

## Prison Bowl VII

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### Round 04 – Tossups

1. The width of these phenomena can be minimized with a tunable dye laser. Their displacement equals magnetic quantum number times Bohr magneton times magnetic field in the Zeeman effect. Two of these denoted D2 are also called the sodium doublet. Their wavelengths are proportional to the difference of inverse squares of principal quantum numbers by the Rydberg formula, and they include hydrogen's visible Balmer series and the sun's Fraunhofer lines. Caused by absorption and emission of photons, for 10 points, name these bright or dark bands on a continuous spectrum.

ANSWER: spectral lines [accept emission lines or absorption lines before mention] <SH>

2. In this novel, an artist feels the protagonist's shoulder blades to see if wings are growing out. This novel opens with the image of a caged parrot squawking "Get away!", which is echoed when the protagonist buys a "pigeon house" to establish her independence. Its protagonist experiences sexual tension with both the alienated pianist Mademoiselle Reisz and the family-devoted mother Madame Ratignolle. In this novel, Alcee Arobin and Robert Lebrun pursue relationships with the protagonist, who ultimately drowns herself in the sea. For 10 points each, name this 1899 novel focusing on Edna Pontellier's exploration of femininity, written by Kate Chopin.

ANSWER: *The Awakening* <MZ>

3. A man with this surname wrote the majority opinion in *West Virginia Board of Education v. Barnette*, ruling that students could not be forced to recite the Pledge. That man served as Chief US Prosecutor during the Nuremberg trials and succeeded Harlan Stone as Associate Justice. The Coffin Handbills attacked a man with this surname who avenged the Fort Mims Massacre. One cartoon showed that man slaying a monster with a cane labeled "veto", and that man led US forces during the War of 1812 at the Battles of Horseshoe Bend and New Orleans. For 10 points, give this surname shared by a Supreme Court Justice and the seventh US President nicknamed "Old Hickory".

ANSWER: Jackson [accept the first names Robert or Andrew] <JL/RN>

4. This work's third act includes a dance inserted by Ludwig Minkus for the premiere performer Anna Sobeshchanskaya. An oboe solo in B minor theme opens the first act of this work. This ballet features nationalistic dances such as a Mazurka, Spanish, and Neapolitan in its third act, in which the protagonist pledges his love to Odile. In the finale of this ballet, the evil sorcerer Von Rothbart is defeated, and Prince Siegfried and Odette commit suicide by jumping into the title body of water. For 10 points, name this Pyotr Tchaikovsky ballet in which a woman is transformed into a certain bird.

ANSWER: *Swan Lake* <AT>

5. In this TV show, the son of an ex-member of the Yiddish Mafia questions the Jewish credentials of a man who, in the first season, is shot during an assassination attempt on Charlie Young. In this TV show, a nuclear accident in California ruins the campaign of Arnold Vinick, who ran against Matt Santos to replace the man who employed Leo McGarry and later C.J. Cregg as his Chief of Staff. The fictional Democratic presidency of Josiah Bartlet is the subject of this show written by Aaron Sorkin. For 10 points, name this television series featuring several walk-and-talk conversations in the title location of senior staff offices in the White House.

ANSWER: *The West Wing* <SH>

6. This concept partially titles an A.J. Ayer work that sought to eliminate metaphysics and proposed its verification principle. In the study of this concept, Saul Kripke proposed rigid designators, which designate the same thing in all possible worlds. A Bertrand Russell essay in the study of this concept argues that all names are definite descriptors. The beetle-in-a-box argument addresses its private type, which Ludwig Wittgenstein argued cannot exist. Persistent questions in the study of this concept include how it denotes meaning, and to what extent it is acquired or innate. For 10 points, name this structured form of spoken, written, or signed communication.

ANSWER: language [accept private language] <MZ>

7. One of this author's works includes symbolic representations of the thirteen stories of Herbert Quain's *April March*. Another of his stories features a Frenchman who replicates *Don Quixote*. Hronir begin appearing as the Earth becomes Tlon in his *Tlon, Uqbar, Orbis Tertius*. The narrator of one of this writer's works admits an "innumerable contrition and weariness" after murdering Albert upon imminent capture. That character, German spy Dr. Yu Tsun, discovers that his ancestor's complex novel is a labyrinthine courtyard. For 10 points, name this Argentinian author of *Ficciones*, which contains "The Garden of Forking Paths" and other meta short stories.  
ANSWER: Jorge Luis Borges <SH>

8. Material buckling must be equal to geometric buckling for this process to occur at a steady state. The product of thermal utilization factor and three other factors gives K, the effective neutron multiplication factor, which must be greater than one for this process to occur. This process may be halted by iodine pits or poisoning with xenon. More material is produced than consumed by this process in breeder reactors. It is sustained when a material has a supercritical mass, and it can occur when a neutron is absorbed by plutonium-239 or uranium-235. For 10 points, name this energy-releasing reaction in which the nucleus of a particle is split into smaller parts, used in atom bombs.  
ANSWER: nuclear fission [do not accept "fusion"] <AT>

9. A half-brother of this figure won at the Panathenian Games before being murdered out of jealousy; that half-brother was Androgeus. This figure was conceived after an animal from Poseidon was not sacrificed as promised and seduced by a queen inside a wooden cow. That wooden cow was built by the designer of this creature's enclosure. Also known as Asterion, this beast received seven sacrifices every year from Athens. This creature's half-sister, Ariadne, gave a ball of string to Theseus which allowed Theseus to navigate out of the Labyrinth after killing this creature. For 10 points, name this Greek creature with the body of a man and the head of a bull.  
ANSWER: the Minotaur [accept Asterion or Asterius until mentioned] <AM>

10. A version of this work ends, "My tale is done. A mouse has run. And whoever catches it can make for himself from it a large, large fur cap." A character claims that he is looking at his white cat on a roof that wants to say good-bye to him. Another character in this story recognizes that a white duck cannot ferry more than one person across a lake. Those two characters are fooled by a wind-beaten branch tied to a tree that sounds like an ax. In this story, a character sticks out a bone instead of his finger to get more food, and is rescued when a witch is pushed into an oven. For 10 points, name this story whose title siblings are left to starve, and devour a gingerbread house.  
ANSWER: "Hansel and Gretel" [or "Hansel und Gretel"] <MZ>

11. Margaret of Savoy was captured in this city during a successful Restoration War. Sir Richard Fletcher constructed the Lines of Torres Vedras to protect this city during the Peninsular Campaign. The Indian Run began here, while a later treaty in this city ceded Mumbai to the English. Recaptured in 1147 by Crusaders from the Moors, this city began a later national revolt against Spain with the Duke of Braganza's help. In 1755, this city's Manueline architecture suffered from a devastating earthquake. This city rose to prominence during the House of Aviz's rule over its country. It faces the Atlantic on the Tagus River. For 10 points, name this capital of Portugal.  
ANSWER: Lisbon [accept Lisboa] <RN>

12. Josephus described this man's death as occurring at Macherus. This man's famous acts were said to happen at either Aenon or Bethabara. When the father of this figure disbelieved his infertile wife was to conceive, the father was left mute by the angel Gabriel. This man is described in the gospels of Mark and Matthew as a "voice crying out in the wilderness". This man was killed by the request of Salome at the urging of Salome's mother, who held a grudge against him. For 10 points, name this man who ritually bathed Jesus Christ.  
ANSWER: Saint John the Baptist [accept John the Forerunner; prompt on John] <AM>

13. The social form of this quantity is calculated through the addition or subtraction of externalities and consumer surplus to its normal form. The marginal revenue curve intersects the marginal costs curve where this quantity is maximized, but in the long run, it cannot exist in a perfectly competitive market. This quantity exists in two forms, accounting and economic, one of which does not include implicit opportunity cost. It is equal to total income minus total cost. For 10 points, name this economic quantity, the additional return granted to an owner from an investment.  
ANSWER: economic profit <JL>

14. In this opera, a plan to woo the female lead is agreed upon in the duet “All’idea di quell metallo.” That plan involves a nobleman impersonating a drunken soldier who seeks housing for the night. In one scene in this opera, a music teacher Basilio is bribed to feign sickness. In this work, the title character sings “Largo al factotum” as he first appears on stage. This opera ends when Count Almaviva manages to marry Rosina before her father Bartolo can interrupt the wedding. For 10 points, name this opera whose title character sings the famous lines “Figaro! Figaro! Figaro,” a work by Gioacchino Rossini.

ANSWER: *The Barber of Seville* <MH>

15. This writer proposed six rules to improve the accuracy and clarity of one’s language in “Politics and the English Language”. A man is killed by an animal in must and the narrator commits the title action to avoid looking like a fool in his “Shooting an Elephant”. In *The Road to Wigan Pier*, he described the life of the industrial working class and their attitudes toward socialism. “Unperson” and “doubleplusungood” are words in a fictional language created by this writer. In that novel by this writer, “Do it to Julia!” marks the protagonist’s breaking point in Room 101 after torture by O’Brien. For 10 points, name this author who created Newspeak and Big Brother in 1984.

ANSWER: George Orwell [or Eric Arthur Blair] <MZ>

16. The RAF sank the prison ship SS *Cap Arcona* in this body of water, leading to the deaths of some 5,000 prisoners of war. During Roman times, this sea was named Mare Suebicum after the Suebi tribe. Fortifications such as Kronstadt were built on the mouth of the Neva River in this sea following Russian expansion in the Great Northern War. The Schmalkaldic and Hanseatic leagues focused primarily on trade in this body of water, which is connected to the North Sea by the Kiel Canal. The Danzig Corridor gave Poland access to this sea. For 10 points, name this sea that borders Sweden, Finland, and Germany.

ANSWER: Baltic Sea [prompt on Gulf of Finland] <RN/JL>

17. Like euglena, these organisms synthesize L-lysine using alpha-aminoadipate as an intermediate. One of these organisms, *C. neoformans*, may use melanin to extract energy from gamma radiation. Cup-shaped reproductive organs consist of conidia-containing asci in one type of these organisms, and others produce aflatoxins or ergot alkaloids. Mycorrhizae are symbiotic associations between these organisms and plant roots. They are comprised of chitinous hyphae, and with algae, they form lichens. For 10 points, name this kingdom that includes molds and mushrooms.

ANSWER: fungi [accept word forms] <SH>

18. This figure is surrounded by faces that resemble clouds in a massive painting where part of the sky is gold as a homage to Venetian mosaics. In another work set in a loggia, this figure converses with Chancellor Rolin. This figure is frequently depicted as sitting on the ground to show humility. A tiny bare-chested man unfurls a scroll in the corner of Parmigianino’s depiction of this figure with a long neck, and Leonardo da Vinci painted this figure in a cave-like setting in depiction “of the rocks.” This figure is the subject of Michelangelo’s only signed sculpture, in which she cradles a bare body. For 10 points, name this subject of Madonnas.

ANSWER: Virgin Mary [accept Madonna before mention; do not accept “Mary Magdalene”] <AT>

19. Spitalfields became a center of this good’s production when Huguenots fled there to escape persecution. The Harmonists led by the Rapp family started an industry of this good near Pittsburgh. During the Asuka period in Japan, fees were paid in this commodity. The *Grand Fabrique* regulated conditions for workers who made this product in Lyons. Denis Diderot described the watering of this substance, and the Jacquard loom spun its cloth. Monks smuggled mulberry seeds and a certain worm’s eggs to the Byzantine Empire to break a monopoly on this material. For 10 points, name this fabric traded along a namesake four-thousand-mile-long road from China to Europe.

ANSWER: silk <BS/DM>

20. The norm of this function is one for certain operators that preserve inner products, and its derivative can be found via Jacobi’s formula or by summing the values obtained by differentiating one input at a time. Multilinear and alternating functions can be written as a constant times this value. A cofactor is a multiple of this value for its associated minor, and it is equal to the product of eigenvalues. Solutions from Cramer’s rule can be found by taking the quotient of two values for this quantity that can be found by expanding along a row. For 10 points, name this function of the rows of a matrix that, for a two by two matrix  $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ , equals  $a d - b c$ .

ANSWER: determinant <SH>

TB. This play's prologue contains the declaration "I count religion but a childish toy / and hold there is not sin but ignorance", spoken by Machiavel. The title character uses his daughter, whose "sinful soul hath paced too long the fatal labyrinth of misbelief," to turn Lodowick and Mathias against each other. This play's title character conspires with his Turkish slave Ithamore to poison nuns, including his own daughter Abigail, and assists the Turkish invasion of an island before ultimately falling into his own boiling cauldron. For 10 points, name this play whose title character is the scheming Barabas, written by Christopher Marlowe.

ANSWER: *The Jew of Malta* <PS>

#### **Round 04 – Bonuses**

1. Nietzsche and Kierkegaard criticized this proposition because its first statement presupposes self-existence. For 10 points each:

[10] Identify this proposition concluding self-existence that for one philosopher, serves as the basis for all further knowledge. It was reached by indirect proof after a process of hyperbolic doubt in *Discourse on Method*.

ANSWER: cogito ergo sum [or I am thinking, therefore I am; prompt on the cogito]

[10] This French dualist philosopher who wrote *Discourse on Method* declared *cogito ergo sum*. He questioned the veracity of our senses with scenarios involving melting wax and an evil demon.

ANSWER: Rene Descartes

[10] This Persian polymath imagined a floating man lacking sensation and memory, and concluded that affirming self-existence does not rely on the body's existence. He wrote *Book of Healing* and *The Canon of Medicine*.

ANSWER: Avicenna [or Pur Sina; or Ibn Sina] <PS/MZ>

2. The victim in this case was hit by a lefty, but the defendant is unable to use his left hand. For 10 points each:

[10] Name this case about the rape of Mayella Ewell. Atticus Finch presents evidence that Mayella's father Bob Ewell is ambidextrous, but jury convicts the defendant anyway.

ANSWER: trial of Tom Robinson [accept *Bob Ewell v Tom Robinson*; or equivalents]

[10] His reputation ruined after the trial, Bob Ewell attacks this daughter of Atticus Finch along with her brother Jem. She narrates the novel in which they appear.

ANSWER: Jean Louise "Scout" Finch

[10] Tom Robinson and the Finch family appear in this novel by Harper Lee.

ANSWER: To Kill a Mockingbird <MZ>

3. In times of trouble, the Roman Republic would appoint someone to fill this role. For 10 points each:

[10] Name this position, nominated by the consuls, who exercised complete authority. Their lictors could carry 24 fasces, which were bundle of wooden sticks surrounding an axe.

ANSWER: Roman dictator

[10] The model dictator was said to be this conservative Roman patrician, who defeated the rival Aequian ("AYE-quee-an"), Sabine, and Volscian ("VOLE-shun") tribes before returning to his farm two weeks later.

ANSWER: Lucius Quintus Cincinnatus

[10] This was the traditional length of appointment for a dictator, although many people held onto the office for longer.

ANSWER: six months [or half-year] <ZP>

4. For 10 points each, answer the following about genetics.

[10] These are alternate forms of the same gene. When an individual has two identical ones, the individual is "homozygous".

ANSWER: alleles

[10] This law states that alleles of different, unlinked genes for different traits are passed down to offspring separately. It results in a 9:3:3:1 phenotypic ratio for a dihybrid cross.

ANSWER: Law of Independent Assortment [or Mendel's Second Law]

[10] Genes involved in these interactions may still assort independently on the genotypic level, but phenotypic ratios would differ from expected. They occur when an allele at one locus masks or modifies the effect of an allele at another.

ANSWER: epistasis [accept word forms like epistatic; prompt on polygenic inheritance] <SH>

5. This object contained an inscription establishing the authority of Ptolemy V. For 10 points each:

[10] Name this object crucial to the decoding of Egyptian hieroglyphs. It was translated by Jean Francois Champollion.

ANSWER: **Rosetta Stone**

[10] The Rosetta Stone has three languages: Egyptian hieroglyphs, Demotic, and this language, which had Attic, Ionic, and Homeric dialects.

ANSWER: **Ancient Greek** [accept **Koine** Greek; prompt on **Greek**]

[10] Thomas Young used this oval-shaped symbol to find the name *Ptolemy* in hieroglyphic form. They enclosed royal names for protection, guarding them from evil spirits.

ANSWER: **cartouche** <PS>

6. A clerk in this play earns the nickname “Twenty-Two Calamities” because of his clumsiness. For 10 points each:

[10] Identify this tragicomic play in which Varya urges Madame Ravensky to sell the title estate to Lopakhin, with whom Varya is romantically involved. It famously ends with the off-stage sound of axes.

ANSWER: *The **Cherry Orchard*** [or ***Visnevyi sad***]

[10] *The Cherry Orchard* and *Three Sisters* are plays by this dramatist. Nina falls in love with Trigorin and identifies with the title doomed bird in his play *The Seagull*.

ANSWER: Anton **Chekhov**

[10] In this short story by Chekhov, a lawyer isolates himself for fifteen years after making the title agreement with a banker, only to break his imprisonment five minutes before the fifteen years are up.

ANSWER: “The **Bet**” [or “**Pari**”] <PS>

7. The toe box of a ballet shoe supports the toes during this technique. For 10 points each:

[10] *Releve*, *sauté*, and *pique* are ways to move into this ballet technique where the dancer performs with fully extended feet.

ANSWER: *en **pointe*** [or on **point**]

[10] This move performed in series involves a quick spin on one leg *en pointe* or *demi-pointe*, while the arms remain immobile and the head whips around to spot. They can be *en dedans* or *en dehors*.

ANSWER: **pirouette** [prompt on **whirl**]

[10] Ballet technique is based on this number of fundamental foot positions. In the first position, the feet are heel-to-heel and form a straight line.

ANSWER: **five** foot positions <MZ>

8. Ambrose Bierce created a satirical one that defines a lawyer as “one skilled in the circumvention of the law”. For 10 points each:

[10] Name these reference manuals. Noah Webster published one that introduced uniquely American spellings, and Oxford’s third edition is currently in the works.

ANSWER: **dictionaries**

[10] This English lexicographer wrote the incredibly meticulous *A Dictionary of the English Language*, which served as the authoritative English dictionary until the publication of Oxford’s.

ANSWER: Samuel **Johnson**

[10] This Scottish lawyer famously convinced Johnson to explore the Hebrides with him. He spent much of his time chronicling Johnson’s life, resulting in the massive biography *Life of Samuel Johnson*.

ANSWER: James **Boswell** <MZ>

9. Answer the following about a myth system written about by Geoffrey of Monmouth. For 10 points each:

[10] Geoffrey of Monmouth’s self-proclaimed “histories” mostly deal with this legendary king of England, who wielded Excalibur.

ANSWER: King **Arthur** Pendragon [prompt on **Pendragon**]

[10] Geoffrey of Monmouth wrote that this nephew of Arthur seduced Arthur’s wife Guinevere, forcing Arthur to return from his wars against Rome. He was later portrayed as Arthur’s son by his half-sister Morgause.

ANSWER: **Mordred**

[10] In the History of the Kings of England, after the battle in which Mordred is killed, a wounded Arthur is taken to this legendary island. It is also the location of the forging of Excalibur and the home of Morgan le Fay.

ANSWER: **Avalon** <SH>

10. Answer the following questions about the early universe for 10 points each.

[10] This period is the rapid initial expansion of the universe beginning ten to the negative thirty six seconds after the Big Bang.

ANSWER: cosmic or cosmological **inflation**

[10] In this epoch named for a unit of time, gravity may have been comparably strong to the other forces, all of which may have all been unified. It was, however, unstable, leading to symmetry breaking.

ANSWER: **Planck** epoch

[10] It is not understood how asymmetry arose between the number of these three-quark particles and their antiparticles. Andrei Sakharov proposed that their asymmetry requires three conditions, including violation of their namesake number, C-, and CP-symmetry.

ANSWER: **baryons** <SH>

11. The Haldane reforms were passed to raise an army in Great Britain before this war. For 10 points each:

[10] Name this conflict from 1914 to 1918 which began with the assassination of Archduke Franz Ferdinand by the Black Hand. Great Britain sent an Expeditionary Force to France to prevent the Schlieffen Plan from working.

ANSWER: **World War I** [prompt on **World War**; prompt on **Great War**]

[10] This British Prime Minister who succeeded Herbert Asquith attended the Paris Peace Conference at the conclusion of World War I. He promoted the Balfour Declaration in 1917.

ANSWER: David **Lloyd George**

[10] This man masterminded Britain's World War I recruitment propaganda as War Secretary until his death in 1916. He defeated the Mahdists at the Battle of Omdurman and fought in the Second Boer War.

ANSWER: Horatio Herbert **Kitchener**, First Earl Kitchener [or Lord **Kitchener**] <JL>

12. This artist depicted people being swept away by smoke emanating from a train marked with the numbers 6943 in his *States of Mind I: The Farewells*. For 10 points each:

[10] Name this artist of *The Street Enters the House*, who used a base of solid blocks to emphasize the forward movement of a rippling bronze figure in his sculpture *Unique Forms of Continuity in Space*.

ANSWER: Umberto **Boccioni**

[10] Boccioni was part of this Italian artistic movement that celebrated speed. Movement is the subject of their works, such as *Dynamism of a Dog on a Leash* by Giacomo Balla.

ANSWER: **Futurism**

[10] The Futurist Manifesto declared a "roaring motor car" to be more beautiful than this Parian marble statue, which resides atop a staircase at the Louvre. Its arms and head are missing, though a single wing remains intact.

ANSWER: **Winged Victory** of Samothrace [or Winged **Victory** of **Samothrace**; or Winged **Nike** of **Samothrace**] <MZ>

13. For 10 points each, answer these questions about the effects of Milankovitch cycles on the Earth's climate.

[10] Milankovitch cycles are thought to be caused by this physical effect, which acts on both the Earth's axial tilt and on the earth's orbit around the sun, the former in a 26,000 year cycle.

ANSWER: gyroscopic **precession**

[10] One of the last major warm periods thought to be a result of Milankovitch cycles occurred during this geologic epoch that immediately followed the Pleistocene and continues today.

ANSWER: **Holocene** [accept **Holocene** climatic optimum, **Holocene** thermal maximum, or **Holocene** hyperthermal; prompt on any of the non-underlined parts]

[10] Climate scientists have observed a delay in the climatic effects of Milankovitch cycles, thought to be a result of the high value of this quantity for glacial ice, which results in more reflected sunlight.

ANSWER: **albedo** <ZP>

14. The speaker of one of her poems is advised by an “iridescent-throned” deity that a love interest will soon reciprocate her affections. For 10 points each:

[10] Name this Aeolian (“ay-OHL-ee-an”) Greek poet, whose *Hymn to Aphrodite* exhorts the goddess to “fight as [her] comrade.” She was born on the island of Lesbos.

ANSWER: **Sappho**

[10] Sappho characterizes the beauty of Helen in a recovered excerpt called Fragment 16, and illustrates the wedding of Hector and Andromache. All of those characters were originally depicted by this blind Greek epic poet.

ANSWER: **Homer**

[10] This institution at an Egyptian city purportedly contained nine books of Sappho’s poetry, organized by meter. It may have been destroyed in one of Caesar’s invasions.

ANSWER: **Library** of **Alexandria** [accept **Library** at **Alexandria**, prompt on either underlined part] <ZP>

15. One of these compositions marked by fast descending and ascending runs in the left hand is named “Revolutionary.” For 10 points each:

[10] Name this type of short, difficult composition meant to help practice technique. Notable ones include a series in all major and minor keys by Alkan, and ones named “Winter Wind” and “Black Keys.”

ANSWER: **études**

[10] The “Black Keys” étude was written by this Polish composer of *Fantaisie Impromptu* and twenty-one nocturnes. He is also known for his “Funeral March” and “Minute Waltz.”

ANSWER: Frédéric **Chopin**

[10] Chopin paired an *Andante spianato* with one work of this type for piano and orchestra. Other works of this genre by Chopin include his “Heroic” one in A-flat major and his “Military” one in A major.

ANSWER: **polonaise** <BM>

16. On December 16, 1773, angry American colonists boarded the *HMS Dartmouth* after local officials refused to return the ship to Britain. For 10 points each:

[10] Name this event led by Samuel Adams in which the Sons of Liberty boarded British merchant ships in Boston and dumped a certain good into the harbor.

ANSWER: **Boston Tea Party** [accept any answer mentioning **destruction** of **tea** in **Boston**]

[10] In response to the Boston Tea Party, Parliament passed this series of acts to punish Boston. It included provisions that stripped Massachusetts of its charter and closed the port of Boston until the tea was paid for.

ANSWER: **Coercive** Acts [or **Intolerable** Acts]

[10] After receiving reports that New England was rebelling in 1775, Lord North issued this resolution that removed tax obligations from any colony that contributed to the colonial defense and provided support to the Crown.

ANSWER: **Conciliatory** Resolution <JL>

17. Answer the following about Supreme Court cases regarding a 2010 piece of legislation. For 10 points each:

[10] This healthcare reform required all individuals to purchase health insurance or face a tax penalty in its individual mandate.

ANSWER: Patient Protection and **Affordable Care Act** [or **PPACA**; or **Obamacare**]

[10] This case struck down the PPACA’s mandatory state Medicaid expansion as overly coercive but upheld the individual mandate under the Commerce Clause.

ANSWER: **National Federation of Independent Businesses** v. *Sebelius* [or **NFIB** v. *Sebelius*]

[10] In 2013, this art store chain filed a suit against the federal government for requiring they provide insurance that provides contraception, as a violation of their religion rights under the Religious Freedom Restoration Act.

ANSWER: **Hobby Lobby** <MH>



18. Including foams and aerosols, they are classified based on the phases of the dispersed phase and continuous medium. For 10 points each:

[10] Name these mixtures comprising microscopic particles of one substance dispersed throughout another. Milk is one of these classified as an emulsion.

ANSWER: colloids

[10] This phenomenon occurs when light is scattered by colloidal particles. Light with shorter wavelengths is reflected, while that with longer wavelengths is transmitted.

ANSWER: Tyndall effect [or Tyndall scattering]

[10] The dispersed particles in a colloid become unsuspended and form aggregate or coagulated clusters in this process, which may be facilitated by the addition of a clarifying agent.

ANSWER: flocculation <SH>

19. This man ordered the construction of Grand Central Terminal. For 10 points each:

[10] This “commodore” became rich in the steamship industry by providing passage from New York to California. He became a railway tycoon and funded a university in Nashville, Tennessee that bears his name today.

ANSWER: Cornelius Vanderbilt

[10] In this 1824 case, Vanderbilt’s employer won rights to operate his steamboats in the Hudson River, while the federal government broke a ferry monopoly by two other owners issued by the state of New York.

ANSWER: Gibbons v. Ogden [accept either]

[10] This struggle for control over a railroad line involved the sale of watered-down stock to Vanderbilt by Drew, Fisk, and Gould. After this event, Vanderbilt was reimbursed and the namesake railroad was bankrupted.

ANSWER: Erie War <JL/RN>

20. Its borough of Steglitz-Zehlendorf contains two bodies of water known as the greater and lesser *Wannsees*. For 10 points each:

[10] Name this German capital city that contains the locality of Spandau and the Brandenburg Gate.

ANSWER: Berlin

[10] To the southeast of Berlin is this capital of the state of Brandenburg that once served as the official seat of the *Kaiser*. A namesake declaration from this city called for Japan’s unconditional surrender.

ANSWER: Potsdam

[10] Both Potsdam and the Greater and Lesser *Wannsees* are accessible via this light rail system. It serves all of Berlin and many of its suburbs, and is not to be confused with the U-Bahn.

ANSWER: S-Bahn [or Stadtschnellbahn] <ZP>

TB. Birefringent materials exhibit different refractive indices for light with different forms of this property. For 10 points each:

[10] Name this property of a wave oscillating in only one plane, used by Polaroid filters and glare-reducing sunglasses.

ANSWER: polarization

[10] Polarized light is perfectly transmitted without reflection at this angle. Unpolarized light incident on a material boundary at this angle is perfectly polarized.

ANSWER: Brewster’s angle

[10] Light waves can be polarized because they are this type of wave, whose propagation is perpendicular to the displacement of the medium. They include standing waves on strings but not sound waves.

ANSWER: transverse waves <SH>