



# HSAPQ

High School Academic Pyramid Questions

Fall 2008  
ACF-Format Set #1

Round 6

Tossups

1. The Celtic gods of this type are Goibhniu and Gofannon, while Wayland is a god of this type in the Northern European mythos. In the *Kalevala*, the creator of the Sampo is this type of god named Ilmarinen. The Greek god of this type was thrown from Mount Olympus, and had his workshop under Mount Etna where he made Athena's Aegis breastplate. For 10 points, name this type of god exemplified by Vulcan and Hephaestus, who typically make metal items for the other gods.

ANSWER: **forge** gods [or blacksmith gods; accept clear-knowledge equivalents]

2. The protagonist of this play decides to die on Mount Cithaeron, and accuses Tiresias of plotting against him. Before the action of this play, the title character had killed a man in a chariot who offended him. The title character believes himself to be the son of Polybus and Merope, and he deforms himself with a pair of golden brooches. The title character's wife hangs herself by her own hair after learning the cause of a pestilence afflicting Thebes. For 10 points, identify this play about a man who kills his father and has sex with his mother, Jocasta, a play by Sophocles.

ANSWER: **Oedipus Tyrannos** [or **Oedipus Rex**]

3. Tufa and coquina are two types of this rock. A streak of  $\text{HFeO}_2$  is present in the Fencepost variety of this rock, while a more common impurity in this rock is aragonite. It can be identified through an effervescent reaction, in which it reacts with dilute acid to release carbon dioxide. At lower pressures, this turns into dolomite, while higher pressures turn this into marble. For 10 points, name this sedimentary rock mostly composed of calcite, often used in cement.

ANSWER: **limestone**

4. This position was held by Harry Daugherty during the Harding Administration, and Daugherty subsequently went to trial on charges of fraud and graft, and one man who held this post was famous for riding on horseback to the Continental Congress to cast Delaware's vote for independence. That man, Caesar Rodney, served from 1808 to 1809, and John Mitchell went to jail for his actions while serving as this under Nixon. For 10 points, Edmund Randolph was the first man to serve in what position, the chief law officer of the United States?

ANSWER: **Attorney General**

5. The noble family that sponsored this work is depicted in sculpture in two decorative balconies on either side of it. The altar area on which this piece resides has four black marble columns, and gilded light rays stream in from above this sculpture. This work located in the Santa Maria della Vittoria's Cornaro Chapel depicts an angel piercing the title figure with an arrow. For 10 points, name this Gian Lorenzo Bernini statue that shows a venerated woman from Avila in rapture.

ANSWER: **The Ecstasy of Saint Teresa** [or **St. Theresa in Ecstasy**; or **The Transverberation of St. Theresa**]

6. This poet wrote about “The awful shadow of some unseen Power” in “Hymn to Intellectual Beauty.” The title figure leads Fraud and Hypocrisy in his poem inspired by the Peterloo Massacre, “The Masque of Anarchy.” He wrote a poem comparing the title entity to a “Wild Spirit, which art moving everywhere” and “the breath of Autumn’s being,” as well as a sonnet about a figure who warns “Look on my works, ye Mighty and despair.” For 10 points, name this poet of “Ode to the West Wind” and “Ozymandias.”

ANSWER: Percy Bysshe Shelley [prompt on Shelley]

7. The last monarch of this line was known as the Sailor King, and another king of this line became unpopular after thousands of people lost vast fortunes in the South Sea Bubble. One fought in the Battle of Dettingen, becoming the last British monarch to lead men into battle, and another issued the Proclamation of 1763 and ruled alongside people like George Grenville and William Pitt the Younger. For 10 points, name this royal British house with monarchs like William IV and George III that originated with a namesake German electorate.

ANSWER: House of Hanover [or Hanoverians]

8. A molecular interpretation of Michaelis-Menten kinetics assumes that a fast one occurs between enzyme and substrate, and the van't Hoff equation predicts how the properties of this state change with respect to temperature. The Henderson-Hasselbalch equation assumes that the acid does not dissociate and the conjugate base does not hydrolyze in this condition, and in special cases the law of mass action gives the masses of reactants and products present. For 10 points, identify this condition, during which the forward and reverse reaction rates are the same.

ANSWER: chemical equilibrium

9. One of its basic principles is *anekantevada*, which asserts the legitimacy of multiple points of view, and it holds that time passes in repeated *utsarpinis* and *avsarpinis*. Those who gain particular insight into the nature of *dharma* are called *tirthankara*. Its two sects are known as *Svetambara* and *Digambara*, meaning white clad and sky-clad. For 10 points, identify this Indian religion whose followers embrace nonviolence.

ANSWER: Jainism [or Jain Dharma, or Shraman Dharma]

10. An advertisement for Citroen sees a giant levitating one of these made out of cars, and a large mural made of these objects is made to spell out “Hybrid” in a Honda Advertisement. In another advertisement, one of these is made to twist so fast as to burst and splatter its colors on a wall while a PS3 is visible in the background. Invented by an interior designer from Hungary, it has more difficult variants called the “Revenge” and “Professor.” For 10 points, identify these objects, all of whose sides are made of the same color when it is solved.

ANSWER: Rubik’s cubes

11. Stanford professor Joseph Greenberg created a controversial classification for languages from this place which removed the Hamitic family. One language spoken on this continent is Malagasay, which belongs to the Austronesian family, and this continent is also home to the Khoisan languages, which use clicks. Major languages spoken on this continent include Hausa, Xhosa, and Amharic. For 10 points, name this linguistically diverse continent that is home to Swahili and Afrikaans.

ANSWER: Africa

12. One of these occurred when Russian patriarch Nikon began to enforce reforms resisted by the Old Believers. Another of these was ended when the Council of Constance removed both Gregory XII and Benedict XIII and elected Martin V. Another of these in 1054 was started by the patriarch of Constantinople and led to the creation of the Orthodox Church. For 10 points, name these events in which fundamental differences cause a church to split into two different factions.

ANSWER: **Great Schisms** [prompt on **schisms**]

13. The XML-defined SVG file format notably does not encode one of these objects, and tweening and similar operations are easy in Flash because Flash does not use them. The Windows GDI provides a function that reflects the old slang for "blitting" these objects, and the Lempel-Ziv-Welch algorithm provides lossless compression for these objects and is used in the gif file format. For 10 points, identify this common way to store an image, which, when uncompressed, associates a color value with each pixel and is sometimes abbreviated bmp.

ANSWER: **bitmap**

14. One author from this country described a boy nicknamed Mudito in *The Obscene Bird of Night*. Another writer from here lamented the suicide of a rail employee in the "Sonnets of Death" from her collection *Desolación*. In addition to Jose Donoso and Gabriela Mistral, this country was home to a man who wrote a poetic history of South America in *Canto General* as well as *Twenty Love Poems and a Song of Despair*, Pablo Neruda. For 10 points, name this country, also described in *The Infinite Plan*, *Eva Luna*, and *The House of the Spirits* by Isabel Allende.

ANSWER: **Chile**

15. At the battle of Sellasia, this city's army was defeated by a joint force of the Achaean League and Macedonia after reforms by Cleomenes III. This city's envoy Antalcidas concluded a treaty with Artaxerxes II in 386 B.C., and it was ruled by two lines of kings, the Eurypontids and the Agiads, who were overseen by five ephors. This city was legendarily reformed by Lycurgus, and it was also ruled by Lysander. For 10 points, name this ancient Greek city state famed for its militaristic nature.

ANSWER: **Sparta**

16. One work in this genre depicts angels and shepherds praying around a vision of the infant Christ. Another example of this genre depicts the Ingelbrechts on the left, as well as an annunciation given to Mary, who is wearing red and reading the Old Testament. In addition to those ones by Hugo van der Goes and Robert Campin named *Portinari* and *Merode*, other examples include the *Isenheim*, painted by Matthias Grunewald. For 10 points, name these religious paintings designed to be placed in churches on their namesake structures.

ANSWER: **altarpieces** [accept **trptychs** until *Isenheim*]

17. The Eotvos rule relates this quantity to surface tension, and the Einstein relation states that the diffusion coefficient is proportional to this quantity. One of these named for Boyle is the value for which the second coefficient of the virial equation is zero. This quantity is raised to the fourth power in the Stefan-Boltzmann law for blackbody radiation, and this quantity will eventually approach equilibrium for objects in contact according to the zeroth law of thermodynamics. For 10 points, identify this quantity usually measured in degrees or Kelvins.

ANSWER: **temperature**

18. In one story by this author, a nine-year old recovering alcoholic named Hogan is part of a group of children led by Grover Snodd, which protests the racism of their parents. In addition to "The Secret Integration," he wrote about the Whole Sick Crew in his debut novel, which is named for a mysterious woman sought by Herbert Stencil. In another of his novels, Roger Mexico attempts to save a man who can predict when German rockets will land, Tyrone Slothrop. For 10 points, name this American author of *The Crying of Lot 49* and *Gravity's Rainbow*.

ANSWER: Thomas **Pynchon**

19. While exploring this body of water, Jacques-Yves Cousteau discovered a species of frog that apparently never comes up for air. It contains floating reed islands collectively named after the Uro tribe, which include Toranipata and Santa Maria, and on its banks is the city of Puno. The Island of the Sun and Island of the Moon are on the Bolivian side of this lake in the Andes Mountains. For 10 points, name this highest navigable lake in the world, split between Peru and Bolivia, the largest freshwater lake in South America.

Answer: Lake **Titicaca**

20. He wrote a three movement work in which a soprano singing psalm 23 is interspersed with men singing psalm 2 in Hebrew for its namesake festival, entitled *Chichester Psalms*. Another of his religious works includes a rock band and a ballet company and is a setting of the Roman Catholic Mass. He commemorated the death of President Kennedy in his third symphony, named for the Jewish prayer for the dead, and composed the song "Maria." For 10 points name, this composer of *Fancy Free*, the *Jeremiah* and *Kaddish* symphonies, and *West Side Story*.

ANSWER: Leonard **Bernstein**

21. Tadasu drinks breast milk from his stepmother in a Jun'ichiro Tanizaki work named for one "of Dreams." An ear is nailed to this structure in an Ivo Andric novel named for one "on the Drina," while a play by Arthur Miller about Eddie Carbone is titled "A View from" this structure. Another novel with this word in the title sees Brother Juniper burn at the stake for blasphemy after investigating five deaths after one collapses. For 10 points, name this structure which spans such literary locales as San Luis Rey.

ANSWER: **bridges**

22. Polycistronic varieties of this molecule appear in archaea, and such proteins as PAP and CstF enhance it in a process known as polyadenylation. A 5 prime cap is added to it to prevent its degradation by endonucleases, while another process uses spliceosomes to patch it up after the removal of introns. Its most well-known intermolecular interaction begins after the activity of a namesake polymerase, and ends when it reads the terminator region of that molecule. For 10 points, name this RNA molecule involved in DNA transcription.

ANSWER: **messenger RNA** [prompt on **RNA**]



# HSAPQ

High School Academic Pyramid Questions

Fall 2008  
ACF-Format Set #1

Round 6

Bonuses

1. Identify some objects and locales in our Solar System, for 10 points each.

[10] Trojan asteroids occupy type 4 and type 5 of these regions, named for a Frenchman, where the gravitational forces of two large bodies counteract each other.

ANSWER: Lagrange points

[10] The Cassini division is the largest separation between type A and type B of these regions. Discovered by Galileo, they are found around the planet that has moons Titan and Iapetus.

ANSWER: Saturn's rings

[10] Theorized to be the source of the Centaur asteroids and most short-period comets, this area is a lot closer to the sun than the Oort cloud is.

ANSWER: Edgeworth-Kuiper belt (rhymes with "wiper")

2. Dedicated to a pupil of the composer, this C-sharp minor piece borrows a motif from a death scene in Don Giovanni. For 10 points each:

[10] Identify this piano piece, part of whose title is "quasi una fantasia" because it departs from the traditional form.

ANSWER: Moonlight Sonata [or Beethoven's Piano Sonata No. 14 in C-sharp minor "quasi una fantasia" or Beethoven's opus 29]

[10] The Moonlight Sonata is one of the many compositions of this German composer, whose other sonatas include the *Waldstein* and the *Pathétique*.

ANSWER: Ludwig van Beethoven

[10] This other Beethoven sonata, in four movements instead of the regular three, is often considered his most difficult. Its fourth movement contains a fugue.

ANSWER: Hammerklavier Sonata [or Piano Sonata no. 20 in B-flat major or opus 106]

3. Identify the following about the Mongols, for 10 points each.

[10] These Turkic nomads became part of Genghis Khan's army. They formed the Kazan Khanate, and Joseph Stalin deported thousands of them to Uzbekistan and Kazakhstan in 1945.

ANSWER: Tatars [or Tartars]

[10] This conqueror was known for his limp and claimed descent from Genghis Khan. He built a pyramid of skulls, and established his capital at Samarkand.

ANSWER: Timur the lame [or Tamerlane]

[10] This grandson of Genghis Khan founded the Yuan dynasty of China. His invasion force of Japan was destroyed by the kamikaze, and he hosted Marco Polo.

ANSWER: Kublai Khan

4. She is followed to Pamplona by Robert Cohn despite the fact she is engaged to Michael Campbell. For 10 points each:

[10] Name this character, who has a brief affair with the toreador Pedro Romero.

ANSWER: Lady Brett **Ashley**

[10] Lady Brett Ashley appears in this novel about the “Lost Generation,” in which Jake Barnes comes to vacation in Pamplona, written by Ernest Hemingway.

ANSWER: *The **Sun Also Rises*** [or **Fiesta**]

[10] In this other Hemingway novel, Robert Jordan attempts to blow up a bridge during the Spanish Civil War. Its title refers to a line from John Donne's *Meditation XVII* (seventeen).

ANSWER: ***For Whom the Bell Tolls***

5. Identify the following about gas laws, for 10 points each.

[10] This law states that the amount of gas dissolved in a liquid is directly proportional to the partial pressure of the gas.

ANSWER: **Henry's** Law

[10] This law states that the vapor pressure of a solution is equal to the sum of the products of partial pressure of each substance and the mole fraction.

ANSWER: **Raoult's** Law

[10] Raoult's law suggests that the change in the vapor pressure of a solution upon addition of solute is one of these properties, which only depends on the quantity of particles present.

ANSWER: **colligative** properties

6. Identify the following about the recent conflict between Russia and another country, for 10 points each.

[10] Russia invaded this nation in August and took control of Tskhinvali, the capital of a breakaway province in this country.

ANSWER: **Georgia**

[10] The invasion of Georgia was sparked by Georgian attempts to fight separatists in this territory, whose independence was subsequently recognized by Russia.

ANSWER: **South Ossetia** [do not accept or prompt on “Ossetia” or any other answers]

[10] This current president of Russia received international condemnation for his recognition of the independence of South Ossetia.

ANSWER: Dmitry **Medvedev**

7. He is born out of Gargamelle's left ear and goes on to help Friar John of the Funnels defeat King Picrochole. For 10 points each:

[10] Name this enormous father of Pantagruel in a 1567 satire.

ANSWER: **Gargantua**

[10] *Gargantua and Pantagruel* was published under the pseudonym Alcofrubias Naser, an anagram of this true author's name.

ANSWER: François **Rabelais**

[10] While studying in Paris, Gargantua urinates off this structure and steals its bells for his horse.

ANSWER: Cathedral of **Notre Dame** of Paris

8. Answer the following about a stage of reproduction in plants, for 10 points each.

[10] These are the seed leaves in developing plant embryos. The two major angiosperm divisions are based on how many of these form in the embryos.

ANSWER: **cotyledons**

[10] This process involves combining a stock and a scion, to provide the best qualities of two plants. It is exemplified by combining French and American vines to produce better wine.

ANSWER: **grafting**

[10] Seeds are often enclosed into these much larger structures, one conveyance of dispersion. They are classified as simple, aggregate, and multiple and include durians, litchis, and mangos.

ANSWER: **fruit**

9. They include projection and repression. For 10 points each:

[10] Identify these concepts proposed by Sigmund Freud, in which a person attempts to protect their ego by not confronting emotional conflict or stress directly.

ANSWER: **defense mechanisms**

[10] In this defense mechanism, a person refuses to accept the reality of a situation because of its associated trauma. Unlike repression, it is not associated with leftover emotion.

ANSWER: **denial**

[10] In this defense mechanism, a patient will translate negative or contradictory instincts into positive emotions or actions. Its extreme form is reaction formation.

ANSWER: **sublimation**

10. This artist was the teacher of Henry Ossawa Tanner. For 10 points each:

[10] Name this American painter of *The Swimming Hole* and *The Gross Clinic*.

ANSWER: Thomas **Eakins**

[10] Eakins' realism influenced this school of American painters which included Everett Shinn and John Sloan. They focused on painting urban poverty and squalor.

ANSWER: **Ashcan** School

[10] This painter is sometimes considered to be a member of the Ashcan School, even though he denied any involvement. His works include *Early Sunday Morning* and *Nighthawks*.

ANSWER: Edward **Hopper**

11. Name the following about a British political party, for 10 points each.

[10] Founded in 1900, this party was preceded by the Fabian Society, and its prime ministers have included Clement Atlee and James Callaghan.

ANSWER: **Labour** Party

[10] This man advocated a pacifist policy at the beginning of World War I, and in 1924 he became the first Labour Party prime minister.

ANSWER: Ramsay **Macdonald**

[10] This man succeeded John Smith as Labour Party leader following Smith's 1994 death. He led Labour to an overwhelming victory in the 1997 parliamentary elections under his New Labour platform.

ANSWER: Tony **Blair**

12. This man led the “peripatetic school” at the Lyceum. For 10 points each:

[10] Name this student of Plato, who compiled his own expansive philosophy in such works as the *Nicomachean Ethics* and *Physics*.

ANSWER: **Aristotle** [or **Aristoteles**]

[10] Based on a now-lost compendium of 158 constitutions, this work of Aristotle compares monarchy, oligarchy, and democracy after noting that man is the namesake kind of animal.

ANSWER: the **Politics** [or **Politika**]

[10] The dramatic unities of place and time and the theory of *pathos* are set forth in this work of literary criticism, which contains Aristotle’s views on what makes a good play.

ANSWER: the **Poetics** [or **Peri poietikes**]

13. The protagonist of this novel uses a flamethrower to kill his boss Beatty before being pursued by a Mechanical Hound. For 10 points each:

[10] Name this novel about Guy Montag, who becomes disturbed by his profession of burning books.

ANSWER: **Fahrenheit 451**

[10] This author of *The Martian Chronicles* wrote *Fahrenheit 451*.

ANSWER: Ray **Bradbury**

[10] This Bradbury novel named for a line from *Macbeth* follows Will Holloway and Jim Nightshade's battle with a sinister carnival run by Cooger and Dark.

ANSWER: **Something Wicked This Way Comes**

14. Only those who were destined to see this object could survive sitting in the Siege Perilous; that number included Percival and Galahad. For 10 points each:

[10] Name this relic of Christ, which was guarded by the Fisher King and was the object of many expeditions of Arthurian legend.

ANSWER: the Holy **Grail** [or **Sangreal**]

[10] The special task of Pellinore, on the other hand, was to pursue this animal with deer hooves, lion’s legs, a leopard’s body, and a snake’s head, which is described as sounding like thirty dogs.

ANSWER: the **Questing Beast**

[10] Meanwhile, Lancelot contented himself with pursuing this wife of Arthur, who was also variously kidnapped by Melwas, Meleagant, and Mordred.

ANSWER: **Guinevere**

15. Identify the following about Reconstruction, for 10 points each.

[10] Reconstruction came to an end as a result of a compromise for the election of this man as president in 1876 instead of his opponent, Samuel Tilden.

ANSWER: Rutherford B. **Hayes**

[10] This Pennsylvanian was the leader of the Radical Reconstructionists in the House of Representatives and proposed the 14th Amendment to the Constitution.

ANSWER: Thaddeus **Stevens**

[10] Another leader of the Radical Reconstruction was this Massachusetts Senator, who, after delivering the "Crime Against Kansas" speech, was beaten with a cane in the Senate chamber by Preston Brooks in 1856.

ANSWER: Charles **Sumner**

16. It can be obtained by integrating radius squared with respect to mass. For 10 points each:

[10] Identify this quantity, which is the rotational analog of mass.

ANSWER: **moment of inertia**

[10] This quantity is equal to the moment of inertia times the angular acceleration. The rotational analog of force, it can also be calculated by crossing force with radius.

ANSWER: **torque**

[10] This theorem allows the calculation of the moment of inertia if the rotation axis does not pass through the center of mass but rather has a namesake orientation to the original axis.

ANSWER: **Steiner's** theorem or **parallel axis** theorem

17. The subject of this poem "did not wear his scarlet coat, for blood and wine are red." For 10 points each:

[10] Name this poem in which the protagonist is hanged because "each man kills the thing he loves."

ANSWER: "The **Ballad of Reading Gaol**"

[10] "The Ballad of Reading Gaol" was written by this author of *De Profundis* and plays like *The Importance of Being Ernest* and *Lady Windermere's Fan*.

ANSWER: Oscar Fingal O'Flahertie Wills **Wilde**

[10] In this Wilde novel, Basil Hallward paints the title object, which enables its subject to stay eternally young until it is destroyed.

ANSWER: *The **Picture of Dorian Gray***

[do not accept or prompt on The Portrait of Dorian Gray]

18. The protagonist of this film is returning from the Crusades with his squire Jons. For 10 points each:

[10] Name this movie in which the knight Antonius Block, played by Max von Sydow, challenges Death to a chess game.

ANSWER: *The **Seventh Seal***

[10] This Swedish director of *Wild Strawberries* and *Through a Glass Darkly* directed *The Seventh Seal*. He shares his last name with, but is not related to, Oscar-winning actress Ingrid.

ANSWER: Ernst Ingmar **Bergman**

[10] In *The Seventh Seal*, Jons asks Block whether he sees god or vacancy in the eyes of a woman being punished for this crime, which is central to *The Crucible*.

ANSWER: **witchcraft** [accept equivalents like **sorcery**]

19. There are plenty of rebellious ethnic groups around the world. Name some, for 10 points each:

[10] This ethnic group is spread throughout Iran, Iraq, Syria, and Turkey. A terrorist namesake "Worker's Party" has pushed for an independent state, and they were gassed by Saddam Hussein.

ANSWER: **Kurds**

[10] This ethnic group primarily resides in the Chinese region of Xinjiang, although this predominantly Muslim people prefer the name East Turkestan.

ANSWER: **Uyghurs** (WEE-gurs)

[10] This militant organization seeks to create a separate, socialist state in the north and east of Sri Lanka. They use child soldiers and were responsible for the assassination of Rajiv Gandhi.

ANSWER: **Tamil Tigers** [or **LTTE**; or **L**iberation **T**igers of **T**amil **E**elam]

20. The daughter of Queen Isabella, she was later locked up in the Castle Tordesillas. For 10 points each:  
[10] Name this queen whose passion for her husband Philip the Handsome caused her to become insane.

ANSWER: **Juana the Mad** [or **Juana I** of Castile; or **Juana la Loca**; or **Joanna the Mad**]

[10] This oldest son of Juana the Mad prompted the formation of the Schmalkaldic League when he threatened to stamp out Protestantism during his tenure as Holy Roman Emperor. He abdicated as emperor in 1558.

ANSWER: **Charles V** of the Holy Roman Empire [or **Charles I** of Spain]

[10] Charles and Joanna served as joint rulers of this Spanish kingdom following the death of Ferdinand II in 1516.

ANSWER: **Castile**

21. In the dispersive hypothesis of it, parent strands are broken up into smaller segments. For 10 points each:

[10] Name this process in which DNA makes copies of itself.

ANSWER: **replication**

[10] This type of replication is associated with DNA. In it, the two parent strands of DNA separate, and each acts as a template in the formation of a new strand of DNA.

ANSWER: **semiconservative** replication

[10] DNA was shown to replicate semiconservatively by this 1958 experiment, in which its two namesakes utilized *E. coli*, two different isotopes of nitrogen, and a centrifuge.

ANSWER: **Meselson-Stahl** experiment