



ACADEMIC COMPETITION FEDERATION

2015 ACF NATIONALS
FINALS 1 BY THE EDITORS

TOSSUPS

1. The first derivation of the potential vorticity equation under a relaxed form of this condition was performed by Jule Charney using Ertel's theorem. That potential vorticity equation under a loosened form of this condition reduces synoptic-scale flow to a non-linear PDE in terms of the stream function. That loosened condition is used because real systems tend to be baroclinic rather than barotropic and prefixes this condition with "quasi-". An incompressible fluid's flow under this condition forms a Taylor column and is independent of the coordinate parallel to the rotation axis according to the Taylor-Proudman theorem. This condition occurs when the ratio of horizontal flow velocity to twice the angular velocity of Earth's rotation times the horizontal scale of the flow, is much less than unity. Like hydrostatic equilibrium, it requires that there be no acceleration, and that ratio is the Rossby number. For 10 points, name this condition in which the pressure gradient force for a flow is balanced by the Coriolis effect.

ANSWER: geostrophic [or word forms, such as geostrophy; or quasi-geostrophic until "incompressible" is read]

2. This artist's version of *The Annunciation* features a brown-haired adolescent Mary draped in Middle Eastern cloth and a golden blotch of radiant light in place of Gabriel. A faceless man in white robes holding a lantern provides the lighting to this man's night scene, *The Flight into Egypt*. The businessman Rodman Wanamaker patronized this artist after he saw his *Resurrection of Lazarus* at the Salon of 1897; that act allowed him to make 1902's *The Seine* and 1919's *The Arch*. This artist was taught by Jean-Paul Laurens after he left the United States, where he studied under Thomas Eakins. This man depicted a father and his child praying at the table in *The Thankful Poor*. A young boy sits on the lap of his elder while receiving musical instruction in another painting by this man. For 10 points, name this Philadelphia born African-American artist of *The Banjo Lesson*.

ANSWER: Henry Ossawa Tanner

3. Mark Richardson compares the speaker of this poem to Huck Finn in an analysis that frames it as a criticism of a certain "mode of being White", noting that this poem "comes fully alive" only after one recognizes the import of a line about "squiggling saxophones". This poem describes figures "smacking their muzzy bellies in parade" as "disaffected flagellants, well-stuffed", and lists "tink and tank and tunk-a-tunk-tunk" as "novelties of the sublime". It tells its addressee that "palm for palm, [...] we are where we began" and admits that "We agree in principle. That's clear." It advocates building a "haunted heaven" and projecting "a masque beyond the planets" from, respectively, a nave and a peristyle constructed from "the moral law" and "the opposing law". This poem notes that "fictive things / Wink as they will" and opens with the related declaration "Poetry is the supreme fiction, madame". For 10 points, name this Wallace Stevens poem whose title may refer to his religious mother.

ANSWER: "A High-Toned Old Christian Woman"

4. This city was governed for a time by the rebel general Achaeus, until he was betrayed by a resident named Bolis, leading to his capture by Antiochus III. According to legend, a concubine of Males (MAH-lays) came forward in this city with a young lion, and Males tried to fulfill a Telmessian prophecy by having that lion walk around this city, but this city became vulnerable because the lion couldn't walk up its steepest slope. Another story says that its destruction caused a ruler to shoot an arrow in the air and yell "Jupiter, grant me revenge upon the Athenians!" when he learned that Athens gave ships to Aristagoras to burn this city. This city, on the banks of the Pactolus River and the slopes of Mount Tmolus, was plundered after the Battle of Thymbra. An apocryphal tale says it was visited by king Solon of Athens, who engaged in a dialogue where he declined to praise this city's ruler for his wealth. For 10 points, name this ancient capital of the Lydian empire under King Croesus.

ANSWER: Sardis [or Sardes; or Sfard; or Sparda; or Sardeis; or Sart; or Sartmahmut; do not accept "Sparta"]

5. The study of this topic was partially reshaped by Louis Mink, who considered its various uses in “Narrative Form as a Cognitive Instrument.” A book about this subject has an epigraph from Gaston Bachelard’s *The Psychoanalysis of Fire* stating “One can only study what one has dreamed about.” That book analyzes this topic using the literary modes of Northrop Frye’s *Anatomy of Criticism*. An essay on this topic proposes that various intellectuals approach this subject using either the antiquarian, monumental or critical methods. Hayden White wrote a “meta-study” of this subject, whose “use and abuse” is discussed in an untimely meditation by Friedrich Nietzsche. In the 19th century, Thomas Carlyle proposed the “great man theory” of this topic, which is imagined to proceed through the age of gods, the age of heroes and the age of men in *The New Science*. Giambattista Vico produced a cyclical model of, for 10 points, what study of past human events?

ANSWER: history [or metahistory]

6. The protein VIVID regulates this organism’s response to blue light, which is mediated in part by the WHITE COLLAR complex. In one mechanism discovered in this organism, duplicated DNA sequences are removed during a sexual cross via the accumulation of numerous G:C to A:T mutations—that mechanism is repeat-induced point mutation. This organism’s *frq* or “frequency” gene codes for a well-studied circadian clock protein. Its wild-type strains include Mauriceville and Oak Ridge. This organism has a haploid life cycle with 7 chromosomes, and it generates an ordered tetrad during meiosis. In a landmark experiment, X-ray-induced mutants of this organism were grown in various “minimal” and “complete” media, showing that all of the mutants that could not grow in minimal media were able to grow successfully with the addition of a single nutrient, such as biotin or thiamine. For 10 points, name this bread mold, a model organism used by George Beadle and Edward Tatum to come up with the one-gene one-enzyme hypothesis.

ANSWER: Neurospora crassa [or N. crassa, prompt on “bread molds”]

7. In his first appearance, this character compares the title figure to a “cicada of the long-legged race” that always sings the “same old ditty” in the grass. In one scene, he entertains Frosch and Siebel by singing a song about a king with a giant flea while drinking in Auerbach’s cellar. This character gives advice to a “proktophantasmist,” by suggesting that he apply leeches to his fat “rear end.” Later, this character advises his companion that the magic image of Medusa’s eyes are not that of his beloved. This character twice procures a case of jewels and leaves them behind in a certain character’s cabinet so that his companion can seduce her. He first appears in the “Prologue in Heaven,” where he and God have a conversation about the pursuits of the title figure. After another character attempts to translate the word *logos*, this character offers to show that man the “great world” and the “small world” when he transforms from his poodle form into his human form. For 10 points, name this demon who tempts the scholar Faust in Goethe’s drama.

ANSWER: Mephistopheles [prompt on “The Devil”; do not accept or prompt on “Satan”]

8. The first movement of a work written for this ensemble introduces an unusually long theme in 3/2 time that spans more than three octaves, the first of twelve themes in the work. Lawrence Foster orchestrated that work for this ensemble, which features movements marked “Tres fougueux” and “Mouvement de valse bien rythmée” and is a C major work by Georges Enescu. Both a Niels Gade work in F major and a Max Bruch work in B-flat major were written for this ensemble. Another work for this ensemble features a scherzo that was later orchestrated to replace the minuet in its composer’s first symphony; that scherzo was inspired by a passage from the “Walpurgisnacht” section of Goethe’s *Faust*. The finale of that work for this ensemble quotes from Handel’s “Hallelujah Chorus” and was completed shortly before its composer’s *Overture to A Midsummer Night’s Dream*. For 10 points, a young Felix Mendelssohn wrote an E-flat major work for what ensemble that is sometimes composed of two string quartets?

ANSWER: string octets [prompt on “octets” or “double string quartets”]

9. During one episode in this incident, state officials broke into the office of Achilles Sneed to recover records that he was ordered to turn over by the legislature, after which he was fined. A compromise that appointed George Bibb to replace John Boyle eventually resolved this incident, which was sparked when governor Gabriel Slaughter enacted a measure to deal with a group called the “Forty Thieves.” This incident began when the state Assembly issued the “replevy law” stopping creditors from collecting on their debts for at least one year. After that law was successfully challenged, governor Joseph Desha of the newly-formed Debt Relief Party responded by passing a reorganization bill. The journalist Francis Blair was appointed as the clerk for one side in this controversy. That side was also supported by Solomon Sharp, which may have led to his murder by Jereboam Beauchamp, as detailed in the novel *World Enough and Time*. Many years later, the common law of the state was modified to remove all cases decided by one body in this incident. For 10 points, name this controversy which began in Kentucky in 1824, when two separate legal tribunals vied for supremacy.

ANSWER: Old Court-New Court controversy [or New Court-Old Court controversy; prompt on “the court controversy in Kentucky” or the “Panic of 1819”]

10. This thing titles a book-length study by Charles Segal, who argued against Samuel Basset's suggestion that its treatment was in line with ancient morality. In order to console a man who weeps because he doesn't have this object, a hero gives an impassioned speech about an urn of evils and an urn of blessings that belong to Zeus. A dark cloud sent from heaven protected this thing from the sun. This object's mistreatment is juxtaposed with the care shown to a similar entity, which is ritually wrapped in sheep fat and covered with the blood of twelve sacrificed youths. On the twelfth day after constantly protecting it with his golden aegis, Apollo implores Zeus to send Thetis and Iris to arrange for its rightful return. A twelve day ceasefire is instigated to ensure all the rites are carried out on this thing, and the final line of *The Iliad* states that it was properly buried. Earlier, it was dragged three times around the tomb of Patroclus out of anger. For 10 points, name these remains of King Priam's son.

ANSWER: Hector's corpse [or Hector's body; or obvious equivalents]

11. If the trajectory of a photon travelling in a material possesses this property, the photon can constructively self-interfere via coherent backscattering. For Stokes flow, a swimmer whose swimming motion possesses this property will not achieve propulsion according to the scallop theorem. The surface states of topological insulators are protected by conservation of particle number and this property. All spin-1/2 eigenstates of a Hamiltonian with it must be at least doubly-degenerate according to Kramers' theorem. Applying the antiunitary operator associated with this property to the neutron causes a change in its spin, but no change in its electric dipole moment. The incompatibility between systems whose microscopic dynamics possess it and the second law of thermodynamics is described by Loschmidt's paradox. The combination of charge conjugation and parity inversion with this symmetry is an exact symmetry of all particle interactions according to the CPT theorem. For 10 points, name this symmetry in which the temporal order of events is flipped.

ANSWER: time reversal symmetry [or T-symmetry until "CPT" is read and prompt thereafter; prompt on "reversibility"]

12. After the success of this novel, its author wrote a number of works under the unusual pseudonym "Brent of Bin Bin". A character in this novel hits a man in the face with a riding whip despite having agreed to marry him, then only accepts a ring from him with the condition of a three-month probationary period. The protagonist of this novel is distressed by the dirtiness of Barney's Gap, where she serves as a governess to the M'Swat family. Its main character rejects proposals from Everard Grey, Frank Hawden, and her one true love, Harold Beecham. Followed forty-five years later by a sequel in which the title thing "goes bung", this novel was published with the aid of the poet Henry Lawson, and its success allowed the author to fund a prize that was first won by Patrick White. For 10 points, name this novel titled for Sybylla Melvyn's dreams of being a writer, the most famous novel by the Australian woman Miles Franklin.

ANSWER: My Brilliant Career

13. At one point, this book cites a left-wing journalist who asks himself "must the just cause of a people include its deceptions and errors?" after he realizes that his fate involves supporting the Koran and the Arab League. The author presents Nero as a typical model of the usurper, who came to hate Britannicus more as he was hurting him, and not content having taken his throne, ravished his love for Junia. This nonfiction work takes themes from its author's earlier autobiographical novel narrated by Alexandre Mordekhai Benillouche, which was entitled *The Pillar of Salt*. This book's republishing in 1991 added a new introduction by Nadine Gordimer alongside its original intro by Jean-Paul Sartre. In its preface, the author writes that the second half of this book reflects his own perspective as a poor Jewish boy growing up in Tunisia. For 10 points, name this nonfiction work by Albert Memmi, which uses the two title viewpoints to analyze colonialism.

ANSWER: The Colonizer and the Colonized [or Portrait du colonisé, précédé par Portrait du colonisateur]

14. As minister of education, this man sent a noted letter instructing all teachers that there must be "no sectarian or party spirit in your school; the teacher must rise above the fleeting quarrels which agitate society" - that letter was sent after he authored the Great Schools Law. Pejoratively referred to as "the man of Ghent" by his opponents, this author of *History of the Origins of Representative Government in Europe* ascended to his highest office on the retirement of Nicolas Soult. As foreign minister, he created controversy when he rejected Leopold of Saxe-Coburg Gotha as a suitor, and successfully demanded that the moderate candidate Francis, the Duke of Cadiz, be wed to Isabella II. That incident, called the Affair of the Spanish Marriages, was this man's quarrel with Lord Palmerston. He succeeded his friend Royer-Collard as leader of the Doctrinaires, a party that promoted the notion of the "juste milieu." For 10 points, name this man who dominated the Chamber of Deputies during the July Monarchy, and was a rival of Adolphe Thiers while serving as prime minister under Louis Philippe, until he was removed in 1848.

ANSWER: Francois Pierre Guillaume Guizot

15. This artwork is discussed in a book by Harriet Senie, which discusses Claes Oldenberg's viewpoint that the one true problem with it was that it was "too honest." To explain its purpose, its artist wrote in a letter that this artwork contracts, expands and ultimately changes in response to the viewers' movement. In response to questions posed by William Diamond, the artist's wife Clara Weyergraf compared the judgment of this artwork to Nazi book-burning. This piece of "Process Art" was made out of a self-oxidizing material, which made it more richly textured as time passed. It was commissioned by the GSA, who eventually oversaw a panel that ruled in favor of its 1989 dismantlement. This 120-foot long artwork stood in the Federal Plaza of Foley Square in New York. For 10 points, name this site-specific art installation by Richard Serra, whose name indicates that it is a piece of slightly bent metal.

ANSWER: Tilted Arc

16. At this location, religious services were held on Wednesdays and Sundays in which attendees were split into three orders - all children and newlyweds were in the lowest order, and a 13-member Great Council governed affairs. The last divine leader in charge of this place, the wife of George Landmann, ordered that its members not plant any non-fruit-bearing trees, which was supervised by the "kitchen bosses" here. This entity purchased the town of Homestead, so that it would have access to a railway depot, as directed by that leader Barbara Heinemann. In 1931, it underwent the so-called "Great Change" when its elders voted to allow secularization, after its wool and flour mills went up in flames. It was founded by Christian Metz, a leader of the Community of True Inspiration, when he left the Ebenezer Colonies in New York in 1854 to find a more pastoral location for his band of German pietists. For 10 points, name this utopian community set up on the Iowa River valley, which later operated a business known for selling refrigerators.

ANSWER: Amana colony [or the Ebenezer colonies until it is read]

17. This two-word concept titles a book which closes with the chapter "You're Fucking Around With Us? - Not For Long!"; that work predicts that poetic vandalism will bring about its revolution and was written by Raoul Vaneigem. Another book named for this two-word concept argues that a man standing on top of the Twin Towers is unable to understand this concept unless he becomes a *flâneur* and treats the city below as a text that he is both reading and writing. A tome named for this two-word concept discusses a "sociology of the dustbin" and criticizes capitalism for creating the vicious circle of work's boredom necessitating leisure, which is itself necessary since identities can't be established through work. In that three volume work, this concept is comprised of a triad of "subway, work, sleep" for suburban commuters that gives rise to a false consciousness. For 10 points, Michel de Certeau discussed "The Practice of" what concept, which is the subject of a massive "Critique" by Henri Lefebvre?

ANSWER: everyday life [or vie quotidienne; or The Revolution of Everyday Life; or The Practice of Everyday Life; or The Critique of Everyday Life]

18. One parameter characterizing this phenomenon is the fragility index, which is the slope of an Angell plot. One theory describing this phenomenon states it takes place when the configurational entropy is zero, while another theory states it occurs at a precise value of the free volume. The Gibbs-DiMarzio theory describes this phenomenon. Extrapolating the entropy curve for this phenomenon paradoxically yields a zero change in entropy below a critical temperature, a result derived by Kauzmann. The temperature dependence of viscosity in this phenomenon can be measured by the Vogel-Fulcher-Tammann equation, the Doolittle equation, or the Williams-Landel-Ferry equation. In general, the temperature at which this process occurs tends to be low for an elastomer and high for a thermoplastic. It's not melting, but this process can be studied by performing either dilatometry or differential scanning calorimetry on a polymer. For 10 points, name this process in which an amorphous material reversibly transitions between a brittle and a rubbery state.

ANSWER: glass transition

19. Early in this novel, the protagonist spends a train ride counting thirty-five advertisements for "THE OX IN THE TEACUP". Another character in this novel bursts out laughing after reading the phrase "the story of Dante and Beatrice told by Hans Andersen" in a review of her husband's book *The Invisible Lover*. Joan Thursley's fiancé kills himself after she falls in love with the protagonist of this novel, which also includes a scene in which the betrayal of Holtzmann results in the kidnapping of Ekki Giesebrecht. The protagonist of this novel adopts the pacifistic philosophy of James Miller, who he meets in Mexico while searching for a doctor for his injured friend Mark Staithes. Its protagonist has affairs with both Mary Amberley and her daughter Helen Ledwidge, and is soaked in blood alongside the latter when a dog falls out of an airplane and explodes next to them. For 10 points, Anthony Beavis is the protagonist of which Aldous Huxley novel that takes its name from *Samson Agonistes*?

ANSWER: Eyeless in Gaza

20. A play about this event, written by Tom Hawken, featured a band composed of three people who took part in it: Bobby Jackson, Ray Wainwright, and Jean Sheils, who was the daughter of a key leader in this event. The most comprehensive primary source on this event is a book by Ronald Liversedge, whose recollections describe how it was supported by Peter Mikkelsen, Jimmy Gardiner, and mayor Cornelius Rink. Early on, participants in this event had a meeting at Riverside Park in Kamloops and a feast at the town of Golden. This effort was led by a man named Arthur "Slim" Evans, who led an organization called the Relief Camp Workers Union which used the motto "Work and Wages." It culminated in his clash with a politician called the "Iron Heel," R.B. Bennett, who used the Railway Act to empower himself as prime minister to order the mounted police to attack. For 10 points, name this event during the Great Depression, in which a bunch of unemployed men decided to gather in Vancouver and march on the Canadian capital.

ANSWER: On-to-Ottawa Trek [or On-to-Ottawa Strike; or the Relief Camp strikes until "Relief Camp" is read; prompt on answers that imply "a march to Ottawa"]

TIEBREAKER

21. According to one account, a losing commander at this battle turned to his inexperienced subordinate, the Duke of Gloucester, and asked "have you ever seen a battle won?" - upon hearing a negative reply, he snapped "then in half an hour, you will see one lost!" Although Roger Fenwick was slain at this battle, his pikemen continued their charge under Major John Hinton. The primary losing commander was replaced the next year by the Marquis of Caracena. After leading a victorious force of six thousand infantrymen, William Lockhart was installed as governor in the area that hosted this battle. This clash, which followed the Battle of Valenciennes, saw the future king James II personally command a losing wing of the army under Juan José of Austria. In its aftermath, Philip IV of Spain was forced to agree to the Peace of the Pyrenees. For 10 points, name this victory for the Vicomte de Turenne over the Spanish in 1658, which was fought near Dunkirk and named for its hills of sand.

ANSWER: Battle of the Dunes [or Battle of Dunkirk until "Dunkirk" is read]

BONUSES

1. Name some horses that are more erudite than Princess Celestia, for 10 points each.

[10] This horse owned by Wilhelm von Osten was taught to spell and tell time and other things, though at the bidding of Carl Stumpf, psychologist Oskar Pfungst concluded that it was just responding to the trainer's body language.

ANSWER: Clever Hans [or der Kluge Hans; prompt on "Hans"]

[10] This Arabian-Hambletonian colt, called the "World's Smartest Horse," was the center attraction of the 1904 St. Louis World's Fair. Its namesake trainer was an ex-slave who taught himself to be a veterinarian, and claims to have taught this horse "by kindness alone," proving once again that friendship really is magic.

ANSWER: Beautiful Jim Key [or Beautiful Jim; prompt on "Jim"]

[10] The Spanish knight El Cid rode on this horse, named for being stupid, because Cid's godfather Pedro El Grande thought it was a dumb choice for a champion. A dead El Cid was placed atop this horse during a siege of Valencia to scare the enemy.

ANSWER: Babieca [or Bavieca]

2. After he returned from Poland due to the Nazi invasion, this musician sought out Lester Young and engaged in a much-publicized jam session and jazz battle at the Famous Door. For 10 points each:

[10] Name this musician of the Swing Era, who in the late 1940's, toured Europe and performed his solo piece "Picasso."

ANSWER: Coleman [Randolph] Hawkins

[10] Coleman Hawkins made an improvised, two-chorus recording of this jazz standard in 1939. Its Johnny Green penned lyrics include "My heart is sad and lonely," and it gives its name to a *film noir* about boxing.

ANSWER: "Body and Soul"

[10] Coleman Hawkins was primarily a player of this instrument; other players include John Coltrane.

ANSWER: tenor saxophone

3. This philosopher proposed that images have a space of "horizontality" that inspires the imagination in his book that examines "the sense of the elemental," *The Force of Imagination*. For 10 points each:

[10] Name this American philosopher of phenomenology, who examined Plato's *Timaeus* in *Chorology*, and the limits of his discipline in *The Verge of Philosophy*.

ANSWER: John Sallis

[10] In *The Verge of Philosophy*, John Sallis examines the thoughts of this philosopher, who argued that Western philosophy has privileged speech over writing in such books as *Of Grammatology* and *Writing and Difference*.

ANSWER: Jacques Derrida

[10] In *Research in Phenomenology*, John Sallis examines the relation of the elemental to this philosopher, who argued that interiority was one of the layers of existence in his major work *Totality and Infinity*.

ANSWER: Emmanuel Levinas

4. This man appointed William Joyce, known as Lord Haw-Haw, as his propaganda director and made speeches with Mick Clarke. For 10 points each:

[10] Name this man who founded the British Union of Fascists, and participated in a march that caused the Cable Street Riots with the Metropolitan Police.

ANSWER: Oswald Mosley [or Sir Oswald Ernald Mosley, 6th Baronet]

[10] Spurred on by Mosley and the White Defence League, these race riots broke out in London in 1958 when a Swedish sex worker was assaulted after fighting with her Jamaican husband. Sometimes called the Teddy Boy riots, they took place during the August Bank Holiday.

ANSWER: Notting Hill race riots of 1958

[10] Though he was married to the daughter of Lord Curzon, Mosley carried on an affair and had two kids with a member of this British family of famous sisters. One of them named "Unity Valkyrie" was a devotee of Adolf Hitler, while perhaps the most famous one of them wrote the book *Love in a Cold Climate*.

ANSWER: Mitford sisters [or Diana Mitford; or Unity Mitford; or Nancy Mitford]

5. The main character of this novel accidentally forgets to take his civil service exam and leaves Kaifeng in search of glorious battle. For 10 points each:

[10] Name this historical novel by Yasushi Inoue, which follows Chao Tsing-te, a man who travels to the fringes of the Chinese empire and becomes the man responsible for depositing the scrolls in the caves nearby the title town.

ANSWER: Tun-Huang [or Tonko]

[10] Yasushi Inoue's other novel *The Bullfight* won this semi-annual literary award, which is named for the author of "Rashomon" and "Hell Screen."

ANSWER: Akutagawa Prize for Literature

[10] This man won the Akutagawa prize for his first major work, a novella in which an insurance agent forgets his name and is put on trial called *The Crime of S. Karuma*.

ANSWER: Kobo Abe [or Kimifusa Abe; accept names in either order]

6. This compound donates a hydrogen radical to an alcohol which has been converted to an alkyl radical via a thiocarbonyl intermediate in the Barton-McCombie reaction. For 10 points each:

[10] Name this reducing agent which is also used along with a radical initiator to convert alkyl halides to hydrocarbons.

ANSWER: tributyltin hydride [or tributyl stannane; or Bu₃SnH]

[10] This other reducing agent is commonly used in reductive amination reactions where it converts the imine intermediate to an amine. It is milder than a similar reagent due to the substitution of an electron withdrawing group for one of the 4 hydrogens.

ANSWER: sodium cyanoborohydride [or Na[BH₃(CN)]]; do not accept or prompt on "sodium borohydride"]

[10] Sodium borohydride is used in reductive workup of this reaction, in which a carbon-carbon double bond is destroyed by a namesake molecule, forming carbonyl compounds upon oxidative workup.

ANSWER: ozonolysis

7. This theologian led a movement called the Doleantie, or "the grieving ones," which split from the Dutch Reformed Church in 1886. For 10 points each:

[10] Name this Dutch theologian who organized the Anti-Revolutionary Party, founded the Free University of Amsterdam, and served as Minister-President of the Netherlands from 1901 to 1905.

ANSWER: Abraham Kuyper [or Abraham Kuijper]

[10] In 1898, Kuyper delivered his "Lectures on Calvinism" as the Stone Lectures at this theological seminary, home to the Abraham Kuyper Center for Public Theology. Its Warfield Lectures were given by Karl Barth in 1962, and in 1929, its great leader John Gresham Machen left to found the more orthodox Westminster Seminary.

ANSWER: Princeton Theological Seminary

[10] Along with the Belgic Confession and the Canons of Dort, the Dutch Reformed Churches have three forms of unity that include the Heidelberg version of this kind of text written by Zacharius Ursinus. These manuals are typically written in question-and-answer format to instruct the young or testify to the faith.

ANSWER: catechisms

8. Answer the following about historical shipwrecks, for 10 points each.

[10] Three symposiums have been convened in Warrnambool, Australia to try to find this ship that supposedly went down in the dunes around Armstrong Bay. This ship, named after a description by John Mason, is used to support Kenneth McIntyre's theory that the Portuguese actually discovered Australia.

ANSWER: the Mahogany Ship

[10] In 1628, this Swedish ship sank on her maiden voyage and was discovered in 1956 off the naval island of Beckholmen by Anders Franzen. It shares its name with the royal house founded by Gustav I, which included the man who had this ship built, Gustavus Adolphus.

ANSWER: Vasa

[10] This Late Bronze Age shipwreck was discovered by sponge divers in southwestern Turkey in 1984, and together with the Cape Gelidonya, is the oldest shipwreck ever discovered. Dated to about 1330 BCE, it contained remnants of African blackwood and Canaanite jars.

ANSWER: Uluburun

9. Identify some actions, either literal or metaphorical, from Tennessee Williams plays, for 10 points each.

[10] The final speech in *The Glass Menagerie* ends with Tom Wingfield noting that “nowadays the world is lit by lightning!” and begging Laura to do this thing, which according to the stage directions she then does.

ANSWER: **blow** out her/your **candles** [or obvious equivalents mentioning **blowing** out **candles**]

[10] In *The Night of the Iguana*, the Reverend Shannon continually threatens to do this thing, a euphemism for committing suicide, while talking to Hannah Jelkes. At one point, he darts off the verandah in an attempt to literally do this, but Maxine and a group of Mexican boys restrain him.

ANSWER: take the long **swim** to **China** [or obvious equivalents mentioning **swimming** to **China**]

[10] Alan Simpson was arrested on lewdness charges for directing an Irish production of *The Rose Tattoo* in which this event from Act III, Scene 1 was mimed with a square of paper. This occurrence pisses off Serafina, briefly derailing her budding relationship with Alvaro.

ANSWER: a **condom** falls out of Alvaro’s pocket/to the floor [or obvious equivalents involving the accidental revelation of a **condom**]

10. Two spatial examples of these sets, PSPACE and NPSpace are equivalent according to Savitch’s theorem. For 10 points each:

[10] Name these kinds of sets which contain members whose inherent difficulty is of the same order as other members in the same set. Examples include P and NP.

ANSWER: computational **complexity classes** [prompt on “**classes**”]

[10] This model of computation, consisting of a reliable verifier and an unreliable prover, is used to describe some computational complexity classes. Adding a “cheating verifier” to this model yields the Zero-Knowledge Protocol.

ANSWER: **interactive** proof [or **IP**]

[10] The complement of this problem is a member of the IP computational complexity class. This problem, which asks if two sets of vertices and edges are structurally equivalent, is one of the few problems that we know to be in NP, but we aren’t sure whether it’s in P, NP-hard, or neither.

ANSWER: **graph isomorphism** problem [do not prompt on partial answers]

11. This character foolishly leads his armies against the demons of Mazandaran, but he is defeated and enchained by their leader, the White Demon, no thanks to his eagle-powered flying throne. For 10 points each:

[10] Name this son of Kay Qobad, whose sight is restored when a certain hero passes six trials, including defeating Arzhang and killing the White Demon himself.

ANSWER: **Kay Kavus** [or **Kaykavous**; or **Kai-Kaus**]

[10] Kay Kavus is rescued by this hero of the *Shahnameh*, who is likely most famous for the tragic story in which he accidentally kills his son Sohrab.

ANSWER: **Rostam**

[10] Rostam’s birth was going poorly until this man, his father, summoned the Simurgh, who taught him how to perform a C-section. This albino married Rudabeh, a descendent of Zakhak.

ANSWER: **Zal**-Dastan

12. This artist illustrated Charles Dickens’ *Sketches by Boz* and Daniel Defoe’s *Robinson Crusoe*; a version of his *A Swarm of English Bees Hiving in the Imperial Carriage* appears on the cover to some editions of *Vanity Fair*. For 10 points each:

[10] Name this British caricaturist, who satirized the politicians of his day in the magazine *The Comic Almanack*.

ANSWER: George **Cruikshank**

[10] George Cruikshank’s *The Bottle*, which advocated for temperance, were inspired by this earlier satirist’s and artist’s *The Rake’s Progress*.

ANSWER: William **Hogarth**

[10] Arthur Rackham, another Victorian illustrator, gained prominence for illustrating books about these kinds of creatures. These creatures, which give their name to a genre of painting and illustration, title a Richard Dadd painting showing them succumbing to a “master-stroke.”

ANSWER: **fairies** [or word forms; or **fairy painting**]

13. Identify the following authors of travel literature, for 10 points each.

[10] This author described commissioning one of the first-ever sleeping bags in his pro-hiking book *Travels with a Donkey in the Cevennes*. He wrote about the adventures of David Balfour in the novels *Catriona* and *Kidnapped*.

ANSWER: Robert Louis **Stevenson**

[10] This author assisted the Cretan resistance during World War II, several years after taking the walking trip from the Hook of Holland to Constantinople that he chronicled in *A Time of Gifts* and *Between the Woods and the Water*.

ANSWER: Patrick Leigh **Fermor**

[10] This man described sprinkling carpet-tacks on the deck of his sloop *Spray* to protect himself from Tierra del Fuegians and imagined the pilot of the *Pinta* assisting him at night in his magnum opus, *Sailing Alone Around the World*.

ANSWER: Joshua **Slocum**

14. Answer the following about the invasion of Byzantine Greece by Murad II, for 10 points each.

[10] Circa 1446, Murad II invaded the Peloponnese by destroying this wall which had been built in the 5th century AD under Theodosius II and stretched across the full Isthmus of Corinth. It's thought to be the largest archaeological structure ever erected in Greece.

ANSWER: **Hexamilion** Wall

[10] At that time, the entire Peloponnese was under the control of this Despotate, which had been established circa 1349 by Byzantine emperor John VI Cantacuzenus, and then taken over by the Palaeologus dynasty. It was ruled from a site near ancient Sparta.

ANSWER: Despotate of the **Morea** [or **Mystras**; or **Mistra**; or **Mistras**]

[10] The Morean Despotate would be completely disbanded by this successor of Murad II, whose most famous deed was his siege of Constantinople in 1453, conquering the Byzantine Empire.

ANSWER: **Mehmed II** [or **Mehmed the Conqueror**; or **Muhammed bin Murad**; prompt on "**Mehmed**"]

15. In one effect named for this scientist, longitudinal electron oscillations in a non-magnetized plasma lose energy due to interaction with resonant plasma particles traveling at near the wave's phase velocity. For 10 points each:

[10] Name this scientist who also names the quantized cyclotron orbits of charged particles in magnetic fields. He developed a theory which explains the superfluidity of liquid helium.

ANSWER: Lev Davidovich **Landau**

[10] This plasma instability can be considered the inverse of Landau damping. It occurs when a beam of streaming electrons is fired into a plasma at a velocity close to the phase velocity of the plasma's electron wave, causing energy transfer from the beam to the wave.

ANSWER: **two-stream** instability

[10] Plasmas without charged particle beams in them typically obey this condition, which states that while locally, the density of positive and negative charges varies, the total amount of positive charges equals the total amount of negative charges.

ANSWER: **quasineutrality** [do NOT accept or prompt on "neutrality"]

16. Historian Stuart Miller used this phrase to title his book about "The American Conquest of the Philippines, 1899-1903." For 10 points each:

[10] Identify this two-word phrase which names a proclamation issued by president William McKinley in 1898, in which he promised to "win the confidence, respect, and affection of the inhabitants of the Philippines" by ensuring the namesake mission.

ANSWER: "**benevolent assimilation**"

[10] This military governor in the Philippines delayed the publication of the "benevolent assimilation" proclamation and then changed its wording when he eventually sent it to Emilio Aguinaldo. He was replaced as governor by Arthur MacArthur, Jr. in 1900.

ANSWER: Elwell Stephen **Otis**

[10] Otis gave a questionable explanation for changing the wording of the proclamation, claiming it was based on his knowledge of this language, which had been named the official language of the Philippines at the Constitution of Biak-na-Bato in 1897.

ANSWER: **Tagalog**

17. Nucleic-acid containing components such as the nucleus or ribosome are colored bluish purple in this technique, while the cytoplasm is colored pink. For 10 points each:

[10] Name this common histological stain, which uses one basic dye extracted from logwood trees and combined with aluminum ions and one acidic dye formed from the reaction of bromine with fluorescein.

ANSWER: H and E stain [or hematoxylin and eosin stain]

[10] This histological stain is used to distinguish between collagen and muscle fibers. It colors cytoplasm and muscle tissue red, collagen blue, and cell nuclei black.

ANSWER: Masson's trichrome stain

[10] The periodic acid-Schiff stain is commonly used to detect the presence of this polysaccharide, which is the stored form of glucose in animals. It is analogous to starch in plants.

ANSWER: glycogen

18. The third movement of this piece is labeled "Rondo ritmico con introduzione", while its first movement uses a theme based on musical ciphers for the names of the composer and two friends. For 10 points each:

[10] Name this 1925 composition for the unusual ensemble of solo piano, solo violin, and 13 wind instruments.

ANSWER: the Chamber Concerto [or the Kammerkonzert für Klavier und Geige mit 13 Bläsern; or the Chamber Concerto for Piano and Violin with 13 Wind Instruments]

[10] The composer of the *Chamber Concerto* repeatedly quoted a similarly-named Alexander von Zemlinsky symphony in this six-movement composition for string quartet. This twelve-tone piece includes a "secret" A-B flat-B-F motif, representing its composer and Hanna Fuchs-Robettin.

ANSWER: the Lyric Suite

[10] The composer of those pieces, Alban Berg, was inspired by the death of Manon Gropius to complete his only work in this genre. Brahms's only work in this genre, his D major Op. 77, was dedicated to and premiered by Joseph Joachim.

ANSWER: violin concerto [prompt on partial answer]

19. This man dedicated his collection *Verses About the Beautiful Lady* to Lyuba, the daughter of Dmitri Mendeleev. For 10 points each:

[10] Name this foremost Russian Silver Age poet, a symbolist who depicted a group of soldiers marching through snowy St. Petersburg in his poem "The Twelve".

ANSWER: Alexander Blok [or Alexander Alexandrovich Blok]

[10] The "criminal argot" style of Blok's "The Twelve" was praised by this Russian critic, who opened his book *Theory of Prose* with the essay "Art as Technique". You may be familiar with his concept of *ostranenie*, which is translated as "defamiliarization" or "estrangement".

ANSWER: Viktor Shklovsky [or Viktor Borisovich Shklovsky]

[10] Shklovsky also compared "The Twelve" to this Alexander Pushkin poem that also involves weird shit happening in St. Petersburg - specifically, a statue of Peter the Great coming to life to hound Evgenii to death.

ANSWER: "The Bronze Horseman" [or "Mednyi Vsadnik"; or "The Copper Horseman"]

20. August Schleicher was the first to use this technique in an attempt to build the Proto-Indo-European language. For 10 points each:

[10] Name this method, an alternative to internal reconstruction, which attempts to build an ancestor language by using two or more descendant languages and examining cognates.

ANSWER: comparative method

[10] The comparative method was used by this fabulist and linguist to show that Proto-Indo-European voiceless stops change into voiceless fricatives, thus explaining a number of Germanic consonant shifts.

ANSWER: Jacob Grimm [or Grimm's Law]

[10] This lexicostatistical alternative to the comparative method attempts to establish an absolute dating for an ancestor language by making the assumption that there is a fixed rate of vocabulary replacement over time. Swadesh lists are used in this approach.

ANSWER: glottochronology