

## Prison Bowl VI

Questions written and edited by Hunter College High School (Sam Brochin, Swathi Chakrapani, William Dou, David Godovich, Lily Goldberg, Jason Gurevitch, Willie Ha, Sarah Hamerling, Sophey Ho, Brian Huang, Sayema Islam, Jonathan Lin, Brent Morden, Alex Moschetti, Tenzin Norzin, Wilton Rao, Ruth Schoenfeld, Priya Srikumar, Karina Xie, Marianna Zhang, and Zihan Zheng)

### Round 13 – Tossups

1. His wife Lucy wore a blue dress and told him, “I’ll be true to you” after he died. Another “little woman” this man had was called Polly Ann, and performed his job “just like a man” when he was sick. He was born in the 1840s as a slave, but later worked on the C&O Railroad. He raced Mr. Peabody’s machine at Big Bend Mountain, moving fourteen feet into the mountain while the machine only moved nine. This man was “born with a hammer in his hand,” and told his captain that “this hammer’ll be the death of me”. For 10 points, name this “steel-drivin’ man”, a six-foot-tall railroad worker who raced a steam hammer and died in the process from overexertion.

ANSWER: **John Henry** [prompt on partial] <WD>

2. A man with this surname painted a crowned Jesus holding a lantern and knocking on a door in *The Light of the World*. That man founded the Pre-Raphaelite Brotherhood with Dante Rossetti and John Everett Millais. This word also titles a series of seven medieval tapestries which includes *The Unicorn in Captivity*, and a Rubens painting with this word in its title depicts a shirtless man holding a dagger frightened by a crocodile and a hippopotamus. Figures ice-skate in the distance as three men and several dogs return from this action and walk over a snowy hill in a Brueghel painting. For 10 points, name these events depicted in paintings where men pursue and kill animals.

ANSWER: **hunt** [accept word forms] <WR>

3. This member of the Silent Eaters group was a key organizer of a meeting at Rosebud Creek. The movements of John Gibbon led this leader to participate in one battle, though he later died following an altercation at Standing Rock due to fears that he would endorse the Ghost Dance movement. He was a participant in Buffalo Bill’s Wild West show, and his greatest success came after Major Reno failed to provide reinforcements. For 10 points, name this Lakota leader and medicine man who briefly led his tribe into Canada and allied with the Cheyenne to defeat Custer at Little Bighorn.

ANSWER: **Sitting Bull** [or **Thathanka Iyotake**] <ZZ>

4. This statement generalized for gravity states that the divergence of a gravitational field equals negative 4 pi times big G times density, a law which reduces to Poisson’s equation. Using this law on an infinite plane of uniform charge density involves the construction of a namesake “pillbox”, an example of a symmetrical surface. This law, which equates the surface integral of E dot dS with Q over the permissivity of free space, is the first of Maxwell’s equations. For 10 points, name this law which states that electric flux through a closed surface is proportional to enclosed charge, named for a German physicist and mathematician.

ANSWER: **Gauss’s Law** [or **Gauss’s flux theorem**] <WR>

5. In a novel by this author, blue paint that peels off the canvas is used in a painting by Rabo Karabekian. In another of his novels, most people are either part of the army or the Reconstruction and Reclamation corps, both of which do absolutely nothing. *Bluebeard* and *Player Piano* are by this author, who also wrote about false *karasses* like Hoosiers, and the manufactured religion Bokononism. In his *Breakfast of Champions*, Kilgore Trout is set free. This author created ice-9 in *Cat’s Cradle*, and wrote about a character who becomes “unstuck in time”, Billy Pilgrim. For 10 points, name this science fiction writer of *Slaughterhouse-Five*.

ANSWER: Kurt **Vonnegut, Jr.** <WD>

6. Conjunction search and feature search are two aspects of Anne Triesman’s feature integration theory of this concept. Another model argues that this is crucial to coherent thought and attributes it to an excess rather than a lack of mental capacity. That theory by Neumann and Allport contrasts with Broadbent’s filter model of this concept. It is impeded in a test to name font colors designed by John Ridley Stroop. Its selective type was demonstrated in a study that asked subjects to count basketball passes; subjects then failed to notice a man in a gorilla suit. Ritalin is used to treat its deficit, which is associated with hyperactivity. For 10 points, name this process of selective concentration.

ANSWER: **attention** <MZ>

7. This man appointed Bayan of the Baarin as his commander, and allowed him to marry the niece of Khatun Chabi, his favorite wife. Through his grandnephew Arghun, he attempted to form an alliance with Philip IV of France. This man defeated his brother and rival Ariq Böke for control of his empire, and he attempted to conquer Sakhalin. Hojo Tokimune was able to repel two invasion fleets sent by this man due to favorable weather. He rose to power following the death of his brother Mongke, and his accomplishments became known to the West by the accounts of Marco Polo. For 10 points, name this Mongol founder of the Yuan dynasty, the grandson of Genghis Khan.

ANSWER: Kublai Khan <AM>

8. A concept identical to this state in the Kevatta Sutta is described by Nagarjuna in the Long Discourses. A prominent figure in the Chán school holds that anatta, non-self doctrine, is antithetical to it. When preceded by “pari,” it refers to the death of one who is already in this state. Its union with samsara is bodhi in Mahayana Buddhism. In Jainism, an arhat becomes a siddha after achieving this concept, which can be translated as “blown out,” like a candle. The Buddha called it the “utter extinction of aging and dying.” For 10 points, name this state existing in various Indian religions, described in Hinduism as the feeling of bliss from being free of the cycle of reincarnation.

ANSWER: nirvana [do not accept “moksha”; prompt on “luminous mind” before “Ananda”] <PS>

9. Imidazole acetaldehyde is formed when this molecule is inactivated by oxidative deamination of its amino group. The tuberomammillary nucleus contains cells that produce this compound, also synthesized in ECL cells to increase gastric acid secretion. When sensitized to IgE, basophils and mast cells, which produce this molecule, degranulate it. During asthma or anaphylaxis, examples of Type 1 hypersensitivity, this substance is released in the inflammatory response. For 10 points, name this neurotransmitter whose receptors are targeted by allergy medicines, derived from histidine.

ANSWER: histamine <SH>

10. A woman’s disembodied mouth is the focus of one of this writer’s plays, *Not I*. Jacques Moran tracks down the title paralyzed writer in his novel *Molloy*. In one of his plays, the title character listens to recordings of his younger selves, and in another of his plays, “Me to play” is a line repeated by Hamm to Clov. This playwright of *Krapp’s Last Tape* and *Endgame* wrote a play whose set features a solitary tree. That play features much hat-swapping and a nonsensical monologue by Lucky after he is instructed to think by Pozzo. For 10 points, name this playwright who created Vladimir and Estragon in *Waiting for Godot*.

ANSWER: Samuel Beckett <MZ>

11. A failed plot by this ruler who claimed descent from Cadwaladr led to the execution of the Duke of Buckingham as well as his own banishment from Brittany. Perkin Warbeck led a failed invasion against him, who had earlier crushed an uprising by supporters of Lambert Simnel at the Battle of Stoke. This ruler ordered the repeal of the Titulus Regius of his predecessor, who had seized the throne by imprisoning two princes in the Tower of London. The Stanley brothers led their forces in support of this man in the midst of one battle, enabling his victory at Bosworth Field and ending the War of the Roses. For 10 points, identify this successor to Richard III, the first monarch of the Tudor dynasty.

ANSWER: Henry VII <ZZ>

12. Giorgio Germont kisses the forehead of the titular character after she sings “Dite alla giovine”. The titular character sings “di questo core” after her lover throws money at her feet. Earlier in this work, the drinking song “Libiamo” is sung at a party thrown by the titular character. After the party ends, the titular character proclaims that Alfredo may be the one destined to love her. Unable to make up her mind, she claims that she ultimately needs freedom in “Sempre libera”. For 10 points, name this opera about the courtesan Violetta Valéry who strays from her relationship with Alfredo before dying, by Giuseppe Verdi.

ANSWER: La traviata <WH>

13. One technique in this activity is named for Danny Seemiller, and the usage of speed glue in this activity is now illegal. In this activity, an inverted sponge or long pips may allow one to deliver corks핀. This sport includes athletes such as Kenta Matsudaira, Timo Boll and Ma Lin, who prefers a reverse penhold grip for his forehand loops and “ghost” serve. Equipment in this sport include a 6-inch-tall net, a hollow celluloid ball and rubbered wooden racquets. For 10 points, name this indoor racquet sport especially popular in China which is played over a namesake horizontal surface.

ANSWER: table tennis [or ping-pong] <WR>

14. In the FLRW metric, this phenomenon is described by a factor with a positive second derivative,  $a(t)$  (“a of t”). Bondi, Hoyle and Gold proposed that matter is continually created as this process occurs, known as steady state theory. Evidence for this phenomenon includes measurements of galactic radial velocities and observations of redshift in nearby galaxies. Driven by dark energy, its rate is given by Hubble’s constant, currently around 70 kilometers per second per megaparsec. For 10 points, name this accelerating phenomenon, a consequence of the Big Bang that causes two points in space to grow further from each other over time.

ANSWER: expansion of the universe [or cosmic expansion, expansion of space, and other equivalents] <MZ>

15. In a section of this work, the speaker addresses the title creature with the words “Ah you who are silent!”. This work that includes “White Bee” describes “white hills, white thighs” in “Body of a Woman”. Including “Drunk with Pines” and “Ah Vastness of Pines”, this collection ends with the line “It is the hour of departure. Oh abandoned one!”. Its final poem accuses the addressee of “swallowing everything” and repeats the lament “in you everything sank!”. Its penultimate poem opens “Tonight I can write the saddest lines”. For 10 points, name this somewhat erotic collection of romantic poems by Pablo Neruda.

ANSWER: *Twenty Love Poems and a Song of Despair* [or *Veinte poemas de amor y una canción desesperada*] <MZ>

16. This nation lost a significant part of its south after an embarrassing defeat at the battle of Maritsa, and this nation suffered another loss to Louis the Great, leading to the creation of the Dusan Code. The retreat of forces under Vuk Brankovic at the Field of the Blackbirds led to the conquest of this nation, home to the Chetnik resistance during World War II. A member of the Black Hand organization based here, Gavrilo Princip, shot Sophia and the Archduke Franz Ferdinand, leading to the start of World War I. For 10 points, identify this nation that was the base of operations for the Partisans of Josip Tito with a capital at Sarajevo.

ANSWER: Serbia <ZZ>

17. This region contains Druid Peak, part of the Absaroka (“ab-SOAR-kah”) Range, which is due north of the confluence of Soda Butte Creek and Lamar River. In this region’s south is Heart Lake, which Mount Sheridan overlooks. A body of water within this region is tinted blue and yellow by bacteria and is known as Morning Glory Pool. Found north of the the Grand Teton National Park and situated atop a large supervolcano, its most famous landmark is a regularly-erupting geyser known as “Old Faithful.” For 10 points, name this first national park located in northwestern Wyoming.

ANSWER: Yellowstone National Park <SB>

18. This text describes chaos as the result of situation in which propriety has decayed and music has collapsed. It describes the completion of music in its third book, which opens with a criticism about eight lines of dancers. Emphasizing the importance of love with distinctions and the rectification of names, this work compares the ideal ruler to the unmoving North Star and describes him as one that rules by example. This philosophical text parallels the ruler-subject relationship to the father-son relationship, another of the five relationships. It emphasizes the importance of *li* or ritual, *ren* or compassion, and filial piety. For 10 points, name this text that contains the sayings of Confucius.

ANSWER: *The Analects* [or *Lunyu*] <MZ>

19. This statement can be used to derive the Batchinsky relation, and it also proves the Law of Corresponding States by finding 0.375 to be the critical point compressibility factor. This law’s third virial coefficient is equal to  $b^2$ , where  $b$  is in units of meters cubed over moles and accounts for excluded volume. That parameter is paired with another corrective parameter,  $a$ , which accounts for the attraction between particles in a gas. For 10 points, name this modification of the ideal gas law, an equation developed by a Dutch scientist who also names weak intermolecular forces.

ANSWER: van der Waals equation of state <WR>

20. This novel ends with two characters arguing while ascending a moonbeam. That vision is dreamed in an asylum run by Stravinsky by a character who witnesses Berlioz's prophesied decapitation. In the asylum, Ivan Homeless meets one of the title characters of this novel, who is reunited with his lover after she unflinchingly participates in a Walpurgis Night ball. Azazello and Behemoth are among a group of characters in town for a performance of black magic followed by an unveiling at the Variety Theater; of course, the latter never occurs. For 10 points, name this novel whose title characters recover a manuscript about Pontius Pilate while Woland and his entourage wreck havoc on Moscow, written by Mikhail Bulgakov.

ANSWER: *The Master and Margarita* [or *Master i Margarita*] <MZ>

TB. The Day of Dupes that occurred in this city was a failure, and Count Odo defended this city from a Viking siege in 885, though Charles the Fat payed off the besiegers anyway. Jaroslaw Dabrowski became the de facto leader of this city during one event, and Adolphe Thiers crushed that uprising here. A golden rose was sent here by Pope Gregory XII in response to the sending of the severed head of Gaspard de Coligny. Declared to be "well worth a mass" by Henry of Navarre, this city was the city of the St. Bartholomew's Day Massacre as well as a brief Commune. For 10 points, name this European where the Bastille was stormed.

ANSWER: **Paris** <ZZ>

### **Round 13 – Bonuses**

1. Auxetics are materials that have a negative value for this quantity. For 10 points each:

[10] Name this ratio of an object's transverse strain to its axial strain. Its namesake effect causes contraction in two axes when a third axis is stretched, and vice versa.

ANSWER: **Poisson**'s ratio

[10] Young's modulus measures the ratio of this quantity to strain. It includes "normal" and "shear" varieties, which account for perpendicular and parallel force vectors with respect to cross section, respectively.

ANSWER: **stress**

[10] Both stress and Young's modulus are typically measured in this eponymous unit, the SI unit of pressure. One of these units is equal to one newton per square meter.

ANSWER: **pascal** <WR>

2. The central subject of this work is slowly being dragged to a port to be broken up for scrap, and had earlier participated in the Battle of Trafalgar. For 10 points each:

[10] Identify this J.M.W Turner painting depicting the title vessel being dragged by a black tugboat emitting smoke.

ANSWER: *The **Fighting Temeraire** tugged to her last berth to be broken up*

[10] This other Turner work depicts the progress of the titular conveyance as it rushes through the countryside in a blur of yellow hues. A small boat can be seen in the water near some arches.

ANSWER: **Rain, Steam, and Speed: The Great Western Railway**

[10] Turner also painted a group of these people in one work, inspired by the story of the *Zong* in which 133 of them were thrown overboard. The miracle of one of these people is shown in a Tintoretto painting.

ANSWER: **slaves** <ZZ>

3. This novel begins by describing the path Urania Cabral takes as she goes to meet her father, an invalid. For 10 points each:

[10] Identify this work studying the rule of Rafael Trujillo and his assassination. It is narrated from the perspectives of Trujillo, the assassins, and Urania, who was assaulted by Trujillo.

ANSWER: *The **Feast of the Goat** [or *La **fiesta del chivo****

[10] *The Feast of the Goat* is by this author of *Aunt Julia and the Scriptwriter*. He created the Slave in a novel set at a military academy, *The Time of the Hero*.

ANSWER: Mario **Vargas Llosa**

[10] Vargas Llosa is also famous for giving a speech denouncing this country's leading political party, the PRI. He characterized this country as "the perfect dictatorship" due to the subtlety of its control over the intellectual community.

ANSWER: **Mexico** <ZZ>

4. This speech was given following the release of some 80 people from a local jail, and its exact wording has been lost. For 10 points each:

[10] Identify this speech delivered on September 16th, 1810, in which Father Hidalgo urged his congregation to revolt against the Spanish colonial government in Mexico.

ANSWER: "**Cry of Dolores**" [or "**Grito de Dolores**"]

[10] One of the men who answered the cry was this conservative general who issued the Plan of Iguala and led the Army of the Three Guarantees. He became king briefly after Mexico's independence, though he was forced into exile and then executed upon his return to Mexico.

ANSWER: Augustin I **Iturbide**

[10] Iturbide's reputation was rehabilitated by this later general. He may be better known, however, for ordering the siege of the Alamo and for leading Mexico during the Mexican-American War.

ANSWER: Antonio Lopez de **Santa Anna** <ZZ>

5. This work argues that God is his own essence and existence. For 10 points each:

[10] Name this incomplete work structured as a series of objections and responses. It contains five arguments for the existence of God.

ANSWER: Summa Theologica [or Summation of Theology; prompt on “Summa”]

[10] This Scholastic philosopher defended Christianity and put forth a four-part definition of faith in *Summa con Gentiles*, which he expanded on in *Summa Theologica*.

ANSWER: Saint Thomas Aquinas [or Thomas of Aquin]

[10] Aquinas was heavily influenced by this Jewish philosopher who wrote a work addressed to his student Joseph ben Judah, *Guide for the Perplexed*. His non-philosophical works included the Mishneh Torah.

ANSWER: Moses Maimonides [or Moses ben Maimon] <MZ>

6. After travelling through the lungs, blood is returned to the left atrium by these vessels. For 10 points each:

[10] Name these vessels which, unlike other vessels of the same type, carry oxygenated blood to the heart. A typical human possesses four of these - two from the right lung and two from the left.

ANSWER: pulmonary veins [prompt on partial]

[10] After leaving the left ventricle, blood is pumped into this largest artery of the body. This vessel has both an ascending and descending branch, forming an arch.

ANSWER: aorta

[10] This structure, connected to the chordae tendineae, opens to allow blood to move from the left atrium to the left ventricle. This atrioventricular structure’s namesake annulus is connected to its characteristic flaps.

ANSWER: mitral valve [or bicuspid valve; prompt on partial] <WH>

7. For 10 points each, name these members of the 2012 US Olympic swim team.

[10] This man hails from Baltimore, Maryland, and his signature event is the 200 butterfly. He currently holds the world record for most gold medals won at the Olympics.

ANSWER: Michael Phelps

[10] This athlete, at seventeen, was the second-youngest member of the Olympic team. At the Olympics, she swept the backstroke events, and now holds the world record for the women’s 100-meter backstroke.

ANSWER: Missy Franklin

[10] Despite being the youngest member of the US Olympic team, this fifteen-year-old from Bethesda, Maryland won gold in the women’s 800-meter freestyle race, missing the world record by about half a second.

ANSWER: Katie Ledecky <SC>

8. For 10 points each, answer the following about biographies.

[10] This writer recently published *The Passage of Power*, the fourth volume of *The Years of Lyndon Johnson*. He wrote about the Cross-Bronx Expressway in a biography of Robert Moses, *The Power Broker*.

ANSWER: Robert Caro

[10] This author of *1776* wrote about the building of the Panama Canal in *The Path Between the Seas*. He has written three biographies of US presidents, including *Truman* and *John Adams*, which were adapted into a Gary Sinise film and HBO miniseries respectively.

ANSWER: David McCullough

[10] Both Caro and McCullough are two-time laureates of this award, which is also awarded for journalism and photography. It is awarded annually by Columbia University and named after a newspaper publisher.

ANSWER: Pulitzer Prize <MZ>

9. Name some important First Amendment cases in history for 10 points each.

[10] This First Amendment case led to the establishment of the “clear and present danger test” by Justice Holmes over the more restrictive “bad tendency” test. The majority noted that Constitution did not regard “shouting fire in a crowded theater” as protected speech.

ANSWER: *Charles **Schenck** v. US*

[10] This more recent First Amendment case involved the regulation of campaign financing and saw the Supreme Court strike down McCain-Feingold Bill. The decision has enabled the creation of super political action committees.

ANSWER: ***Citizens United** v. Federal Election Commission*

[10] Another recent First Amendment case, *Johnson v. Texas*, centered on the legality of this type of action, which Johnson performed at the Dallas City Hall. Amendments to ban this action have failed to pass the Senate, and the Court has deemed it to be allowable.

ANSWER: **flag burning** [accept clear knowledge equivalents] <ZZ>

10. He included the Single Cube Room in an estate he constructed for the Herbert family, Wilton House. For 10 points each:

[10] Name this London architect whose influence from Andrea Palladio can be seen in his designs of the Queen’s House in Greenwich and his facade of the Banqueting House at the Palace of Whitehall.

ANSWER: Inigo **Jones**

[10] Jones designed the West Front for this cathedral. After its destruction in the Great Fire of London, Christopher Wren built a cathedral of the same name in its place on Ludgate Hill, which features a large triple-shelled dome.

ANSWER: Old **St Paul's** Cathedral

[10] Jones also designed one of these structures at Temple Bar, which was never constructed. A more famous example of these structures designed by Eero Saarinen is a symbolic “Gateway” in St. Louis, Missouri.

ANSWER: **arches** <WR>

11. The Constitution states that this writ cannot be suspended “unless when in Cases of Rebellion or Invasion the public Safety may require it.” For 10 points each:

[10] This doctrine requires that a detainee be brought before court to establish the legality of their detainment. It is Latin for “that you have the body.”

ANSWER: **habeas corpus**

[10] This kind of decision is made by a judge without the presence of all parties. In a case of this type concerning Milligan, the Supreme Court found that, while the suspension of habeas corpus was legal, use of military tribunals when civil courts were still functioning was not.

ANSWER: **ex parte**

[10] Another writ is this request of judicial review, coming from Latin for “to show or inform.” A vote of four Justices is necessary to grant this writ and hear a case.

ANSWER: **certiorari** <MZ>

12. For 10 points each, name some physical properties of solutions.

[10] This effect, caused by addition of solute to a solvent, is what allows calcium chloride to melt snow faster. Represented as  $\Delta T_f$ , it is calculated by multiplying the cryoscopic constant with molality and the factor  $i$ .

ANSWER: **freezing-point depression** [accept equivalents]

[10] Freezing point depression is one of these properties, which, like osmotic pressure, are affected only by solute concentration.

ANSWER: **colligative** properties

[10] This Dutch chemist is the namesake of the aforementioned factor,  $i$ , which, for an ionic compound, is equal to the number of ions the compound forms when dissociated in solution. He also won the first Nobel Prize in Chemistry.

ANSWER: Jacobus Henricus **van 't Hoff**, Jr. <WH>

13. Identify a couple real and fictional patriotic American women for 10 points each.

[10] This woman is believed to have been the person who sewed the first American flag during the Revolutionary War. It is unclear as to whether or not she actually performed such an action.

ANSWER: Betsy **Ross**

[10] This American Revolution heroine allegedly took over her husband's duty of swabbing the cannon at the Battle of Monmouth when he either was shot or fainted from heat exhaustion.

ANSWER: **Molly Pitcher** [or **Mary Ludwig Hays McCauley**]

[10] This American cultural icon of World War II represented the American women working in the factories while the men were off fighting. She is often depicted in posters with her arm raised and the caption saying, "We can do it!"

ANSWER: **Rosie the Riveter** <JL>

14. He encounters the Self-Taught Man reading the entire library alphabetically while researching the Marquis de Rollebon. For 10 points each:

[10] Name this character, the former lover of Anny. He begins keeping a journal after the onset of a "sweetish sickness" that culminates in a confrontation with a chestnut tree.

ANSWER: **Antoine Roquentin** [accept either]

[10] Antoine Roquentin finds that jazz is somewhat able to relieve his sickness in this existentialist novel formatted as a series of journal entries.

ANSWER: **Nausea** [or *La nausée*]

[10] This playwright of *The Flies* wrote about the unsalvageable Hugo in *Dirty Hands*. He described the torture of Ines, Estelle and Garcin in *No Exit* in addition to writing *Nausea*.

ANSWER: Jean-Paul **Sartre** <MZ>

15. Name some works of music that feature the really cool effect of an offstage trumpet for 10 points each.

[10] Most of this composer's symphonies, like his 1st "Titan" and his 8th "Symphony of a Thousand", use offstage trumpets. He also wrote many song cycles, such as "Songs of a Wayfarer".

ANSWER: Gustav **Mahler**

[10] This symphonic poem by Ottorino Respighi incorporates 6 offstage buccine and a trumpet. It also uses low notes on the organ to depict the title entities "of the Appian Way" and "of the Janiculum".

ANSWER: **Pines of Rome** [prompt on "Roman trilogy"]

[10] This Prokofiev suite satires bureaucracy through the title fake military officer. It utilizes an offstage cornet as well as small bells to imitate prancing horses in its 4th movement, the troika.

ANSWER: **Lieutenant Kijé** Suite <WR>

16. A uniform distribution can be converted into this with a transformation named for Box and Muller. For 10 points each:

[10] Name this probability distribution with a symmetric, unimodal bell shape. Approximately 68% of its values can be found within one standard deviation of the mean.

ANSWER: **normal** distribution or curve [or **Gaussian** distribution or curve]

[10] The square of the standard deviation is this quantity, a measure of a distribution's spread. Preceded by "co-", this term can refer to the magnitude of correlation between two random variables.

ANSWER: **variance**

[10] This theorem states that the sampling distribution of means for any distribution, regardless of whether or not it is normal, will approximate a normal distribution if the sample is sufficiently large.

ANSWER: **central limit** theorem [or **CLT**] <WR>

17. Not all the great heroes were Greek; some of their tales were even written in English. For 10 points each:

[10] This great hero and eventual king of the Danes slew Grendel and his mother. He eventually dies due to wounds from his fight with a dragon.

ANSWER: **Beowulf**

[10] Beowulf was presented with this sword which supposedly never failed, although it broke when he fought Grendel's mother; he killed her instead with a different magical sword.

ANSWER: **Hrunting**

[10] Beowulf aided this "famed warrior" and "protector of the Scyldings," a Danish king whose mead hall was attacked by Grendel.

ANSWER: **Hrothgar** <WD>



18. The protagonist of this novel declares that he is in the midst of beauty while locked up in a prison. For 10 points each:

[10] Name this novel about a whiskey priest on the run from the socialist and idealistic Lieutenant. The whiskey priest takes the confession of a mestizo, but his own confession is refused by Padre Jose.

ANSWER: The Power and the Glory

[10] This author of *The Honorary Consul* wrote about the Catholic conscience in a trilogy that includes *Brighton Rock* and *The Power and the Glory*.

ANSWER: Graham Greene

[10] This final novel of Graham Greene's Catholic trilogy follows inspector Henry Scobie's self-destruction after he commits adultery with a shipwreck victim named Helen Rolt.

ANSWER: The Heart of the Matter <MZ>

19. He annexed the Nabataean kingdom, which consisted of modern-day Israel and Jordan, into the Roman Empire. For 10 points each:

[10] Name this adoptive father of Hadrian and one of the Five Good Emperors. The architect Apollodorus of Damascus facilitated many of his building projects, including a namesake column.

ANSWER: Trajan [or Marcus Ulpus Traianus]

[10] Trajan succeeded this man, the first of the Five Good Emperors. After Domitian's assassination, he was appointed emperor by the Senate, only to have the Praetorian Guard force this man to execute Domitian's murderers.

ANSWER: Marcus Cocceius Nerva

[10] Trajan's Column commemorates his victory in conquering this region north of the Danube. Its capital was Sarmizegetusa in modern-day Romania, and it was ruled by Decebalus until he committed suicide upon defeat.

ANSWER: Dacia <WR>

20. Africa has a lot of long rivers. For 10 points each:

[10] The Kabompo and Lungwebungu Rivers are major tributaries of this river. It also flows along the eastern border of Namibia and the northern border of Botswana after originating in Zambia.

ANSWER: Zambezi River

[10] The Zambezi flows through the eastern portion of this nation whose capital is Luanda. This former Portuguese colony now has a province named Zaire, which borders the Democratic Republic of the Congo.

ANSWER: Angola

[10] This oil-rich province of Angola is an exclave, bordering the Republic of the Congo to the north of the rest of Angola. The nationalist group FLEC-FAC continues to fight for this region's independence.

ANSWER: Cabinda <WH>

TB. Its enthalpy change in the forward reaction is about negative 92 kilojoules per mole. For 10 points each:

[10] Name this industrial process which now uses an iron catalyst instead of osmium. Its rate-determining step is its second step, which involves the breaking of a diatomic molecule's triple bond.

ANSWER: Haber-Bosch process [do not accept "Haber cycle"]

[10] The Haber process produces this colorless, pungent gas with formula  $\text{NH}_3$ , an important component of explosives and fertilizer.

ANSWER: ammonia

[10] This process uses a platinum-rhodium catalyst to oxidize ammonia into nitric acid. Its namesake German chemist also names a "rule of stages", which states that unstable phases appear before stable phases in crystallization.

ANSWER: Ostwald process <SH>