

## Prison Bowl VII

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### Round 14 – Tossups

1. In vertebrates, one protein critical to this process has a KEN box instead of a D box, which is recognized by a CDH1 complex. That protein, CDC20, complexes with a promoting cyclosome to start this process by degrading S and M cyclins and cleaving a protein dephosphorylated by CDC14, securin. Separase is then released, which removes cohesin from chromosomes. In this phase, polar microtubules are lengthened and kinetochore microtubules contract, which drags sister chromatids to opposite poles of the cell. For 10 points, name this stage of mitosis that follows metaphase and precedes telophase.

ANSWER: anaphase [accept anaphase II before “mitosis”; accept anaphase I before “chromatids”; prompt on mitosis or meiosis before “start this process”] <AT>

2. This ruler allied with the king of Larsa to defeat the Elamites, who had invaded the neighboring kingdom of Eshnunna. Though this ruler would be assisted by the Yamhad and Mari, he annexed both kingdoms after that war. This man’s kingdom deteriorated under his son and successor, Samsu-iluna, as the First Amorite Dynasty declined. This man instituted a system based on *lex talionis* that outlined retribution for cases such as the improper building of a house or a botched surgery. That system by this king demands “an eye for an eye.” For 10 points, name this Babylonian king who wrote the world’s oldest written law code.

ANSWER: Hammurabi <ZP>

3. An early version of this poem speaks of a “blind old drunken man” listening to his own “madness singing.” The speaker of this poem hears “mermaids singing, each to each”. A series of perfect infinitives introduce the speaker’s ambivalence towards an “overwhelming question”. This poem describes “yellow fog that rubs its back upon the window-panes”. This poem’s speaker asks “Do I dare / disturb the universe?” and opens with, “Let us go, then, you and I”. For 10 points, name this poem by T.S. Eliot that notes women who “come and go speaking of Michelangelo.”

ANSWER: “The Love Song of J. Alfred Prufrock” <KX>

4. A musician from this country sings “I can’t walk away / you can’t walk away” on “Downtown” from the dreamily jazzy album *Kaputt*. Destroyer is from here, also home to a band that intones “when there is nothing left to burn, you have to set yourself on fire”. Metallic clanging and the echoing of “I tremble” opens a song from this country, “Help I’m Alive”. Stars and Metric are from here, whose Broken Social Scene included an indie pop artist who sings “oh you’re changing your heart” in a track from *The Reminder*. An indie rock band from here repeats “every time you close your eyes, lies lies!” on the album *Funeral*. For 10 points, name this country home to Feist and Arcade Fire.

ANSWER: Canada <MZ>

5. One text in this religion was described as “a treasure of divine mysteries” and contains a series of short phrases in Arabic and Persian meant to be read daily. That book, *Hidden Words*, was translated by a man who implemented a Ten-Year Plan between 1953 and 1963. Followers of this religion follow a calendar with 19 months of 19 days, and observe a 19-day fast at the end of their year. One of its main texts is the *Kitáb-i-Íqán* (“keh-tab-eh-ee-con”), or Book of Certitude. It was formerly headed by guardian Shoghi Effendi and holds that figures like Jesus and the Buddha are Manifestations of God. For 10 points, name this religion founded by Bahá’u’lláh.

ANSWER: Baha’iyyah faith <PS>

6. One cartoon of this gathering shows a priest administering last rites to an officer on Desplaines Street. One suspect in this event was arrested twice before fleeing the country; that man was Rudolph Schnaubelt. May Day celebrations by organized labor honor this event, which followed August Spies’ speech praising the “slaves of McCormick” killed earlier. Governor Altgeld granted clemency to three convicted “instigators” of this event. Only one man was killed in the incident that started this event, though numerous others were wounded by revolver fire. This event occurred during a labor strike for an eight-hour work day. For 10 points, name this 1886 Chicago riot that began when a pipe bomb was thrown at police officers.

ANSWER: Haymarket Square Riot [or Haymarket affair; or Haymarket massacre] <AM/RN>

7. This play's last act depicts the dead as "matter-of-fact, without sentimentality, and, above all, without lugubriousness" and warns one of the newly dead not to relive a past memory. A choir repeatedly sings "Blessed Be the Tie That Binds" as directed by the alcoholic and suicidal Simon Stimson in this play, which is traditionally performed without a set or props. After being reassured that everything will be fine, George Gibbs and Emily Webb are married in its second act. This play is narrated by the omniscient Stage Manager. For 10 points, name this play set in Grover's Corners, New Hampshire and written by Thornton Wilder.

ANSWER: **Our Town** <SoH>

8. According to Nietzsche, this concept is created by the *ressentiment* of the oppressed, and is the pole of slave morality that differs in master morality. Kant's radical type of this concept was reformulated by Hannah Arendt, who identified alienated individuals latching onto zealous idealism as the root of its banality. Saint Augustine, influenced by Neo-Platonism, defined this concept as misguided will. Leibniz asserted that we live in the best of all possible worlds in a work that attempts to solve its namesake problem. Theodicies attempt to reconcile the existence of an omnipotent and benevolent deity with the existence of this concept. For 10 points, name this concept that Augustine characterized as the absence of good.

ANSWER: **evil** [do not accept "bad"] <MZ>

9. One symbol of this holiday originates from a Jose Guadalupe Posada etching of a "dapper" or "elegant" woman wearing only an ostentatious European hat. For this holiday, copal incense, *atole*, and the four elements symbolized by water, candles, tissue paper cutouts, and sweet buns with dough bones, are placed on *ofrendas*. Its decorations include *calacas*, such as Catrina with marigolds, and *calaveras*, or sugar skulls. Its first day is dedicated to *angelitos*, and its second day to adults. Syncretizing Catholic and Aztec beliefs, it coincides with All Hallows' Eve, All Saints' Day, and All Souls' Day. For 10 points, give this Mexican festival that celebrates the return of departed loved ones.

ANSWER: **Day of the Dead** [or **Día de los Muertos**] <MZ>

10. One character in this novel has piano lessons with Ms. Emperor twice a week. Valeria goes to America after leaving one character in this novel who believes he is being followed by Inspector Trappe. In this novel, Frederick Beale's car runs over Charlotte after she reads an entry in the protagonist's diary. The protagonist is left emotionally traumatized after the death of his childhood love, Annabel Leigh. The title character of this novel rehearses for a school play directed by Clare Quilty, and is called "light of my life, fire of my lions" by this novel's narrator. For 10 points, name this novel by Vladimir Nabokov titled after a nickname for Dolores Haze given by Humbert Humbert.

ANSWER: **Lolita** <PS>

11. Izanami died giving birth to a god of this domain, Kagu-tsuchi. In Hindu tradition, one god of this domain mediates the Yajna ceremony. In Norse myth, this phenomenon is associated with the region of Muspellsheimr and its ruler Surtr. Leviticus forbids its use in a ceremony associated with Moloch. In order to show her devotion to her husband, the goddess Sati kills herself using this. It is associated with the god Agni, and in Greek mythology, a Titan who gave this to mankind had his liver pecked out daily by an eagle. For 10 points, name this phenomenon, embodied by a creature that is reborn from its own ashes, the phoenix.

ANSWER: **fire** [accept logical equivalents, like **flames**] <AM>

12. The spread type of these algorithms was invented in 2002 by Steven Ross and is similar to both the bucket and radix type. One of these algorithm has best, average, and worst case run times of  $n \log n$ ; that one repeatedly removes the root of a heap. One of these methods divides an array in half recursively and utilizes a pivot value, while another compares two adjacent elements and switches them if needed. Those methods are, respectively, the quick and bubble types. For 10 points, name these algorithms, including the selection and insertion varieties, that arrange elements in a specific order.

ANSWER: **sorting** algorithms [accept **spreadsort**, **heapsort**, **quicksort**, or **bubble sort**] <AM>

13. After this event, Isidore of Kiev wrote to Pope Nicholas V detailing how he survived by dressing up a dead body in his cardinal robes. The Blachernae district and Giovanni Giustiniani were integral to the defense in this conflict. Basilica cannons designed by the Hungarian engineer Urban damaged the defenders' walls. Chains connected forts on both sides of the Bosphorus before this event. Following this event, the Ottoman army looted a city for three days and the Hagia Sophia was converted into a mosque. For 10 points, name this 1453 siege which saw the Ottomans sack the capital of the Byzantine Empire.

ANSWER: **fall** of **Constantinople** [accept clear knowledge equivalents like **sack** of **Constantinople**] <JL>

14. A character played by this actor befriends a blind flower girl, and pantomimes and sings nonsense lyrics during his cabaret performance. That character is fed by a Billows feeding machine and is drawn through a series of gears in a cross-sectional shot from a film by this man that critiques the industrial age. This actor delivered the “look up, Hannah” speech in a film where he played both a Jewish barber and a parody of Adolf Hitler. He starred in *Modern Times* and *The Great Dictator*, and played a recurring role as a man with baggy clothes, a bowler hat, a small mustache, and awful luck. For 10 points, name this British actor-director who played the Tramp during the silent era.

ANSWER: Charlie Chaplin [or Charles Spencer Chaplin] <MZ>

15. For a periodic signal, the average of this quantity over the peak value is equal to pulse length over period, the duty cycles. In chain and belt drives, friction and wear in the chains and belts reduce the output for this quantity, resulting in a decreased mechanical advantage. In fluid systems, this quantity can be expressed as pressure times volumetric flow rate. It is equal to current squared times resistance, current times voltage, or work over time. For 10 points, name this quantity measured in watts.

ANSWER: power [prompt on P] <BM>

16. 798 is an art zone in this country, which is home to an artist who filled the Tate Modern with millions of ceramic sunflower seeds. A really long panoramic painting from here follows a river upstream from a rural to urban setting and depicts daily life during a spring festival. Birds and flowers name a genre of landscape painting from this country, where an assembly line using eight basic face molds was used to create thousands of life-size ceramic sculptures. That sculptural collection is still only partially excavated. For 10 points, name this country home to Ai Weiwei and the Terracotta Army.

ANSWER: China [or Zhongguo] <MZ>

17. This entity is commanded to “hurl its green over us” and “cover us with pools of fir” in H.D.’s “Oread”. The speaker of Neruda’s “Song of Despair” compares his lover to this image and time, because they all “swallow” everything “like distance”, letting “everything [sink]”. The title figure of a Poe poem is “in her sepulchre” by this setting, which Tennyson commands to “break, break, break” and Arnold observes is “calm tonight”. Annabel Lee lived in a kingdom by this setting, whose wideness and silence are repeatedly invoked by a Romantic speaker who shoots an albatross. For 10 points, name this primary setting of “Rime of the Ancient Mariner”.

ANSWER: sea [or ocean] <KX>

18. This element is used as a shield against atmospheric contamination in gas tungsten arc welding. Radioactive decay in the lithosphere from minerals containing thorium and uranium create most of this element on Earth. It was first observed as a yellow line in the solar spectrum. When it is cooled to below 4 Kelvin, the most common isotope of this element can creep up the walls of a container as a superfluid. Alpha particles are the nuclei of this element, the second most abundant in the universe. For 10 points, name this lightest noble gas with atomic number 2 and chemical symbol He.

ANSWER: helium [accept He before mentioned] <BM>

19. In one section of this work, the strings repeat a fortissimo E-flat, E, A-flat, B chord while accenting varied on and off beats. It ends when an ascending line in the piccolo and flute is interrupted by a final chord spelling out D-E-A-D. Changing meter features prominently in this work, in which 11 timpani beats mark the beginning of “The Glorification of the Chosen One.” This work’s final section includes alternating notes in the timpani and strings punctuated by brass to depict a sacrificial dance. Its first part “Adoration of the Earth” begins with a bassoon solo. For 10 points, name this ballet about the sacrifice of a virgin girl, written by Igor Stravinsky.

ANSWER: *The* Rite of Spring [or *Le* Sacre du printemps] <BM>

20. The first of these events occurred in Sicily, which led to its independence for 16 months. During one of these events, the prohibition of the *campagne des banquets* united the popular Republicans and Orléanists against the French king. Lajos Kossuth led the Hungarian one of these events, prompting Metternich’s resignation, and was crushed by the “gendarme of Europe,” Czar Nicholas I. Friedrich Wilhelm IV refused the offer of the German crown by the Frankfurt Assembly during this event. For 10 points, name this series of political upheavals in Europe that took place in a certain year.

ANSWER: revolutions of 1848 [or Springtime of the Peoples; or Spring of Nations] <JL>

TB. This number is the value of the Riemann zeta function which yields Apéry's constant and Waring's problem asks whether every positive integer can be written as the sum of nine or fewer numbers raised to this power. Stewart's theorem relates the side lengths of a polygon with this number of sides to its cevian. It is the only prime triangular number and the only prime one less than a perfect square. This number is the minimum number of points needed to define a circle and the sum of interior angles of a polygon with this number of sides is 180 degrees. For 10 points, name this integer, the first odd prime number.

ANSWER: three [accept third] <BM>

## **Round 14 – Bonuses**

1. They fought and killed each other in the Musket Wars and cannibalized European prisoners in the Boyd Massacre. For 10 points each:

[10] Name these aboriginal peoples who lost sovereignty to the British in the 1840 Treaty of Waitangi. They are descended from Polynesian migrants.

ANSWER: **Maori**

[10] The Maori live on this two-island nation in the southern hemisphere. James Cook visited it on his way to Hawaii, and its capital is Wellington.

ANSWER: **New Zealand**

[10] From 1863 to 1874, the Pai Marire movement arose among the Maori. By integrating both Christian and Maori practices, the Pai Marire is an example of these kinds of religions that meld two belief systems.

ANSWER: **syncretism** [or **syncretic** religions] <RN>

2. In this book, Dr. Copeland gets angry at a story his daughter Portia tells him about a scam artist. For 10 points each:

[10] Identify this novel set in 1930s Georgia that focuses on the relationship between the deaf-mute John Singer and his four friends, including Mick Kelly and Jake Blount. Its name is based on a William Sharp poem.

ANSWER: *The **Heart is a Lonely Hunter***

[10] This American author of *The Ballad of the Sad Café* and *The Heart is a Lonely Hunter* wrote frequently about the American south. She created Frankie, who dreams of escaping to Alaska as the title *Member of the Wedding*.

ANSWER: Carson **McCullers**

[10] This character in *The Heart is a Lonely Hunter* is the owner of the New York Café. His wife Alice dies in the beginning of the novel, so he strives to be a mother figure.

ANSWER: **Biff** Brannon <BM>

3. Watch out for poisoned apparel! For 10 points each:

[10] This sorceress took revenge for her abandonment by Jason by killing her children and sending Jason's new wife Glauce ("GLAO-kay") a robe drenched in poison.

ANSWER: **Medea**

[10] This man put on a shirt given to him by his wife Deianeira. He somehow failed to notice that it was dripping with poisonous blood, and died.

ANSWER: **Heracles** [grudgingly accept **Hercules**]

[10] Deianeira foolishly soaked that shirt with the blood of this centaur, thinking his blood would ensure Heracles's fidelity.

ANSWER: **Nessus** <MZ>

4. In 2012, this organization won the Nobel Peace Prize. For 10 points each:

[10] Name this organization with 28 member states which emerged from the earlier European Coal and Steel Community. Its de facto capital is in Brussels, Belgium.

ANSWER: **European Union** [or **EU**]

[10] This treaty, signed in a city in the Netherlands, formally created the EU and adopted the Euro as the EU's main currency.

ANSWER: Treaty of **Maastricht** [or **1992** Treaty on **European Union**]

[10] This organization originally formed in contrast to the EU by the "Outer Seven". Five of the original member states have left to join the EU. Its current members are Iceland, Liechtenstein, Norway, and Switzerland.

ANSWER: **European Free Trade Association** [accept **EFTA**] <JL/RN>

5. Answer the following about poetry of a possibly mystical bent, for 10 points each.

[10] The *Rubaiyat of Omar Khayyam*, which scholars assure displays either orthodox Islamic, mystical, or atheistic influences, was written in this Iranian language also used by Rumi.

ANSWER: Persian [or Farsi]

[10] The *Rubaiyat* was written in these stanzas with twelve possible rhyme schemes. Turkish folk poetry, emerging both in a secular and an explicitly Sufi and Shi'a tradition, is also frequently composed in these stanzas.

ANSWER: quatrains

[10] Persian poetry and Sufi thought influenced this form of Ottoman poetry pervaded with opposing symbols like the nightingale and the rose or the ascetic and the dervish. It is a Persian loan word in Arabic meaning list or register.

ANSWER: divan [or diwan] <SH>

6. This structure has primary and secondary layers that sandwich the pectin-rich lamella. For 10 points each:

[10] Name this structure possessed by many plant, fungal, and bacterial cells, but not by animal cells. It keeps its rigidity via turgor pressure.

ANSWER: cell wall [prompt on wall; do not accept "cell membrane"]

[10] Plant cell walls are primarily made from this compound. Humans generally cannot digest the beta-glycosidic bonds that link its glucose units.

ANSWER: cellulose [accept C6H10O5]

[10] Cell walls communicate and transport materials via these microscopic pores. They are analogous to gap junctions in animal cells.

ANSWER: plasmodesmata [accept plasmodesma] <AT>

7. It's time to answer some questions some questions some questions about a certain genre of American music. For 10 points each:

[10] This composer notably pioneered phasing in his *Piano Phase*, and one of his tape loops repeats the phrase "It's gonna rain." His *Music for 18 Musicians* contains movements titled "Pulses" and "Sections."

ANSWER: Steve Reich

[10] Steve Reich was a major figure in this genre of music. It involves repeating short phrases of music over and over again, making small changes to it with time.

ANSWER: minimalism <BM>

[10] A contemporary of Steve Reich, this composer wrote 10 symphonies and his namesake *-works* include the movements "Opening" and "Rubric." His opera *Einstein on the Beach* is connected by "Knee Plays."

ANSWER: Philip Glass <BM>

8. This island group was called the Spice Islands because of its spice production. For 10 points each:

[10] In 1964, this archipelagic island nation united with Tanganyika to form Tanzania. This Swahili trade center was ruled by sultans of Oman, and Stanley began his journey to find Livingstone on this island near Dar es Salaam.

ANSWER: Zanzibar

[10] Zanzibar City's downtown was built with this type of material, giving it its nickname. It was often washed with lime, and the Portuguese fort, mosques, and upper-class houses in Zanzibar were built from this general material.

ANSWER: stone [accept rock]

[10] One of the spices Zanzibar produces is this dark aromatic evergreen flower bud native to Indonesia. Pemba Island used to be the world's largest producer of this spice, but production is now privatized on Unguja Island.

ANSWER: cloves <DM/RN>

9. The Transylvania Company hired Daniel Boone to build a road through this feature that was finally subjugated in the Civil War by Ambrose Burnside. For 10 points each:

[10] Name this mountain pass through the Appalachians that comprises one part of the Wilderness Road.

ANSWER: Cumberland (Water) Gap

[10] The Cumberland Gap is this kind of gap, meaning that it was once a water gap created by a creek cutting through the mountains, but is now completely dry.

ANSWER: wind gap

[10] The Kentucky and Cumberland Rivers form two borders of the Transylvania Purchase explored by Boone. This river forms the third, western boundary, and is fed by both the Cumberland and the Kentucky.

ANSWER: Ohio River <ZP/RN>

10. These performers played “doit” and “fall” notes on their instruments. For 10 points each, name some jazz trumpeters.  
[10] This musician collaborated with other jazz artists on his tunes “Salt Peanuts” and “A Night in Tunisia.” He is known for his distinctive bent trumpet and puffed cheeks while playing.

ANSWER: Dizzy Gillespie

[10] This New Orleans-based musician helped popularize scat singing in his recording of “West End Blues.” Known as Satchmo, he may be best known for singing “I see trees of green, / red roses too” in “What a Wonderful World.”

ANSWER: Louis Armstrong

[10] This trumpeter collaborated with his brother Branford on the post-bop album *Black Codes* while one of his more recent albums is *Two Men with the Blues*. He is currently the artistic director of jazz at Lincoln Center.

ANSWER: Wynton Marsalis <BM>

11. Answer these questions about urban decay, for 10 points each.

[10] A frequent image of urban decay is the demolition of these government-owned projects intended for low-income people. Notable ones include Pruitt-Igoe in St. Louis and Cabrini-Green in Chicago.

ANSWER: public housing

[10] When property values fall and the tipping point is reached, the invasion-succession model predicts low-income minorities moving in as this phenomenon occurs. It is the migration of certain people from urban areas to suburbs.

ANSWER: white flight

[10] Urban decay can be countered by this process, a shift to higher-income residents and higher property values. Currently occurring in Williamsburg, Brooklyn, it leads to the displacement and migration of poorer residents.

ANSWER: gentrification <PS/MZ>

12. One of its characters contemplates marrying John Milton or Richard Hooker instead of a plain baronet. For 10 points each:

[10] Name this sprawling novel in which the idealistic philanthropist Dorothea Brooke defies the will of her deceased husband Edward Casaubon to marry Will Ladislaw.

ANSWER: Middlemarch: *A Study of Provincial Life*

[10] *Middlemarch* is by this Victorian author. She created a weaver of Raveloe who loses his gold to Duncan Cass and adopts the golden-haired Eppie in *Silas Marner*.

ANSWER: George Eliot [or Mary Ann Evans]

[10] This haughty character in *Middlemarch* is the daughter of Middlemarch’s mayor, and the sister of Fred. She pursues a relationship with the eminent young doctor Tertius Lydgate.

ANSWER: Rosamond Vincy [accept either] <KX>

13. Answer the following about definitions of a class of substances that include HCL and H2SO4, for 10 points each:

[10] Name these substances, which are defined as ones that dissociate in water to form hydrogen ions. They are named after the Swedish chemist who first defined them.

ANSWER: Arrhenius acids [prompt on acids]

[10] This definition of acids states that they are proton donors. The molecule with the removed proton becomes a conjugate base.

ANSWER: Bronsted-Lowry acids

[10] The Lux-Flood definition of acids, commonly used in geochemistry, states that acids are acceptors of this ion that results from the one-electron reduction of diatomic oxygen.

ANSWER: superoxide [or O2- (“oh-two-minus”); or hyperoxide] <AT>

14. The main figure of this work ascends Mount Nebo after installing Joshua as his successor. For 10 points each:

[10] Name this fifth book of the Bible, in which three festivals are instituted and various purity laws are enumerated.

ANSWER: Deuteronomy

[10] One of the festivals is this one, which commemorates the giving of the Torah and symbolizes the birth of the nation of Israel.

ANSWER: Shavuot [prompt on Feast of Weeks]

[10] A staple of the festivals instituted in Deuteronomy is this compulsory act of returning to the Temple to make sacrifices.

ANSWER: pilgrimage

15. Prior to serving as a Revolutionary Army leader, he was a leader in the failed Braddock Expedition. For 10 points each:

[10] Name this man who suppressed the Whiskey Rebellion as first President of the United States.

ANSWER: George **Washington**

[10] At this battle, George Washington cornered and captured the British army under Cornwallis with the assistance of the French navy and army under Lafayette. This battle led to the 1783 Treaty of Paris.

ANSWER: Battle of **Yorktown** [or Siege of **Yorktown**]

[10] This French admiral's victory over Thomas Graves in the Chesapeake forced Cornwallis to surrender. He led a failed naval assault on Jamaica and was captured during the Battle of Saintes.

ANSWER: Francois Joseph Paul **de Grasse** [or the Comte **de Grasse**] <JL/RN>

16. This mathematical procedure helps define addition and multiplication in number theory. For 10 points each:

[10] Name this method, whereby the  $n+1$  case is defined in terms of the  $n$  case or lower-order cases.

ANSWER: **recursion** [accept word forms like **recursive**]

[10] Recursion also helps define these constituents of Pascal's triangle. They are normally notated with two numbers,  $n$  and  $k$ , vertically orientated in parentheses, and are generally read as " $n$  choose  $k$ " when referring to combinations.

ANSWER: **binomial coefficients**

[10] This work of cognitive philosophy by Douglas Hofstadter expounds on recursion using the example of a record player which destroys itself by playing the record titled "I Cannot Be Played on Record Player X."

ANSWER: **Gödel, Escher, Bach: An Eternal Golden Braid** [prompt on **GEB: EGB**] <ZP>

17. Only Eugene de Rastignac, Christophe, and some paid mourners show at the title character's funeral. For 10 points each:

[10] Identify this 1835 French novel in which Delphine and Anastasia bankrupt their father, the title character, while Vautrin is revealed to be the crafty Trompe-la-Mort.

ANSWER: *Le Père Goriot* [or **Father Goriot**; or **Old Goriot**]

[10] Eugene de Rastignac is a recurring character in this sprawling series, a panorama of Restoration France. It includes *Le Père Goriot* in Scenes from Private Life and *Lost Illusions* in Scenes from Provincial Life.

ANSWER: *La Comédie humaine* [or **The Human Comedy**]

[10] *La Comédie humaine* is the magnum opus of this 19th-century French novelist, whose detailed descriptive style established him as a father of literary realism.

ANSWER: Honoré de **Balzac** <BM/MZ>

18. Man's best friend is found in many paintings as a motif in Western art. For 10 points each, name these works featuring *canis lupus familiaris*:

[10] This painting by Pieter Bruegel the Elder centers on the three title figures followed by a pack of dogs overlooking a frozen pond.

ANSWER: *The Hunters in the Snow* [or **The Return of the Hunters**]

[10] In front of Willy Lott's cottage, a dog stands on the edge of a lake where three horses pull a man in the title object in this work by John Constable. The left of this painting features an overgrown cottage.

ANSWER: *The Hay Wain*

[10] A brown and white dog struts on a bridge in this artist's *Le Pont de L'Europe*. This artist also painted *The Floor Scrapers* and *Paris Street, Rainy Day*, where a gas light separates the background from the foreground.

ANSWER: Gustave **Caillebotte** <SoH>

19. The Hamiltonian operator is one term in this equation. For 10 points each,

[10] Name this partial differential equation which can be used to analyze how a quantum system, such as a hydrogen atom, behaves. Its eponymous Austrian scientist is proposed a thought experiment involving a cat.

ANSWER: **Schrödinger** equation

[10] Another term in the Schrödinger equation is the Greek letter psi, which represents this complex value describing a particle's quantum state. Its square gives the probability of finding an electron within a given area.

ANSWER: **wavefunction**

[10] There are two types of Schrödinger equation, one of which is dependent and one independent of this variable. The version dependent on this variable includes the Laplace operator.

ANSWER: **time** <BM>



20. Russia may have gone a little over its head with this one. Answer the following about the Crimean crisis for 10 points each.

[10] This European country with capital at Kiev has seen upheaval over whether Crimea should remain part of this country or join Russia.

ANSWER: **Ukraine**

[10] The European Union is treading carefully with the crisis in Ukraine because a quarter of its supply of this resource is supplied by Russia via pipelines through Ukraine.

ANSWER: **natural gas**

[10] This Fatherland politician negotiated a deal with Russia to resume natural gas supply as Prime Minister of Ukraine in 2009. Recently released from prison and known for her braids, she is set to run for President.

ANSWER: Yulia **Tymoshenko** <DG/MZ>

TB. The treaty that ended this war is a foundational document in modern international relations theory. For 10 points each:

[10] Name this Europe-wide conflict that began with the Defenestration of Prague. Sweden intervened on behalf of the Protestant side in this war.

ANSWER: **Thirty Years' War**

[10] The Treaty of Munster ended the Eighty Years' War and gave this nation independence. This country allied with Sweden during the war and was led by Maurice and Frederick Henry.

ANSWER: **Dutch** Republic [accept the **Netherlands**]

[10] This Swedish High Chancellor succeeded Gustavus Adolphus as king after his death. He ruled during Queen Christina's regency and issued administrative reforms that prevented Sweden from becoming an absolute monarchy.

ANSWER: Axel **Oxenstierna** <DW/RN>