** [accept **gospel**s; accept *euangélion* until read; prompt on Good News until read]
<Jon Suh, RMP - Christian Practice> ~24205~

3. A philosopher compatriot of this author compared his work to an "elegiac duodecimal scale" in an essay on him "as a Novelist." This author perhaps inspired Uriah Heep when he crashed at Charles Dickens's house for five weeks. This author's love for Jenny Lind inspired his story in which the Emperor is saved from death by the song of the title nightingale. This author's cobbler father inspired his story in which Karen dances herself to (*) death while wearing the title "Red Shoes." Five sisters exchange their long hair for a dagger in a story by this author, in which the protagonist turns into an ethereal figure made of foam after a Sea-Witch gives her legs in exchange for her voice. For 10 points, name this author of "The Little Mermaid."
ANSWER: Hans Christian **Andersen** ("Andersen as a Novelist" is by Kierkegaard.)
<Joseph Krol, Literature - European - Short Fiction> ~22742~

4. During this man's reign, Polyidus ("poly-EYE-dus") **of Thessaly improved the arrow catapult by adding horsehair. This ruler allowed men from any tribe to be part of his hypaspist** ("hi-PASS-pist") **guard. Tomb II at Vergina is believed to belong to this man and was modeled after Cyrus the Great's tomb at Pasargadae. At Olympia, this man erected a circular building to celebrate his victory at the Battle of (*)** Chaeronea. This king established the League of Corinth after winning a military campaign that inspired the orator Demosthenes to deliver several speeches. This king may have been murdered by his wife Olympias in a scheme involving the future victor at the Battle of Issus. For 10 points, name this King of Macedonia, the father of Alexander the Great.
ANSWER: **Philip II** of Macedon [prompt on Philip]
<Michael Bentley, History - European - Classical> ~22711~

5. An MIT guide to this activity by "Ted the Tool" describes the Flatland Model. Yeggs specialize in this activity. During London's Great Exhibition, an American named Alfred Charles Hobbs successfully engaged in this activity after spotting a device in a shop window designed by Joseph Bramah. Technology such as BumpStop can guard against the non-destructive form of this activity. A tension (*) wrench is commonly used in this activity against pin tumbler designs. A Bic Pen was famously used to perform this activity on a U-shaped device with the brand name Kryptonite. Many cars now have an immobilizer to prevent hot-wiring and this other activity. For 10 points, name this activity that can be used to open secured doors without a key.
ANSWER: **lockpicking** [accept any answers involving **defeating** a pad**lock**; accept **safe-cracking**; prompt on stealing a car or stealing a bike or crime; do not accept or prompt on "carjacking"]
<Michael Bentley, Other - Other Academic and General Knowledge> ~23526~

6. An author from this country described how girls' education was "a slow process of annihilation" in *The Hidden Face of Eve*, and described Firdaus's ("fur-DOWS'") murder of her pimp in *Woman at Point Zero*. In a novel from this country ending with a typhoid epidemic, a character divorces Maryam, whose initial love interest was a law student who dies at a protest. A novelist from this country was nearly assassinated after allegorizing the three (*) Abrahamic religions. After leaving the house without her husband's permission, Amina is hit by a car in a novel from this country about the family of Ahmad Abd al-Jawad. *The Children of Gebelawi* and *Sugar Street* are by Naguib Mahfouz, an author from – for 10 points – what country, the setting of the *Cairo Trilogy*?
ANSWER: **Egypt** [or Arab Republic of **Egypt** or Jumhūriyyat **Miṣr**] (*The Hidden Face of Eve* is by Nawal El Saadawi.)
<Michael Bentley, Literature - World and Miscellaneous> ~23192~

7. These elements are extracted after being mixed with tributyl phosphate and dissolved in nitric acid in the PUREX process. Oxides of these elements are the typical contents of MOX fuel. Repeated heating of oxides of these elements through vol·oxidation helps reprocess them while capturing undesirable contaminants. The majority of so-called fertile materials consist of these elements. (*) Pitchblende is an ore of one of these elements that can be leached out to form yellowcake. Another of these elements ionizes air in a commonly used smoke detector. One of these elements is "depleted" when it has a low concentration of its fissile 235 isotope. The 5f orbitals are valence orbitals in, for 10 points, what group of elements found below the lanthanides?
ANSWER: **actinide**s [or **actinoid**s; prompt on f-block elements]
<Benjamin Chapman, Science - Chemistry> ~23709~

8. Matt Stoller's Substack devoted to these entities often highlights "weird" ones such as in cheerleading. In an article titled for measuring these entities, Abba Lerner proposed an index where these entities have values closest to 1. A paper by Lina Khan called for a more vigorous application of the essential facilities doctrine that was developed for these entities. A markup method based on (*) elasticity of demand for different products was applied to these entities by Marcel Boiteux ("BWAH-tuh") and originally developed by Frank Ramsey. Utility companies are the paradigmatic examples of the "natural" type of these firms. For 10 points, name these companies that might be broken up via antitrust regulation.
ANSWER: **monopolies** [accept answers like **monopolistic** firms or natural **monopolies**; prompt on trusts or companies or firms or businesses or corporations or big firms]
<Michael Bentley, Social Science - Economics> ~23483~

9. This material was the key ingredient in over 100 high-quality objects attributed to a Frankish man named Ulfberht. Michael Romanov commissioned an object made from the *bulat* form of this material. This was the most valuable material made in facilities called *takadono*. A type of this material called *Tamahagane* was essential in objects made by the Bizen School. Cakes of this material called Wootz were widely exported from Southern India. A class of people were mandated to go around with (*****) two objects made from this material via the *daishō* and typically followed the Bushido code. The Damascus form of this material was widely used to make weapons. For 10 points, name this metal whose production was revolutionized by the Bessemer process.
ANSWER: **steel** [accept Damascus **steel** or Wootz **steel**]
<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~23079~

10. Photographer Lewis Rutherfurd built a special device to improve on the pioneering photos of this object by Warren de la Rue. This alphabetically later title object is placed within Zone VII (7) in a photograph taken en route to the Ahwahnee Hotel. That same photographer progressively increased the contrast to make this object stand out more in a photo taken in Hernandez, New Mexico. An auction record for a photograph was set by an Edward Steichen photo where this object provides the (*****) light for a landscape of a Westchester County pond. This object appears in the top-left of a celebrated Ansel Adams photograph of Yosemite's Half Dome. For 10 points, name this object on which Buzz Aldrin took an iconic photo of his boot print.
ANSWER: the **moon** [accept *The **Moon** and Half Dome* or ***Moonrise**, Hernandez, New Mexico* or *Pond-**Moonlight*** or **Luna**]
<Michael Bentley, Fine Arts - Photography> ~23267~

11. After a constitutional reform in this country, Hillary Clinton's State Department handed out box sets of *The West Wing* to teach government officials about democracy. A 1983 bombing in this country killed multiple cabinet members under South Korean dictator Chun Doo-hwan. It's not Afghanistan, but this country's Shan State, which is in the Golden Triangle, has been a major producer of (*****) opium. Students in this country's capital organized the 8-8-88 protests. This country partly democratized under dictator Than Shwe, but the Nobel-winning leader of the National League for Democracy was prevented from serving as Prime Minister. For 10 points, name this country whose *de facto* leader Aung San Suu Kyi was overthrown in a 2021 coup.
ANSWER: **Myanmar** [or **Burma**]
<Michael Bentley, History - World - Asian> ~23086~

12. This phenomenon classically presents with colocalization of high Z and low or negative Z_{dr} ("Z-D-R"). Mie ("ME") scattering between this phenomenon and the ground is so intense that a distinct "spike" artifact appears on Doppler radar. Cannons are occasionally used to ward off this phenomenon, which produces hundreds of millions in crop damage each year. Accretion at high altitudes contributes to the distinct (*****) layered appearance of this phenomenon. Smaller examples of this phenomenon are often lumped together with graupel ("GRAU-pull"). This phenomenon is suspended in the updrafts of strong thunderstorms before growing large enough to reach the ground. For 10 points, name this form of precipitation whose stones have a diameter of at least 5 millimeters.
ANSWER: **hail** [or **hail**stones; accept **hail** spike; prompt on heavy or large **precipitation** or **ice**; prompt on **graupel** before read; do not accept or prompt on "rain," "freezing rain," "snow," or "sleet"]
<Kevin Wang, Science - Earth> ~23753~

13. The death of this composer's close friend Marianne von Genzinger inspired his final piece for solo piano, his *Variations in F Minor*. Another piece by this composer includes the chorus "The heavens are telling the glory of God," and opens with a section that switches from C minor to C major on the word "light." Like Johann Nepomuk Hummel, this composer responded to the invention of the keyed trumpet by writing a trumpet **(*)** concerto in E-flat major. One of this composer's *Erdödy* string quartets provided the melody of Germany's national anthem. This composer wrote 104 symphonies, which earned him the nickname "The Father of the Symphony." For 10 points, name this Austrian composer of the *Farewell* and *Surprise* symphonies.
ANSWER: Franz Joseph **Haydn**
<Jonathan Magin, Fine Arts - Music - Classical> ~23748~

14. The making of John Huston's Hollywood adaptation of this novel is chronicled in Lillian Ross's book *Picture*. Paul Auster's biography *Burning Boy* describes how the success of this novel got its author hired to cover the Spanish-American War. After some men in this novel cast aside their knapsacks, a tall character declares, "You can now eat and shoot... That's all you want to do." The protagonist of this novel is comforted by the sight of a **(*)** squirrel running away from him shortly before being hit with a rifle butt. In this novel, Jim Conklin sustains fatal injuries during a battle that its protagonist retreats from despite his desire to earn and wear the title mark. For 10 points, name this Civil War novel by Stephen Crane.
ANSWER: The **Red Badge of Courage**
<Michael Bentley, Literature - American> ~23005~

15. A self-feeding antecedent to these devices invented by Joseph Eve greatly cut down on hernia risk. Hodgen Holmes's patent for one of these devices using saw teeth was nullified. Matilda Gage claimed that the true inventor of these devices was Catharine Littlefield Greene. Because the wire teeth in these devices caused damage, they were typically not used on **(*)** Sea Island variants of one product. The inventor of these devices became rich after securing a government contract to make interchangeable muskets. Prior to the invention of these devices, it took upwards of 16 months to process a 500-pound bale of a certain good. Removing the seeds from a crop widely used to make textiles was made much easier by, for 10 points, what machines invented by Eli Whitney?
ANSWER: **cotton gin** [accept **roller gins**; prompt on **gin**s]
<Michael Bentley, History - American - Pre-1865> ~23157~

16. A Roman god of this domain was introduced to the city in 293 BCE and honored at a temple on Tiber Island. Relief sculptures of detached body parts were dedicated to a god of this domain, who had a ritual site in Epidaurus where people would be visited while sleeping. Machaon was the child of a god of this domain. The **(*)** Cyclopes who forged Zeus' thunderbolts were slain in revenge for the death of a god of this domain, who was the son of Coronis. The Greek god of this domain, a son of Apollo, was killed for reviving the dead. That god of this domain carried a staff surrounded by two snakes and was the father of Panacea. For 10 points, name this domain of the Greek god Asclepius.
ANSWER: **medicine** [or **healing**]
<Michael Bentley, RMP - Greco-Roman Mythology> ~23512~

17. One theory holds that the death of these animals creates "stepping stones" between chemo·synthetic habitats. Polychaetes (poly-keets) of the genus *Osedax* feed on lipids in these animals' skeletons, and are known as "zombie worms." These animals' corpses are the densest source of carbon in a place whose inhabitants also eat a form of "snow." A fat-filled melon organ in these animals' forehead is used to focus sound for **(*)** echolocation. Some of these animals called rorquals use their stretchable mouths to "lunge feed," scooping up plankton that they filter through fibrous structures made of keratin. These animals are divided into toothed and baleen subgroups. For 10 points, name these large marine mammals, whose blue variety is the largest known animal.

ANSWER: **whale**s [or **cetacean**s or **Cetacea**; accept **dolphin**s or **porpoise**s]

<Eric Yin, Science - Biology> ~23850~

18. A long narrative poem by this poet describes "what fearful pranks ensue" on the title night of "Halloween." Robert Sempill originated a six-line stanza sometimes referred to as this poet's "stanza" that mixes four rhyming lines of tetrameter with two rhyming lines of dimeter. A poem by this author exclaims, "Oh, would some Power give us the gift / To see ourselves as others see us!" in its final stanza. This poet declared, "I'm truly **(*)** sorry Man's dominion / Has broken Nature's social union" in a poem subtitled "On Turning her up in her Nest, with the Plough." That poem about a "tim'rous beastie" includes the lines "The best laid schemes o' Mice an' Men / Gang aft agley (**"uh-GLAY"**)." For 10 points, name this Scottish poet of "To a Louse" and "To a Mouse."

ANSWER: Robert **Burns** [accept **Burns** stanza]

<Anson Berns, Literature - British - Poetry> ~17690~

19. This country's citizens would be the most impacted by an oil spill from the derelict *F.S.O. Safer*. In April 2022, a president of this country ruling in exile from Lebanon resigned in favor of a presidential council. The Southern Transitional Council has called to restore a partition of this country that ended in 1990. In 2020, foreign agents agitated for the independence of this country's biodiverse island of **(*)** Socotra. A blockade of this country by its larger northern neighbor caused a massive cholera outbreak in regions controlled by the Iran-backed Ansar Allah. For 10 points, a Houthi government controls Sanaa in what country fighting a war with its northern neighbor of Saudi Arabia?

ANSWER: **Yemen** [or Republic of **Yemen**; or al-**Yaman**]

<Michael Bentley, Current Events - World> ~23006~

20. This artist had to rely on a photo to finish a pastel portrait of Louisine Havemeyer, a close friend whom this artist advised on collecting art. A print by Kitagawa Utamaro inspired this artist's drypoint image of a woman bending over and adjusting her hair titled *The Coiffure*. In the same year that this artist completed the mural *Modern Woman* for the Chicago World's Fair, this artist painted a man in a black Catalan-style beret and ultramarine sash rowing a yellow **(*)** oar. This artist's mentor Edgar Degas admired a painting where an "English nurse" places a child's feet into a basin of water titled *The Bath*. For 10 points, *The Boating Party* is a painting by what American Impressionist fond of mother-daughter scenes?

ANSWER: Mary **Cassatt** [or Mary Stevenson **Cassatt**]

<Michael Bentley, Fine Arts - Painting - U.S.> ~16994~

21. During this event, the shell Gibraltar Steamship Company used Radio Swan to broadcast the cryptic message "The fish is red." James Donovan convinced one party in this event to accept food and medicine in lieu of cash for a prisoner exchange. This event's participants handed a flag featuring a blue soldier hunched with a rifle to the sitting president as part of a welcome-home ceremony at the Orange Bowl. Operation (*) Mongoose was launched one year after this event. Allen Dulles resigned in the aftermath of this event, during which Brigade 2506 attempted an amphibious landing at Playa Girón (**"PLY-ah hee-RON"**) with help from the CIA. For 10 points, the Kennedy administration unsuccessfully attempted to topple the Castro regime in what 1961 invasion?

ANSWER: **Bay of Pigs** Invasion [or **Bahía de Cochinos**; accept answers involving Playa **Girón** until mentioned]

<Caleb Kendrick, History - American - 1945+> ~22706~

1. Medieval logicians gave these arguments mnemonic names like "Barbara" and "Celarent." For 10 points each:
[10] Identify these deductive arguments, first defined in the book *Prior Analytics*, which consist of a conclusion that follows from a major premise together with a minor premise.
ANSWER: **syllogism**s
[10] *Prior Analytics* is the third volume of this philosopher's collection on logic, known as the *Organon*. This student of Plato gave lectures at the Lyceum.
ANSWER: **Aristotle** of Stagira [or **Aristoteles**]
[10] This volume of the *Organon* introduced the logical oppositions of "contradiction" and "contrariety," and uses the outcome of a sea battle to illustrate the problem of future contingents.
ANSWER: ***On Interpretation*** [or ***De Interpretatione***]
<Caleb Kendrick, RMP - Philosophy> ~19015~

2. Olga Tokarczuk's **("tok-AR-shuk's")** novel *Flights* describes how, after this man's death, his sister took his heart back to their hometown. For 10 points each:
[10] Name this composer whose illness takes up much of *A Winter in Majorca*, a travelogue written by his lover George Sand.
ANSWER: Frédéric **Chopin** [or Frédéric François **Chopin**]
[10] This author discussed his views on artistic realism in an article about Chopin for the magazine *Soviet Art*. This author was forced to decline his Nobel Prize for Literature after writing *Doctor Zhivago*.
ANSWER: Boris Leonidovich **Pasternak**
[10] This author identified a "promenade of discoveries" in his *Notes on Chopin*. While recovering from tuberculosis in Algeria, a character created by this author becomes interested in young Arab boys.
ANSWER: André **Gide** **("zheed")** [or André Paul Guillaume **Gide**] (The novel is *The Immoralist*.)
<Rahul Keyal, Literature - European - Other> ~14747~

3. Public approval for this program soared following the sinking of the *Kearny* by a U-boat. For 10 points each:
[10] Identify this program that Robert Taft complained about, stating that "war equipment is a good deal like... chewing gum... You don't want it back."
ANSWER: **Lend-Lease** Program [or **An Act to Promote the Defense of the United States**]
[10] In order to build US support against the Axis powers, this four-term US President lied about having documents showing German designs on Central and South America.
ANSWER: Franklin Delano **Roosevelt** [or **FDR**]
[10] This man adapted his tour of Allied countries into the anti-imperialist book *One World*. After calling FDR a hypocrite for entering the U. S. into World War II, he ran against Roosevelt in the 1940 presidential election.
ANSWER: Wendell **Willkie**
<Michael Bentley, History - American - 1865-1945> ~17707~

4. Mimi C. Magsalin trades barbs with Estrella ("ess-TRAY-ah") over whether this man ate a chicken Caesar salad in 1896 in the footnotes in Gina Apostol's novel *The Revolution According to Raymundo Mata*. For 10 points each:
[10] Name this author, who created Crisóstomo ("criss-OST-oh-mo") Ibarra in a novel whose sequel is *El Filibusterismo*.
ANSWER: José **Rizal** ("ho-ZAY ri-ZAHL") [or José Protasio **Rizal** Mercado y Alonso Realonda]
[10] Apostol's novel often references Rizal's *Noli Me Tángere*, a novel from this Asian island country. Much of this country's literature is written in Tagalog.
ANSWER: The **Philippines** [or Republic of the **Philippines**; or Republika ng **Pilipinas**]
[10] Apostol wrote a foreword to a set of tales of the "Tropical" version of this genre by the Filipino writer Nick Joaquin ("wah-KEEN"). "The Deluge at Norderney" appears in an Isak Dinesen collection titled for "Seven Tales" from this genre.
ANSWER: **Gothic** [accept *Tropical **Gothic*** or *Seven **Gothic** Tales*]
<Michael Bentley, Literature - World and Miscellaneous> ~18090~

5. Audrey Richards's book *Chisingu* is subtitled for one of these events that took place over 23 days amongst the Bemba people. For 10 points each:
[10] Name these events that Arnold Van Gennep defined as usually taking place in liminal settings secluded from ordinary society. These events sometimes involve scarification.
ANSWER: **rites of passage** [or **initiation** ceremony; or **coming of age** ceremony]
[10] The Gisu start female initiation rites after the first onset of this process in girls. This process disqualifies Nepali girls from being Kumari due to requirements about shedding blood.
ANSWER: **menstruation** [or having your **period**; accept **menarche**; prompt on puberty]
[10] This thinker argued that some Australian male circumcision rituals stemmed from jealousy over female reproductive capabilities. He analyzed fairy tales in *The Uses of Enchantment*.
ANSWER: Bruno **Bettelheim**
<Michael Bentley, Social Science - Anthropology> ~19222~

6. Stable configurations in this problem are punctuated by periods of chaotic interaction that culminate in reduction into two separate systems. For 10 points each:
[10] Name this problem that lacks a general closed-form solution. Objects in this problem's "restricted" variant can reside stably in Lagrange points.
ANSWER: **three-body** problem [accept restricted **three-body** problem]
[10] The James Webb Space Telescope entered a halo orbit around this Lagrange point in January 2022. This Lagrange point is the furthest from the sun.
ANSWER: L_2 ("L-two") [or the **second** Lagrange point]
[10] The gravity of this gas giant planet canonically clusters Trojan asteroids at L_4 ("L-four") and L_5 ("L-five").
ANSWER: **Jupiter** [accept **Jovian** trojans]
<Benjamin Chapman, Science - Astronomy> ~18322~

7. This opera, which was written in about three weeks, reuses its composer's overture from the earlier opera *Aureliano in Palmira*. For 10 points each:
[10] Name this opera subtitled "The Useless Precaution." One character in this opera declares, "Che bel piacere!" ("keh bel pya-CHER-eh") in an aria that repeats his own name, titled "Largo al factotum."
ANSWER: The ***Barber of Seville*** [or Il ***barbiere di Siviglia***; or The ***Barber of Seville***, *or The Useless Precaution* or Il ***barbiere di Siviglia***, *ossia L'inutile precauzione*]
[10] *The Barber of Seville* is by this Italian composer, whose other operas include *La Cenerentola* ("chen-eh-REN-toh-lah").
ANSWER: Gioachino **Rossini**
[10] *The Barber of Seville* exemplifies this genre of opera, for which Carlo Goldoni wrote some eighty libretti under various anagrammatic pseudonyms. Its name, which is Italian, translates to "comic opera."
ANSWER: opera ***buffa***
<Joseph Krol, Fine Arts - Opera> ~19159~

8. This country is the alphabetically-latter namesake of a colonial railway, during whose construction 135 workers were eaten by lions. For 10 points each:
[10] Identify this modern-day country once ruled by Milton Obote.
ANSWER: **Uganda** [or Republic of **Uganda**; accept Kenya-**Uganda** Railway]
[10] Warriors from this Nilotic ethnic group attacked and killed some 500 laborers on the Uganda Railway in 1895. Young men of this ethnic group, known as *morani*, prove themselves by single-handedly hunting a lion.
ANSWER: **Maasai** [or **Masai**]
[10] The Maasai traditionally measure their wealth by and get most of their calories from these herd animals. Each month, the Maasai pierce the neck of these animals to get blood to mix with these creatures' milk.
ANSWER: **cow**s [or **cattle**]
<Michael Bentley, History - World - African> ~14827~

9. This group is exiled for thirteen years after a dice game that their leader, Yudhishthira, loses. For 10 points each:
[10] Name these five brothers of divine parentage, including the bowman Arjuna. In the *Mahabharata*, these brothers triumph in the Kurukshetra War.
ANSWER: **Pandava**s [or **sons of Pandu**]
[10] During the Kurukshetra War, Karna attempts to use one of these mythological superweapons against Arjuna, but fails due to a curse. These extremely powerful weapons, which manifest the power of gods like Brahma, are often compared to nuclear bombs.
ANSWER: ***astra***s [or ***Brahmastra***]
[10] During the Kurukshetra War, Arjuna's charioteer is this widely revered avatar of Vishnu, who reveals the secrets of the universe in the *Bhagavad Gita*.
ANSWER: **Krishna**
<Matthew Bollinger, RMP - World Mythology> ~19201~

10. Answer the following about unique features found in archaea. For 10 points each:
[10] This bi·layer structure in archaea is made of unique phospho·lipids in which ether linkages attach iso·prenoid tails to a glycerol head.
ANSWER: cell **membrane** [or plasma **membrane**]
[10] Archaea organize their DNA into helix-shaped "hyper-" examples of these structures. In eukaryotes, these structures consist of about 150 base pairs wrapped around a core of eight histones.
ANSWER: **nucleosome**s [accept hyper**nucleosome**s]
[10] Salt-tolerant Halo·archaea generate ATP from sunlight using a microbial rhodopsin as one of these proteins that create the electrochemical gradient that drives ATP synthase. Omeprazole blocks an ATPase referred to by this two-word name.
ANSWER: **proton pump**s [or **H$^+$ pump**s]
<Eric Yin, Science - Biology> ~19037~

11. Pope Innocent XII effectively stamped out this practice in the Church with the bull *Romanum decet pontificem*. For 10 points each:
[10] Name this practice, a type of favoritism criticized by Martin Luther. It is not simony, but the name for this practice derives from the Latin word for "nephew."
ANSWER: **nepotism**
[10] Innocent XII condemned the *Maxims of the Saints* of an archbishop from this country and resolved a dispute with its king. In the 14th century, the papacy resided in Avignon in this country.
ANSWER: **France** [or Kingdom of **France**; or **French** Republic; or République **française**]
[10] Innocent XII's patron, Holy Roman Emperor Leopold II, secured this 1699 treaty with the Ottoman Empire that was the first to reverse Ottoman territorial expansion following the Battle of Zenta.
ANSWER: Treaty of **Karlowitz**
<Michael Bentley, History - European - 1500-1900> ~17882~

12. Oliver Sturm's *Gebetomat* is a booth that assists in this practice in 65 different languages. For 10 points each:
[10] Airports and universities often provide multifaith rooms for what practice? Catholics might use rosary beads when performing this practice.
ANSWER: **pray**ing [or **prayer**; accept **meditation**; accept saying the **Hail Mary**]
[10] According to *The Economist*, members of this sect often throw away the clay tablets that Shia Muslims use in Heathrow Airport prayer rooms. This fundamentalist sect of Islam is dominant in Saudi Arabia.
ANSWER: **Wahhabi**ism [or al-**Wahhābiyyah**; prompt on Salafism]
[10] The UToronto prayer room is designed with vents to dissipate the smell of this plant, which is often burned along with sage in Native American smudging ceremonies. A bestseller by Robin Kemmerer is titled for "braiding" this plant.
ANSWER: **sweetgrass** [or *hierochloe odorata*; prompt on grass]
<Michael Bentley, RMP - Other Religion> ~18712~

13. This country's folk song "Korobeiniki" became retroactively popular after being used in the theme of the video game *Tetris*. For 10 points each:
[10] Name this home country of Vasily Andreyev, the father of the academic folk instrument movement in Eastern Europe, as well as the Moscow Conservatory, which spearheaded ethnomusicological research into its folk music movements.
ANSWER: **Russia** [or the **USSR**; or the **Soviet Union**; or the **Union of Soviet Socialist Republics**]
[10] In the late 19th century, Vasily Andreyev popularized this Russian folk string instrument from the lute family. Andreyev also standardized its design as a triangular wooden body and three strings.
ANSWER: **balalaika** ("bah-luh-LIE-kuh")
[10] This ensemble added the balalaika to its official performances after the Soviet Union declared the instrument to be "working-class." This ensemble, which performs wearing dress uniforms, consists of a male choir often accompanied by an orchestra and dance company.
ANSWER: **Red Army Choir** [or A. V. **Alexandrov** Academic Song and Dance **Ensemble** of the Russian Army]
<Jonathan Magin, Fine Arts - Music - 1900 to 1970> ~18906~

14. Particles with this property are sometimes called luxons, in contrast to bradyons. For 10 points each:
[10] Name this property. Particles with this property always travel at the speed of light.
ANSWER: **massless**ness [accept answers indicating **zero mass**]
[10] These massless quantized packets of light are depicted with wavy lines on a Feynman diagram.
ANSWER: **photon**s
[10] In 1998, this experiment's observations of flavor oscillations showed that neutrinos are *not* massless as once thought. This pioneering neutrino observatory consists of a tank of pure water deep in a Japanese mine.
ANSWER: **Super-Kamiokande** [accept **Super-Kamioka** Neutrino Detection Experiment or **Super-K** or **SK**]
<Brian Kalathiveetil, Science - Physics> ~12705~

15. After his guardian sells his hen, this story's protagonist prays an invented hymn that states "his thoughts were red thoughts and his teeth were white." For 10 points each:
[10] Name this story, which ends with its protagonist calmly buttering a slice of toast after his godlike pet brutally kills his overbearing guardian.
ANSWER: "**Sredni Vashtar**"
[10] This author's oppressive upbringing by his aunt inspired his story "Sredni Vashtar." His other stories about murderous animals include "The Interlopers."
ANSWER: **Saki** [or Hector Hugh **Munro**]
[10] "Sredni Vashtar" was adapted into a chamber opera by Richard Adams, who wrote this 1972 novel also featuring an animal-based mythological system. This novel features Fiver, Hazel, and other rabbits.
ANSWER: *Watership Down*
<Joseph Krol, Literature - British - Short Fiction> ~18971~

16. In 1962, 15,000 people of Chinese heritage living in this city were sent to prison camps following a border war. For 10 points each:
[10] Name this city whose Christian minority was served by the Missionaries of Charity, a group whose founder won the 1979 Nobel Peace Prize.
ANSWER: **Kolkata** [or **Calcutta**] (The Missionaries of Charity was founded by Mother Teresa.)
[10] The expulsion of Kolkata's Chinese population followed a conflict between India and China over land in this mountain range. Bhutan is located in the eastern section of this range.
ANSWER: **Himalaya**s [or **Ximalaya** Shanmai]
[10] Many "Calcutta Chinese" fled to Markham, a city in this modern-day country. In 1885, this country's government imposed a $50 head tax on Chinese immigrants following the completion of a railway that promoted Confederation.
ANSWER: **Canada** (The railway was the Canadian Pacific Railway.)
<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~18060~

17. Works such as *Assault on the Solar Plexus* make up part of this artist's *Night Journeys* series, made on the walls of a studio originally used by her dead husband. For 10 points each:
[10] Name this Abstract Expressionist who was derisively referred to as the "Action Widow" in the 1970s, ignoring the output of her *Primary Series*.
ANSWER: Lee **Krasner** [or Lenore **Krasner**; or Lena **Krassner**]
[10] Krasner was married to this artist of "drip paintings" such as *Blue Poles* and *Autumn Rhythm*.
ANSWER: Jackson **Pollock** [or Paul Jackson **Pollock**]
[10] The paintings Krasner made between 1946 and 1949 are characterized by heavy use of this technique, where paint is applied to the canvas in thick, heavy masses. This term may come from the Italian for "to knead."
ANSWER: *impasto* [accept word forms like **impastoed**]
<Michael Bentley, Fine Arts - Painting - U.S.> ~18781~

18. Over nine million tourists passed through this place in 2013, reducing its utility as a park. For 10 points each:
[10] Identify this private park on Carmel Hill that was originally planned as a 60-home residential development on Muntanya Pelada ("moon-TAHN-yuh puh-LAH-duh"). These days, it offers workshops on imitating its *trencadís* mosaics in LEGOs.
ANSWER: Park **Güell** ("gwell") [or Parque **Güell**]
[10] Park Güell is located in this Spanish city, where activists erected an anti-Airbnb billboard written in Catalan.
ANSWER: **Barcelona**
[10] One important non-tourism industry in Barcelona is repairing these things, a specialty of MB92. A *New York Times* dispatch focused on the repair of one owned by Roman Abramovich that became a target for seizure in 2022.
ANSWER: luxury **yachts** [accept answers like **superyachts** or **megayachts**; prompt on boats or ships]
<Michael Bentley, Geography - Europe> ~17893~

19. For 10 points each, answer the following about developments in semiconductor fabrication.
[10] An "extreme UV" type of this process allows feature sizes on the order of 10 nanometers. This process shines light through a mask to print patterns onto a resist.
ANSWER: photo**lithography** [or optical **lithography**; accept extreme ultraviolet **lithography** or extreme UV **lithography**]
[10] "High-k" dielectrics can reduce the "leakage" of this quantity due to tunneling in smaller devices. This quantity is the amount of charge flowing over time.
ANSWER: **current** [prompt on *I*]
[10] The world's largest semiconductor foundry is based in this nation and will be the first to produce 3 nm ("nanometer") transistors. This nation is home to ASUS, Acer, and Realtek.
ANSWER: **Taiwan** [or **Republic of China**; accept **Taiwan** Semiconductor Manufacturing Company; prompt on TSMC; do not prompt on or accept "People's Republic of China" or "China"]
<Hari Parameswaran, Science - Engineering and Miscellaneous> ~19328~

20. Each March, people gather in New Orleans' Jackson Square to re-enact a scene in which this character's name is shouted. For 10 points each:
[10] Name this character who, at the end of the play in which she appears, cries after her sister is taken away while a poker game continues on another part of the stage.
ANSWER: **Stella** Kowalski [prompt on Kowalski]
[10] Stella is a character in *A Streetcar Named Desire*, a play by this author of *The Glass Menagerie*.
ANSWER: Tennessee **Williams** [or Thomas Lanier **Williams** III]
[10] Stella recounts how she was "sort of thrilled" when her husband Stanley used her slippers to perform this action on the first night of their honeymoon. Williams was inspired to include that detail after his own lover, Pancho Rodriguez y Gonzalez, performed this action one night while drunk at their Nantucket home.
ANSWER: **smash**ed all the **light** bulbs in the house [accept equivalent descriptions]
<Michael Bentley, Literature - American> ~17957~

21. The average woman in this general class of people gives birth to 6.6 children, compared to a national average of 2.2. For 10 points each:
[10] Name these people who are controversially exempt from mandatory military service in the IDF. Half of all men in this community do not work.
ANSWER: **Haredim** [or **Haredi**; accept **Ultra-Orthodox** or **strictly Orthodox** people; prompt on Orthodox Jews]
[10] The Haredi are four times more likely than other people in this country to live in poverty. This country's longtime Prime Minister Benjamin Netanyahu lost power in 2021.
ANSWER: **Israel** [or State of **Israel**]
[10] Chaim Walder has been called the Haredi version of this man. This man hired ex-Mossad agents to try to prevent journalist Ronan Farrow from breaking news about him in a scandal involving Rose McGowan.
ANSWER: Harvey **Weinstein**
<Michael Bentley, Current Events - World> ~18089~