



## NSC 2018 - Round 07 - Tossups

1. In 2016, scientists discovered that a new pathway for producing this molecule by NUDIX5 is essential for chromatin remodeling. The CFTR protein is among a family of "cassette" proteins that bind this molecule and are known by the acronym "ABC." High levels of this molecule can allosterically inhibit the enzyme phosphofructokinase 1 (phospho-fructo-KY-nase one). Oligomycin inhibits the synthesis of this compound by blocking a (\*) proton channel in one protein's F0 (F-zero) subunit. Peter Mitchell developed the chemiosmotic hypothesis to explain how an electrochemical gradient drives synthesis of this molecule, which is essential for primary active transport. For 10 points, name this energy currency of the cell that can be hydrolyzed to form ADP and phosphate.

ANSWER: ATP [or adenosine triphosphate]

<Ramawami, Science - Biology>

2. Luigi Cherubini (care-oo-BEE-nee) controversially included a tam-tam and mixed chorus in his C minor piece in this genre that premiered at the Abbey of Saint-Denis (san-duh-NEE). Four brass bands are placed at four corners of the stage for the second movement of a piece in this genre by Hector Berlioz. Four offstage trumpets play in the "Tuba Mirum" section of a piece in this genre, sometimes named for Alessandro Manzoni, by (\*) Giuseppe Verdi. Franz von Walsegg commissioned a piece in this genre so that he could pass it off as his own, and it was completed by Franz Sussmayr after its composer's death. Mozart's draft of a piece in this genre cut off during the "Lacrimosa" section of the "Dies Irae" (DEE-ess EE-ray). For 10 points, name this type of mass written for the dead.

ANSWER: Requiem Mass [accept Grande Messe des Morts; prompt on mass or mass for the dead]

<Bollinger, Arts - Music>

3. According to Pliny, a scholar from Alexandria named Sosigenes was consulted for this reform, but other sources state that it was proposed by Aristarchus of Samos. This reform eliminated the need for an entity called "Mercedonius," which was introduced by Numa Pompilius to allow for intercalation. This reform affected a system that was often visualized on public markers called *fasti*, and which followed the "nundinal cycle." The occurrence of (\*) *kalends* or *nones* within Sextilis and Januarius was not changed by this reform, which was introduced in 45 BC. This reform was once believed to have introduced "Undecember" and "Duodecember" as extra months. For 10 points, name this timekeeping reform named for a Roman dictator, which was replaced in the modern era by a "Gregorian" system.

ANSWER: adopting the Julian calendar [accept any answers indicating Julius Caesar's reform of the calendar; prompt on partial answers indicating calendar reform in Ancient Rome]

<Jose, History - European>

4. A 2009 book by Steven Shaviro attempts to imagine Alfred North Whitehead's *Process and Reality* taking the historical place of this book. This book opens by discussing a "question that has been forgotten," but which once "sustained the avid research of Plato and Aristotle." This book discusses translations of Heraclitus's word *logos* when considering *sorge* (ZOR-guh), or "care," as a form of "self-interpretation." This book attempts to destroy the (\*) "metaphysics of presence," in part by distinguishing the present-at-hand from the ready-to-hand. *Sorge* is the feature of intentional beings that allows them to engage in ontology, which this book contrasts with the "ontic." A discussion of *dasein* (DAH-zyne) appears in, for 10 points, what 1927 book, the magnum opus of Martin Heidegger?

ANSWER: Being and Time [or Sein und Zeit]

<Jose, RMP - Philosophy>

5. The binding energy of one type of these systems has a "quantum defect" term in the denominator. Replacing a particle in these systems with another particle with the same charge yields their "exotic" type. Using first-order perturbation theory to model relativistic effects and spin-orbit coupling in these systems yields their "fine structure." The simplest example of these systems is modeled by solving the Schrödinger equation with a (\*) Coulomb potential; that example of these systems has an emission spectrum with Paschen and Balmer lines. J. J. Thomson analogized the distribution of "corpuscles" in these systems to plum pudding. Democritus theorized the existence of, for 10 points, what systems which possess a nucleus and an electron cloud?

ANSWER: atoms [accept Rydberg atoms or exotic atoms or hydrogen atoms]

<Busse, Science - Physics>

6. In his last soliloquy, this character asks to be sucked into a cloud "like a foggy mist" or to have his soul turned to drops of water and thrown in the ocean. When the blood from this man's wounded arm instantly congeals, another character brings a grate of coals to melt it. The "B-text" to the play in which this character appears lengthens the scene in which he punches the Pope in the ear during a dinner. After dismissing the idea that "the reward of (\*) sin is death," this character summons Valdes and Cornelius, two magicians. This character asks, "Was this the face that launch'd a thousand ships?" upon meeting the ghost of Helen of Troy. For 10 points, name this scholar who sells his soul to the demon Mephistophilis in a play by Christopher Marlowe.

ANSWER: Doctor Faustus [do not accept or prompt on "Faust"]

<Bollinger, Literature - British>

7. In 2017, women in this country started a campaign to "rat out your pig." A critic from this country who wrote about her "Sexual Life" in a graphic 2001 memoir received criticism for encouraging a "right to pester" and lamented that "now books need to be rewritten, films reshot" due to a movement that emerged in America. At a 2018 event in this country that recognized Hirokazu Kore-eda, a concluding speech was given by (\*) Asia Argento that called the event a "hunting ground" for Harvey Weinstein. Netflix was also banned from that event in this country. Catherine Millet was one of 100 women from here to co-sign a letter critical of #MeToo that appeared in *Le Monde*. For 10 points, name this European country that hosts the Cannes Film Festival.

ANSWER: France [or French Republic; or République française]

<Bentley, Current Events - Foreign>

**8. Pierre Trudeau's government accepted more than seven thousand people of this ethnicity into Canada following an airlift organized by UN Secretary General Kurt Waldheim (VALD-hyme). People of this ethnicity comprise the Girit community in Fiji. A statue in Pietermaritzburg commemorates when a member of this ethnicity was ejected from a Natal train carriage in 1893. Ninety percent of the 140,000 people of this ethnicity recruited as (\*) indentured servants to post-abolition Trinidad in the 19th century stayed on the island. 74,000 people of this ethnicity were expelled from Uganda in 1972. In 1906, a young lawyer of this ethnicity living in South Africa launched his first campaign based on the philosophy of satyagraha. For 10 points, name this ethnicity of Mahatma Gandhi.**

ANSWER: Indian [or South Asian; or Asians; or Pakistani; or Bangladeshi; or Indian-Ugandans; or Indian-Fijians; accept Nizari or Ismaili in the first sentence, but prompt after; prompt on Ugandans until read]  
<Bentley, History - World>

**9. A saint of this name gave his follower Serapion a sheepskin cloak after his death. A Portuguese saint of this name converted the heretics of Rimini after he went to a river, started preaching, and numerous fish listened to his sermons. An order named for another saint of this name became renowned for treating "holy fire," or ergotism. A saint of this name, who was the subject of a biography by Athanasius, was a (\*) hermit who once found a plate made of silver in the desert. That figure of this name was a desert father who supposedly encountered a demonic satyr and centaur while trying to find Paul, and once saw many little demons while occupying a cave. For 10 points, give this name of an Alexandrian saint whose "temptation" was frequently depicted in art.**

ANSWER: Anthony [accept Saint Anthony the Great or Saint Anthony of Padua or Anthony of Lisbon]  
<Jose, RMP - Bible/Christianity>

**10. The 1923 obscenity trial for a play written in this language is depicted in Paula Vogel and Rebecca Taichman's (TYKE-min's) *Indecent*. That play in this language ends with a brothel owner hurling a scroll to the ground after his daughter falls in love with one of his prostitutes and is called *God of Vengeance*. In a story in this language, a man "Strikes It Rich" by giving a rich family a ride to the resort town Boiberik. This language of I. L. (\*) Peretz was also used for a story about a baker who urinates into his dough after his wife Elka confesses that their six children are not his. "Gimpel the Fool" and stories about Tevye (TEV-yeh) the Milkman were written in this language. Sholem Asch, Sholem Aleichem, and Isaac Bashevis Singer wrote in, for 10 points, what language once commonly used by Ashkenazi Jews?**

ANSWER: Yiddish [do not accept or prompt on "Hebrew"]  
<Kothari, Literature - European>

**11. Electroosmotic (electro-oz-MOT-ik) flow occurs during a form of electrophoresis (electro-for-EE-siss) named for these objects. The length scale at which a drop of liquid begins to flatten due to gravity is named for this object. The time needed for a liquid to flow between two points in one of them is used in certain forms of viscometry (viss-KOM-uh-tree). An analyte is placed in one of them before being heated in a (\*) MEL-TEMP (mel-temp) device to determine melting point. Due to the shape of these objects, surface tension and adhesive forces cause a namesake effect to form a meniscus. These items name an effect in which liquids may flow into them opposing the force of gravity, which is their namesake "action." For 10 points, name these extremely narrow tubes that share their name with very thin blood vessels.**

ANSWER: capillary (CAP-ill-airy) tubes [or capillaries; or capillary electrophoresis; or capillary action; prompt on tubes]  
<Wang, Science - Chemistry>

**12. Two ships from this country's navy were sunk immediately after war was declared in the Battle of Chemulpo. A naval commander from this country was the first to successfully fire a torpedo in battle, sinking the *Intibakh* in 1878. This country's first significant naval victory lent its name to its Gangut Class of Dreadnoughts. This country's navy, along with that of France and Britain, defeated Ibrahim Pasha to secure Greek independence. 80 years later, its navy fired on a British (\*) trawler in the 1904 Dogger Bank incident. After defeating the Turks at Azov in 1696, this country obtained its first naval port on the Black Sea. This country's Pacific fleet was defeated at Port Arthur by the Japanese. For 10 points, name this country whose Baltic fleet has a base in St. Petersburg.**

ANSWER: **Russia** [or **Russian Federation**; or Imperial **Russia**; do not accept or prompt on "Soviet Union" or "USSR" or equivalents because none of the clues apply to it]

<Bentley, History - European>

**13. A group of practitioners of this art form regularly re-enact a 1976 historical event known as the "Invasion of the Pines." Three people who practice this art form, one of whom is played by Patrick Swayze, venture to Hollywood with a photograph of the actress Julie Newmar in a 1995 film.**

**Practitioners of this art form often organize themselves into "houses," such as the one named for (\*) Alyssa Edwards. Candy Darling was among the practitioners of the "high" version of this art form, which is showcased in exhibitions such as Nightgowns in Bushwick. Like voguing, this art form grew out of the New York ball scene. For 10 points, identify this art form, a type of crossdressing whose namesake "queens" include RuPaul.**

ANSWER: **drag** [or **drag** queens; or **drag** show; or **drag** pageantry; prompt on cross-dressing or dressing as a woman; prompt on ball culture or the ballroom community]

<Bentley, Arts - Misc>

**14. During this event, the mouth of a "sandy-haired woman" is seen "opening and shutting like that of a landed fish." During one of these events, a man imagines shooting a girl in greasy overalls full of arrows like Saint Sebastian. This event begins with "a noise that set one's teeth on edge" and ends with the chanting of "B-B! ... B-B!" During this event, the noise of a sheep bleating replaces the voice of a man with a "long thin nose" and a "small goatee" as (\*) images of marching Eurasian soldiers appear. The protagonist sees a dark-haired girl from the Fiction Department at this event, which centers on screaming at the image of Emmanuel Goldstein, Enemy of the People. For 10 points, Winston and Julia participate in what daily ritual that reinforces loyalty to Big Brother in *1984*?**

ANSWER: **Two Minutes Hate**

<Grames, Literature - British>

**15. Differences in this quantity among red dwarfs, red giants, and red supergiants results in spectral broadening that allows scientists to distinguish between those stars. A form of this quantity responsible for "stripping" gases from a galaxy cluster is thought to drive the formation of protostars. Another form of this quantity is overcome by self-gravity at the (\*) Chandrasekhar limit. A form of this quantity caused by the Sun's radiation could theoretically power a solar sail. White dwarfs support themselves against collapse by a form of this quantity caused by electron degeneracy. This quantity is higher in stellar cores, which increases the rate of fusion. For 10 points, name this quantity that is often measured in pascals.**

ANSWER: **pressure** [accept pressure broadening or ramjet pressure stripping or radiation pressure or electron degeneracy pressure]

<Jose, Science - Astronomy>

**16. Jo Ann Robinson used a school photocopier in the middle of the night to make fifty thousand fliers supporting this campaign. The instigator of this campaign avoided James F. Blake for twelve years due to a money quarrel. It was ended with the resolution of a lawsuit filed on behalf of Claudette Colvin that resulted in *Browder v. Gayle*. E. D. Nixon (\*) posted bail for the instigator of this campaign, which was run by the MIA (M-I-A) out of the Zion AME (A-M-E) church. Some cab drivers offered discounts during this campaign, which financially hurt a City Lines company. The seamstress who started this campaign resisted for a different reason than that her feet were tired. For 10 points, name this campaign, kicked off by Rosa Parks's refusal to move her seat.**

ANSWER: **Montgomery bus boycott** [prompt on partial answer]

<Bentley, History - American>

**17. A smaller version of this painting, now in the Toledo (toh-LEE-doh) Museum of Art, was made in collaboration with Anne-Louis Girodet (zhee-ro-DAY). The background of this painting was based on the recently discovered Temple of Paestum that its artist saw while on his Prix de Rome trip. The scene depicted in this painting was possibly drawn from the early drafts of a Corneille (cor-NAY) play. The left-most man in this painting wraps his left arm around a spear and is (\*) embraced by the man behind him. An engaged woman named Camille weeps on the right-hand side of this painting. The oldest man in this painting stands under the center of three arches and holds his sons' swords in the air. For 10 points, name this painting by Jacques-Louis David of three Romans taking the title vow.**

ANSWER: *The Oath of the Horatii* (ho-RAH-shee) [or *Le Serment des Horaces*]

<Bentley, Arts - Painting>

**18. In a deleted scene, this woman is described as playing "shovelboard" with the "Deputy Governor" every night, and having a face that "people ride a hundred miles to see." This woman describes how "Indians smashed" her "dear parents' head on a pillow" in an early scene. In a section called "Echoes Down the Corridor," it is revealed that this woman turned up as a prostitute after she steals 31 pounds from her uncle and flees on a ship with (\*) Mercy Lewis. This woman claims that her former master's wife made a "poppet" and put a pin in it; earlier she accused the slave Tituba of making her drink blood in a forest. For 10 points, name this character who accuses John Proctor's wife Elizabeth of witchcraft in the play *The Crucible*.**

ANSWER: **Abigail Williams** [or **Abby** Williams; accept any underlined name]

<Jose, Literature - American>

**19. This man recalled that he and his sister Elizabeth stayed at Avrion Mitchison's frigid Scottish country house one Christmas in a memoir that described how his rival ridiculed his proposal about the placement of magnesium ions in a model he created. This author of the memoir *Avoid Boring People* sold his Nobel Prize after resigning as director of Cold Spring Harbor Laboratory due to his controversial claims about the (\*) intelligence of African people. At the Cavendish Laboratory at Cambridge, this American and his British colleague beat Linus Pauling to a major discovery using molecular models and the X-ray images of Maurice Wilkins and Rosalind Franklin. *The Double Helix* was a memoir by, for 10 points, what colleague of Francis Crick?**

ANSWER: James **Watson** [or James Dewey **Watson**]

<Kothari, Mixed/Other/General Knowledge>

**20. According to Herodotus, this figure rewarded Cleobis (klee-OH-bis) and Biton (BYE-ton) for pulling their mother's cart to a temple by allowing them to die in their sleep. This character claimed to be planning a visit to Oceanus (oh-shee-ANN-us) and Tethys (TETH-iss), then promised a golden throne to Hypnos, as part of a plot that ended with making love in a golden cloud on Mount Ida. Lamia's (LAH-mee-ah's) children were killed by this deity, who blinded (\*) Tiresias (tye-REE-see-us) for claiming that women derive more pleasure than men from sex. Political power and control of Asia were offered to Paris by this deity, who set Argus Panoptes (pan-OP-teez) to guard Io (EYE-oh). This goddess caused the early birth of Eurystheus (yu-RISS-thee-us) to spite her recurring enemy Heracles. For 10 points, name this Greek goddess, the mother of Ares and wife of Zeus.**

ANSWER: **Hera** [accept **Juno** until "Greek" is read]

<Carson, RMP - Greco-Roman Myth>

**21. Two of these places were abandoned during Operation Fiery Vigil prior to the eruption of Mount Pinatubo. A desalination plant was built at one of these places after a neighboring Communist country cut off the water supply from the Yateras River. A large one of these places in Subic Bay in the Philippines was abandoned in 1992. The most populous international one of these places is Ramstein in Rhineland-Palatinate. A 2,000-dollar-per-year (\*) lease for land for one of these places was written into the Platt Amendment. Five years separated shooting sprees at one of these places in Texas named for John Bell Hood. A detention camp is located at one of these places in Guantánamo Bay, Cuba. For 10 points, name these centers of American military personnel.**

ANSWER: US military **bases** [or military **posts**; or US naval **bases**; or US Air Force **bases**; or US Army **bases**; or overseas military **bases**; or NATO **bases**; prompt on coaling station; anti-prompt on detention center]

<Bentley, Geography - World>



### NSC 2018 - Round 07 - Bonuses

1. This was the first movie by its director to feature extensive use of a 14-millimeter wide-angle lens, which is now nicknamed for this director. For 10 points each:

[10] Name this dystopian comedy by Terry Gilliam about Sam Lowry, a bureaucrat for the Ministry of Information who falls in love with Jill, a truck driver who is trying to fight the wrongful arrest of her downstairs neighbor, Harry Buttle.

ANSWER: **Brazil**

[10] Buttle is arrested because he is mixed up with a renegade heating engineer played by this Italian-American actor. He played the protagonists of *Taxi Driver* and *Raging Bull*, and co-starred as Jimmy Conway in *Goodfellas*.

ANSWER: Robert **De Niro**

[10] Terry Gilliam's *Brazil* includes a shootout filmed as an homage to the "Odessa Steps" sequence from this Soviet director's film *Battleship Potemkin*.

ANSWER: Sergei **Eisenstein**

<Kothari, Arts - Film>

2. During this war, the U.S. Army required recruits to pass an intelligence test that included multiple-choice questions such as "A house is better than a tent, because..." For 10 points each:

[10] Name this conflict in which the American Expeditionary Force broke the stalemate on the Western Front.

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

[10] During World War I, Herbert Hoover led a campaign that encouraged homemakers to make use of the "victory" types of these things to save resources for the troops.

ANSWER: victory **gardens** [or war **gardens**]

[10] Hoover helped secure the 1928 Republican nomination by overseeing relief efforts for one of these natural disasters a year earlier. Arkansas was particularly hard hit by the 1927 instance of one of these disasters.

ANSWER: **flood** of the **Mississippi** River [prompt on river **flood**]

<Bentley, History - American>

3. If the difference in this quantity between two atoms is between 0.4 and 1.6, then a bond between them is considered polar covalent. For 10 points each:

[10] Identify this quantity that Pauling set on a scale from zero to four. It describes the ability of an atom to attract electrons to itself.

ANSWER: **electronegativity**

[10] The Allred-Rochow scale calculates electronegativity by taking this quantity over atomic radius squared. This quantity is the pull experienced by an electron from the nucleus after accounting for the shielding effect.

ANSWER: **effective nuclear charge** [or **Z-effective**, or **Z-eff**; prompt on **Z**]

[10] Effective nuclear charge can be approximated using rules named for this scientist, where electrons in s and p orbitals contribute 0.35, and electrons in d and f orbitals contribute 0.85.

ANSWER: John Clarke **Slater** [or **Slater's** rules]

<Prieto, Science - Chemistry>

4. Early in this novel, the protagonist arrives in Montsou, where Maheu (**mah-OO**) gets him a job pushing carts at Le Voreux. For 10 points each:

[10] Name this novel in which Étienne Lantier (**ay-tee-EN lawn-tee-AY**) becomes the leader of a coal miners' strike. It is named after a spring month of the French revolutionary calendar.

ANSWER: ***Germinal*** (**ZHAIR-mee-nal**)

[10] *Germinal* is part of the *Rougon-Macquart* (**roo-GON-mah-CAR**) cycle by this French author, a pioneer of naturalism.

ANSWER: Émile **Zola** [or Émile Édouard Charles Antoine **Zola**]

[10] In Zola's novel *La Bête humaine* (**la BET oo-MEN**), Jacques Lantier is extremely attached to one of these objects he calls *La Lison*. In a Patricia Highsmith novel partly titled for one of these objects, Charles Anthony Bruno proposes that he and Guy Haines exchange murders.

ANSWER: a **train** [or **locomotive**; or train/locomotive **engine**; accept ***Strangers on a Train***]

<Carson, Literature - European>

5. Merchants in this one-time market town built a hall for the trade of white cloth, and in the 19th century erected a domed Corn Exchange. For 10 points each:

[10] Identify this English city in West Yorkshire, the third most populous city in the United Kingdom.

ANSWER: **Leeds** [or City of **Leeds**]

[10] There are 91 locks on one of these routes that connects Leeds to Liverpool. Many of these projects were constructed in England prior to the invention of the railroad due to the cost of land transportation.

ANSWER: **canals** [or **navigation**s; prompt on **artificial waterways**]

[10] The Yorkshire-born radio presenter Wilfred Pickles was the first person to broadcast on the BBC in a regional accent rather than this "standard" one, which is abbreviated RP.

ANSWER: **Received Pronunciation** [prompt on **RP**; do not accept other answers like "The Queen's English" since they aren't abbreviated RP]

<Bentley, Geography - Europe>

6. This artist and his student Barristino supposedly owned an ape that once broke all the tiles on the roof of a friar's home by dancing on top of it. For 10 points each:

[10] Name this Italian artist, named for his red hair and home city. In his best-known painting, made for the Duomo of Volterra, men in brightly colored robes climb ladders to perform the title *Deposition of Christ*.

ANSWER: Rosso **Fiorentino** [or Il **Rosso**; or Giovanni Battista di **Jacopo**]

[10] Fiorentino was a student of Andrea del Sarto, an artist best known for his painting of this person standing on top of a pedestal with relief sculptures of harpies on it.

ANSWER: **Madonna** [or **Madonna and Child**; or Virgin **Mary**; or the Blessed **Virgin**]

[10] Fiorentino was a Florentine artist who painted in this mode, whose name comes from an Italian word for "style." Parmigianino's *Madonna with the Long Neck* exemplifies this style, which often used elongated proportions and unnatural poses.

ANSWER: **Mannerism** [or **Mannerist**; prompt on Late **Renaissance**]

<Bentley, Arts - Painting>



7. Identify the following about religious developments during the reign of Akbar the Great, for 10 points each.  
[10] Akbar abolished the jizya, a tax that had previously applied to people who did not belong to this faith. This faith distinguishes between "people of the book," such as Christians and Jews, and pagans.

ANSWER: **Islam**

[10] Shi'a scholars at Akbar's court came up with the fiction that the emperor was engaged in 99-year temporary marriages so that he could marry more than this maximum number of wives allowed by Sharia.

ANSWER: **four**

[10] A mahzar written by Shaykh Mubarak granted Akbar the right to use independent reasoning while interpreting the Qur'an, an action which is denoted by this Arabic term that can be literally translated as "effort."

ANSWER: **ijtihad**

<Bentley, RMP - Other Religion>

8. The most common English title of this work is shared with that of the winner of the 2014 Booker Prize, a Richard Flanagan novel about Dorrigo Evans's experiences as a POW in the Pacific theater of World War II. For 10 points each:

[10] Name this *haibun* travelogue detailing an 1689 journey in which the author attempted to visit all of the places mentioned in the poetry of Saigyō.

ANSWER: *The **Narrow Road to the Deep North*** [or ***Oku no Hosomichi***; accept *The **Narrow Road to the Interior***]

[10] The original *Narrow Road to the Deep North* was written by this Japanese haiku master, who took his pseudonym from a banana plant growing near his hut.

ANSWER: **Matsuo Bashō** [or **Matsuo** Chueemon **Munefusa**; accept any underlined portion; accept names in either order]

[10] A Bashō haiku that ends with the line "*mizu no oto*" (mee-ZUU no oh-TOH) describes the "sound of water" produced by this occurrence. A description is acceptable.

ANSWER: a **frog** jumping into a **pond** [accept any answer that mentions a **frog** entering a **pond**; accept answers that describe the pond as "quiet" or "old"; prompt on water in place of "pond"]

<Carson, Literature - World>

9. Answer the following about a problem that vexed the ancient Greeks for centuries, for 10 points each.

[10] This problem involving a certain Platonic solid's volume is impossible to solve with a compass and a straightedge due to the need to draw a line segment of inconstructible length.

ANSWER: **doubling the cube** [accept equivalents like constructing a **cube** with **double** the volume of another]

[10] Even the ancient Greeks knew that doubling the cube was possible using this construction technique with a Greek name. It makes use of a marked ruler that can rotate around a fixed point on its body.

ANSWER: **neusis** (NOO-siss) construction

[10] The author of this treatise denounced use of the neusis, and therefore all of the constructions in this work can be performed with a compass and straightedge. Its first book introduces a set of five postulates.

ANSWER: Euclid's **Elements**

<Minarik, Science - Math>

10. The first edition of this project divided the races of man into American, European, Asiatic, African and "monstrous." For 10 points each:

[10] Identify this reference work whose first edition was largely edited by the Edinburgh-based former underwear maker William Smellie.

ANSWER: *Encyclopedia* **Britannica** [prompt on *Encyclopedia*]

[10] An earlier English reference text by "Technical" Harris supposedly had entries written by this author of *Principia Mathematica* and co-inventor of calculus.

ANSWER: Isaac **Newton**

[10] The most contentious article in the landmark French Encyclopédie was one by d'Alembert (**dah-lom-BAIR**) on this city that asserted that its residents were deists. Michael Servetus was executed in this city.

ANSWER: **Geneva** [or **Geneve**; or **Genf**; or **Ginevra**]

<Bentley, History - European>

11. Joseph Haydn's *The Seasons* was inspired by the success of this previous oratorio. For 10 points each:

[10] Name this oratorio that begins with "The Representation of Chaos." It depicts the origin of light in the book of Genesis with a pizzicato note followed by a loud C major chord.

ANSWER: *The* **Creation** [or *Die* **Schöpfung**]

[10] This composer wrote a piano cycle called *Das Jahr* (**doss yarr**) whose "December" movement climaxes with variations on the chorale "Vom Himmel hoch, da komm ich her" (**vom HIM-ull HOKE, da KOM ikh HAIR**). She likely wrote some of her brother's *Songs Without Words*.

ANSWER: **Fanny Mendelssohn**-Bartholdy [prompt on partial answers; accept Fanny **Hensel**]

[10] This Italian Baroque composer included *The Four Seasons* in his set of violin concerti *The Contest Between Harmony and Invention*.

ANSWER: Antonio **Vivaldi**

<Kothari, Arts - Music>

12. This author published a collection of essays as *Homage to Qwert Yuiop*, and commented on contemporary fiction in his book *Ninety-Nine Novels*. For 10 points each:

[10] Name this author of the Enderby quartet, whose most famous novel opens with the protagonist and his "droogs" hanging out at the Korova Milk Bar.

ANSWER: Anthony **Burgess**

[10] In this novel by Anthony Burgess, the delinquent Alex is subjected to the Ludovico Technique to condition him out of his violent urges, which he exhibits by killing the wife of F. Alexander.

ANSWER: *A* **Clockwork Orange**

[10] Burgess's list of *Ninety-Nine Novels* includes *The Unlimited Dream Company* by this fellow dystopian author, who wrote about people who are sexually aroused by car accidents in the novel *Crash*.

ANSWER: James Graham **Ballard**

<Bollinger, Literature - British>

13. In the "brane-world" scenario, closed versions of these constructs propagate through space to give rise to gravitational forces. For 10 points each:

[10] Name these one-dimensional constructs. They name a theory that attempts to reconcile general relativity and the Standard Model.

ANSWER: **strings** [accept **string** theory]

[10] String theory is a candidate "theory of everything," which could be constructed by unifying gravity with one of these theories that combine the electromagnetic, weak, and strong gauge interactions into one force.

ANSWER: **GUT** [or **Grand Unified Theory**]

[10] This primary competitor to string theory as a theory of everything proposes that spacetime itself is quantized, forming spin networks, which can evolve over time into spin foams.

ANSWER: **loop quantum gravity** [or **LQG**; prompt on **quantum gravity**]

<Kalathiveetil, Science - Physics>

14. Answer the following about gaps in philosophy, for 10 points each.

[10] The idea that thoughts cannot be observed by observing the brain is sometimes known as this philosopher's "gap," since he described it in a passage in his *Monadology*.

ANSWER: Gottfried Wilhelm von **Leibniz**

[10] The fact that physicalist theories in the philosophy of mind have trouble accounting for people's subjective experiences is often known as this kind of gap, a term coined by Joseph Levine.

ANSWER: **explanatory** gap

[10] This biologist criticized the so-called "god of the gaps" in his book *The God Delusion*. This New Atheist also wrote *The Selfish Gene*.

ANSWER: Richard **Dawkins** [or Clinton Richard **Dawkins**]

<Nediger, RMP - Philosophy>

15. By 835, Aghlabid forces were using this substance in battle. For 10 points each:

[10] Identify this weapon useful in naval warfare because it continued to burn even when placed on water. This incendiary substance is named for the Byzantines, who first used it.

ANSWER: **Greek fire** [or **sea fire**; or **Roman fire**; or **liquid fire**; or **sticky fire**; or **manufactured fire**; or **war fire**]

[10] The Great Mosque of Qairawan, built by the Aghlabids in this modern-day country, was once the second holiest pilgrimage site in Islam. The Arab Spring started when Mohamed Bouazizi set himself on fire in this country in 2010.

ANSWER: **Tunisia** [or Republic of **Tunisia**; or **Tunis**]

[10] The Aghlabids lost power to this Shia dynasty, whose leaders made Mahdia their first capital. The al-Azhar Mosque was built in this dynasty's second capital after a conquest by General Jawhar under Caliph Al-Mu'izz.

ANSWER: **Fatimid** Caliphate [or **Fatimid** Dynasty]

<Bentley, History - World>

16. Babi, a god who took the form of this animal, generally hung out by a lake of fire in the underworld eating entrails but also protecting the virility of the dead. For 10 points each:

[10] Name this animal, also the form of Hapi, the patron of the canopic jar that contained the lungs.

ANSWER: **baboons**

[10] Babi or another baboon sometimes replaces the monster Ammit in depictions of the weighing of the hearts of the dead against one of these objects belonging to Ma'at, the goddess of truth.

ANSWER: a **feather** [accept the **feather** of Ma'at or the **feather** of truth or an ostrich **feather**]

[10] This scribe of the Egyptian gods was often depicted as having the head of either an ibis or a dog-faced baboon. He is the embodiment of wisdom.

ANSWER: **Thoth** [accept **Djehuty**]

<Jose, RMP - Other Myth>

17. A 1951 dissertation by Carroll D. Lavery discusses this author's incorporation of "science and pseudo-science" into his writings. For 10 points each:

[10] Name this author who compared the expansion of the universe to the "throb of Heart Divine" and supposedly resolved the astronomical Olbers' paradox in his poem *Eureka*.

ANSWER: Edgar Allan **Poe**

[10] Poe cited a volume of *Chemical Essays* to suggest that this character's belief in the "sentience of all vegetable things" was scientific. This character and his sister Madeline perish in a story that ends with their mansion being torn asunder.

ANSWER: **Roderick Usher** [accept either underlined portion]

[10] Poe cited Archimedes to claim a cylinder would have a harder time being sucked into a vortex in this story, in which a man's hair turns white after surviving the title harrowing voyage.

ANSWER: "A **Descent into the Maelstrom**"

<Jose, Literature - American>

18. Marshal Louis-Hubert Lyautey is profiled in a recent book on this group. For 10 points each:

[10] Identify this French military unit founded in 1831, but not open to native-born citizens until 1881.

ANSWER: French **Foreign Legion** [or **Légion étrangère**]

[10] The French Foreign Legion was established by Louis Philippe during the conquest of this country, which was ruled at the time by Ahmed Bey. The Évian (ayv-YAWN) Accords ended a bloody war of independence here.

ANSWER: **Algeria** [or People's Democratic Republic of **Algeria**]

[10] In 1835, the Foreign Legion was employed by Maria Cristina, the consort of Ferdinand VIII, to put down a rebellion of this faction. This group was an offshoot of the clerical-friendly apostólico faction and opposed the Constitution of 1812.

ANSWER: **Carlists** [or **Carlism**; or **Carilismo**]

<Bentley, History - European>

19. This economist developed revealed preference theory, which uses observed consumer behavior to predict economic decisions. For 10 points each:

[10] Name this Keynesian economist who authored later editions of his popular textbook *Economics* with William Nordhaus.

ANSWER: Paul **Samuelson**

[10] Samuelson's textbook, likely based on incorrect assumptions, predicted that the GDP of this country led by Leonid Brezhnev would overtake that of the US in the latter half of the 20th century.

ANSWER: **Soviet Union** [or **USSR** or **Union of Soviet Socialist Republics**; or **SSSR** or **Soyuz Sovetskikh Sotsialisticheskikh Respublik**; prompt on **Russia**]

[10] Samuelson's textbook introduced this three-word term for an observation he attributed to Keynes, who in turn noted a similar idea in *The Fable of the Bees*. This concept states that underconsumption may benefit an individual, but a collective preference for underconsumption may reduce total utility.

ANSWER: **paradox of thrift** [prompt on **paradox of savings**]

<Alston, Social Science - Economics>

20. This organelle is made of a 20S core particle and a 19S regulatory particle, and its two alpha-rings flank its barrel-shaped core. For 10 points each:

[10] Name this organelle that is essential for breaking up unneeded proteins. Proteins with a polyubiquitin (**poly-yoo-BIK-wit-in**) chain are usually targeted to this complex for degradation.

ANSWER: **proteasomes**

[10] The "S" in the "19S" and "20S" components of the proteasome refers to this unit of measure, named for a Swedish chemist. It measures the sedimentation rate of particles during centrifugation.

ANSWER: **Svedberg** units

[10] Svedberg units are also commonly used to characterize the subunits of ribosomes. Ribosomes are commonly found on the "rough" type of this organelle, unlike its "smooth" type.

ANSWER: **endoplasmic reticulum** [or **ER**; accept rough **ER** or smooth **ER**]

<Ramaswami, Science - Biology>

21. Critics like Arthur Griffith attacked the "vile and inhuman story" of this play, which particularly scandalized audience members with its line "a drift of females standing in their shifts." For 10 points each:

[10] Name this play in which Christy Mahon claims to have killed his own father, the masterpiece of John Millington Synge (**sing**).

ANSWER: *The **Playboy of the Western World***

[10] *The Playboy of the Western World* makes prominent use of the Hiberno-English dialect spoken in County Mayo in this modern-day country, which also contains Synge's birthplace.

ANSWER: **Ireland** [or **Éire**; or Republic of **Ireland**; or Poblacht na **hÉireann**]

[10] W. B. Yeats referenced the *Playboy* riots when trying to calm rioters at the 1926 debut of this play, the final act of which includes the deaths of Bessie Burgess and Jack Clitheroe. It takes its name from a flag introduced by the Irish Citizen Army.

ANSWER: *The **Plough and the Stars*** (by Sean O'Casey)

<Carson, Literature - European>



