



ACADEMIC COMPETITION FEDERATION

2015 ACF NATIONALS

PACKET BY PENN B, PENN C, AND KENYON

TOSSUPS

1. After being passed over for ecclesiastical offices, two priests in this state claimed that the Pope gave them power to liberate it, and led the Conspiracy of the Pintos, named for the palace where they gathered. The archbishop of this state convened the Synod of Diamper, which attempted to Latinize the liturgy and subjugate outlying areas, but was rebuffed by the Coonan Cross Oath delivered by Saint Thomas Christians. A group of men murdered here were known as the “Martyrs of Cuncolim,” including two who jumped into the sea at Assolna Fort. Much later, this state became part of a union territory along with the exclaves of Daman and Diu on the coast. Its Bom Jesus Basilica contains the remains of St. Francis Xavier, who preached here, and it became the seat of government in 1510 after Afonso de Albuquerque took it from Adil Shah. For 10 points, name this center of the Portuguese colony of India, which is now the smallest Indian state.

ANSWER: Goa [or Velha Goa; or Old Goa; or Nova Goa; or New Goa; or Panjim; or Panaji]

2. In a long speech, this character asserts that “We die on the march. But there is nothing outside the march so nothing can be lost to it”, before pretending to translate Latin while actually reciting a Shakespeare speech from memory. Near the end of the play, this character says “When we have found all the meanings and lost all the mysteries, we will be alone, on an empty shore”, shortly before agreeing to waltz with another character. After this character returns from a rabbit hunt, he is confronted with two letters, one of which is “full of rice pudding” and the other of which results in him being invited to sleep with Lady Croom. He narrowly avoids fighting a duel by heaping praise on “The Couch of Eros”, a bad poem by Ezra Chater. In his very first line, he claims that “throwing one’s arms around a side of beef” is the definition of “carnal embrace.” Hannah Jarvis discovers that this character became the “hermit of Sidley Park” after the death of his student Thomasina Coverly. For 10 points, name this friend of Lord Byron, a major character in Tom Stoppard’s *Arcadia*.

ANSWER: Septimus Hodge [accept either underlined portion; do NOT accept “Septimius Hodge”]

3. This treatise’s tenth chapter claims that the brute has no guardian spirit but his instinct and organs, comparing him to a bird that might lose its eyes, thereby losing its guardian angel. This book calls the imagination a “middle term” between the abstract and the concrete in a section that explains the Cosmogonical Principle. Another chapter of this text states that each planet has a different position relative to the sun, so they each have their own sun. After a positive account of its subject in the first section, this book’s second part discusses the anthropological aspects of “the dream of the human mind.” This book claims that the primary object of man’s consciousness is the infinity of his own nature and that a deity with no attributes cannot exist. Translated by George Eliot into English, it claims that God is a fictitious projection of humankind. For 10 points, name this book on religion by Ludwig Feuerbach.

ANSWER: The Essence of Christianity [or Das Wesen des Christentums]

4. The 6N-dimensional integral used to calculate this quantity can be rewritten with the assumption that the potential only includes pairwise interactions - that technique is called Mayer cluster expansion. A common technique used to solve the Ising model is to express this quantity as the trace of a product of transfer matrices. This quantity can be obtained via a path integral of the Euclidean action, which can be shown by Wick rotating the path integral used to obtain the propagator. For a system of N indistinguishable particles, the total value for this quantity equals one individual particle’s value for this quantity raised to the N power divided by N factorial. The expectation value of total energy equals the negative of the derivative of the natural log of this quantity with respect to thermodynamic beta. Helmholtz free energy equals negative kT times the natural log of this quantity, which is defined as the sum over all energy states of e raised to the energy of the state divided by kT. For 10 points, name this normalization constant for the Boltzmann distribution, which is symbolized Z.

ANSWER: grand partition function [or Z until it is read; prompt on “Q”, “xi”, and “Y”]

5. The shutters of this artist's *St. Catherine Altarpiece* features the disembodied eyes of Saint Ottilia resting on top of a book to illustrate that her blindness was cured. A Latin inscription in a painting by this artist translates to "I am a nymph of the sacred fountain. Do not disturb my sleep. I am resting." One of this artist's versions of *The Crucifixion* features a converted centurion that rides a white horse and wears 16th century armor. The god Mercury holds onto a glass sphere and a certain Trojan wears a luxurious red cape and steel plate armor in this artist's version of *The Judgment of Paris*. Archers lie in wait behind bushes in this artist's painting *The Stag Hunt of Elector Frederick the Wise*, which depicts his patron. A black hat and a coat are often worn by Katharina von Bora's husband in many of his portraits. For 10 points, name this artist from Saxony who painted several portraits of his friend Martin Luther.

ANSWER: Lucas Cranach the Elder

6. This military man authored an essay in the Southern Literary Messenger titled "The Philosophy of Dress," in which he urged a dress code based on dignity, moderation, and neatness. This general wrote a letter to Joseph E. Johnston asking him to investigate a man with the pen name "Bohemian." His son, known by the nickname Sandie, was an aide to Stonewall Jackson and married Kate Corbin, but died in battle at Fisher's Hill. After this general was kicked in the leg by a donkey at Malvern Hill, his duties were taken over by E. Porter Alexander. Following the Battle of Shepherdstown, this general was given the nicknames "Granny" and "Old Mother" because he withdrew troops prematurely from the Potomac River. He referred to his guns as Matthew, Mark, Luke, and John, because he had been an Episcopal priest for 30 years before he rose to become the chief of artillery for Robert Lee, serving in that role at Gettysburg. For 10 points, name this completely inept Confederate general called the "Parson."

ANSWER: William Nelson "Parson" Pendleton

7. This character discusses guinea-pig breeding with Herr von Z. before claiming that "we live in the century of the Plebeian." A "shrug of eternity" lifts this character up after his pince-nez shatters on the ground and his toothache mysteriously disappears. He thinks about the curve of Arlova's breast and writes in his diary about the "relative maturity of the masses" and "the grammatical fiction." This man repeatedly receives the message "Arise, ye wretched of the earth", but with "Arise" spelled without the "S." This man tells dock workers that they must break a strike, before a German who lectures on Darwinism, Little Loewy, hangs himself. He uses a "quadratic alphabet" tap code to communicate with his neighbors and is interrogated more harshly by a "Neanderthal man" named Gletkin than by Ivanov. This inhabitant of Cell 404 is sentenced to death after he admits to plotting against Number 1 and the Party. For 10 points, name this old-Bolshevik protagonist of Arthur Koestler's *Darkness at Noon*.

ANSWER: Nicholas Salmanovitch Rubashov

8. With Milton Blum, this thinker wrote a book using a "tough shit" approach about business called *Executive Leadership*. He coined the terms "awfulizing," and "catastrophizing" to describe behavior that should be fought with shame-attack exercises. He called the harmful act of imposing absolute values on the world "musturbation." Many of his ideas, such as the distinction between "discomfort disturbances" and "ego disturbances," were developed while he writing *Sex Without Guilt* and *The Art and Science of Love*. This thinker developed a model of causation in which an activating event induces a belief, which itself is responsible for a human feeling - that is the "ABC" model. Like Aaron Beck, this psychologist developed an individualist approach that seeks to correct harmful behavior by converting socially destructive tendencies to constructive ones. For 10 points, name this psychologist who developed rational emotive behavioral therapy.

ANSWER: Albert Ellis

9. A set of coupled differential equations modeling more than one of these systems is the Clohessy-Wiltshire equations. Jacob Thorne gave a list of power series solutions to a two point boundary value problem modeling these systems. Solving that problem is equivalent to solving Lambert's problem and finding one of these systems. The method pioneered by Josiah Gibbs to determine one of these systems merely requires three coplanar position vectors. By using station keeping, one can make one of these systems that resembles a Lissajous curve. The energy conservation equation of these systems is the vis-viva equation. Switching from one of these systems to another can be achieved with a Hohmann transfer, and the point of greatest distance of one of these systems is the apoapsis. For 10 points, name these paths of astronomical objects, which may be periodic.

ANSWER: astronomical orbits [or trajectories; or flight paths; or intercepts until "station keeping" is read]

10. This film character states bourbon can't cure insomnia. This man, who first appeared in books by the nudist novelist John Ball, tells the abortionist Mama Caleba that she can "whisper two little words" and he'll be on his way. In a memorable scene, he correctly deduces that another character alters his nightly route so that he can see Dolores Purdy nude. After this man discovers a piece of fern in a car, he questions a man that compares him to an epiphytic plant. In that memorable scene, he is slapped and slaps Mr. Endicott. At the opening of the film, Leslie informs the mayor that she'll let go of her husband's engineers that are building a factory unless this man is put on the case to determine who murdered Philip Colbert. When asked what he is called up in Philadelphia, this character gives his most iconic response. For 10 points, name this detective played by Sidney Poitier in the film *In the Heat of the Night*, who memorably states "They call me Mr. [his name]!"
ANSWER: Virgil Tibbs [accept either underlined portion]

11. According to Abu 'l-Fath's *Kitab al Ta'Rikh*, the first members of this religious sect were the loyal children of Hophne and Phinehas and the women they slept with inside a tabernacle. Josephus' *Antiquities* claims that this sect was comprised of pagan Sidonians and that it worshipped Jupiter Hellenius. This religious group rejects Mount Moriah as the location where Abraham almost sacrificed Isaac; instead, they perform sheep sacrifices during the "Festival of the Sacrifice" where they believe it happened, Mount Gerizim. This sect claims direct descent from the tribes of Ephraim and Manasseh, and it may have been formed after Sargon II conquered their namesake land. This sect, which split from the Jews in antiquity, has only about 800 remaining members, who live mostly in Holon and Kiryat Luza. For 10 points, name this religious sect, one of whom kindheartedly showed hospitality to a man beaten by robbers in a parable told by Jesus.
ANSWER: Samaritans

12. A poem by this man contains a passage that reads "They must hold against / The fire rain / or when / sometime it seems / upwards, hands down / against / pilloried / sell quickly took her / bearings / did not appear entirely / a height of five thousand feet," and is divided into 111 numbered sections. Another of his poems, which includes the lines "sometimes they were in sordid sexual situations; / at others, a smidgen of fun would intrude on our day," features the Vivians and was inspired by the work of outsider artist Henry Darger. This author included the long poem "Europe" in his collection *The Tennis Court Oath*. He wrote "Girls on the Run" and won the Yale Younger Poets Prize for his collection *Some Trees*. Another of his poems features the lines "the right hand / Bigger than the head, thrust at the viewer," and "The glass chose to reflect only what he saw." For 10 points, name this New York School poet of "Self Portrait in a Convex Mirror."
ANSWER: John Ashbery

13. One member of this group fractured his skull when he was pushed down a marble staircase at the Royal Automobile Club on Pall Mall after a drunken argument, causing lifelong mental trauma. Another probable member wrote a book on the "Social History of Christian Polygamy" entitled *After Polygamy Was Made a Sin* and a study on Moliere. This group was assisted by the publisher of the *New Republic*, Michael Whitney Straight, and had its regular activities planned out by Theodore Maly. Their number likely included John Cairncross as well as Anthony Blunt and several members of the Apostles Club, who often approached employees working at Bletchley Park. A more famous member's meeting with Australian actress Coral Brown is the basis of Alan Bennett's film *An Englishman Abroad*. Those members were Donald Maclean and the flamboyantly gay Guy Burgess, who tried to protect its principal by fleeing separately. Uncovered by the Venona project, for 10 points, name this Soviet spy ring led by a namesake double agent in Britain around 1950.
ANSWER: the Cambridge Five spy ring [or the Cambridge Four; or Kim Philby's Soviet spy network; or Harold Adrian Russell Philby; or the MI6 spy ring; or the MI5 spy ring; prompt on answers, such as "British spy scandal", that do not include the underlined words]

14. One cancer of this tissue can be caused by a fusion of the CHOP gene with either the FUS or EWS gene, while other cancers of this tissue are present in Madelung disease and Dercum disease. A class of cytokines named for and secreted by cells in this tissue includes apelin, resistin, and TNF-alpha. Stem cells derived from this tissue include PLA cells as well as the stromal vascular fraction. One hormone released by cells in this tissue inhibits neuropeptide Y and stimulates the production of alpha-MSH. Cells in this tissue contain an uncoupling protein which uses oxidative phosphorylation to generate heat without shivering. Thermogenin is expressed in cells in this tissue, which releases the ghrelin-opposed satiety hormone leptin, and comes in brown and white types. For 10 points, name this tissue which stores lipids.
ANSWER: adipose tissue [or fat tissue; or "brown fat" or "white fat" or "brown adipose tissue" or "white adipose tissue"]

15. The “Good Sister” and the “Lord of the Two Lands” are worshipped in the northern half of a symmetrical temple whose southern half is dedicated to this god. This god “spends seed with his phallus” and “takes wives from their husbands,” according to the Pyramid Texts. The final ruler of the 12th Dynasty was named for the “beauty of” this god, whose worship was promulgated by that ruler’s father Amenemhat III. The temple of Medinet Madi was dedicated to this god and his wife Renenutet. The primary temple of this god was home to his jewel-adorned avatar Petsuchos. One account held that this god created the world by laying eggs on the banks of Nun. This son of Neith was the patron god of the region of Faiyum, and he used a net to collect the sons of Horus from the Nile, another place with which he is often associated. For 10 points, name this Egyptian god with the head of a crocodile.

ANSWER: Sobek [or Sebek; or Sochet; or Suchos until “Petsuchos” is read]

16. In one of his works, this man uses the term “flagrat” to refer to the sense of sudden terror in man, and “lubet” to mean the lustful desire that leads man to good or evil. Two of his lesser-known works, *Of the Threefold Life of Man* and *Forty Questions Concerning the Soul*, were later cited by Nicolas Berdyaev for coining the term “ungrund” to describe an abyss of holy nothingness. While working as a shoemaker, he was often harassed by the local tanners guild, and was persecuted by Gregor Richter for writing a work with the Latin title *Aurora*, which he wrote after watching sunlight reflect off of a pewter dish. Influenced by Paracelsus, he identified the Holy Trinity with salt, sulphur, and mercury in his book *Mysterium Magnum*. For 10 points, name this 16th century German mystic known for his holy visions.

ANSWER: Jakob Bohme [or Jakob Boehme; or Jacob Behmen]

17. A character in this novel complains about the garlic breath of a money changer in a chapter set in the same place as one in which Sata claims that the world needs sin. In this novel, the illiterate clothier Esther delivers messages, including some from Hassan and some sent by way of the slave girl Hayrie. One character in this book steals a pin which Bihzad of Herat used to blind himself. Another of its characters tells the story of an old master who first worked for a Blacksheep leader and then a rival Whitesheep leader after being blinded. This novel’s protagonist is influenced by Master Osman, who rejects innovation, and his uncle Enishte, who tries to implement the techniques of Frankish artists. Butterfly, Stork and Olive narrate stories each about style, signature, and blindness, respectively, in this novel, whose first chapter is narrated by Elegant Effendi, who sits at the bottom of a well after his murder. Black woos Shekure in, for 10 points, what novel about Ottoman miniaturists by Orhan Pamuk?

ANSWER: My Name is Red [or Benim Adım Kırmızı]

18. Butyllithium converts a dibromo-cyclopropane to an allene through one of these intermediates in the Skattebøl rearrangement. Reaction of a metal carbonyl complex with potassium intercalated in graphite then trimethylsilyl chloride forms these compounds in the Hegedus-Semmelhack procedure. One of these compounds is an intermediate in the stepwise mechanism of the Wolff rearrangement. Imidazole-2-ylidenes are examples of an unusually stable “n-heterocyclic” type of these compounds. A di-iodo methane complex with zinc whose reactivity resembles these compounds is used in the cyclopropanation of alkenes in the Simmons-Smith reaction. Transition metal complexes with these compounds can be either in a singlet or a triplet state, depending on whether they are of the Fischer or Shrock types. For 10 points, name these neutral carbon compounds that possess a lone pair of valence electrons.

ANSWER: carbenes

19. According to legend, a courtier of this kingdom foretold that, at his death, his blood would flow white as milk and his decapitated head would fly to the top of a hill - those miracles, performed by the minister Ichadon, convinced the nobles to change their religion. This kingdom’s founder was said to be born after light shone down in a forest near a well, where a white horse bowed down and laid an egg, so it adopted a name translating as “Chicken Forest.” A new code of law was issued by its king Pophung, who extended its borders by absorbing the Gaya confederacy. Its royal classes were known as *seonggol* and *jingol*, which mean “sacred bone” and the “true bone” respectively. It often shifted alliances between its neighbors, the Baekje and the Goguryeo, before conquering both and setting up a Unified dynasty in 668 CE. For 10 points, name this Korean kingdom which lasted until 935 when it was replaced by the Goryeo.

ANSWER: Kingdom of Silla [prompt on “Korea” or “Gyerim”]

20. This work's main theme begins with an E-flat minor chord and alternates between major and minor chords for fourteen measures before reaching B minor. That theme, which opens this work in three-four time, reappears after the "death of Oates," and again in four-four in the Alla marcia moderato Epilogue. This work's "nature music" includes pianississimo thirty-second-note xylophone runs, and its third movement, "Landscape," climaxes with a fortississimo organ solo. Quotations from Shelley, the *Psalms*, Donne, and Coleridge are sometimes read between movements of this work, preceding an excerpt from a diary in which a man claims, "I do not regret this journey." Its first movement features a wordless women's chorus and a solo soprano, and the percussion ensemble includes "deep bells," celesta, and wind machine. For 10 points, name this symphony by Ralph Vaughan Williams based on a film score about Robert Falcon Scott's failed attempt to reach the South Pole.

ANSWER: Sinfonia Antartica [or Sinfonia Antarctica; or the Antarctic Symphony; or Ralph Vaughan Williams's Symphony No. 7; or Symphony No. 7 after "Vaughan Williams" is read]

TIEBREAKER

21. This author wrote "Aunts to our sisters' boys, / we bring them squawking rubber monsters, / birthday poems pasted in the growing albums," in her poem "Heroics." In another poem, from her debut collection *Homecoming*, she states, "Let's make a modern primer for our kids: / A is for Auschwitz; B for Biafra; Chile: Dachau: El Salvador." In a novel by this author, Lío Morales is forced to flee and Dedé describes the deaths of her sisters Minerva, María Teresa, and Patria, who are collectively referred to as "Las Mariposas." The twice-divorced Yolanda is the title character of *Yo!*, the sequel to this author's best-known novel; in that novel, the CIA agent Vic helps Laura, Carlos, and their four daughters escape to the United States. For 10 points, name this author who portrayed the Trujillo regime of the Dominican Republic in such works as *In the Time of the Butterflies* and *How the García Girls Lost Their Accents*.

ANSWER: Julia Alvarez

BONUSES

1. Answer some things about the island of Honshu, for 10 points each.

[10] This lowland area contains the capital of Tokyo and is drained by the Tone River system. It was the site and namesake of a massive earthquake in 1923 which resulted in over 100,000 deaths.

ANSWER: Kanto Plain

[10] The underwater Seikan Tunnel connects Honshu with this island to the north, the second largest island of Japan. It's separated from Honshu by the Tsugaru Strait.

ANSWER: Hokkaido [or Ezo; or Yezo; or Yeso; or Yesso]

[10] This longest river in Japan is the namesake of a historical province where Takeda Shingen and Uesugi Kenshin battled on Kawana-kajima Plain during the Warring States Period. The Okozu Canal on this river irrigates the Niigata Plains.

ANSWER: Shinano River [or Chikuma River]

2. Its last novel is *The Four-Gated City*. For 10 points each:

[10] Name this quintet of novels about the African-born Martha Quest. It traces Martha's journey from the fictional Zambesia to London after World War II.

ANSWER: The Children of Violence

[10] This winner of the 2007 Lit Nobel wrote *The Children of Violence* series, as well as the five-novel sci-fi series *Canopus in Argos: Archives*. Four diaries by Anna Wulf figure into this woman's novel *The Golden Notebook*.

ANSWER: Doris Lessing [or Doris May Lessing]

[10] An unemployed squatter named Alice becomes involved in the CCU in a Doris Lessing novel titled for "the good" one of these people. This occupation titles a John Updike novel about Jack Levy and Ahmad Mulloy.

ANSWER: terrorists [or The Good Terrorist]

3. Answer some questions about first-order logic, for 10 points each.

[10] First-order logic allows the use of these constructs, which are not allowed in propositional logic. The existential one, which semantically translates to "there exists," is represented with a backwards "E".

ANSWER: quantifiers

[10] The "automated" form of this activity often begins with the conversion of a statement in first-order logic to Skolem normal form, in which all existential quantifiers have been removed. Then, a well-formed first-order formula can be shown to be true or false.

ANSWER: automated theorem proving [or obvious equivalents indicating proving, such as generating a proof or proof checking]

[10] By applying the compactness theorem to a first-order language modeling the real numbers, one can use this approach to calculus that uses infinitesimal and infinites, and not limits. Abraham Robinson rigorously developed it.

ANSWER: nonstandard analysis

4. Answer the following about the French Mandate over Syria, for 10 points each.

[10] France was granted a mandate for Syria and Lebanon at this April 1920 conference, confirming the secret Sykes-Picot agreement signed four years earlier. This conference approved a peace treaty later ratified by the Treaty of Sevres.

ANSWER: San Remo Conference

[10] King Faisal proclaimed the Arab Kingdom of Syria in 1920, but then was quickly forced out by the invading French in this battle which saw General Gouraud's forces overrun those of Yusuf Al Azmah, twelve miles west of Damascus.

ANSWER: Battle of Maysalun Pass [or Maysaloon]

[10] Under the reluctant assent of the French, the San Remo Conference incorporated this 1917 letter in which the namesake British Foreign Secretary committed to a national home for the Jews in Palestine.

ANSWER: Balfour Declaration

5. In John Martin Crawford's translation of a poem, this figure is referred to as "the shepherd of the lamb-clouds," "the god of the breezes," "the golden king," and "the silvern ruler of the air". For 10 points each:

[10] Name this god who creates three mystic maidens by rubbing his hands on his left knee. A rainbow acts as this god's bow, from which he shoots fiery copper arrows.

ANSWER: Ukko

[10] Ukko conjures an ice storm to slow down Piru, a fire-breathing horse who is pursued by this figure. This hero of the *Kalevala* either drowns or is killed by Soppa Hat while trying to capture the swan of Tuonela.

ANSWER: Lemminkäinen [or Lemminki]

[10] Virokannas baptizes this woman's infant son and declares him to be king of Karelia. This maiden from Northland is the subject of the *Kalevala*'s 50th and final rune.

ANSWER: Marjatta [or Mariatta]

6. This composer's *Piano Sonata in B Minor* is played without movement breaks and begins with G octaves. For 10 points each:

[10] Name this virtuoso pianist who composed the *Années de pèlerinage*, the *Mephisto Waltzes*, and the *Hungarian Rhapsodies*.

ANSWER: Franz Liszt [or Ferencz Liszt; accept names in either order]

[10] This set of six solo piano pieces by Liszt are all composed in E major or D-flat major. The third and most popular one is marked *Lento placido*, and is an arrangement of a folk song later used in the first *Hungarian Rhapsody*.

ANSWER: the Consolations

[10] Liszt's important organ works include a *Fantasy and Fugue* on this theme, which served as the basis for the tone row in Anton Webern's string quartet. It is the third subject used in *Contrapunctus XIV* in *The Art of Fugue*.

ANSWER: the B-A-C-H motif [or the BACH motif; or B-flat/A/C/B natural motif]

7. A "Song of Fate" in this novel compares men to "water hurled from cliff to cliff, downward for years into uncertainty", and its protagonist decides to fight in the Greek revolution against the Ottomans. For 10 points each:

[10] Name this 1799 novel primarily written in the form of letters to Bellarmin. It shares its name with a prose romance by Henry Wadsworth Longfellow and an unfinished epic about the Titanomachy by John Keats.

ANSWER: Hyperion [or Hyperion or the Hermit in Greece; or Hyperion oder der Eremit in Griechenland]

[10] This German Enlightenment author of *Hyperion* and the elegies "Bread and Wine" and "Patmos" died before he could complete *The Death of Empedocles*. Heidegger gave a lecture course on this man's hymn "The Ister".

ANSWER: Johann Christian Friedrich Hölderlin

[10] Hyperion's lover in the novel is this character who opposes Hyperion's desire to fight in the Greek revolution and implores him to be an "educator of the people." She shares her name with a character in another work who gives a speech-within-a-speech about an "in-between" who is the child of Poverty and Contrivance.

ANSWER: Diotima

8. For 10 points each, answer the following about the interaction of Rome and Dacia.

[10] This king of the Dacians and Getae, who ruled from 82 to 44 BCE long before Decebalus, moved the Dacian capital to Sarmizegethusa and commanded an empire from the Haemus Mountains to the Wooded Carpathians. He sided with his good buddy Pompey in the war with Caesar.

ANSWER: Burebista

[10] Decebalus was crushed at the Second Battle of Tapae by this Roman emperor, who erected a column to celebrate his victory. He was the second of the Five Good Emperors after Nerva.

ANSWER: Trajan [or Emperor Caesar Nerva Traianus Divi Nervae filius Augustus]

[10] This Roman emperor formally abandoned the province of Dacia, and focused his energy on defeating Queen Zenobia and the Palmyrene Empire at battles like Emesa.

ANSWER: Aurelian [Lucius Domitius Aurelianus]

9. Moses Gomberg created one of these compounds using triphenylmethyl chloride and zinc. For 10 points each:

[10] Name these compounds which can be generated by photoinitiators. Reactions of them are depicted using single-headed curved arrows.

ANSWER: free radicals

[10] In the Hunsdiecker reaction, a silver salt of one of these compounds is converted to an alkyl halide via a free radical intermediate. These compounds have a peak around 10-13 ppm in proton NMR.

ANSWER: carboxylic acid

[10] Nitrones such as PBN or DMPO are often used in this technique, in which unstable radicals are converted to a more stable adduct which can then be spectroscopically analyzed.

ANSWER: spin trapping

10. This album includes a lyric duet for bass and bass clarinet on its second track, “Something Sweet, Something Tender.” For 10 points each:

[10] Name this 1964 album which also includes the tracks “Straight Up and Down” and “Gazzelloni.” It was recorded by Eric Dolphy months before his death.

ANSWER: Out to Lunch

[10] The opening track of *Out to Lunch*, “Hat and Beard,” is a tribute to this pianist, who composed the jazz standards “Straight, No Chaser” and “Round Midnight.”

ANSWER: Thelonious Monk

[10] This musician signed with Columbia Records thanks to his performance of “Round Midnight” at the 1955 Newport Jazz Festival. He recorded a version of “Straight, No Chaser” on his 1958 album *Milestones*, which featured Cannonball Adderley on saxophone.

ANSWER: Miles Davis

11. This 1937 paper posits a “moving equilibrium,” in which expansion occurs until the transaction cost of an internal operation equals the cost of an open market operation. For 10 points each:

[10] Name this paper that discusses how individuals minimize the cost of economic coordination.

ANSWER: “The Nature of the Firm”

[10] This man won the 1991 Nobel Prize in Economics for his paper “The Nature of the Firm” as well as “The Problem of Social Cost.” Barring high transaction costs, bargaining is the cheapest resolution of externalities according to his namesake theorem.

ANSWER: Ronald Harry Coase

[10] This other economist argued that an individual may stop using a firm, voice his or her concerns, or choose to remain loyal in a 1970 book that examines the impact of a declining firm, *Exit, Voice, and Loyalty*.

ANSWER: Albert Otto Hirschman [or Otto-Albert Hirschman]

12. Answer the following about the ridiculous history of Queensland, for 10 points each.

[10] This 1857 massacre occurred at a namesake station on the Dawson River, where Yeeman aborigines attacked the hut of Martha Fraser and killed her entire family. The patriarch, William Fraser, was away in England and proceeded to launch a comic-book-style campaign of revenge against the Aborigines.

ANSWER: Hornet Bank Massacre

[10] This national airline of Australia known as the “Flying Kangaroo” was founded in 1920 to serve the outback regions of Queensland.

ANSWER: Qantas Airways Limited

[10] In 1922, a cracker-jack plan developed by the scientist Reginald Mungomery led the Queensland parliament to vote to import 101 examples of this type of animal from Hawaii in order to combat the damage to crops caused by beetles. That plan failed and these animals overran Queensland and the Northern Territory.

ANSWER: cane toads [or Rhinella marina; do not accept frogs because wet blanket Cody Voight points out that frogs are not toads]

13. This character “thrice investigates the butterfly dream” and “cleverly executes Court Official Lu” in a pair of plays by Guan Hanqing, the author of *The Injustice to Dou E*. For 10 points each:

[10] Identify this recurring protagonist of many Yuan Dynasty *zaju* plays. Later, he appeared as the recurring protagonist of *gong'an*, or crime fiction, novels, such as the *wuxia*-influenced *Seven Heroes and Five Gallants*.

ANSWER: Judge Bao Zheng [or Bao Gong; or “lord”, “justice”, “rescriptor”, or “magistrate” in place of “judge”]

[10] Judge Bao appeared in this Yuan Dynasty play by Li Qianfu, in which he places the child Shoulang in the title construct in a trial that proves Hai-tang is his real mother. Bao was replaced by the wise Judge Azdak in Bertolt Brecht’s “Caucasian” version of this play.

ANSWER: The Chalk Circle [or The Circle of Chalk; or A Circle of Chalk; or Huilan Ji; do NOT accept “The Caucasian Chalk Circle”]

[10] The first Western translation of *The Chalk Circle* was produced by Stanislas Julien, who also translated a “history” of the basis for this Chinese literary character. This reincarnation of the Golden Cicada is sent to Tianzhu to retrieve some scriptures in a Ming Dynasty novel.

ANSWER: Xuanzang [or Tripitaka; or Tang Sanzang; or Tang Seng; prompt on “Tang”]

14. Dimensional analysis of this phenomenon yields the result that the Nusselt number is a function of the Reynolds and Prandtl numbers. For 10 points each:

[10] Name this phenomenon which comes in “forced” and “free” types based on whether or not there is an external fluid flow. It is the primary mechanism for heat transfer in the mantle.

ANSWER: forced **convection**

[10] This quantity is the equivalent of the Nusselt number for mass convection. For forced mass convection, it is a function of the Reynolds and Schmidt numbers, and it is equal to the convective mass transfer coefficient times the characteristic length divided by the diffusion coefficient.

ANSWER: **Sherwood** number [or **Sh**]

[10] This theorem is used to derive the aforementioned relation between the Sherwood, Reynolds, and Schmidt numbers for forced mass convection. When using this theorem, kinematic viscosity is written as “length squared times time raised to the negative one power.”

ANSWER: Buckingham **π** theorem

15. This deity is depicted as a white goose flying over an endless expanse of water, which represents time, while the mother-goddess Ak Ana calls for him to create the world. For 10 points each:

[10] Contrasted with the evil underworld god Erlik, name this Sky-Father deity worshipped by nomads of the Mongolian steppe as part of a namesake religion.

ANSWER: **Tengri** [or **Tenger**]

[10] This early twentieth century Russian movement related to Tengriism worships a “white god” called the “Spirit of Altai” who appeared as a white rider on a white horse in visions. This word also designates the Buddha in Mongolian texts.

ANSWER: **Burkhanism** [or **Burhan**; or **Ak Jang**]

[10] Burkhan was also the term used for the incarnate messengers of the god of light in this dualistic religion which has texts like the *Book of Giants*.

ANSWER: **Manichaeism** [or **Manichaeism**]

16. This author was able to recover from the effects of alcoholism to write the verse play *The Antiphon*, but never completed a biography of the Baroness Elsa von Freytag-Loringhoven. For 10 points each:

[10] Name this member of the Provincetown Players who wrote and illustrated the novel *Ryder* and the chapbook *The Book of Repulsive Women*.

ANSWER: Djuna **Barnes**

[10] Djuna Barnes wrote this *roman a clef*, in which she fictionalized herself as Nora Flood and based Nora’s lover Robin Vote in part on her own lover Thelma Wood.

ANSWER: **Nightwood**

[10] This poet of “The Love Song of J. Alfred Prufrock” edited and wrote the introduction to the 1937 Harcourt, Brace edition of *Nightwood*.

ANSWER: T.S. **Eliot** [or Thomas Stearns **Eliot**]

17. Name these great contributors to the history of Montana, for 10 points each.

[10] This Canadian-American magnate expanded the St. Paul and Pacific Railroad into the transcontinental Great Northern Railway, earning him the epithet “Empire Builder,” and bringing trade to the entire Northwestern US, including Montana.

ANSWER: James J. **Hill** [or James Jerome **Hill**]

[10] This field secretary for the National American Woman Suffrage Association from Montana became the first woman to be elected to Congress, and voted against US entry into World War I. She later formed the Georgia Peace Society.

ANSWER: Jeanette **Rankin**

[10] This Democrat from Montana was nominated as FDR’s first Attorney General but he died of a heart attack on the train to Washington. He’s more famous for being the namesake of the committee that investigated the Teapot Dome scandal.

ANSWER: Thomas James **Walsh**

18. Examples of these institutions include the educational system, the family and the media. For 10 points each:

[10] Name these institutions that title a Louis Althusser essay that states their function is to reproduce the social relation of productions.

ANSWER: ISA [or Ideological State Apparatus]

[10] Louis Althusser discussed the ideological state apparatus as part of an effort to re-evaluate philosophy in the context of this prior German philosopher, who authored a three-volume "Critique of Political Economy" called *Capital*.

ANSWER: Karl Marx

[10] Louis Althusser distinguished between ideological and this other type of state apparatus, which employs force and include the police and courts. An essay by Herbert Marcuse examines tolerance in this kind of capitalist regime.

ANSWER: repressive [or repressive tolerance]

19. It includes a depiction of the Girard Avenue Bridge and the Connecting Railroad Bridge in the background. For 10 points each:

[10] Name this painting which depicts a man rowing on the Schuylkill River.

ANSWER: Max Schmitt in a Single Scull [or The Champion Single Sculls]

[10] *Max Schmitt in a Single Scull* is by this artist, who was inspired by Rembrandt's *The Anatomy Lesson* to portray a surgical demonstration with an amphitheater in *The Gross Clinic*.

ANSWER: Thomas Eakins

[10] In the last decades of the 19th century, Eakins created somber portraits, such as this one, depicting a middle-aged woman in thoughtful contemplation. The subject, a student of Eakins, became renowned as a photographer.

ANSWER: Miss Amelia van Buren [or Portrait of Amelia C. van Buren]

20. Proteins in the CIS family are cytokine-induced inhibitors of these proteins, which dimerize via interactions between their phosphorylated SH2 domains. For 10 points each:

[10] Name these proteins which bind to receptors that have been activated by immune proteins such as interferons, thus mediating a signaling pathway by which extracellular cytokines regulate transcription.

ANSWER: STAT proteins [or Signal Transducer and Activator of Transcription; or Signal Transduction And Transcription]

[10] The STAT protein family is activated by JAK, which is one of these proteins. The ErbB family contains examples of the "receptor" type of these proteins, which preferentially target phenol groups.

ANSWER: tyrosine kinases [prompt on "kinases"]

[10] Drugs which inhibit the JAK-STAT pathway, including Ruxolitinib, can be used to treat myelofibrosis, a cancer of this tissue which possesses hematopoietic stem cells.

ANSWER: bone marrow