



High School Academic Pyramid Questions

2008-2009
ACF-Format Set #4

Round 6

Tossups

1. The former prime minister of this nation, Khaleda Zia, is currently facing tax evasion charges, and Iajuddin Ahmed served as leader of this nation's caretaker government from 2007 through January 2009. A recent mutiny in this nation against Prime Minister Sheikh Hasina resulted in over 80 deaths. The Grameen Bank in this nation is a notable microcredit organization started by Muhammad Yunus. Formerly known as East Pakistan, for 10 points, name this South Asian nation with capital at Dhaka.

ANSWER: **Bangladesh**

2. This city is home to the Sunshine City commercial complex and the Lexington Queen nightclub. Devastated by the Great Kanto earthquake of 1923, it nonetheless went on to host the 1964 Summer Olympics. This city's popular attractions include the "Big Egg," while it is serviced by Narita International Airport. The Yamanote train line runs a loop around its massive metropolitan area, which also includes Yokohama. Formerly known as Edo, for 10 points, name this capital and largest city of Japan.

ANSWER: **Tokyo**

3. Anatol Rapoport came up with the best strategy to solve one version of this problem developed by Merrill Flood, Melvin Dresher, and Albert Tucker. Robert Axelrod discussed it in *The Evolution of Cooperation* and confirmed Rapoport's "tit for tat" strategy as optimal for its iterated case. It has been applied to such economic concepts as two-firm price wars and the free rider problem. For 10 points, name this classic problem in game theory in which two of the namesake people must choose whether to keep quiet or rat each other out.

ANSWER: **prisoner's dilemma**

4. He recycled the overture from his *La Gazetta* in an opera in which prince Ramiro disguises himself as his valet Dandini and falls in love with Angelica. Another of his operas features the husband of Hedwige who saves Luethold from execution and refuses to bow to a hat set up by Gessler. In another opera by this man, Doctor Bartolo wants to win the fortune of Rosina but is foiled by the machinations of Count Almaviva and his crafty haircutter Figaro. For 10 points, name this Italian composer of *Cinderella*, *William Tell*, and *The Barber of Seville*.

ANSWER: Gioachino Antonio **Rossini**

5. A variation of this device that uses zinc and copper is named after the British chemist Daniell and does not suffer from rapid power loss during continuous operation. Unlike a related device, these use spontaneous chemical reactions. The presence of an electric conductor and a salt bridge creates a closed circuit for electrons to travel between redox couples in these devices, which often consist of metallic electrodes in an electrolyte. For 10 points, name this type of non-rechargeable electrochemical cell that generates electricity and is present in most batteries.

ANSWER: **galvanic** cell [or **voltaic** cell; or **primary** cell; prompt on **electrochemical** cell; do not accept “electrolytic cell”]

6. One character in this novel is horrified to learn that twin infants have been abandoned in clay jars in the Evil Forest. One woman in this novel is too busy braiding her hair to prepare a meal and is consequently beaten during the Week of Peace. The protagonist of this novel is a renowned wrestler fond of saying “When a man says yes, his chi says yes also,” and that protagonist is distressed when Christian missionaries come to Umuofia and convert his son Nwoye. For 10 points, name this novel in which Okonkwo hangs himself, by Chinua Achebe.

ANSWER: ***Things Fall Apart***

7. This man negotiated with Theodosius II after being stopped at Thermopylae, after which this man turned to the west, demanding half of the Western Roman Empire as a dowry for the marriage of Honoria. A joint force of Aetius and Theodoric I stopped this man on the Catalaunian Plains of Gaul, an engagement known as the Battle of Chalons. This man became leader of his people upon the death of his brother Bleda and allegedly died of a bloody nose on his wedding night. For 10 points, name this “Scourge of Rome,” a leader of the Huns.

ANSWER: **Attila**

8. This philosopher is the main character in Xenophon’s *Oeconomicus*, where he gives useful advice on how to run a farm. This man disagreed with Thrasymachus about whether might makes right. Because he believed that public opinion should not determine justice, this man refused to be rescued by Crito, and one of his speeches is the *Apology*. He lends his name to a teaching method involving asking others questions and letting them discover the answer, seen in his dialogues. For 10 points, name this teacher of Plato who died by drinking hemlock.

ANSWER: **Socrates**

9. The disembodied head of a figure lies next to a giant gold patch of paint in the study for this painting, which is set at 7 o’clock as indicated by the clock in the upper left. Three cups are filled with tea, while a fourth is being poured by one figure. Another figure sits almost directly under a gas lantern suspended from the rooftop. This painting set in a poor household in Nuenen, the Netherlands features haggard figures grasping utensils and imbibing the title food. For 10 points, name this painting by Vincent van Gogh.

ANSWER: ***The Potato Eaters*** [or ***De Aardappeleters***]

10. One kind of these creatures creates ovoid larvae with exactly thirty-two cells. Carnivorous genres of this type of organism include Neocladia and Chondrocladia, and one early type of these organisms is Archaeocyatha. They can have three types of body plan, syconoid, asconoid, and leuconoid, and their sclerocytes secrete mineralized spicules, which serve as skeletons and sometimes as defense spines. They take their name from their ostia, which take in water to be ejected from the osculum. For 10 points, identify this phylum that contains the sponges.

ANSWER: **Porifera** [accept **sponges** until the end]

11. The protagonist of this work becomes a factory worker before returning home defeated in a sequel by Elfriede Jelinek. One character in this work confesses his love for the protagonist after revealing that he is dying from “tuberculosis of the spine,” a euphemism for syphilis. Christine Linde convinces Krogstad not to blackmail the central couple of this work, but not before the protagonist is revealed to have forged her father’s signature on a bank loan. For 10 points, name this play in which Nora Helmer leaves her husband Torvald, by Henrik Ibsen.

ANSWER: A ***Doll’s House*** [or *Et dukkehjem*; or close translations like *The Dollhouse*]

12. This event prompted a murder trial in which only Hugh Montgomery and Matthew Killroy were found guilty. In that trial, Robert Treat Paine served as a prosecutor, while the rest of the accused were successfully defended by Josiah Quincy and John Adams. This event was prompted by the Townshend Acts and began when Thomas Preston’s troops opened fire on an unruly mob. Resulting in the death of Crispus Attucks and four others, for 10 points, name this March 1770 event in which colonial rioters were killed by imperial troops in the namesake city.

ANSWER: **Boston Massacre**

13. According to Plutarch, this hero killed the Crommyonian Sow. This hero died in Scyrus when he was thrown off a cliff by Lycodemus, and he accompanied his friend Pirithous to Hades to help him wed Persephone. His father Aegeus committed suicide after this hero forgot to change his ship’s black sails for white ones during his return from Crete, where he killed a monster with help from Ariadne. For 10 points, name this king of Athens who used golden string to navigate a labyrinth and kill the Minotaur.

ANSWER: **Theseus**

14. A person afflicted with a *vague de passions* is introduced in this work’s first movement, “Reveries and Passions,” and this work was followed by a sequel entitled *Lélio*. A tuba and four bassoons play a sped-up version of the “Dies irae” in one movement of this work, which also features the *idée fixe* being played by an E-flat clarinet. That fifth and final movement, “Dream of a Witches’ Sabbath,” is preceded by “March to the Scaffold.” Dedicated to Harriet Smithson, for 10 points, name this 1830 composition by Hector Berlioz.

ANSWER: ***Symphonie fantastique*** [or *An Episode in the Life of an Artist*]

15. This quantity for the energy of an electromagnetic field is given by the Poynting vector. It is equal and opposite to the rate of change of fluid density, and for an electric field, this quantity can be calculated as the surface integral of $E \cdot dA$. This quantity's magnetic variety is measured in webers, and it is proportional to the number of magnetic field lines passing through a given surface. For 10 points, name this type of quantity, also with common heat and luminous types, that generally measures the amount of substance passing through an area per unit time.

ANSWER: **flux**

16. In one novel by this author, Popeye abducts Temple Drake, and in a short story by him, the title female buys a package of arsenic on which is written "For Rats." In addition to the novel *Sanctuary*, this author wrote of a protagonist sent to live with Simon McEachern after witnessing an affair while trying to eat toothpaste. Besides "A Rose for Emily" and *Light in August*, he created Darl, who claims "Jewel's mother is a horse," and a mentally retarded character named Benjy Compson. For 10 points, name this author of *As I Lay Dying* and *The Sound and the Fury*.

ANSWER: William **Faulkner**

17. This state was home to a town of freedmen from Kentucky named Nicodemus. One politician from this state ran against Franklin Roosevelt in 1936, and this state was sold many "Beecher's Bibles" for a conflict that also included the Pottawatomie massacre. The Lecompton constitution was signed in this state, angering its resident John Brown, and Alf Landon governed here. Linda Brown was forced to go to a segregated school in this state. For 10 points, name this "bleeding" state that was home to a suit against the board of education in Topeka.

ANSWER: **Kansas**

18. This data structure has a variant for which many operations have constant amortized cost named for Fibonacci, and dynamic memory allocation in the Java VM assigns new objects to an area of memory with this name. It can be rearranged to maintain its namesake property in $\log n$ time after its root node is removed, which makes it useful for implementing efficient priority queues. For ten points, name this data structure used in an efficient in-place sorting algorithm, a binary tree in which each node always has a higher or lower value than its children.

ANSWER: **heap**

19. Ahmad Shah Durrani took power in this country sixteen centuries after a dynasty with Yuezhi roots had reached its height under Kaniska I. Independence of a neighboring nation led to issues over the "Pashtunistan" region in 1947, a conflict not resolved until this nation's Daud Khan dealt with Prime Minister Bhutto. A movement led by Mullah Muhammad Omar came to power in this country after a war with the Soviet Union. For 10 points, name this country dominated by the Mujahadeen and the Taliban, who refused to extradite Osama bin Laden.

ANSWER: **Afghanistan**

20. This author wrote about the drowning of Bishop by the fanatical Francis Tarwater in one novel, and the preacher Hazel Moates kills a rival by running him over in a car in another novel. In addition to *The Violent Bear it Away*, this author wrote a short story in which a con man fixes and steals a car before reading the title message on a billboard, and in another of her stories the Grandmother and her entire family are killed by the Misfit. For 10 points name this author of *Wise Blood*, "The Life You Save May Be Your Own," and "A Good Man is Hard to Find."
ANSWER: Mary Flannery **O'Connor**

21. Treatment of this disease using intrabody therapy is being investigated, and tetrabenazine can be used to alleviate its most distinctive symptom. This disorder particularly affects the substantia nigra and striatum, and the protein BDNF may be underexpressed in patients with this disorder. The age of onset of this disease is related to a mutation in the namesake Htt gene that increases the number of CAG repeats on chromosome 4. For 10 points, name this degenerative disease characterized by dystonia and the namesake jerking motions.
ANSWER: **Huntington's** disease [or **Huntington's** chorea]

22. Towards the end of his rule, Parliament tried to get him to agree to the Humble Petition and Advice, and following the publication of *England's New Chains*, he oversaw suppression of the Levelers. He became head of state under a document authored by John Lambert, the Instrument of Government, and this leader of the Ironsides regiment distinguished himself at the battles of Marston Moor and Naseby. For 10 points, name this leader of the New Model Army during the English Civil War who served as the first Lord Protector of Scotland, Ireland, and England.
ANSWER: Oliver **Cromwell**

23. One figure in this work appears in the park disguised as Herne the Hunter but is immediately surrounded by revelers disguised as fairies and elves. In the confusion, Anne and Fenton run off to be married. In another scene, one of the titular figures manages to secrete her would-be suitor out of her home by disguising him as a woman her husband hates. By the play's end the machinations of both Mistress Page and Falstaff are for naught. For 10 points, name this Shakespeare comedy that deals with the jokes played by the titular spouses of Page and Ford.
ANSWER: *The* **Merry Wives of Windsor**



HSAPQ

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Bonuses

1. The bank president Nicholas Biddle represented the United States at this man's coronation. For 10 points each:

[10] Name this Corsica-born man who crowned himself Emperor of France in 1804.

ANSWER: **Napoleon** Bonaparte

[10] Though Germans would say that General Von Blucher defeated Napoleon at Waterloo, the English credit Napoleon's defeat to this British commander, a future prime minister.

ANSWER: Duke of **Wellington** [or Arthur **Wellesley**]

[10] The Battle of Waterloo took place in June of this year. Other notable events that occurred in this year include the Battle of New Orleans and the Hartford Convention.

ANSWER: **1815**

2. For 10 points each, name these metabolic disorders.

[10] Food products that contain phenylalanine must warn consumers on their labels due to this genetic disorder in which phenylalanine accumulates in the blood and body.

ANSWER: **phenylketonuria** [or **PKU**]

[10] Rare in children under the age of six, this disorder results from a lack of an enzyme that breaks down a certain sugar found in milk products.

ANSWER: **lactose intolerance**

[10] Type I of this disease is caused by the body's inability to produce sufficient insulin; in Type II, insulin receptors fail to recognize insulin.

ANSWER: **diabetes**

3. It is home to the Penobscot River, and the northern terminus of the Appalachian Trail is located in its Baxter State Park, which is home to Mount Katahdin. For 10 points each:

[10] Name this state, which is separated from Canada by the St. John River.

ANSWER: **Maine**

[10] This largest city in Maine is located on Casco Bay. It shares its name with another state's largest city that is located on the Willamette River.

ANSWER: **Portland**

[10] This easternmost national park in the continental United States is located primarily on Mount Desert Island in the state of Maine.

ANSWER: **Acadia** National Park

4. It originated from a questionnaire sent to members of the author's 1942 Smith College graduating class. For 10 points each:

[10] Name this book that analyzes the lack of fulfillment in the lives of certain individuals in post-World War II American suburbs.

ANSWER: *The **Feminine Mystique***

[10] *The Feminine Mystique* was authored by this originator of the "second wave" of feminism and head of the National Organization for Women.

ANSWER: Betty Naomi **Friedan**

[10] *The Feminine Mystique* was influenced by this treatise that outlined the history of treating women as an "aberration" from men. It was written by Simone de Beauvoir.

ANSWER: *The **Second Sex*** [or *Le **Deuxième Sexe***]

5. Written after the death of its composer's mother, this choral work features words from Biblical texts rather than church liturgy. For 10 points each:

[10] Name this work composed eleven years before its composer's *Tragic Overture*.

ANSWER: A **German Requiem** [or *Ein **deutsches Requiem***]

[10] This composer of a noted "Lullaby" and *A German Requiem* also wrote *Academic Festival Overture*.

ANSWER: Johannes **Brahms**

[10] Johannes Brahms was likely in love with this female composer, whose husband wrote the *Rhenish Symphony* and *Kinderszenen*, or *Scenes from Childhood*.

ANSWER: **Clara Schumann** [prompt on **Schumann**]

6. Some European leaders did not receive flattering nicknames. For 10 points each:

[10] Suspected of murdering his half-brother Edward the Martyr, he attempted to buy off Dane invaders by imposing the Danegeld tax, and he was overthrown upon Sweyn Forkbeard's 1013 invasion.

ANSWER: **Aethelred** the Unready

[10] France's King Louis the Fat arranged the marriage of his son Louis VII to this woman, the mother of kings John and Richard I of England, who was confined by Henry II after plotting against him.

ANSWER: **Eleanor of Aquitaine**

[10] This polity's leader Basil the Bulgar-Slayer caused Tsar Samuel of Bulgaria to die of shock after decisively winning a battle.

ANSWER: **Byzantine** Empire [or **Byzantium**; or **Eastern Roman** Empire]

7. For 10 points each, identify some concepts relating to low temperatures.

[10] This phenomenon occurs below the lambda point, resulting in a liquid with no viscosity that can quickly flow through microscopic holes.

ANSWER: **superfluidity**

[10] Superfluids do not obey Fermi-Dirac statistics, just like this phase, first generated in rubidium.

ANSWER: **Bose-Einstein Condensates**

[10] To perform the cooling necessary to generate a BEC, this type of collimated, coherent light is used in "optical pumping" and "Sisyphus cooling."

ANSWER: **laser** [or **Light Amplification by Stimulated Emission Radiation**]

8. In one novel, this man is derided as a “rabble-rouser from Galilee.” For 10 points each:

[10] Name this man who was not freed in lieu of the title character in Par Lagerkvist’s *Barabbas*.

ANSWER: **Jesus Christ** [accept either name; accept obvious equivalents]

[10] One of the title characters of this novel burns his manuscript about the rabble-rousing Jesus. Another scene in this work sees Satan parade through St. Petersburg with a cat named Behemoth.

ANSWER: *The **Master and Margarita*** [or **Master i Margarita**]

[10] The author of *The Master and Margarita*, Mikhail Bulgakov, penned a work in which one of these animals named Sharik becomes a half-man named Polygraph, titled *Heart of this*.

ANSWER: a **dog**

9. Some schools have a great football tradition that is often overlooked. For 10 points each:

[10] Amos Alonzo Stagg coached at this onetime football power from 1892 to 1932, which is the alma mater of the first Heisman winner Jay Berwanger.

ANSWER: University of **Chicago**

[10] This Oxford-based university is known as the Cradle of Coaches for producing such coaches as Ara Oarseghian, Bo Schembechler, and Woody Hayes.

ANSWER: **Miami** University [or **Miami** of Ohio]

[10] This current ACC school, located in Atlanta, beat Cumberland 222-0 in 1916 under head coach John Heisman.

ANSWER: **Georgia** Institute of **Technology**

10. He painted a bunch of kids playing in *Snap-the-Whip*. For 10 points each:

[10] Name this American best known for nautical scenes like *Breezing Up* and *Gulf Stream*.

ANSWER: Winslow **Homer**

[10] This artist depicted Max Schmitt resting in a single scull after a race but is most famous for his *Gross Clinic*.

ANSWER: Thomas **Eakins**

[10] An earlier popular nautical scene was this American painter’s *Watson and the Shark*, in which the title animal is poised to eat a drowning man.

ANSWER: John Singleton **Copley**

11. He was nominated by a divided Republican Party on the thirty-sixth ballot yet still went on to defeat Winfield Scott Hancock in the Election of 1880. For 10 points each:

[10] Name this American president, who was succeeded by Chester A. Arthur upon his assassination in July of 1881.

ANSWER: James Abram **Garfield**

[10] Garfield's assassin was this man, a deranged lawyer who was irate over the president's unwillingness to grant him a diplomatic position to Europe.

ANSWER: Charles Julius **Guiteau**

[10] Garfield's presidential term was dominated by feuding with Senator Roscoe Conkling, who was the leader of this Republican faction. They were united by their opposition to James Blaine.

ANSWER: **Stalwarts**

12. It's often named for Bethe and Weizsäcker. For 10 points each:

[10] Identify this cycle whose net result is the conversion of hydrogen into helium, using three heavier elements as intermediaries.

ANSWER: **CNO** cycle

[10] The CNO cycle is one example of this process in which nuclei are brought together and merge, contrasted with fission.

ANSWER: **fusion**

[10] The heat generated by fusion maintains this kind of equilibrium in a star in which a pressure gradient balances gravitational compression.

ANSWER: **hydrostatic** equilibrium

13. In one of his works, Cupid denounces this author for having made disparaging remarks about womankind, prompting him to write *The Legend of Good Women*. For 10 points each:

[10] Name this author of *The Book of the Duchess* and a 1380s work about a daughter of Calchas who leaves her lover for Diomedes, *Troilus and Criseyde*.

ANSWER: Geoffrey **Chaucer**

[10] Chaucer wrote this collection in which Harry Bailey's Tabard Inn hosts characters such as the Nun's Priest and the Knight, all of whom tell stories.

ANSWER: *The* **Canterbury Tales**

[10] This man tells of Alisoun, who has an affair with Nicholas but is wooed by Absolon, who thinks he's kissing Alisoun's cheek when he actually kisses Nicholas' behind out of a window.

ANSWER: the **Miller**

14. He fathered Hel and Jormungand along with Angrboda. For 10 points each:

[10] Name this mischievous Norse god whose jealousy led to the death of Balder.

ANSWER: **Loki**

[10] Loki turned into a stallion and slept with Svadilfari to produce this eight-legged horse that is ridden by Odin.

ANSWER: **Sleipnir**

[10] At Ragnarok, Loki will slay this guardian of Bifrost, whose hearing is so sharp that he can hear grass grow.

ANSWER: **Heimdallr**

15. Name these orchestra conductors for 10 points each.

[10] This man conducted two performances of Beethoven's ninth in Berlin to commemorate the tearing down of the Wall. He also composed the musicals *Candide* and *West Side Story*.

ANSWER: Leonard **Bernstein**

[10] This Italian refused to conduct the Fascist anthem "Giovinezza" while at La Scala. He conducted the NBC Symphony Orchestra from 1937 to 1954.

ANSWER: Arturo **Toscanini**

[10] This Finnish conductor is currently the music director of the Los Angeles Philharmonic, although he will be succeeded by Gustavo Dudamel in the 2009-2010 season.

ANSWER: Esa-Pekka **Salonen**

16. The Kapp Putsch attempted to overthrow this government. For 10 points each:

[10] Name this German government of 1919-1933.

ANSWER: **Weimar** Republic

[10] This victorious commander at the Battle of Tannenberg served as the second and final president of the Weimar Republic. He failed to prevent Hitler's rise to power.

ANSWER: Paul von **Hindenburg**

[10] This member of the Catholic Center Party was appointed chancellor in 1932. He lifted the ban on the SA and made a bargain that resulted in Hitler being named chancellor the next year.

ANSWER: Franz von **Papen**

17. For 10 points each, answer the follow questions related to charged species.

[10] These charged species include the oxyanions chlorate and chlorite, as well as cyanide, hydroxide, and acetate. They often consist of an oxidized non-metal bearing a charge.

ANSWER: **polyatomic ion**

[10] These other charged species form during SN1 and E1 reactions and consist of a carbon atom bonded to three other atoms and bearing a positive charge.

ANSWER: **carbocations**

[10] Carbocations can be attacked by this other class of compounds. They are characterized by the presence of a lone pair of electrons, are often charged, and react with electrophiles.

ANSWER: **nucleophiles**

18. This work ends with Bocklin's *Isle of the Dead* emerging from the set. For 10 points each:

[10] Name this play in which an old man named Jacob Hummel weirdly interacts with the student Arkenholz and a colonel married to a mummy kept in a closet.

ANSWER: *The **Ghost Sonata*** [or **Spoksonaten**; accept equivalents like **Spook Sonata**]

[10] This author wrote of Arvid Falk in *The Red Room* and of a suicidal lover of the valet Jean in *Miss Julie* in addition to penning *Ghost Sonata*.

ANSWER: Johan August **Strindberg**

[10] Strindberg hails from this country, also the home of Par Lagerkvist and Salma Lagerlof.

ANSWER: Kingdom of **Sweden**

19. It commemorates a day's worth of oil that miraculously burned in the Temple of Jerusalem for eight days, as described in the Book of Maccabee. For 10 points each:
[10] Name this Jewish holiday that typically falls in mid-December and that features the ceremonial lighting of a menorah.

ANSWER: **Hanukkah** [or **Festival of Lights**]

[10] This Jewish holiday falls ten days after Rosh Hashanah and once involved the sacrifice of a scapegoat. It is also known as the Day of Atonement.

ANSWER: **Yom Kippur**

[10] This holiday falls approximately a week after Yom Kippur. Also known as the Feast of Booths, it commemorates the wandering of the Israelites following the Exodus.

ANSWER: **Sukkot**

20. She depicted an unhappy academic in *The Professor's House*, and Thea Kronborg becomes a soprano at the Met in her novel *The Song of the Lark*. For 10 points each:

[10] Name this female author whose novel *My Antonia* is set in Nebraska.

ANSWER: Willa **Cather**

[10] The main characters of this New Mexico-set Willa Cather novel are Bishop Jean Latour and Father Joseph Vaillant, who attempt to organize a new Catholic diocese.

ANSWER: ***Death Comes for the Archbishop***

[10] The title of this Cather novel is taken from a Whitman poem. It centers on Alexandra Bergson, who promises to aid Frank Shabata and eventually marries Carl Linstrum.

ANSWER: ***O Pioneers!***

21. The Gosudarstvennaya version of this legislative body was established following the 1905 Revolution. For 10 points each:

[10] Name this Russian legislative body that included among its members Aleksandr Kerensky, the head of Russia's provisional government from July to October of 1917.

ANSWER: **Duma**

[10] The Duma was established by this document issued following the 1905 revolution. Put forth on the advice of the tsar's advisor Sergey Witte, this document also provided for greater civil liberties and broader franchise for the Russian people.

ANSWER: **October** Manifesto

[10] This tsar put forth the October Manifesto. He and his family were later executed by the Bolsheviks, and his other advisors included Rasputin and Pyotr Stolypin.

ANSWER: **Nicholas II**

22. Multiplication of these objects is not commutative and is only defined if the width of the first object equals the height of the second object. For 10 points each:
[10] Name these two-dimensional arrays of numbers, which are often used to represent systems of equations.

ANSWER: **matrices** [or **matrix**]

[10] In order to solve a system of equations, row operations are performed until a matrix is in reduced row echelon form. That elimination method is named for Gauss and this man.

ANSWER: Wilhelm **Jordan** [or Gauss-**Jordan** elimination]

[10] A matrix has an inverse if and only if it has a nonzero one of these. For a 2-by-2 matrix, it equals the product of the main diagonal entries minus the product of the minor diagonal entries.

ANSWER: **determinant**

23. This work drew its inspiration from a discussion between Dante and the titular figure in book 26 of the *Inferno* where it is revealed that he left Ithaca due to boredom. For 10 points each:

[10] Name this Tennyson poem that consists of a dramatic monologue in which the title character transfers power to his son Telemachus before setting off for “the Happy Isles.”

ANSWER: “**Ulysses**”

[10] Tennyson claims that “Theirs is not to make reply/ Theirs is not to reason why/ Theirs is but to do and die” in this poem, which recounts the actions of the British cavalry at Balaclava.

ANSWER: “**Charge of the Light Brigade**”

[10] Tennyson based this other poem on a scene from the *Odyssey*. The titular individuals with “mild-eyed melancholy” tempt Odysseus’ men with flower and fruit, causing them to fall into a drugged state.

ANSWER: “**The Lotus-Eaters**”