

**Bulldog High School Academic Tournament 2014 (XXIII): Tonight I Can Write The Hardest Lines**  
**Written by Yale Student Academic Competitions**  
**Edited by Matt Jackson, with Ashvin Srivatsa and Jacob Wasserman**

Packet 9 Tossups

1. One woman with this first name has a steel purse and seizes control of Clara Copperfield's household with her brother, Mr. Murdstone. Other characters with this first name include one who falls ill after her mother refuses to send a coach to Netherfield Park and one whose friend dies of typhus at Lowood. A character with this name is courted by Mr. Bingley against the advice of his friend, Darcy. Another character with this name sees her wedding veil ripped in two by Bertha Mason, a mad woman in the Rochester attic. For 10 points, give this first name of the eldest Bennet sister in *Pride and Prejudice* and a governess in a Charlotte Bronte novel surnamed Eyre.

ANSWER: **Jane** [accept **Jane** Murdstone, **Jane** Bennet, or **Jane** Eyre] <GL>

2. The rate at which momentum undergoes this physical process is related to a fluid's kinematic viscosity. In a semiconductor at equilibrium, the current due to charge carrier drift is opposed by the current due to this process. This process is described as a random walk in the Brownian motion model. The flux associated to this stochastic process is proportional to the negative gradient of concentration, according to Fick's law. Unlike convection, this process does not entail bulk motion of substance. When a solvent moves, rather than a solute, this process is called osmosis. For 10 points, name this process in which particles migrate to regions of lower concentration.

ANSWER: **diffusion** [accept **Brownian motion** until it is read; prompt on "osmosis"; prompt on "random walk"] <AS>

3. This mythical hero carried a scroll full of scurrilous lies about himself, which was opened ten days into his exile in Lycia after he was falsely accused of raping Stheneboea. In Book Six of the *Iliad*, this man's grandson Glaucus decides not to fight Diomedes. On the advice of Polyeidus, this man slept in a temple of Athena and used a golden bridle to tame a companion. This human used a spear tipped with lead against his most fearsome adversary, and took a fall after a gadfly thwarted his attempt to fly to Olympus. For 10 points, name this ancient Greek hero who tamed the Pegasus before he slew the Chimera.

ANSWER: **Bellerophon**tes <ATa>

4. One of this composer's works pairs the "Largo alla Siciliana" movement "La Paix" with "La Réjouissance," which includes *ad lib.* snare drum parts in addition to that work's 3 sets of timpani and 24 oboes. This composer included an "Alla Hornpipe" in the second suite of one of his orchestral works. This composer included a musical depiction of flies in *Israel in Egypt* and the chorus "See, the Conqu'ring Hero Comes!" in *Judas Maccabeus*. He included a fugue on the words "and he shall reign for ever - and ever" in one work. For 10 points, name this German-English composer of *Water Music* and *Music for the Royal Fireworks*, whose *Messiah* includes the "Hallelujah Chorus."

ANSWER: George Frideric **Handel** <JR>

5. Roger Boisjoly raised safety concerns six months prior to this event in a memo that predicted "a catastrophe of the highest order." This event was dubbed an "accident rooted in history" by the Rogers Commission. One victim of this event, Christa McAuliffe, was a teacher at Concord High School. A cup of ice water was used to demonstrate the cause of this incident by physicist Richard Feynman. The cause of this event was the failure of an O-ring designed by Morton Thiokol to seal gases from a booster due to cold weather. For 10 points, name this 1986 incident in which seven people died after the breakup of a vehicle launched from Cape Canaveral.

ANSWER: *Space Shuttle* **Challenger** disaster [accept equivalents mentioning "**Challenger**", such as **Challenger** explosion] <MW>

6. One of this country's cities includes the square Jemaa el-Fnaa and includes the gate Bab Ksiba in its red sandstone walls. This nation's largest city contains the enormous Hassan II Mosque. Its border with its southeastern neighbor is formed by the Draa River, this nation's longest. In an incident named for this nation's city Agadir, its sultan fled. This nation's highest peak, Toubkal, is also the highest in the Atlas Mountains, of which this country contains the westernmost part. This country contains the city of Fez, and lies south of the Strait of Gibraltar. For 10 points, name this north African country whose cities include Marrakesh, Rabat, and Casablanca.

ANSWER: Kingdom of Morocco [or Maroc; prompt on "Al-Maghrib"] <JR>

7. Two of these objects sit near the town of Quauhnahuac, where a British consul lives in Mexico, in a breakout novel of Malcolm Lowry set *Under* them. A maar can form near one of these objects, whose distinctive types include the tuya. Pliny the Elder died while attempting to return from one of these structures. In 2009, money spent to watch these objects was criticized by Bobby Jindal's State of the Union response. Asteroid B-612 has three of these structures, which the Little Prince cleans each day. These structures can produce pahoehoe and 'a'a. For 10 points, name these geologic structures whose shield and cinder cone types can produce lava.

ANSWER: volcanoes [or places of volcanic activity; or *Under the Volcano*; prompt on "mountains"] <HX>

8. Cassius Dio records that this ruler presided over a huge plague which swept out of Egypt after his armies sacked Ctesiphon. This husband of Faustina the Younger was tutored by Fronto. This leader went personally to the river Gran to fight against the Quadi on his frontier. A bronze image of this leader extends his hand outwards in the only equestrian statue to survive antiquity intact. This sometime co-ruler with Lucius Verus and successor of Antoninus Pius outlined his Stoic philosophy in his *Meditations*. For 10 points, name this man succeeded by his biological son Commodus, the last of Rome's Five Great Emperors.

ANSWER: Caesar Marcus Aurelius Antoninus Augustus [accept Lucius Verus during the first sentence, since they were co-rulers until Lucius Verus died, probably of said plague] <MJ>

9. This is the larger of two structures in which the PAR1 region is present. CGG repeats in this structure cause partial methylation of the FMR1 gene, leading to a disease named for this structure that causes mental retardation. All but one of these structures per cell are inactivated via conversion to heterochromatin in a process called lyonization, which forms Barr bodies. While people with a trisomy of this chromosome are phenotypically normal, those with a monosomy of it present with Turner syndrome. Red-green color blindness and hemophilia are recessive traits on this chromosome. For 10 points, name this sex chromosome which is present in both women and men.

ANSWER: X chromosome <HX>

10. One character in this work attempts to kidnap another by disguising herself first as a village girl, then the girl's mother, then the girl's father, but is killed each time. A mountain in this novel has fires which can only be put out by a fan of banana leaves. One character in this novel urinates on five pillars which are actually fingers, and gets reminded of his birthplace on the Mountain of Flowers and Fruit upon arriving at Vulture Peak. That character, who carries a size-changing golden staff, accompanies Xuanzang, Sandy, and Pigsy on an attempt to retrieve Buddhist texts from India. For 10 points, name this classic Chinese novel in which the simian Sun Wukong goes questing.

ANSWER: Journey to the West [or *The Journey to the West*; or Xi You Ji; or Hsi-yu Chi; or Monkey] <HX>

11. A hunchbacked son of this ruler became a monk after revolting against this man's wife Fastrada. Another of this man's sons defeated the Avars and took the title King of the Lombards. A third son of this ruler blinded his nephew Bernard, killed him, and then repented before Paschal I, helping to earn his nickname "the Pious." Three of this king's grandsons divided his empire in the Treaty of Verdun. This man expanded dynastic holdings begun by a grandfather who defeated abd-ar-Rahman at the Battle of Tours, named Charles Martel. For 10 points, name this son of Pepin the Short who was crowned "King of the Romans" in 800, the strongest Carolingian king of the Franks.

ANSWER: Charlemagne [or Charles the Great; or Carolus Magnus; or Karl der Grosse; or Charles I; or Charles le Grand; prompt on "Charles"; prompt on "Karl"; prompt on "Carolus"] <JR>

12. This man wrote that "promises, covenants, and oaths...can have no hold on an atheist" a year before he argued against the idea that rightful kings are direct descendants of Adam, refuting Robert Filmer. This man believed that money removed a natural limit on accumulation, and described man's mixture of his labor with nature as the basis of our entitlement to property. The Jeffersonian phrase "consent of the governed" echoes this man's view that government must secure "life, liberty, and estate." For 10 points, name this man who wrote *Two Treatises of Government* in 1690, a British social contract theorist.

ANSWER: John Locke <MJ>

13. When compounds with this property are small, they are destabilized by angle strain. Some polymers are formed by "opening" compounds with this property, such as ethylene oxide, which is an ether with this property. Some compounds with this structural property are stabilized by a delocalized 6-electron system. Those compounds are called "aromatic", and one such compound is drawn as a hexagon containing a circle. Alkanes with this property have twice as many hydrogens as carbons. For 10 points, name these compounds that contain a series of atoms connected in a loop, examples of which include benzene and a namesake version of hexane.

ANSWER: cyclic [or word forms; or ring compounds; accept cyclic ethers; accept cyclic alkanes; accept cycloalkanes; prompt on "epoxide"; prompt on "aromatic"] <AS>

14. One of this author's works depicts Anguish planting her black flag on the speaker's bowed skull and begins by describing "when the low, heavy sky weighs like a lid / on the groaning spirit." In another of his poems, the title "kings of the sky, clumsy, ashamed, / Pathetically let their great white wings / Drag beside them like oars" as sailors capture them. This author of "Litanies of Satan" and "The Albatross" opened one collection with a poem addressing the "hypocrite reader," which hails a type of boredom called *ennui*. For 10 points, name this French Symbolist poet, who included poems called "Spleen" in his collection *Les Fleurs du mal*.

ANSWER: Charles Pierre Baudelaire <JR>

15. In 2009, this athlete appeared on Jeopardy and incorrectly answered a question about himself. This man appeared in a comedy film disguised as Roger Murdoch, though Joey sees through it and tells this man he's "the greatest" even though his dad thinks he only tries during the playoffs. This man's number, 33, was retired by UCLA in 1990, and he developed the "Sky Hook" shot. This copilot in the film *Airplane!* changed his name from Lew Alcindor after graduating college. For 10 points, name this former basketball player for the Los Angeles Lakers who, at 38,387 points, holds the record for most career points scored in the NBA.

ANSWER: Kareem Abdul Jabbar [accept Lew Alcindor until mentioned] <EB>

16. This nation fought against the Thirty-Three Orientals in the Battle of Sarandí, part of the Cisplatine War. This country's independence was declared in the "Cry of Ipiranga." One monarch of this nation was forced to abdicate to fight in the Liberal Wars. This country's monarchy fell after a coup led by Deodoro da Fonseca, and it abolished slavery with the Golden Law, signed by Dona Isabel under its emperor Pedro II in 1888. Populists in this country have included the suicidal autocrat Getulio Vargas and recent president Luiz Inacio Lula da Silva. For 10 points, name this South American country which moved its capital to a similar-sounding planned city from Rio de Janeiro.  
ANSWER: Federative Republic of **Brazil** [or Empire of **Brazil**; or República Federativa do **Brasil**; or Império do **Brasil**] <JR>

17. One artwork in this genre, which included a cat with an arched back beside a partially-skinned ray, was by master Jean Chardin. Several works in its *bodegón* subgenre were produced by the Spaniard Francisco de Zurbaran. The *vanitas* subgenre of these paintings reminds the viewer of the transience of life by showing books propped open with skulls. One painting of this type uses disjointed perspective to show ladyfinger cookies stacked like Lincoln logs; that painting is Paul Cezanne's *Basket of Apples*. For 10 points, name this type of painting exemplified by Van Gogh's *Sunflowers*, a genre which typically depicts an arrangement of inanimate objects on a table.  
ANSWER: **still-lives** <GL>

18. One method of attitude-controlling these devices is via gravity-gradient stabilization, which typically requires that an extended boom be present. The destruction of these devices may eventually lead to an ablation cascade, as proposed by Kessler. Over the course of their lives, these devices consume their "delta-v budget", and once that budget is almost over, they may be graveyarded. These devices must perform station-keeping maneuvers when located in low Earth orbit. The GPS constellation features 32 of these devices. For 10 points, name these manmade objects that are launched into space, the first of which was Sputnik.  
ANSWER: artificial **satellites** [or **rockets**; or **spacecrafts**; or **spaceships**] <AS>

19. Sequin-covered flags known as "drapo" figure prominently in this religion, whose services also incorporate flour drawings known as "vévés". This faith includes the *kanzo* initiation ceremony, and its major spirits include Ogoun, who presides over war. Houngans are male priests in this religion, whose female counterparts are called mambos. In lieu of interacting with the creator god, Bondye, adherents of this religion address their services to spirits known as loas, who include Papa Legba and the top-hatted death spirit Baron Samedi. For 10 points, name this syncretic religion primarily found in Haiti.  
Answer: Haitian **Voodoo** [or Haitian **Vodun**; or Haitian **Vodou**] <MW>

20. In a novel by this author, Percy Grimm shoots and castrates a character in Gail Hightower's house, and Lucas Burch works in a planning mill before fathering Lena Grove's child. This man described a narrator's sister as "smell[ing] of trees," and wrote about Joanna Burden's murder, which is blamed on Joe Christmas. In another novel by this author, a man who works on a golf course likes it when people call him by his sister's name. This author included Caddy and the mentally handicapped Benjy in a novel in which Harvard student Quentin Compson drowns himself. For 10 points, name this author who set *Light in August* and *The Sound and the Fury* in Mississippi.  
ANSWER: William Cuthbert **Faulkner** <JR>

21. This author wrote about a figure "too late for antique vows, / Too, too late for the fond believing lyre," in a work in which the speaker stays that "Yes, I will be thy priest" to the lover of Cupid. Another of his works describes a "heifer lowing at the skies." The speaker of that poem says to a "Bold Lover," "never, never canst thou kiss." In that poem, he says that "Heard melodies are sweet, but those unheard / Are sweeter" while addressing a "Sylvan historian." In that poem, he addresses a "still-unravished bride of quietness" and concludes "Beauty is truth, truth beauty." For 10 points, name this English Romantic poet who wrote Odes "to Psyche" and "on a Grecian Urn."  
ANSWER: John **Keats** <JR>

## Bonuses

1. The Slutsky equation allows for comparisons of two forms of this quantity, and shows how the substitution and income effects affect this quantity. For 10 points each:

[10] Name this quantity that normally decreases with increases in prices, the consumer's willingness to pay for a good. Its namesake curve intersects with the supply curve.

ANSWER: **demand** curve

[10] This quantity related to demand is defined as the percent change in quantity over a unit percent change in price, or the reciprocal of a demand curve's slope. When it is 0, a demand curve is vertical.

ANSWER: price **elasticity** of demand [prompt on "PED" or "E-sub-d"]

[10] This British man names a derivative of the demand function which accounts for the substitution effect in the Slutsky equation. Along with Hansen, he developed the IS-LM model.

ANSWER: Sir John Richard **Hicks** [accept **Hicksian** demand] <NW>

2. The drunk choir director for this town's church, Simon Stimson, often rehearses "Blessed Be the Tie That Binds." For 10 points each:

[10] Name this New Hampshire town where Emily Webb and George Gibbs live.

ANSWER: **Grover's Corners**

[10] Grover's Corners is the setting for this playwright's *Our Town*. He also wrote the novel *The Bridge of San Luis Rey*.

ANSWER: Thornton **Wilder**

[10] In *Our Town*, this character acts as the owner of a drugstore in a flashback to when George and Emily first fell in love. This character also tells us the latitude and longitude of Grover's Corners as he narrates the play.

ANSWER: the **Stage Manager** <JR>

3. This phenomenon is a variety of symbiosis which is beneficial for both parties. For 10 points each:

[10] Name this phenomenon in which two species, like clownfish and anemones, have a relationship from which both benefit.

ANSWER: **mutualism**

[10] It is unclear whether people's relationships with these organisms is mutualistic or commensalistic. These organisms help us digest things like cellulose.

ANSWER: **gut flora** [or **gut bacteria**; accept any answer that refers to **bacteria** in the **digestive system**; prompt on "bacteria"]

[10] Gut flora help us absorb this vitamin group, which plays a role in clotting. The scientific name of its first subtype is phyloquinone.

ANSWER: vitamin **K** <AS>

4. This king deposed his mother Isabella and her lover Roger Mortimer. For 10 points each:

[10] Name this king, known as the "Hammer of the Scots," who conquered Wales and fought against William Wallace. Oddly, he shares his name with a pre-Norman English king who was canonized.

ANSWER: **Edward I** [or **Edward Longshanks**; prompt on "Edward"]

[10] Before his reign, Edward I briefly supported the namesake Provisions of this city, which also names Britain's oldest university.

ANSWER: **Oxford** [or **Oxon**; or **Provisions of Oxford**; or **Oxford** University]

[10] Edward I won against William Wallace at this 1298 battle, in which the four Scottish schiltrons collapsed under a hail of English arrow fire and the survivors retreated to Torwood.

ANSWER: Battle of **Falkirk** <LL>

5. In his painting *The Deep*, a swirling mass of white and yellow mostly covers up a black background. For 10 points each:

[10] Name this American artist of *Blue Poles*, *Autumn Rhythm*, and *Lavender Mist*, who was sometimes known as "Jack the Dripper" for his action painting.

ANSWER: Paul Jackson **Pollock**

[10] Pollock was part of this mid-twentieth-century American art movement with other New York School painters such as Robert Motherwell. These folks didn't like painting recognizable objects.

ANSWER: **abstract expressionism**

[10] This abstract expressionist was painted in Arshile Gorky's *Portrait of Master Bill*. This Dutch-born painter was accused of misogyny over his *Woman Series*.

ANSWER: Willem **de Kooning** <JR>

6. Their first ruler, a son of the moon goddess Mama Quilla, wielded a golden staff called the tapac-yauri, and founded it on the spot where that staff sank into the ground. For 10 points each:

[10] Name this Western hemisphere civilization founded by the legendary Manco Capac. Its emperors worshipped gods such as Pachamama and Inti.

ANSWER: **Incan Empire** [or **Tawantinsuyu**]

[10] Machu Picchu contains a "hitching post" for this cosmic object represented by Inti and venerated by the Inca. In Greek mythology, its god Helios drives across the sky in a chariot.

ANSWER: the **sun** [or **Sol**]

[10] This creator god of Incan myth was said to have disappeared by walking over the Pacific Ocean and also roamed as an elderly, bearded man teaching humankind the art of civilization.

ANSWER: **Viracocha** [or **Wiracocha**; or Apu Qun Tiqsi **Wiraqutra**; or **Kon-Tiki** Viracocha] <MW>

7. Answer these questions about the social history of ancient Egypt, for 10 points each.

[10] These well-paid officials, above artisans in Egypt's social hierarchy, spent twelve years in school learning to use reed pens and papyrus. They helped record grain payments, taxes, and the census.

ANSWER: **scribes**

[10] This board game with a 3-by-10 grid was played by many social classes in ancient Egypt. Boards for this game have been found alongside the "snake game".

ANSWER: **senet**

[10] Ancient Egyptian noble women used a type of this fashion item known as *kohl*, which often featured toxic metal sulfides.

ANSWER: eye **makeup** [or **eyeliner**; or **eye shadow**; or **mascara**] <MJ>

8. This poem envisions a scenario in which "I would / Love you ten years before the Flood / And you should, if you please, refuse / Till the conversion of the Jews." For 10 points each:

[10] Name this poem that declares that the speaker and the title figure should "roll all our strength and all / Our sweetness up into one ball," after beginning "Had we but world enough, and time."

ANSWER: **"To His Coy Mistress"**

[10] This English Metaphysical poet wrote "To His Coy Mistress."

ANSWER: Andrew **Marvell**

[10] This other Marvell poem talks about a location to which "Love...makes his best retreat" "When we have run our Passion' heat." This poem begins by noting "How vainly men themselves amaze / To win the Palm, the Oke, or Bayes."

ANSWER: "The **Garden**" <JR>

9. Olivier Messiaen often used the whole tone and octatonic scales, which were examples of his types of "[these] of limited transposition." For 10 points each:

[10] Name these types of scales, whose seven-note varieties are often labelled "Ionian" and "Dorian" through "Aeolian" and "Locrian."

ANSWER: **modes**

[10] Messiaen also often added a note of this rhythmic value to an otherwise straightforward rhythm to destabilize it. Four of these notes go into a quarter note, and they are notated as an eighth note with an extra flag or beam.

ANSWER: **sixteenth note** [or **semiquaver**]

[10] Messiaen was influenced by the classical music of this non-Western country, which uses melodic modes called *ragas* and rhythmic patterns called *talas*. The classical music of this country uses instruments like tablas and sitars.

ANSWER: Republic of **India** [accept **Bharat** Ganrajya] <JR>

10. These power transmission systems are most useful for sending power over long distances. For 10 points each:

[10] Name this type of power transmission system in which power from the grid is rectified and up-transformed before transmission.

ANSWER: **high-voltage direct** current [or **HVDC**; prompt on partial answer]

[10] HVDC lines are an attractive option because power lines intrinsically act like these circuit elements, which store charge. Charging and discharging them repeatedly as current alternates is inefficient, and so DC is preferred.

ANSWER: **capacitors**

[10] Suppose that you have two capacitors of capacitance  $x$  in series with one another. What is the effective capacitance of the combined two-capacitor system?

ANSWER:  **$x$  divided by two** [or **one-half  $x$** ; or mathematical equivalents] <AS>

11. For 10 points each, answer these questions about the geography of cheese!!!!

[10] Gouda cheese is made in this country, famous for its *grachten*, or city canals. IJsselmeer ("EYE"-sul-meer) is an artificial lake in this low-lying country, which is sometimes flooded by the North Sea.

ANSWER: the **Netherlands** [or **Nederland**; prompt on "Holland"]

[10] Kesong puti is a soft white cheese from this country, produced on this country's islands of Samar, Cebu, and Luzon.

ANSWER: Republic of the **Philippines** [or Republika ng **Pilipinas**]

[10] In this mountain range, a crumbly cheese is produced by and named for the minority Circassian people. It is also home to the Ingush language and the Kartvelian language family.

ANSWER: **Caucasus** mountains <ATo>

12. This novel begins with a description of a branch of Lake Como turning into a river. For 10 points each:

[10] Name this novel by Alessandro Manzoni, in which Don Rodrigo tries to prevent the wedding of Lucia and her fiancé, Lorenzo.

ANSWER: *The **Betrothed*** [or *I **Promessi Sposi***]

[10] *The Betrothed* is written in this language, which its characters speak in Milan. Other authors who used this language include proto-Fascist Gabriele D'Annunzio.

ANSWER: **Italian** Language [or **Italiano**; or Lingua **Italiana**]

[10] This twentieth-century Italian novelist wrote about Marco Polo in the court of Kublai Khan in *Invisible Cities*. He included several second-person chapters in *If on a winter's night a traveler*.

ANSWER: Italo **Calvino** <JR>

13. A very important statement of this sort is named for Yoneda. For 10 points each:

[10] Give this name for an intermediate result that is proved as part of the process of proving a larger and more complicated theorem.

ANSWER: **lemma**

[10] Lemmas, like all truths in mathematics, are built up from these fundamental assumptions. Euclidean geometry begins with five of them, and many counter-intuitive results in modern set theory stem from one about "choice".

ANSWER: **axiom** [or **postulate**]

[10] When proving things, one must often make statements about every object with some property. To do so, one uses this quantifier, which is frequently paired with the existential quantifier. Name or description acceptable.

ANSWER: **universal** quantifier [or **for all**; or **given any**; or **upside-down** capital **A**; or **turned A**; or anything else that correctly describes the following symbol: **∀**] <AS>

14. The critic Stark Young once wrote of this dancer that "she looks as though she were about to give birth to a cube." For 10 points each:

[10] Name this American pioneer of modern dance who founded her namesake Dance Company in 1926. She commissioned and choreographed the 1945 ballet *Appalachian Spring*.

ANSWER: Martha **Graham**

[10] This American composer wrote the score to *Appalachian Spring*. He also composed *Rodeo* and *Fanfare for the Common Man*.

ANSWER: Aaron **Copland**

[10] The best known excerpt of Copland's score is a set of variations on this Shaker song. The tune is first introduced by a solo clarinet.

ANSWER: "**Simple Gifts**" [or "The **Gift to Be Simple**"] <KK>

15. During the American Revolution, a cannonball tore through a portrait of George III in this institution's Nassau Hall. For 10 points each:

[10] Name this school whose Institute of Advanced Study brought thinkers such as Einstein and Kurt Godel to the US to do individual work. It names a ship which exploded and took out several cabinet members in 1844.

ANSWER: **Princeton** University

[10] This white supremacist President, a sometime president of Princeton, proposed the Fourteen Points after bringing the United States into World War I.

ANSWER: Thomas Woodrow **Wilson**

[10] This earlier President lost much of his Cabinet when the *USS Princeton* exploded. This man was the only US President who went on to support Confederate secession.

ANSWER: John **Tyler** <MJ>

16. Using chemistry equipment can be dangerous and scary. For 10 points each:

[10] In 2010, some students in Texas triggered an explosion when they crushed nickel hydrazine perchlorate using these two tools. They are basically a bowl and a stick used for grinding stuff.

ANSWER: **mortar** and **pestle** [accept in either order; prompt on partial answer]

[10] A somewhat more commonplace laboratory accident entails breaking these small porcelain cups by placing them on a cool counter while they are hot. These ceramic vessels are designed to withstand high temperatures.

ANSWER: **crucible**

[10] When using a crucible, one must adjust the crucible in this way to ensure that hot gases are not trapped inside during heating.

ANSWER: **tilt the lid** [or **place the lid off-center**; or anything that makes it clear that **the lid is not fully covering the top of the crucible**] <HX>



17. Name these scary single-player video games, for 10 points each.

[10] In this survival horror PC game, you can't look directly at the monster which chases you because your "sanity" meter blurs the screen when looking at scary things. Its sequel is subtitled *A Machine for Pigs*.

ANSWER: Amnesia: The Dark Descent

[10] In a 2006 Gamecube game in this series, third-person protagonist Leon Kennedy protects the President's daughter from Spanish-speaking zombies. This Capcom horror series features the ominous Umbrella Corporation.

ANSWER: Resident Evil series [or Biohazard]

[10] This game satirizes some horror-game tropes as its green-hatted protagonist uses E. Gadd's vacuum cleaner to purge ghosts from a haunted estate.

ANSWER: Luigi's Mansion <EB>

18. Many outsiders mistakenly believe that this term refers to all white people. For 10 points each:

[10] Name this proper noun used by Rastafarians to describe the societies and structures that cause the "downpression" of blacks. Leaders of this collective have turned from the will of Jah.

ANSWER: Babylon

[10] Another allegorical Babylon has a namesake "whore" in this book of prophetic visions seen by John of Patmos. It includes the opening of seven seals at the end of the world and ends the New Testament.

ANSWER: Book of Revelation [or Apocalypse of John; or Apokalypsis; do NOT accept "Book of Revelations"]

[10] This prophet wrote his namesake Old Testament book and the succeeding Lamentations after predicting years of captivity in the historical, literal Babylon.

ANSWER: Jeremiah [or Yirmiyahu] <MJ>

19. At the beginning of this novel, Emil's kitten climbs a telegraph pole. For 10 points each:

[10] Name this novel about immigrants on the Nebraska prairie, in which Frank Shabata murders Marie Tovesky and Carl Lindstrum marries Alexandra Bergson.

ANSWER: O Pioneers!

[10] *O Pioneers!* is by this American author, whose "prairie trilogy" also includes *My Ántonia*. She chronicled Jean Marie Latour's strugs establishing a diocese of New Mexico in *Death Comes for the Archbishop*.

ANSWER: Willa Silbert Cather

[10] A boy of this name commits suicide to escape from his middle class life in a Cather story about his "case". Slaves with this name and the initials A, D, and F work on Sweet Home plantation in Toni Morrison's *Beloved*.

ANSWER: Paul [accept Paul A, Paul D, or Paul F] <HX>

20. Answer these questions about Adolf Hitler's rise to power, for 10 points each.

[10] This city lent its name to the German government set up after World War I. That government's last president was Paul von Hindenburg, who appointed Adolf Hitler chancellor in 1933.

ANSWER: City of Weimar [or Stadt Weimar; accept Weimar Constitution; accept Weimar Republic]

[10] The Bürgerbräukeller, an example of these establishments, got marched on in a failed Nazi putsch attempt in Munich in 1923.

ANSWER: beer halls [or bierpalaste; or bierstuben]

[10] The conviction of Dutch Communist Marinus van der Lubbe for this crime helped give Hitler pretense for suppressing political opponents.

ANSWER: setting the Reichstag Building on fire [accept answers indicating the burning, arson, etc. of the Reichstag building] <MW>

21. In this process, isocitrate dehydrogenase removes a carboxyl to produce alpha-ketoglutarate. For 10 points each:

[10] Identify this oxidative cycle which follows glycolysis.

ANSWER: Szent-Gyorgyi-**Krebs** cycle [or **citric acid** cycle; or **citrate** cycle; or **tricarboxylic acid** cycle]

[10] The Krebs cycle takes place in this enzyme-rich inner mitochondrial compartment. In the electron transport chain, protons are pumped from this compartment into the intermembrane space.

ANSWER: mitochondrial **matrix**

[10] Pyruvate dehydrogenase converts pyruvate into this molecule. In the Krebs cycle, this molecule is attached to oxaloacetate to form citrate, and it is a product of beta-oxidation of fatty acids.

ANSWER: **acetyl coA** [or **acetyl coenzyme A**] <GL>