

**Minnesota Undergraduate Tournament 2015: My Torah Portion was an Archie Comic**  
**Questions by Rob Carson, Mike Cheyne, Andrew Hart, Gautam Kandlikar, Shan Kothari, Bernadette Spencer, Cody Voight, and special guest Ike Jose**  
**Packet 12: Tossups**

**1. The Allende example of these items was widely studied due to its presence of many calcium-aluminum-rich inclusions. An interleaving of kamacite and taenite bands in these items is known as a Widmanstätten pattern. Smalls spheres of silicate or sulfide minerals found in these items are known as chondrules and determine whether they are chondrite or achondrite. The carbonaceous type of these items is a member of their stony class, which is one of three groups along with iron and stony-iron. These (\*) terrestrial items are widely studied because they have a chemical composition similar to that of the Sun and are thought to be representative of the early Solar System. For 10 points, name these pieces of debris that survive impact with the Earth.**

**ANSWER: meteorites** [do not accept other answers]

**2. It's not Mexico, but the first Catholic saint born in this present-day country was one of the Twenty-Six Martyrs of Japan named Gonsalo Garcia. Francis Xavier established St. Paul's College in this present-day country. William Carey translated the Bible into several languages from this country. A group of Christians here formed a church under Mar Thoma I after earlier uniting with the Roman Catholic Church at the Synod of (\*) Diamper. That group overthrew the ecclesiastical yoke of Portugal with the Coonan Cross Oath to form the Malankara Church. St. Thomas the Apostle established a Christian community centered in this country's state of Kerala. A Macedonian nun who mostly lived in this country founded the Missionaries of Charity For 10 points, name this country where Mother Teresa worked in Calcutta.**

**ANSWER: India**

**3. The photographer and art critic Nadar called one of these things "flatulent" in an 1832 portrait of French writer and art collector; in that painting, Ingres's *Portrait of Monsieur Bertin*, two of these things are the only light parts of the lower half, and are fat and spread out. One of these things, "in the form of a toad, provokes hilarity," according to Ernest Chesneau's review of Edouard Manet's *Olympia*. A drawing of two of these things was first exhibited in 1871, and was originally made around 1508 by a (\*) German engraver as a study for an apostle in the *Heller Altarpiece*. Douglas Hofstadter called a 1948 lithograph showing two of these things an example of a "strange loop"; that M.C. Escher work shows two of these things "drawing" each other into existence. For 10 points, an Albrecht Durer drawing shows two of what body parts "praying"?**

**ANSWER: hands** [do not accept or prompt on "arms" or "fingers"]

**4. An author from this country created a character who has an affair with the con artist Ilona Grabowska Rubenstein, often partners with Abdul Bashur, and is known by a term meaning "The Lookout". The creator of Maqroll the Gaviero is from this country, which is also home to the author of a novel in which Jose Saenz de la Barra sends hundreds of decapitated heads to the title character, whose body is eaten by vultures, ending his several-hundred- year (\*) rule. This country is the birthplace of Alvaro Mutis and an author who wrote a novel in which a huge collection of parchments is compiled by the gypsy Melquiades, who sells a number of inventions to Jose Arcadio Buendia, the founder of Macondo. For 10 points, name this country home to the author of *The Autumn of the Patriarch* and *One Hundred Years of Solitude*, Gabriel Garcia Marquez.**

**ANSWER: Colombia** [or the Republic of Colombia; or la República de Colombia]

**5. A leader of this country was assassinated at a banquet by the man drawing a caricature of him. That assassin was incited by a Catholic nun offended at the government here passing laws like banning wearing clerical garb in public. The U.S., as represented by Ambassador Henry Lane Wilson, successfully conspired to overthrow the President here in the Ten Tragic Days. This country was home to a Division of the North commander who was once targeted by (\*) "Black Jack" Pershing. It was where the Cristero War took place and a revolution initially began against a man who was President for almost three decades named Porfirio Diaz. For 10 points, name this country whose revolutionary leaders included Emiliano Zapata and Pancho Villa.**

**ANSWER: Mexico**

6. This character writes his memoirs in an insane asylum as he is being watched by the guard Bruno Munsterberg; his manuscript opens with a description of how his grandparents met when his grandmother hid his grandfather from policemen under her skirt. This character falls in with a gang of criminal youths after his lover Roswitha is killed during the invasion of Normandy. He achieves riches after forming a jazz trio with (\*) Klepp and Scholle, but loses everything when he is convicted of murdering Sister Dorothea after finding her severed ring finger. His likely father, Alfred, is shot by the advancing Russian army after swallowing a Nazi party pin. This man, who has a scream that can pierce glass, is a dwarf because he decided to stop growing at the age of three. For 10 points, name this protagonist of Gunter Grass's novel *The Tin Drum*.

ANSWER: Oskar Matzerath [accept either underlined portion]

7. One of this band's co-founders created its characteristic sound by slashing up an Elpico amplifier with a razor. A song by this band repeats the line "Chilly, chilly is the evening time" and says that "as long as I gaze on" the title thing, "I'll be fine". The title track of another of their albums follows the title phrase with the line "God save Donald Duck, vaudeville and Variety". This group responsible for "Waterloo Sunset" claimed to be "the (\*) Village Green Preservation Society" on one album and partly titled another for a song about a person with a "dark brown voice" who the singer met "in a club down in old Soho". For 10 points, name this Ray Davies-fronted band who recorded "You Really Got Me" and described a confusing encounter with a transvestite in "Lola".

ANSWER: The Kinks

8. The color of *Riftia* plumes comes from several complex variants of this protein. Compared to the Aymara, Tibetans show a less severe reaction norm of this protein to altitude. The difference in magnetic susceptibility between two forms of this protein is responsible for the BOLD signalling used in fMRI imaging. The Portland and Gower forms of this protein are found in embryos. (\*) 2,3-PBG allosterically causes this protein to release its substrate, and a decrease in pH reduces the binding affinity of this protein with its main substrate according to the Bohr effect. This protein's two alpha and two beta subunits bind cofactors consisting of porphyrins bound to a ferrous ion. A replacement of glutamate by valine in this molecular causes sickle-cell anemia. For 10 points, name this iron-containing protein that carries oxygen in red blood cells.

ANSWER: hemoglobin

9. This man was stalked by a vengeful Polish princess named Catherine Radziwill, whom he had spurned. His brother, Frank, was arrested alongside John Hays Hammond and sentenced to death. With his buddy Charles Rudd, he tricked King Lobengula into signing an unfavorable treaty. This man resigned his highest political post after the botched Jameson (\*) Raid on the republic led by Paul Kruger. This man's unrealized dream was a south to north railway project called "Cape to Cairo." He founded what is now the De Beers Diamond Company. This man was the namesake countries that have since become Zambia and Zimbabwe. For 10 points, name this British and South African magnate who names a scholarship given to elite students attending Oxford.

ANSWER: Cecil John Rhodes

10. A dancer from this country joined Ethan Stiefel, Nikolay Tsiskaridze, and Johan Kobborg to form the Kings of the Dance. A man from this country composed a ballet that opens with a scene in which a woman uses a grape to teach a blackbird to correctly tell the time. In a ballet *set in* this country, Basilio pretends to stab himself with a sword to convince Lorenzo to allow him to marry Kitri. A ballet from this country includes a "Dance of Terror" and involves the protagonists performing a (\*) "Ritual Fire Dance" in an attempt to banish a ghost. A miller has to protect his wife from the amorous advances of a magistrate in a ballet from this country called *The Three-Cornered Hat*. For 10 points, name this home country of Angel Corella and *El Amor Brujo* composer Manuel de Falla, the setting of *Don Quixote*.

ANSWER: Spain [or the Kingdom of Spain; or Reino de España]

11. A daughter of this woman dumped her husband Echemus in favor of the Dulichian king Phyleus. This mother of Timandra had two sons who feuded with Idas and Lynceus over the Leucippides. Her sisters were Amphiaras's mother Hypermnestra and Meleager's mother Althaea, and her father was the Aetolian king Thestius. A story about one of this woman's daughters claims that that daughter actually came from an (\*) egg produced by Nemesis. Stories vary about the mortality of some of her children, depending on which ones are said to be the actual offspring of her husband Tyndareus. For 10 points, name this mother of Clytemnestra, Castor, Pollux, and Helen of Troy, who was impregnated by Zeus in the form of a swan.

ANSWER: Leda

12. One of this author's poems compares its subject to an Alcestis saved from "spot of childbed taint" by "purification in the old law", and presents a dream vision that ends when the poet wakes, after which its subject "fled, and day brought back my night". Another of this author's poems describes a time "when all our fathers worshipped stocks and stones", opens "Avenge, O Lord, thy slaughtered saints", and is about the murder of some Waldensians. This author's sonnets include (\*) "Methought I Saw My Late Espoused Saint" and "On the Late Massacre in Piedmont", and one which ends with the line "They also serve who only stand and wait". "When I Consider How My Light Is Spent", also known as "On His Blindness", is the best-known sonnet by, for 10 points, which poet, who wrote *Paradise Lost*?

ANSWER: John Milton

13. After this event, the so-called "Mayor of MacDougal Street," Dave Van Ronk, was charged with assault. A poet who lived nearby remarked "they've lost that wounded look" after seeing this event. An annual march in honor of it was proposed by bookstore owner Craig Rodwell, a former Mattachine Society activist who was present. During it, a crowd of people started a kick line and began singing to the tune of *The Howdy Doody Show* theme song. This event took place at a business owned by the (\*) Genovese crime family. A much-debated possible factor in the beginning of this event was the death of Judy Garland earlier in the week. This event began in protest of a NYPD raid of the namesake bar. For 10 points, name these 1969 riots in Greenwich Village that played a role in beginning the gay liberation movement.

ANSWER: Stonewall Riots

14. The sensitivity of this material can be measured using a logarithmic scale named for Julius Scheiner. One commercial brand of this material is subjected to the K-14 industrial process, which begins with an alkaline bath that removes antihalation backing. This material is treated with a mixture of sodium thiosulfate, called "hypo" in industry, and ferrous EDTA, which combine to form a mixture sometimes called "blix." This material, which is coated on one side with a gelatin emulsion, is subjected to a chemical process pioneered by John Herschel that consists of two major steps called (\*) "bleaching" and "fixing." Cellulose acetate was an early compound used to make this material, which takes the form of thin sheets coated in the light-sensitive crystals of a silver halide. For 10 points, name this material, such as Kodachrome, which is "developed" to produce photographs.

ANSWER: photographic film

15. One of these entities is contrasted with the "Gold Coast" in a work by Harvey Warren Zorbaugh which traces the evolution of one of these entities from Kilgubbin to "Little Hell." American efforts to overcome these entities were inspired by legislation drafted by Lawrence Veiller which is sometimes called the "New Law." These entities have recently seen a surge of (\*) tourist interest, catalyzed by events like the Oscar-nominated film *City of God* and the 2014 FIFA World Cup. The largest example of these in Africa is called Kibera and is found in Nairobi, and in Brazil these entities are called favelas. For 10 points, identify this term which describes a urban neighborhood that is very densely populated, and often lacks infrastructure like electricity and sanitation.

ANSWER: slums [or tenements; or favela until mentioned; or barrio; or shanty town; prompt on "neighborhood" until "New York"]

16. A section marked “calmo” in one of this man’s works has a chromatic timpani line with 10 distinct pitches. This composer used a form with slow *lassú* and fast *friss* sections for his two rhapsodies for violin and piano; he also used that form, the *verbunkos*, in his *Contrasts*. Voices in the fugal first movement of one of his works progress in opposite directions from A through the circle of fifths. That piece’s third movement exemplifies his (\*) “night music” style. This composer’s works in arch form include the fourth and fifth of his six string quartets, which use his namesake snap pizzicato. This composer’s didactic collection *Mikrokosmos* includes pieces in Bulgarian rhythm, and he used Hungarian and Romanian themes in pieces like *Allegro Barbaro*. For 10 points, name this composer of *Music for Strings*, *Percussion*, and *Celesta* and *Concerto for Orchestra*.

ANSWER: Béla (Viktor János) Bartók

17. Riots in this city led to the destruction of its largest hotel, Evropa, after people were whipped into a frenzy by Archbishop Josip Stadler’s assistant. In the wake of those riots in this city, *Schutzkorps* were established on orders of Oskar Potiorek. A man’s cyanide pill failed in a botched suicide attempt in which he jumped into this city’s very shallow Miljacka River. That man in this city unsuccessfully threw a bomb at a passing (\*) car, which later took an incorrect route, ending up near a confederate of the first man. Danilo Ilic orchestrated an event here that would kick off the July Crisis. In this city, Gavrilo Princip, on behest of the Black Hand, killed Duchess Sophie and her husband as a blow against Austria-Hungary. For 10 points, name this Bosnian city where Archduke Ferdinand was killed in 1914.

ANSWER: Sarajevo

18. In one of this author’s plays, the maid Addie condemns many of the main characters as “eaters of the earth”. Another play by this author opens with Peggy Rogers reading Shakespeare’s “quality of mercy” speech shortly before another character lies about the origin of some flowers. Accusations that this author ripped off Muriel Gardiner’s life for the section “Julia” of her memoir *Pentimento* led to her feud with Mary (\*) McCarthy. Horace’s sudden death allows Leo’s theft of railroad bonds to be used as blackmail by Regina Hubbard Giddens in a play by this woman. In another of her plays, Mary Tilford falsely accuses her teachers Karen Wright and Martha Dobie of having a lesbian affair. For 10 points, name this author of *The Little Foxes* and *The Children’s Hour*.

ANSWER: Lillian Hellman [or Lillian Florence Hellman; or Lilly Hellman]

19. A section of this book asserts that too much love for a thing that is “liable to many variations and that we can never fully possess” is “a sickness of the mind”. It defines sensory perception, reason, and intuition as the three types of knowledge, and claims, in its third section, that humans deem things good because they strive for them. This book also claims that everything “strives to persevere its being”, a concept referred to as *conatus*. Its format was influenced by (\*) Euclid’s *Elements*, as its propositions are “demonstrated in geometrical order”. Thought and Extension are two of the attributes of God according to this book, whose final section, “Of Human Freedom”, follows its section “Of Human Bondage”. Its author was attacked as an atheist because it equates God with Nature. For 10 points, name this magnum opus of Baruch Spinoza.

ANSWER: Ethics [or Ethica]

20. One of the more famous applications of the Baire category theorem, as first applied by Banach and Mazurkiewicz, is that most functions on the closed interval zero one, with some restrictions, do not have this property anywhere. The “classes” of this property are represented by a C followed by a superscript number, C superscript infinity corresponding to a smooth function. If a function is monotone on an open interval, then it has this property almost everywhere on that interval according to (\*) Lebesgue’s (luh-beg’s) theorem. A function possessing this property is a necessary precondition for applying Taylor’s theorem. As exemplified by the Weierstrass function, a necessary but not sufficient condition for this property is that a function be continuous. For 10 points, identify this property possessed by functions whose derivative exists at every point in their domain.

ANSWER: differentiable [or word forms, such as differentiability; or analytic functions; or obvious equivalents, such as the derivative exists until it is read]

TB. This man was the leader of a group called "The Movement," which printed the newspaper *The Accuser*. Herbert Matthews famously revealed this man was still alive after he returned to his native land aboard the yacht *Granma*. The government claimed he died during early actions of the 26<sup>th</sup> of July Movement. This leader's country suffered immense economic depressions during the "Special Period" that started after the fall of the Soviet Union. He gave the "History Will Absolve Me" speech shortly after being arrested during the failed raid on the Moncada Barracks. This man was succeeded as President by his brother Raul. For 10 points, name this man who finally stepped down as President of Cuba in 2008.

ANSWER: Fidel Castro Ruiz

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**Packet 12: Bonuses**

1. This thinker asserted that artistic skill was a product of insanity in *The Man of Genius* and wrote about how totally legit mediums were in *After Death - What?* after getting suckered by Eusapia Palladino. For 10 points each:  
[10] Identify this Italian author of *The Criminal Man*, which introduced his theory of criminal atavism and became a founding text of modern criminology.

ANSWER: Cesare **Lombroso** [or Ezechia Marco **Lombroso**]

[10] Lombroso thought that atavistic, or “born” criminals, bore physical as well as psychological resemblances to this extinct species of human, named for the valley in Germany in which they were discovered.

ANSWER: **Neanderthals** [or **Neandertals**; or *Homo (sapiens) neanderthalensis*]

[10] Lombroso’s ideas about the physical characteristics of criminals were torn apart by Charles Goring’s 1913 study of convicts in this country. Friedrich Engels wrote an 1845 study of the condition of its working class.

ANSWER: **England** [or the **United Kingdom**, or Great **Britain**]

2. One character of this name reveals that Marius and Sulla were enemies, rather than lovers, while another insists upon having herself dissected rather than her lover Primus, who attempts to make the same sacrifice. For 10 points each:

[10] Give the first name of the representative of the League of Humanity who falls in love with Harry Domin after visiting his island factory in the first act of a Karel Capek play.

ANSWER: **Helena** [or **Helena** Glory]

[10] The other Helena is one of these entities, which in the play are created by a company founded by Old Rossum. Karel Capek’s brother Josef coined this word for a variety of automaton.

ANSWER: **robots** [or Rossum’s Universal **Robots**; or **roboti**; do not accept similar terms like “cyborgs” or “androids”]

[10] Another literary Helena, in this case a fictionalized version of the mother of Constantine the Great, was the star of the only historical novel by this British author of *The Loved One* and the dystopian satire *Love Among the Ruins*.

ANSWER: Evelyn **Waugh** [or Arthur Evelyn St. John **Waugh**]

3. This province was the site of a 1962 strike mediated by Lord Taylor. For 10 points each:

[10] Name this Canadian province whose long-time Premier, Tommy Douglas, was named the “Greatest Canadian” in a 2004 poll.

ANSWER: **Saskatchewan**

[10] As Premier of Saskatchewan, Douglas led the fight for this program in the province that later was adopted by all Canada. In Britain, this program was introduced after the Beveridge Report.

ANSWER: **national health** care/insurance [accept things like Canadian **Medicare**; accept obvious descriptions like **socialized medicine**]

[10] Douglas was an opponent of Pierre Trudeau’s use of the War Measures Act to resolve the October Crisis, a separatist initiated crisis in what French-speaking Canadian province?

ANSWER: **Quebec**

4. One of these figures wears a top hat and smokes a cigar. For 10 points each:

[10] Name these beings that serve as intermediaries between the world and the supreme god Bondye. Examples of them include Legba and Baron Samedi.

ANSWER: **loas**

[10] Loas are spirits that are part of this syncretic religion that is heavily practiced in Haiti and mixes aspects of African and Catholic traditions.

ANSWER: **Voodoo** [or **Vodoun**]

[10] As opposed to traditional voodoo priests, or houngan, these voodoo practitioners are like sorcerers for hire who can utilize both dark and light magic. They use black magic to create zombies.

ANSWER: **Bokors**

5. This relation allows to calculate the transition rate from probabilities determined by the transition matrix elements in time-dependent perturbation theory. For 10 points each:

[10] Name this relation which states that the transition rate is equal to two pi over h-bar times the square modulus of the perturbation matrix element between two states multiplied by the density of states at the transition frequency.

ANSWER: Fermi's golden rule [or the golden rule of time-dependent perturbation theory; or golden rule no. 2]

[10] Fermi's golden rule explains why some spectral lines are brighter than one another, which is a prominent failure of this model of the hydrogen atom. It assumes electrons orbits in quantized orbits.

ANSWER: Rutherford-Bohr model

[10] This hydrogen spectral series is formed by transitions from the second orbital to an orbital of three or higher.

ANSWER: Balmer series

6. These two men first met in 1928 while one of them was busy designing the German Pavilion for the 1929

Barcelona International Exposition. For 10 points each:

[10] Name these two architects who collaborated on the design for the Four Seasons restaurant, which is located in a building they both designed.

ANSWER: Ludwig Mies van der Rohe [or Maria Ludwig Michael Mies] and Philip Johnson [or Philip Cortelyou Johnson]

[10] That building co-designed by Mies and Johnson is this landmark on Park Avenue in New York, which features ornamental bronze I-beams and three-position blinds. It was designed for a Canadian distillery firm.

ANSWER: the Seagram Building

[10] Johnson's design for his Glass House was inspired by this Mies building, which features a pair of white-edged horizontal slabs sandwiching floor-to-ceiling windows. It has a kitchen-slash-fireplace "block" and no interior walls.

ANSWER: the Farnsworth House

7. One of these events happens at the end of each cycle of Cheyne-Stokes respiration, and the frequency of these events is measured as part of the AHI scale. For 10 points each:

[10] Name this term for extended pauses in breathing, often involuntary. When it occurs during sleep, it is often caused by obstructions and can be treated with positive airway pressure or surgery.

ANSWER: apneas

[10] Sleep apnea can often be diagnosed using this non-invasive method of measuring blood oxygen concentration in peripheral tissue. It uses light spectra to measure the absorbance of arterial blood.

ANSWER: pulse oximetry

[10] One cause of obstructive sleep apnea is obstructions to this digestive and respiratory organ that connects the nasal and oral cavities to the larynx and esophagus. It helps to moisten and filter air before it reaches the trachea.

ANSWER: pharynx

8. Identify the following literary figures with ideas about Shakespeare's sex life, for 10 points each.

[10] This author claimed that Shakespeare had an affair with the prostitute Lucy Negro and was cuckolded by his brother Richard in his book *Nothing Like the Sun*. He also wrote *Earthly Powers* and *A Clockwork Orange*.

ANSWER: Anthony Burgess [or John Anthony Burgess Wilson]

[10] Burgess took the Richard theory from a speech made by this Dublin-dwelling literary character. This friend of Buck Mulligan represents Telemachus in one novel and is terrified by Father Arnall's Hell sermon in another.

ANSWER: Stephen Dedalus [accept either underlined portion]

[10] Shakespeare encounters Queen Elizabeth while on his way to a tryst with the Dark Lady in a play by this man, who "refinished" *Cymbeline*, wrote a puppet play in which he faces off against Shakespeare, and coined the term "bardolatry".

ANSWER: George Bernard Shaw

9. Answer some questions about Chief Justice John Marshall for 10 points each.

[10] In what 1803 Supreme Court case did Marshall's Court establish the principle of judicial review? The case, which involved a Secretary of State, featured a judicial appointee who had been denied his commission.

ANSWER: Marbury v. Madison [accept either part and in any order]

[10] What college was the subject of a Marshall Court opinion in 1819? Daniel Webster successfully argued that this college's charter should not be removed and that the governor did not have the power to appoint trustees.

ANSWER: Dartmouth College

[10] What city was the subject of an 1833 Marshall Court case that ruled the Bill of Rights did not apply to state governments? That case involved wharf operator John Barron, who had sued the mayor of this city.

ANSWER: Baltimore

10. Identify the following about the best kind of geography, pyrogeography, for 10 points each:

[10] Boston Corbett was probably killed in the Great Hinckley Fire in this state, which was also the site of the 1918 Cloquet (klo-KAY) Fire. Ore mined from this state's Iron Range is shipped through its Lake Superior port of Duluth.

ANSWER: Minnesota

[10] Joan Quigley's book *The Day the Earth Caved In* is about this nearly-abandoned coal mining town in Pennsylvania, where an underground fire has been burning since 1962.

ANSWER: Centralia, Pennsylvania

[10] In 1910, the largest forest fire in U.S. history burned, among other things, parts of the National Forest named for this city in the Pacific Northwest, the site of a pair of 1890s mining strikes. This city's French name supposedly refers to the toughness of its namesake Native American tribe.

ANSWER: Coeur d'Alene, Idaho [the name means "Heart of an Awl"]

11. This man told the captured Romanos IV Diogenes that he would punish the other man by forgiving him and setting him free. For 10 points each:

[10] Name this monarch who decisively defeated the Byzantine Empire at the 1071 Battle of Manzikert.

ANSWER: Alp Arslan

[10] Alp Arslan was the ruler of this empire founded by Tughril Beg. It was later led by Malik Shah I, and the Sultanate of Rum broke away from this Persian speaking empire.

ANSWER: Seljuk Empire [or Seljuk Turks]

[10] The Seljuks lost various cities in this 1096 to 1099 European attempt to capture the Holy Land. Pope Urban II called for this venture, which ended with the establishment of the Kingdom of Jerusalem.

ANSWER: First Crusade [or Princes' Crusade]

12. After the 1855 Exposition Universelle accepted eleven paintings by the artist but rejected this one, the artist opened his own exhibition nearby specifically to show off this painting. For 10 points each:

[10] Identify this large canvas in which George Sand, Charles Baudelaire, Pierre-Joseph Proudhon, and others stand around while the central figure works on a landscape.

ANSWER: *The Painter's Studio: A Real Allegory of a Seven Year Phase in my Artistic and Moral Life* [or *The Artist's Studio*; or *L'Atelier du peintre*]

[10] *The Painter's Studio* is a creation of this Frenchman, who painted *A Burial at Ornans* and shocked the art world with *L'Origine du monde*, a close-up view of a naked woman's lower body and genitals.

ANSWER: Gustave Courbet [or Jean Desire Gustave Courbet]

[10] This woman is thought to have been the model for *L'Origine du monde*, as well as for the redhead in Courbet's *The Sleepers*. She also modeled for *Symphony in White, No. 1*, a painting by her lover James McNeill Whistler.

ANSWER: Joanna "Jo" Hiffernan



13. For 10 points each, answer the following about refining hydrocarbons.

[10] One step in the refinement of crude oil is the “fractional” type of this process, in which a mixture is separated based on the different boiling points of its components.

ANSWER: fractional **distillation**

[10] Under this procedure, complex hydrocarbons are broken down into simpler molecules via the breaking of carbon-carbon bonds. The “catalytic” variant employs catalysts called zeolites.

ANSWER: catalytic **cracking** [accept word forms containing **crack**]

[10] Cracking is a subset of this type of irreversible process, under which a substance is heated in the absence of oxygen. “Destructive distillation” is another example of this kind of process.

ANSWER: **pyrolysis** [accept word forms such as **pyrolytic**]

14. This novel’s protagonist moves out of her house and into a small cottage around the corner that she refers to as the “pigeon house”. For 10 points each:

[10] Name this novel in which Edna Pontellier has affairs with Alcee Arobin and Robert Lebrun during her husband Leonce’s absence. It was the last major work of Kate Chopin.

ANSWER: *The* **Awakening**

[10] This woman corresponds with Robert Lebrun while he is in Mexico and shares the letters she receives with Edna, who admires her piano-playing skill and envies her independence.

ANSWER: Mademoiselle **Reisz**

[10] *The Awakening* was not the first time Chopin wrote about a woman taking pleasure in her husband’s absence. This story depicts the period between Louise Mallard’s learning of the death of her husband and her shock at his unexpected return.

ANSWER: “The **Story of an Hour**”

15. The rondeau from this composer’s incidental music to Aphra Behn’s *Abdelazer* was the basis for Benjamin Britten’s *Young Person’s Guide to the Orchestra*. For 10 points each:

[10] Name this British Baroque composer whose opera *Dido and Aeneas* includes the aria “When I am laid in earth.”

ANSWER: Henry **Purcell**

[10] This march, probably written for Queen Anne’s husband, is often attributed to Purcell, but is actually by Jeremiah Clarke. It was originally for harpsichord, but its arrangements by Henry Wood are more often played at fancy occasions like weddings.

ANSWER: *Prince of Denmark’s March* [accept **Trumpet Voluntary**]

[10] Though Wood’s arrangements of the *Prince of Denmark’s March* uses an actual trumpet, most trumpet voluntaries use the trumpet stop on this very large instrument, which Jeremiah Clarke and John Blow played.

ANSWER: pipe **organ**

16. An author from this country wrote “The Song of the Wagons” and hundreds of *lushi*, while another wrote widely-studied poems like “Quiet Night Thought” and “Drinking Alone Under the Moon”. For 10 points each:

[10] Identify this modern-day country whose Tang dynasty-era poets include those two men, Du Fu and Li Po.

ANSWER: **China** [or **Zhongguo**; or the People’s Republic of **China**; or the **PRC**; or **Zhonghua** Renmin Gongheguo; accept word forms like “**Chinese**”]

[10] Translations of poems by Du Fu, Li Po, and fellow Tang superstar Wang Wei were collected in *Three Chinese Poets*, a book by this Indian-American author of *The Golden Gate* and *A Suitable Boy*.

ANSWER: Vikram **Seth**

[10] This 20th-century poet’s book *Fir-Flower Poets* included a number of Li Po translations. A member of a famous literary family, she asked “Christ! What are” the title things “for?” in her poem “Patterns”.

ANSWER: Amy **Lowell**

17. This event was called “the darkest page in my life” by the Russian representative. For 10 points each:

[10] Name this 1878 meeting that hashed out the state of the Balkans following the Russo-Turkish War. It produced a treaty that replaced the Treaty of San Stefano.

ANSWER: Congress of **Berlin**

[10] This German “Iron Chancellor” led the Congress of Berlin. He served as chancellor until 1890.

ANSWER: Otto von **Bismarck** [or Otto Eduard Leopold, Prince of **Bismarck**]

[10] This Russian diplomat and prince disdained the sacrifices his country made at Berlin. Chancellor and in charge of foreign affairs from 1863 to 1883, he became a major rival of his one-time friend Bismarck.

ANSWER: Alexander **Gorchakov**

18. Answer the following about Vili and Ve, for 10 points each.

[10] Vili and Ve are the brothers of this ruler of Asgard, the one-eyed chief of the Norse pantheon.

ANSWER: **Odin** [or **Woden**; or **Wodan**; or **Wotanaz**]

[10] With Odin, Vili and Ve slew this primordial rime giant and fashioned the world from his body. Said body had previously produced the ancestors of the jotuns in a spate of weird auto-copulation.

ANSWER: **Ymir**

[10] After Odin gave them life, Vili and Ve gave intelligence and senses to this first pair of humans. Both names are required.

ANSWER: **Ask** and **Embla** [accept names in either order]

19. These phenomena can form squall lines and are known as supercells when occurring with a mesocyclone. For 10 points each:

[10] Identify these phenomena that are extremely associated with cumulonimbus clouds.

ANSWER: **thunderstorms** [or **electrical storm**; or **lightning storm**; or **thundershower**; prompt on: **storms**]

[10] This region, also known as the doldrums, features many thunderstorms because it is where the northeast and southeast trade winds converge. On satellite imagery, it appears as a band of clouds encircling the equator.

ANSWER: **ITCZ** [or **Intertropical Convergence Zone**]

[10] Squall lines can appear as this type of “echo” on radar imagery. Tornadoes can form on the leading edge of this shape, which often devolves into a comma as the north edge becomes dominant.

ANSWER: **bow** echo

20. The Cricket World Cup happened in 2015, so it’s time for you to identify some cricketing nations. But wait! This is MUT! You’ll get 10 points if you only need cricket clues, or 5 if you need an academic clue.

[10] This country, which finished at the bottom of Pool B, played close games against Zimbabwe and Ireland. A major airline from this country is also a sponsor of the World Cup.

[5] This country’s city of Sharjah has been home to Pakistan cricket for many years, but you are probably more familiar with landmarks like the Skidmore Owings & Merrill-designed Burj Khalifa.

ANSWER: **UAE** [or **United Arab Emirates**]

[10] Some of the UAE players are expats from this country, which won the 1996 World Cup when it defeated Australia. This country also made it to the finals of the 2007 and 2011 World Cups, when it lost to Australia and India.

[5] This country controversially had two forfeit wins in the 1996 World Cup, when Australia and West Indies refused to play in this country after major bank was bombed by the Tamil Tigers.

ANSWER: Democratic Socialist Republic of **Sri Lanka**

[10] A self inflicted run-out by this country’s captain AB de Villiers was a pivotal moment in this country’s loss to India in the prelims. AB was disappointed in this country’s inability to chase a low score of 222 against Pakistan.

[5] Between 1970 and 1990, this country was booted from its membership in the International Cricket Council because of its apartheid policy.

ANSWER: Republic of **South Africa**

Extra. Answer some non-questions about the electric field, for 10 points each.

[10] The tangential components of the electric field on each side of a boundary are both equal to this quantity.

ANSWER: zero

[10] The curl of the electric field is equal to the time derivative of this vector field. The cross of this field and the  $\mathbf{E}$  field defines the Poynting vector, and it is measured in teslas.

ANSWER: magnetic field [or  $\mathbf{B}$  field; or  $\mathbf{H}$  field]

[10] The simplest expression of the time-average Poynting vector is that it's equal to this constant times the real part of the electric field crossed with the conjugate of the magnetic field.

ANSWER: one-half