



HSAPQ

High School Academic Pyramid Questions

Fall 2008
ACF-Format Set #1

Round 14

Tossups

1. This band covered John Lennon's "Working Class Hero" for the compilation *Instant Karma: Campaign to Save Darfur*. One of its current members left The Lookouts to join this band after its original drummer, Joe Kriftmeyer, quit. Their first major-label album, *Dookie*, contains songs such as "Basket Case" and "Welcome to Paradise," and their most recent album describes St. Jimmy and Jesus of Suburbia. For 10 points, identify this band consisting of Mike Dirnt, Tre Cool, and Billie Joe Armstrong, whose songs include "Boulevard of Broken Dreams."

ANSWER: **Green Day**

2. One type of these is connected in reverse bias and conducts current above a certain breakdown point into the ground. In an ideal one of these, the current in terms of the voltage across them can be found using the Shockley equation. Besides the avalanche and Zener types, another kind can be used as capacitors whose capacitance depends on voltage, which are called varactors. For 10 points, name these two-electrode devices which traditionally only admit current in one direction, best known for a light-emitting variety.

ANSWER: **diode**

3. The family curse of his mother Agariste was used against him by his enemies, and he unsuccessfully prosecuted Cimon for failing to conquer Macedonia. He led the campaign to expel barbarians from Gallipoli, and he was a pupil of Anaxagoras. He oversaw the moving of the Delian League to Athens, and his famous funeral oration may have been written by his mistress Aspasia. For 10 points, name this Athenian statesman of the fifth century BCE who oversaw the construction of the Acropolis.

ANSWER: **Pericles**

4. In this novel, Roth's fall to his death causes Red Valsen to refuse to continue climbing Mount Anoka. Another character is humiliated when he is forced to pick up a discarded cigarette from the floor by General Cummings. That character, Robert Hearn, is killed after unwittingly walking into an enemy trap when Sam Croft lies about Martinez' scouting report to regain command of the platoon on Anopopei. For 10 points, name this novel about an invasion of a fictional Pacific island, written by Norman Mailer.

ANSWER: **The Naked and the Dead**

5. One problem associated with this technique is known as tailing, but can be avoided by increasing the polarity of the solvent. The flash type of this technique uses air pressure, and the most common variety usually begins with spotting and is used to calculate the retardation factor, or the R-sub-f value. In general, this technique uses two phases, one of which is stationary and the other moving, in order to separate components of a mixture. For 10 points, name this laboratory technique, types of which include column and thin-layer.

ANSWER: **chromatography**

6. Due to a tryst with the Oceanid Philyra, this figure was the father of the wise centaur Chiron, and he eventually became the ruler of the Islands of the Blest. In conspiracy with this god, Gaia commissioned the Telchines to make an adamantine sickle, which he used to castrate his father. He was made to vomit up Hestia, Demeter, and Hades, among others, after the substitution of a stone thwarted his plan to eat all of his children. For 10 points, name this husband of Rhea and leader of the Titans, whose rule was overthrown by the Olympian gods led by his son Zeus.

ANSWER: **Cronos**

7. This man revolted against the mismanagement of Colonel George Crook, and he joined the Dutch Reformed Church in an attempt to “take the white man’s road” but was expelled for gambling. Previously placed on a reservation known as “Hell’s Forty Acres,” and he surrendered at the Skeleton Canyon conference to General Nelson Miles under the condition that he be allowed to return to Arizona, but that promise was not kept. For 10 points, name this leader of the Chiricahua Apache whose name has become associated with parachuting.

ANSWER: **Geronimo** [or **Goyathlay**]

8. This man supplemented his income by teaching the piano, inventing a method that emphasized the freedom to flex the wrist and arm. His second piano sonata contains a passage known as his “Funeral March,” and he created his *Fantaisie-Improptu* three years after settling in Paris. He commented on the politics of his native country with the “Revolutionary Etude.” For 10 points, name this composer of a piece designed to be “small” rather than performed in a short amount of time, the “Minute Waltz,” whose mazurkas and polonaises honored his Polish homeland.

ANSWER: Frédéric François **Chopin** [or Fryderyk Franciszek **Szopen**]

9. This city’s suburbs include Southaven, Collierville, Olive Branch, and Horn Lake. It is the home of the Stax Records museum, and The Pyramid was once this city’s premier sports venue. This city is located on the Chickasaw Bluffs and serves as the seat of Shelby County. Located along the Mississippi River, its metro area spans three states, including Arkansas and Mississippi. For 10 points, name this largest city of Tennessee, named for an ancient capital of Egypt.

ANSWER: **Memphis**

10. Hilda Wangel is the title character of an Ibsen play titled “The Lady from” this location, while Maurya and her children find out Michael has perished in a John Millington Synge work about “Riders to” this place. “The Alph” runs down to a “sunless” one in “Kubla Khan.” Maud Brewster and Humphrey van Weyden are main characters in a novel about this type of “wolf.” The favorite hangout of Manolin and a DiMaggio fan, Santiago, for 10 points, name this entity, paired with an “Old Man” in a book by Ernest Hemingway.

ANSWER: the **sea** [exact word required; accept *The **Lady from the Sea*** before “Maurya” is read]

11. This religion’s prayers are called “ardas”, and its practitioners are required to have a positive attitude called “Chardi Kalah.” A khanda is used to stir the amrit that is consumed during initiation into this religion and its members wear a kangha in their keshha and carry a ceremonial dagger called the kirpan, which are a part of the Five Ks. This religion’s sacred text is called the Adi Granth, and is regarded as its current Guru after the death of Guru Gobind Singh. For 10 points, identify this religion, which was founded in the Punjab by Guru Nanak.

ANSWER: **Sikhism**

12. One of his early paintings is a self-portrait depicting himself smoking a pipe. He became notorious for erotic works like *Nude Reclining Woman* and *The Origin of the World*. He sits in front of a nude woman in his painting of his studio, which depicts admirers like George Sand and Charles Baudelaire, and another of his paintings depicts four men carrying a coffin draped with a sheet while a priest officiates at a funeral. For 10 points, name this French realist painter of *The Stone Breakers* and *Burial at Ornans*.

ANSWER: Jean Désiré Gustave **Courbet**

13. Gnaeus Julius Agricola defeated the natives here at Mons Graupius in 84 CE, and the Beaker Folk migrated here around 1800 BCE. Somerled led a revolt against the Norse here, and the 1320 Declaration of Arbroath committed nobles to its independence. This region's King Aidan was supported by St. Columba, who converted its population, and its king was captured at the 1341 Battle of Neville's Cross. In 843, this region's King Kenneth I became the king of the Picts, and King David I united it in 1124. For 10 points, name this polity, the home to Robert the Bruce.

ANSWER: **Scotland**

14. A being able to perceive which particles are moving quickly and which are moving slowly would be able to open and close a gate in violation of this principle, but such a being would need to expend a great deal of energy to operate. The integral of dQ over T is set equal to the opposite of E in one formation of this principle. It cannot be violated by that demon, since the demon would eventually have to erase information, which irreversibly decreases information entropy. For 10 points, identify this basic thermodynamic principle, stating that entropy tends to increase.

ANSWER: **second law of thermodynamics** [accept slight variations in phrasing; accept **Maxwell's demon** before "this principle" is read]

15. He wrote about Colonel Burmin, who loves Marya, in "The Blizzard," while he wrote about the Cossack rebel Pougachev and Piotr Grineff 's love for Maria Ivanovna in his short story "The Captain's Daughter." He wrote about Parasha and her lover Evgeny, who is chased by a statue of Peter the Great, in "The Bronze Horseman." His title characters include the father of Feodor, who plans to kill Dmitri and becomes Tsar, and a man who duels with Vladimir Lensky and loves Tatyana. For 10 points, name this Russian poet of *Boris Gudonov* and *Eugene Onegin*.

ANSWER: Alexander **Pushkin**

16. The tallest building in this city has three chevrons in a hexagonal logo built on its roof and is called Tower 42. A seventy-two story building resembling a shard of glass is approved for construction in this city, which also contains the gherkin-shaped Swiss Re Building. This city has notable Georgian houses, and contains a column topped by a statue of Lord Nelson in Trafalgar Square. For 10 points, identify this city, which has many buildings designed by Christopher Wren, in addition to Big Ben and a notable Tower.

ANSWER: **London**

17. This country's president Hilla Limann was overthrown in a 1981 military coup by Jerry Rawlings. An empire centered in this country's city of Kumasi was founded by Osei Tutu and based on allegiance to the Golden Stool. It first gained independence with the support of the Convention People's Party in 1957, making it the first African country to become independent from England. For 10 points, name this country whose first president was Kwame Nkrumah, once known as the Gold Coast.

ANSWER: **Ghana** [prompt on **Gold Coast** before it is read]

18. The demerit type of this concept produces a negative externality, while the private type has the characteristics of excludability and rivalry. The substitute type of this concept can decrease demand for other types of this, while the complement will increase demand. The ordinary type of this sees demand decrease with price, while the Veblen type of this is one for which price rises along with demand. Consumption of the public type of these does not decrease the supply. For 10 points, identify this economic concept, which refers to any item that producers produce.

ANSWER: goods

19. It was elucidated at Berkeley by exposing *Chlorella pyrenoidosa* to a radioactive substance and killing its cells with boiling methanol. Noted for using sedheptulose-1,7-bisphosphate phosphatase, this process uses five molecules of glyceraldehyde 3-phosphate to regenerate the starting material. This process occurs in the stroma of chloroplasts, and is associated with the most abundant protein on Earth, rubisco. For 10 points, name this eponymous cycle that is part of the light independent reactions of photosynthesis.

ANSWER: Calvin-Benson cycle

20. This man wrote about an event that happened "while birds of calm sit brooding on the charmed wave" in his poem "On the Morning of Christ's Nativity." He wrote a masque where the Lady is assaulted by the offspring of Bacchus and Circe, *Comus*, and the companion poems "L'Allegro" and "Il Penseroso." The drowning death of Edward King is remembered in this man's elegy "Lycidas," and he concluded "they also serve who only stand and wait" in his sonnet "When I Consider How My Light is Spent," which refers to his own blindness. For 10 points, name this Briton, whose longest poem was *Paradise Lost*.

ANSWER: John Milton

21. For a symmetric group of degree n , this function gives the order of the permutation group, and the Pochhammer symbol is a rising type of this function. The Taylor approximation for e^x contains this function in the denominator of each term. One approximation of it often used to calculate entropy is named after Stirling, while it can be generalized to complex numbers using the gamma function. For 10 points, identify this function which for a natural number n gives the product of all natural numbers from 1 to n and is represented by an exclamation mark.

ANSWER: factorial

22. Two of the intended victims of this novel's title character, Mrs. Maylie and Mr. Brownlow, end up taking him in. He briefly finds work at the same workhouse that killed his mother, but he soon is employed by the undertaker Mr. Sowerbury. In this novel, Nancy is abused by the criminal Bill Sikes, and the title character joins a gang of pickpockets led by Fagin and the Artful Dodger. For 10 points, name this Charles Dickens novel about an orphan who leaves Mr. Bumble's orphanage after impertinently asking, "please, sir, I want some more."

ANSWER: Oliver Twist



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Bonuses

1. Identify the following about the United States' involvement in Latin America in the 19th century, for 10 points each.

[10] This future president drew up the Ostend Manifesto in 1854, which discussed buying Cuba from Spain. He was later known for doing absolutely nothing on the eve of the Civil War.

ANSWER: James **Buchanan**

[10] This 1850 treaty stated that neither the U.S. or Britain would gain exclusive control over a potential canal through South America. It was abrogated by the Hay-Pauncefote Treaty of 1901.

ANSWER: **Clayton-Bulwer** treaty

[10] The United States gained Nevada, New Mexico, Utah, Texas, part of Colorado, Arizona, and California in this 1848 treaty that ended the Mexican War.

ANSWER: Treaty of **Guadalupe-Hidalgo**

2. This character works in a gang led by Tyurin as he serves a ten-year sentence for having contact with the West in a German POW camp. For 10 points each:

[10] Name this prisoner, the subject of a 1962 novel showing "one day in" his life.

ANSWER: **Ivan** Denisovich [or Ivan Denisovich **Shukov**]

[10] *One Day in the Life of Ivan Denisovich* was written by this author of *We Never Make Mistakes* and *Cancer Ward*, who was exiled from the Soviet Union for his dissident writings.

ANSWER: Aleksandr Isayevich **Solzhenitsyn**

[10] This multivolume Solzhenitsyn work on the Soviet political imprisonment system describes the confinement of the *zeks* within the title geographic metaphor.

ANSWER *The* **Gulag Archipelago** [or **Arkhipelag GULag**]

3. The lambda bacteriophage infects this organism. For 10 points each:

[10] Identify this bacterial species, commonly found in the gut, whose O157:H7 strain is virulent.

ANSWER: **Escherichia coli**

[10] *E. coli* contains this specific genetic structure that allows it to metabolize a namesake five carbon sugar. It contains three structural genes, a promoter, an operator, and a terminator.

ANSWER: **lac operon** [prompt on partial answer]

[10] This frequently used model organism has about 2000 genes which are found in operons. This nematode is also widely used to study RNA interference.

ANSWER: **Caenorhabditis elegans**

4. Identify these economists, for 10 points each.

[10] This economist wrote a *Theory of Moral Sentiments*, but may be better known for proposing the invisible hand in *The Wealth of Nations*.

ANSWER: Adam **Smith**

[10] This economist developed the ideas of the alienation of the working class and the fetishism of commodities. He predicted that capitalism would be overthrown by a dictatorship of the proletariat.

ANSWER: Karl **Marx**

[10] This economist loved entrepreneurs, developed the concept of creative destruction, and wrote *Capitalism, Socialism, and Democracy*.

ANSWER: Joseph **Schumpeter**

5. Identify the following people from Japanese history, for 10 points each.

[10] In 1600, this man defeated the forces of Ishida Mitsunari at the battle of Sekigahara and established a namesake shogunate.

ANSWER: Tokugawa Ieyasu [accept either or both names]

[10] This man became emperor in 1868 in his namesake restoration. His reign saw the adoption of the Charter Oath of Five Principles and the growth of Japan into a modern power.

ANSWER: **Meiji** [or **Mutsuhito**]

[10] This member of the Fujiwara clan attempted to unify Japan and overthrew the Ashikaga shogunate. Tokugawa Ieyasu and Toyotomi Hideyoshi were followers of this man.

ANSWER: Oda Nobunaga [accept either or both names]

6. Three arches appear in this painting's background. For 10 points each:

[10] Name this painting whose title figures reach out to take swords from their father in order to fight a group from Alba Longa.

ANSWER: *The **Oath of the Horatii***

[10] This neoclassical artist of *The Intervention of the Sabine Women* and *The Death of Marat* painted *The Oath of the Horatii*.

ANSWER: Jacques-Louis **David**

[10] In this David painting, the title figure's disciples grieve around him. He points skyward while holding a cup of hemlock.

ANSWER: *The **Death of Socrates***

7. Answer the following about authors from non-Western countries who won Nobel Prizes in Literature, for 10 points each:

[10] Orhan Pamuk, the winner of the 2007 Nobel Prize, violated Article 301 of Turkey's constitution for stating that this crime against humanity occurred.

ANSWER: the **Armenian genocide** [or very similar equivalents; or **Medz Yeghern**]

[10] Naguib Mahfouz, a writer from this country, won the prize in 1988. Several centuries earlier, embalmers from this country consulted the *Book of the Dead* for proper mummification.

ANSWER: **Egypt**

[10] This first non-Western Nobel Laureate for literature won for his collection of "song offerings," *Gitanjali*. He also wrote national anthems for India and Bangladesh.

ANSWER: Rabindranath **Tagore** [prompt on **Gurudev**]

8. An example of one in the Haber process is iron. For 10 points each:

[10] Name these substances that speed up a chemical reaction and are known as enzymes in biology.

ANSWER: **catalysts**

[10] Enzymes are often described via this hypothesis that has replaced the lock-and-key mechanism. It states that enzymes go through a minor conformational change prior to accepting a substrate.

ANSWER: **induced-fit** hypothesis

[10] In this type of inhibition, molecules have shapes that are similar enough to that of a substrate that they can challenge for the active site.

ANSWER: **competitive** inhibition

9. The signing of this document followed the disastrous Battle of Bouvines. For 10 points each:

[10] Name this 1215 document signed at Runnymede by King John.

ANSWER: **Magna Carta** Libertatum [or **Great Charter** of Freedoms, or **Great Paper** of Freedoms]

[10] King John made the controversial appointment of Hubert Walter to this position. Other notable men to serve this position include William Laud and Thomas Cranmer.

ANSWER: **Archbishop of Canterbury** [prompt on partial answer]

[10] King John was excommunicated in 1209, and Pope Innocent III also placed England under this type of sanction, in which no public church ceremonies may take place.

ANSWER: **interdict**

10. This leader is stepping down because of connections to a 1999 arms deal. For 10 points each:

[10] Identify this leader of South Africa, who was said to deal unfairly with Jacob Zuma.

ANSWER: Thabo **Mbeki**

[10] Jacob Zuma is the President of this political party, which holds the great majority of political power in South Africa.

ANSWER: **ANC** [or **African National Congress**]

[10] One of Thabo Mbeki's more interesting positions was that this disease is the result of retroviral poisoning by white pharmaceutical companies, instead of the HIV virus.

ANSWER: **AIDS** [or **Acquired Immuno-Deficiency Syndrome**]

11. No extant works have been authoritatively attributed to this son of Charmides (KAR-mih-deez). For 10 points each:

[10] Name this ancient Greek sculptor of the Athena Parthenos on the Acropolis and the humongous seated Zeus of Olympia.

ANSWER: **Phidias**

[10] The ancient Greek sculptor Praxiteles sculpted this God as "Sauraktonos," or a lizard-killer. A Roman copy of a Leochares sculpture is known as the "Belvedere" version of this god.

ANSWER: **Apollo**

[10] The Greek sculptor Myron is best-known for sculpting a nude athlete throwing one of these objects.

ANSWER: a **discus**

12. It can be described by the differential equation $x'' + \omega^2 x = 0$.
For 10 points each:

[10] Identify this type of motion where acceleration is proportional to displacement, that is followed by all objects obeying Hooke's Law.

ANSWER: **simple harmonic motion** [or **shm**; prompt on partial answer]

[10] When a spring or pendulum encounters friction or air resistance, and thus loses energy over time, it is known as this kind of harmonic oscillator.

ANSWER: **damped** harmonic oscillator

[10] This type of damping results in an asymptotic decay of motion. It occurs when $\beta^2 - 4\omega^2 < 0$.

ANSWER: **critical** damping

13. Name these mythological figures who enjoyed the rare privilege of returning from the underworld, for 10 points each.

[10] This slayer of the pugilistic king Amycus swaps places with his brother Castor every day, splitting his time between Hades and Olympus.

ANSWER: **Pollux** [or **Polydeuces**]

[10] This daughter of Demeter was kidnapped by Hades and made the mistake of eating a pomegranate, which means she has to spend four months of each year in the underworld.

ANSWER: **Persephone** [or **Kore**]

[10] This fertility goddess steadily removed her clothing while trying to retrieve her lover Tammuz from the Sumerian underworld, but came back empty-handed.

ANSWER: **Ishtar**

14. Name these works of Stephen Crane, for 10 points each.

[10] This novel's title "girl of the streets" is ejected from her home after being seduced by Pete and is killed by a man with a pink face, leading her mother Mary to cry over her baby shoes.

ANSWER: **Maggie: A Girl of the Streets**

[10] The "Tattered Man" and Henry Fleming see Jim Conklin die during the Battle of Chancellorsville in this Civil War novel by Crane.

ANSWER: **The Red Badge of Courage**

[10] In this short story, the cowboy Bill and a small, knife-wielding gambler cause the death of an enormous Swede following a card game at the title establishment, owned by Pat Scully.

ANSWER: "The **Blue Hotel**"

15. Identify the following people involved in the Protestant Reformation, for 10 points each.

[10] This Swiss reformer began the Swiss Reformation with his 1519 lectures on the New Testament. His *Architeles* argued against the control of Rome, and he wrote 67 theses.

ANSWER: Huldreich **Zwingli**

[10] The Reformation was preceded by this Czech reformer, who preached against indulgences and was executed in 1415 by the Council of Constance.

ANSWER: John **Hus** [or Jan **Hus**]

[10] This author of the *First Blast of the Trumpet against the Monstrous Regiment of Women* also wrote *A History of the Reformation in Scotland*, an event for which he was responsible.

ANSWER: John **Knox**

16. Chemistry is lots of fun when you double up. For 10 points each:

[10] This is the term for an organic compound with two hydroxyl groups. They are called Geminal when the two hydroxyl groups are located on the same carbon

ANSWER: **diol**

[10] Naphthalene consists of two fused rings of this simplest aromatic compound, with formula C₆H₆, whose other derivatives include phenol and toluene.

ANSWER: **benzene**

[10] Dienes, molecules with two double bonds, often react with these compounds to form cyclohexadienes. These organic compounds consist of one triple bond.

ANSWER: **alkynes**

17. East of this country's Southern Alps are the Canterbury Plains, and it also includes the Tasman and Fox Glaciers. For 10 points each:

[10] Name this country, mostly composed of North and South Islands.

ANSWER: **New Zealand**

[10] Both New Zealand's highest mountain and the strait separating North and South Islands are named after this explorer.

ANSWER: James **Cook**

[10] This capital of New Zealand is the southernmost national capital in the world.

ANSWER: **Wellington**

18. Along with the mystery plays and the miracle plays, this genre made up the popular theater of the Middle Ages. For 10 points each:

[10] *The Castle of Perseverance* and *The Miraculous Apple Tree* are examples of what vernacular dramas, which showed generic figures struggling with temptation?

ANSWER: **morality plays**

[10] Abandoned by the Five Wits, the title character of this English morality play gets varying degrees of help from Good Deeds, Confession, and Knowledge in a journey to be judged.

ANSWER: **Everyman**

[10] *Everyman* was originally translated from this language, the original tongue used by such figures as Multatuli and Anne Frank.

ANSWER: **Dutch**

19. Willard van Orman Quine wrote about "two dogmas" of this philosophy, which counted such British adherents as David Hume. For 10 points each:

[10] Name this philosophical approach, which claims that all knowledge must be derived from sensory experience.

ANSWER: **empiricism**

[10] A major empiricist text is the *Essay Concerning Human Understanding* by this philosopher, who greatly influenced the U.S. Constitution with his *Second Treatise on Government*.

ANSWER: John **Locke**

[10] This Irish bishop and empiricist claimed that objects which are not being perceived by a human do not actually exist in his *Treatise Concerning the Principles of Human Knowledge*.

ANSWER: George **Berkeley**

20. He composed "Golliwog's Cakewalk" as part of his *Children's Corner* suite. For 10 points each:
[10] Name this French composer who used a flute glissando to begin his *Prelude to the Afternoon of a Faun*.

ANSWER: Achille-Claude **Debussy**

[10] This 3-part symphonic poem by Debussy includes a section entitled "Jeux de Vagues," or "Play of the Waves."

ANSWER: *La Mer*

[10] Debussy's two books of these include "The Girl With the Flaxen Hair" and "The Sunken Cathedral." Both books of *The Well-Tempered Clavier* include 24 ones paired with fugues.

ANSWER: **preludes**

21. The speaker sees a "golden" "host" of ten thousand of these items, which causes his heart to dance. For 10 points each:

[10] Name these title flowers of an 1804 poem which begins with the speaker wandering "lonely as a cloud."

ANSWER: "**Daffodils**"

[10] This author of *Tintern Abbey*, "We Are Seven," and *The Prelude*, who collaborated with fellow Romantic Samuel Taylor Coleridge on *Lyrical Ballads*, wrote "Daffodils."

ANSWER: William **Wordsworth**

[10] Wordsworth wrote five poems known for this feminine name, including "A Slumber Did My Spirit Seal" and "Strange Fits of Passion Have I Known."

ANSWER: the **Lucy** poems

22. Name these chemical elements, for 10 points each.

[10] Most automobile airbags are inflated with the gaseous form of this element, which is triple bonded to carbon in cyanide.

ANSWER: **nitrogen**

[10] This alkaline earth element is responsible for the red color of fireworks, and is found above barium on the periodic table.

ANSWER: **strontium**

[10] Its tetroxide is capable of oxidizing alkenes to ketones. Known for its pungent odor, this transition element is one of the densest elements, along with its neighbor iridium.

ANSWER: **osmium**