



# HSAPQ

## High School Academic Pyramid Questions

2008-2009  
NSC-Format Set #2

Round 2

Related Tossups &  
Bonuses

1. The optimal velocity for running this technique can be found using the van Deemter equation, and certain values for it can be found using the Kovats index. One useful value for this technique, the retardation factor, can be found by taking the ratio of two migratory distances. In the “gas” type of it, an inert gas like helium is often used as the mobile phase, which along with the stationary phase is used in this technique to separate components of a mixture. For 10 points, name this technique with column and thin-layer varieties.

ANSWER: chromatography

Bonus: These diagrams graph pressure versus temperature, and can be used to determine the temperature and pressure at which processes such as sublimation and condensation occur. For 10 points each:

[10] Name these diagrams that consist of a series of curves that meet at a triple point; at that point, equilibrium between three different states occurs.

ANSWER: phase diagram

[10] At this point on a phase diagram, the density of the liquid and gas phases becomes equal, making the two phases identical.

ANSWER: critical point

2. In some stories, this god kicks Littur onto the funeral pyre of Baldur. This god protects his daughter from having to marry Alvis by asking Alvis questions until sunrise, at which point he is turned to stone. His possessions include a chariot pulled by goats, as well as a belt and special gloves. While visiting Utgard-Loki, this god fails to pick up a cat, which is later revealed to be his nemesis, Jormungand. The sons of Ivaldi made this husband of Sif a tool he uses to slay many giants, Mjollnir the hammer. For 10 points, name this Norse god of thunder.

ANSWER: Thor [or Donar]

Bonus: This building is next door to the tree of Lared, and on top of it you can find Eikthrynir the deer and Heidrun the goat. For 10 points each:

[10] Name this hall from Norse mythology, where the Einherjar feast every night until they are called to battle at Ragnarok.

ANSWER: Valhalla

[10] When they are not out choosing which warriors die in battle and bringing them to Valhalla, these female figures serve as barmaids in Valhalla.

ANSWER: valkyries

3. Military victories of this ruler include General Bibikov's defeat of rebels at Tatishchevo, and a victory at the Battle of Cheshme led to the signing of the Treaty of Kuchuk Kainarji. This ruler exiled A.N. Radishchev, and put Stanislaw Poniatowski on a neighboring throne. Better known for defeating Pugachov's rebellion and annexing the Crimea, this ruler came to power after Orlov succeeded in a coup against Peter III. For 10 points, name this ruler of Russia from 1762 to 1796.

ANSWER: Catherine the Great [or Catherine II; or Yekaterina Velikaya; prompt on Catherine]

Bonus: He took over in Spain after his father abdicated to join a monastery; his uncle Ferdinand took that father's throne as Holy Roman Emperor. For 10 points each.

[10] Name this king of Spain who signed the Treaty of Cateau-Cambresis in 1559, ending war with France, and built the Escorial.

ANSWER: Philip II [or Felipe II; prompt on Philip]

[10] Philip II received Naples and Sicily upon marrying this English queen; after she died, he was far less successful in wooing her half-sister Elizabeth.

ANSWER: Mary I [or Mary Tudor; or Bloody Mary]

4. Several years after the Paris Salon rejected this artist's painting *At the Piano*, he began using a butterfly monogram. This artist's painting *The Princess from the Land of Porcelain* was included in a work commissioned by his patron Frederick Leyland and now found in the Freer Gallery, his *Peacock Room*. One of his works, a depiction of Cremorne Gardens, instigated a lawsuit by John Ruskin; that work was his *Nocturne in Black and Gold: The Falling Rocket*. For 10 points, name this artist whose *Arrangement in Grey and Black No. 1* was a portrait of his mother.

ANSWER: James Abbott McNeill Whistler

Bonus: This painting depicts a plowman in red undersleeves facing away from the viewer. For 10 points each:

[10] Name this painting in which the title character plummets into the ocean with a splash in the lower right-hand corner.

ANSWER: Landscape with the Fall of Icarus

[10] *Landscape with the Fall of Icarus* is generally attributed to this Dutch artist of *The Triumph of Death*, *Hunters in the Snow*, and *Peasant Wedding*.

ANSWER: Pieter Breughel the Elder [or Peasant Breughel; prompt on Breughel; do not accept any other "Breughels"]

5. This politician first assumed party leadership by defeating William Whitelaw, having gained fame as Secretary of State for Education and Science under Edward Heath. Following the "Winter of Discontent," this individual defeated Labour leader James Callaghan. Although widely praised in the wake of the Falklands War, a 1989 poll tax was so unpopular that she was replaced as Conservative Party leader by John Major. For 10 points, name this "Iron Lady," the first female prime minister of Great Britain.

ANSWER: Margaret Thatcher, Baroness of Kesteven

Bonus: According to legend, news of this Greek victory came to Athens with the runner Pheidippides. For 10 points each:

[10] Name this 490 BC Greek victory in the Persian Wars, which took place about twenty-six miles from Athens.

ANSWER: Battle of **Marathon**

[10] The victorious Athenian commander at the Battle of Marathon was this general, the father of Cimon.

ANSWER: **Miltiades** the Younger

6. This object can form a tuya when it is found underneath a glacier. The “cryo” type of this object is most famously found on the largest moon of Neptune, Triton. Lake Toba in Sumatra was created by the “super” kind of this object, one of which can also be found in Yellowstone National Park. This object can produce a pyroclastic flow, as well as a’a, pahoehoe, basalt, pumice, and igneous rock. For 10 points, name this object that expels lava, examples of which include Vesuvius and Mount St. Helens.

ANSWER: **volcanoes**

Bonus: This diagram explains why certain minerals form near other minerals. For 10 points each:

[10] Name this tuning fork-shaped diagram with quartz at its bottom. It has a continuous and a discontinuous branch.

ANSWER: **Bowen’s** Reaction Series [accept **Bowen’s** Diagram, etc.]

[10] The continuous branch of the Bowen’s series ranges from sodium- to calcium rich varieties of this type of feldspar, often contrasted with orthoclase.

ANSWER: **plagioclase** feldspar

7. Polish scholars in this field include Maria Czaplicka (chap-litch-ka), who wrote two books about Siberians. An important work in this field was named for the Andaman Islands and written by Alfred Radcliffe-Brown. Major schools of thought in this field include Structural Functionalism, developed by Bronislaw Malinowski, who studied the Kula Ring, and another led by Franz Boas, who studied potlatch among Pacific Indians. For 10 points, name this field of social science, whose name translates as “the study of man.”

ANSWER: **anthropology**

Bonus: The text of this amendment includes a mysterious comma splice, and there is a dispute over whether it creates a collective or individual right. For 10 points each:

[10] Name this amendment to the Constitution that addresses bearing and having arms.

ANSWER: **second** amendment

[10] In this 2008 case, the Supreme Court ruled that the Second Amendment created an individual right to have guns in one’s house for self-defense.

ANSWER: **Heller** v. District of Columbia

8. In one of this man's stories, Mr. Bons travels to Heaven with Dante, who drives the titular conveyance. He wrote about Harriet and Philip Herriton's attempts to retrieve their sister-in-law's baby from Italy in a novel named for a quotation from Alexander Pope. In addition to "The Celestial Omnibus" and *Where Angels Fear to Tread*, he wrote novels about Leonard Bast's involvement with the Schlegels, the Wilcoxes, and the titular estate, and about Adela Quested and Dr. Aziz's trip to the Malabar Caves. For 10 points, name this author of *Howard's End* and *A Passage to India*.

ANSWER: Edward Morgan **Forster**

Bonus: This work sees three Hindus attempt to recover the titular gem. For 10 points each:

[10] Name this early work of detective fiction. It ends with the discovery that Rachel Verinder's love interest Franklin stole the titular diamond while sleepwalking.

ANSWER: *The **Moonstone***

[10] *The Moonstone* was written by this British author, who also penned such detective works as *The Woman in White* and *No Name*.

ANSWER: Wilkie **Collins**



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Round 2

Category Quiz  
Bonus Choices

Arts  
Current Events  
Geography  
History  
Literature  
Math Calculation  
Religion  
Social Science

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Current Events  
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Round 2

Category Quiz Tossups

9. The island of Rotuma in this country is located far to the north of this country's main islands. The town of Levuka, on Ovalau Island, was capital of this country from 1874-1882, and the Koro Sea is located in this country. Mount Tomanivi is the highest mountain on the main island of this country, which has an international airport at Nadi. It contains the Lau group, Vanua Levu, and Viti Levu, site of this country's capital, Suva. For 10 points, name this Pacific island nation.

ANSWER: Fiji

10. With quarterback Shawn Jones, this team shared the 1990 National Championship in football with Colorado, and this school defeated Cumberland University two hundred and twenty two to nothing in a 1916 football game. This school's basketball court is named for former coach Bobby Cremins, and a 1930 Model A called the Ramblin' Wreck is present at this school's football games. For 10 points, name this Atlanta-based institution, whose mascot is the Yellow Jackets.

ANSWER: Georgia Tech [do not accept or prompt on just "Georgia"]

11. This hormone regulates clotting by controlling production of thromboxane A2 receptors, and this hormone can be converted to estradiol. It can also be converted to DHT, a stronger version of this hormone. LH stimulates Leydig cells to produce it, and it prompts embryonic development of seminiferous tubules. Sertoli cells use it for spermatogenesis, and this anabolic steroid also causes the growth of facial hair and deepening of the voice. For 10 points, name this hormone responsible for development of the male sex organs.

ANSWER: testosterone

12. This kingdom included the modern provinces of Malaga and Almeria, and adopted an isolationist policy after the Battle of Rio Salado. Its last king was Boabdil, and it formed out of the remnants of the Almoravid Dynasty. It was led by the Nasrid Dynasty, and Yusuf I and Muhammad V of this kingdom oversaw the building of the Alhambra. For 10 points, name this Muslim kingdom of Spain, which was defeated in 1492 in the culmination of the Reconquista.

ANSWER: Granada

13. The title character of this film completes a devastating critical review about an opera singer before firing its original author. Its main character's obsession with building Xanadu alienates his second wife, Susan Alexander. This movie's title character is based on William Randolph Hearst, and it is revealed that the last words of that title character refer to a childhood possession, a sled called Rosebud. For 10 points, name this movie about a newspaper mogul, directed by and starring Orson Welles.

ANSWER: Citizen Kane

14. In a flashback, the protagonist of this novel reflects on meeting the Russian journalist Karkov while dining at Gaylord's. The protagonist tries to communicate with General Golz, but is forced to act ahead of schedule after the last stand and death of El Sordo. Eladio, Fernando, and Agustin are all part of the central group, which is led by Pablo. Pablo steals some detonators, forcing the protagonist to use grenades to complete his objective. For 10 points, name this Hemingway novel in which Robert Jordan blows up a bridge in Spain.

ANSWER: **For Whom the Bell Tolls**



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Round 2

Category Quiz  
Bonuses

**Arts:** He sculpted Apollo killing a lizard, and used the courtesan Phryne as a model for his most famous work. For 15 points, name this Attic Greek sculptor of *Aphrodite of Knidos*.

ANSWER: Praxiteles

**Current Events:** Ministers of this country proposed in March 2009 to create a new international reserve "super currency." For 15 points, name this country, whose own currency is known as the renminbi.

ANSWER: the People's Republic of China [or PRC; or Zhonghua Renmin Gongheguo; do not accept "Republic of China"]

**Geography:** The Boston Mountains are a subset of this chain, and the Little Red River forms in its namesake National Forest. For 15 points, name this limestone mountain chain home to Branson, found in Missouri, Oklahoma, and Arkansas.

ANSWER: Ozarks

**History:** One man with this surname negotiated a treaty with Spain also known as the Treaty of San Lorenzo, and another joined Elbridge Gerry and John Marshall in being asked for bribes in the XYZ affair. For 15 points, name this family of diplomats like Thomas and Charles Cotesworth.

ANSWER: Pinckney

**Literature:** For 15 points, name the John Keats poem that false-imagines Cortes with "eagle eyes" first viewing the Pacific Ocean in a gap in Darién. This poem begins "Long have I traveled in realms of gold."

ANSWER: "On First Looking into Chapman's Homer"

**Math Calculation:** For 15 points, find the remainder when the quantity  $x^3+7x^2+4x+2$  is divided by the quantity  $x+6$ .

ANSWER: 14

**Religion:** According to one story, this saint removed a thorn from the paw of a lion. For 15 points, name this man who wrote the *Vulgate*, the first Latin translation of the Bible.

ANSWER: Saint Jerome

**Social Science:** This teacher of G. Stanley Hall founded the first journal of psychology, and advocated the use of introspection in his *Principles of Physiological Psychology*. For 15 points, name this German, who established the world's first psychological laboratory.

ANSWER: Wilhelm Wundt





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Stretch Phase

15. Mutations in the *Too Many Mouths* and *YODA* genes can lead to elevated numbers of these structures, and in addition to coining the term “protoplasm,” Hugo von Mohl gave the first explanation for how these structures work. Cytosolic calcium ion concentration increases due to abscisic acid’s effect on these structures. The *fama* mutation results in immature guard cells, and when these structures are open, there is a slight decrease in turgor pressure. For 10 points, name these structures that allow for exchange of gases in plants.

ANSWER: stomata [accept stomates]

Bonus: Ieyasu led it to victory over Toyotomi Hideyori and many other clans at the Battle of Sekigahara. For 10 points each:

[10] Name this final Japanese Shogunate that lasted until 1863.

ANSWER: Tokugawa Shogunate

[10] The Tokugawa was replaced in 1868 by this period of modernization led by a namesake emperor.

ANSWER: Meiji Restoration [or Meiji Ishin]

[10] This document laid out the five tenets of the Meiji, including the pursuit of knowledge and allowing the common people to choose their own callings.

ANSWER: Charter Oath [or Gokaijō no Goseimon; or Oath in Five Articles]

16. This section of a longer work exhorts its readers not to “throw pearls before swine, lest they...turn to attack you.” One episode in it deals with five virgins who forget oil for their lamp and five others who remember it. This book also relates the washing of Pilate’s hands and the massacre of the innocents, and contains phrases like “Blessed are the meek” as part of the Beatitude section of its Sermon on the Mount. It opens with a long genealogy of Jesus. For 10 points, name this synoptic gospel, the first book of the New Testament.

ANSWER: Gospel of Matthew [or Book of Matthew]

Bonus: The grandfather of one character in this novel was killed while stealing chickens. For 10 points each:

[10] Name this novel featuring Reverend Gail Hightower and Lucas Branch, the father of Lena Grove's child, as well as Joanna Burden's relationship with the black and white Joe Christmas.

ANSWER: Light in August

[10] *Light in August* was written by this author of “Barn Burning” and “A Rose for Emily,” whose other novels include *Absalom, Absalom!* and *As I Lay Dying*.

ANSWER: William Faulkner

[10] Faulkner took the title of this novel from a Macbeth soliloquy. Its major characters include the servant Dilsey, the suicidal Quentin, and the retarded Benjy.

ANSWER: *The* Sound and the Fury

17. This author wrote a short story in which the title character sees himself being buried alive, only to escape and find his wife remarried a few weeks later, "The Death of Olivier Becaille." This author wrote novels about a woman who drives Georges Hugon to suicide and about Etienne Lantier, who survives the collapse of a mine. His novel *Nana* is part of his cycle of twenty-one novels called *Les Rougon-Macquart*. For 10 points, name this French author and founder of naturalism, the author of *Germinal* and a letter protesting the Dreyfus affair, *J'Accuse!*

ANSWER: Emile **Zola**

Bonus: This piece shows a man with a triple-decker crown in its upper middle panel. For 10 points each:  
[10] Name this altarpiece that contains a central Adoration of the Lamb panel.

ANSWER: the **Ghent** Altarpiece

[10] The Ghent Altarpiece was a collaboration between Hubert and Jan, two Dutch brothers with this last name. Jan also painted *The Arnolfini Marriage*.

ANSWER: **van Eyck**

[10] Another notable altarpiece is the Isenheim Altarpiece, which was painted by this German Renaissance artist.

ANSWER: Matthias **Grunwald** [or **Matthis der Mahler**; accept "Mathis" for "Matthias" in all instances]

18. Members of this political party took over the Washington Monument design committee after throwing part of that monument into the Potomac. One member of this party, Chicago Mayor Levi Boone, incited the Lager Beer Riot by raising the price of a liquor license. Led by people like William Pool, it was also known as the American Party, and its only major presidential candidate was Millard Fillmore in the election of 1856. For 10 points, name this racist, anti-immigration party which took its nickname from members' supposed response to queries about secret activity.

ANSWER: **Know Nothing** Party [accept early **American** Party]

Bonus: These objects are color-coded with five bands; the first two represent two significant digits, and the third represents a power of ten. For 10 points each:

[10] Name these devices that cause a voltage drop when a current runs through them.

ANSWER: **resistors**

[10] The magnitude of that voltage drop is equal to the product of the current and the resistance of the resistor by this law.

ANSWER: **Ohm's** Law

[10] This bridge circuit contains two resistors with known resistance and one resistor with variable resistance, and is used to find the resistance of a fourth resistor.

ANSWER: **Wheatstone** bridge

19. Excerpts from this composer's cantatas include "Sheep May Safely Graze." This composer created six *English Suites* for harpsichord, and composed educational pieces such as fifteen *Two-Part Inventions*. His vocal pieces include the *St. Matthew Passion*, and his mastery of counterpoint can be seen in *The Art of the Fugue*. Glenn Gould specialized in recording the works of this composer, especially his *Goldberg Variations*. For 10 points, name this German composer of *The Well-Tempered Clavier* and the *Brandenburg Concertos*.

ANSWER: Johann Sebastian **Bach** [prompt on **Bach**; prompt on Johann **Bach**]

Bonus: It contradicts the Cartesian doctrine of innate ideas. For 10 points each:

[10] Name this theory of John Locke that states that the human mind is born with no knowledge or pre-existing mental conditions.

ANSWER: tabula rasa [accept blank slate]

[10] Locke put forward the idea of the *tabula rasa* in this 1689 work. It also distinguishes between simple and complex ideas and primary and secondary qualities.

ANSWER: An Essay Concerning Human Understanding

[10] This other natural law philosopher advocated concession of rights to the state. He described life in the state of nature as "nasty, brutish, and short," and he wrote *Leviathan*.

ANSWER: Thomas Hobbes

20. The operation of this interaction was predicted by Hideki Yukawa to involve pions. The SU(3) [S-U-3] gauge theory that models this interaction predicts that it diminishes at short distances and that it decreases as distance increases; those properties are asymptotic freedom and confinement. Modeled by quantum chromodynamics, this force acts on fermions that have color-charge. It is mediated by gluons. For 10 points, name this fundamental force that binds an atom's nucleus together.

ANSWER: strong force [accept strong interaction; accept color force or interaction before it is read]

Bonus: It was perpetrated by the house of Guise, and one of its first victims was Gaspard II of Coligny, who had been wounded four days earlier in an assassination attempt. For 10 points each:

[10] Name this event, which was approved by Charles IX, and saw the death of thousands of Huguenots throughout France.

ANSWER: Saint Bartholomew's Day Massacre

[10] This mother of Charles IX conspired with Henry of Guise and other nobles at the Tuileries Palace to bring about the Saint Bartholomew's Day Massacre.

ANSWER: Catherine de Médici [or Catherine de Medici; prompt on Catherine; prompt on de Medici]

[10] The Saint Bartholomew's Day Massacre took place after the marriage of this first Bourbon King of France to Catherine's daughter Margaret of France.

ANSWER: Henry of Navarre [or Henry IV; prompt on Henry]

21. This poet wrote of a man who drinks a draught of wormwood in "Cliff Klingenhagen." He described an aging woman who chooses to continue an awful relationship to avoid loneliness in "Eros Turannos," which appears in his collection *The Man Against the Sky*. He asked a character to "go to the western gate" in "Luke Havergal," a poem about one of many inhabitants of Tilbury town. In another of his poems, the titular rich "gentleman from sole to crown" "went home and put a bullet through his head." For 10 points, name this poet of "Miniver Cheevy" and "Richard Cory."

ANSWER: Edwin Arlington Robinson

Bonus: Name the following phyla of worms, for 10 points each.

[10] Also called roundworms, this phylum of worms contains hookworms and the model organism *C. elegans*.

ANSWER: **Nematoda** [accept **nematodes**]

[10] Also called "segmented worms", these worms with a primitive circulatory system include the common earthworm.

ANSWER: **Annelida** [accept **annelids**]

[10] Members of this phylum have primitive eyespots that detect light, and include the planarians and all other flatworms.

ANSWER: **Platyhelminthes**

22. One king of this name was restored to the throne of Castille by Edward the Black Prince following the battle of Najera, and fought a namesake war with a king of Aragon with the same name. Another king of this name uttered the Cry of Ipiranga after his father John VI departed for Europe. Yet another king of this name fought the Paraguayan War of 1865 to 1870, and issued the Golden Law which abolished slavery in his country. For 10 points, give this name shared by two nineteenth-century emperors of Brazil.

ANSWER: **Pedro** [or **Peter**]

Bonus: At a hacienda in Northern Mexico, the protagonist loses his virginity to Alejandra Rocha, which leads to his arrest and the eventual death of Blevins. For 10 points each:

[10] Name this novel, which chronicles the adventures of Lacey Rawlins, John Grady Cole, and Redbo, a member of the title group.

ANSWER: **All the Pretty Horses**

[10] This novel, which takes its name from the first line of Yeats' "Sailing to Byzantium," deals with the Sheriff Ed Tom Bell, the welder Llewelyn Moss, and the killer Anton Chigurh.

ANSWER: **No Country for Old Men**

[10] Both *All the Pretty Horses* and *No Country for Old Men* were written by this author of *Child of God* and *Blood Meridian*.

ANSWER: Cormac **McCarthy**



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Tiebreakers + Extras

1. The Poisson-Boltzmann equation computes the electrostatic potential given the density of this quantity; linearization of that equation yields the Debye-Huckel equation. Magnetic force is equal to this quantity times the cross product of velocity and magnetic field, and the electric flux is equal to this quantity over epsilon-naught. For 10 points, name this quantity that is measured in coulombs, symbolized  $q$ , and comes in positive and negative forms.

ANSWER: electric charge

2. This author wrote about a party held by Meatball Mulligan in a short story about a dying bird observed by Callisto and the alien Aubode. He wrote a novel in which the ninja DL Chastain and Prairie Wheeler search for Frenesi Gates, and a novel narrated by the Reverend Wicks Cherrycoke. In addition to *Vineland* and *Mason & Dixon*, this author wrote a novel about Roger Mexico's discovery that Tyrone Slothrop can predict where V-2 rockets will land. For 10 points, name this American author of *The Crying of Lot 49* and *Gravity's Rainbow*.

ANSWER: Thomas Ruggles Pynchon, Jr.

3. Samuel Aba wrested the throne of this country from its second king, Peter, but was deposed three years later. Andrew II of this country issued the Golden Bull of 1222 and expelled the Teutonic Knights from his lands. The 4-year-old Ladislas Postumus was named king of this country in 1444 after the death of a king at Varna, and the twentieth century saw leaders such as Bela Kun, Imre Nagy, Janos Kadar, and Admiral Horthy. For 10 points, name this Central European country founded by Stephen Arpad.

ANSWER: Hungary [or Magyarország]

Extra 20-point bonus:

It is a vital component of both porphyrin rings and Grignard reagents. For 10 points each:

[10] Name this metallic element.

ANSWER: magnesium [or Mg]

[10] Magnesium is a member of this family, which also includes strontium and radium.

ANSWER: alkaline earth metals [or Group 2; or Group IIB; do not accept "alkali"]

Extra 30-point bonus:

For 10 points each, name these Baroque composers.

[10] This red-haired priest wrote dozens of concerti for instruments like the bassoon and mandolin, as well as a set of violin concerti called *The Four Seasons*.

ANSWER: Antonio Vivaldi

[10] This English composer of incidental music to *Oedipus* is probably most famous for his opera *Dido and Aeneas*.

ANSWER: Henry Purcell

[10] This French composer, who died of blood poisoning after impaling his foot with a conducting staff, wrote incidental music for many Molière plays.

ANSWER: Jean-Baptiste Lully