



HSAPQ

High School Academic Pyramid Questions

2008-2009
NSC-Format Set #2

Round 1

Related Tossups &
Bonuses

1. After the birth of this figure, the seer Asita predicted his greatness, and he died after the blacksmith Kunda accidentally gave him some toxic food. According to one story, his father Suddhodana prevented him from witnessing any suffering, but one day he witnessed a poor man, a sick man, and a corpse. Eventually, this sparked him into sitting under a Bodhi tree and finding enlightenment. For 10 points, name this Indian founder of a peaceful Asian religion with branches like Mahayana and Zen.

ANSWER: Siddhārtha Gautama [accept the Buddha]

Bonus: The third of them states that the end to suffering is attainable. For 10 points each:

[10] Name this group of rules about acknowledging and ending suffering.

ANSWER: Four Noble Truths

[10] The fourth noble truth states that the way to end suffering is by following this other set of rules that includes "Right View," "Right Intention," and "Right Speech"

ANSWER: Eightfold Path

2. His administration was harassed by the Covode Committee, and in a move sometimes known as his "blunder," he sent troops into the Brigham Young-led Utah Territory. He is the only man so far to have defeated the incumbent president in his party's primary election. He was president during the Dred Scott case and Bleeding Kansas, and he defeated the first Republican candidate, John Fremont, in the 1856 election. For 10 points, name this president who succeeded Franklin Pierce and is often criticized for his failure in stopping the American Civil War.

ANSWER: James Buchanan

Bonus: In this battle, British forces under John Burgoyne were defeated at Freeman Farm and Bemis Heights. For 10 points each:

[10] Name this October 1777 battle in New York, which helped shift French support to the American revolutionaries.

ANSWER: Battle of Saratoga

[10] This American general took credit for victory at Saratoga. He was later replaced in the South by Nathaniel Greene after losing at Camden.

ANSWER: Horatio Lloyd Gates

3. William Holman Hunt used Elizabeth Siddal to model this person's hair for the painting *The Light of the World*. Bellini painted three men asleep behind this person in *Agony in the Garden*. Three women kneel around the central figure in a Yellow version of this person painted by Paul Gauguin. Rogier van der Weyden painted this man's Deposition, and he appears in the center of da Vinci's *The Last Supper*. For 10 points, name this religious figure, who appears in two Rubens paintings of his "elevation to" and "descent from" the cross.

ANSWER: Jesus Christ [either or both names acceptable]

Bonus: The members of this group were taught by Robert Henri. For 10 points each:

[10] Name this group of American painters including Everett Shinn and John Sloan, named for their paintings of urban squalor.

ANSWER: **Ashcan** School

[10] This painter is sometimes counted as a member of the Ashcan School. His paintings of boxing scenes include *Dempsey and Firpo* and *Stag at Sharkey's*.

ANSWER: George **Bellows**

4. When a strong electric field acts on a transparent substance, variation of this quantity gives rise to the Kerr effect, which produces birefringence of a transverse beam of light. When light passes through two materials that share an interface and have different values for this property, Snell's law gives the angles of incidence and refraction. For 10 points, name this quantity that equals the ratio between the velocity of light in a vacuum and the velocity of light in a medium.

ANSWER: **index of refraction** [or **refractive index**]

Bonus: When this phenomenon occurs for a beam of light passing through a medium in which small particles are suspended, it is known as the Tyndall effect. For 10 points each:

[10] Name this phenomenon in which a particle interactions or collides with another particle, causing a change in the particle's direction of motion.

ANSWER: **scattering**

[10] In this type of elastic scattering, the scattered radiation has a wavelength greater than ten times the radius of the particle that causes the scattering.

ANSWER: **Rayleigh** scattering

5. He outlined his theory of distribution of the things that can be produced by landlords, workers, and owners of capital in his *Principles of Political Economy and Taxation*. He believed that workers' income remains at the subsistence level despite government intervention; that theory is the Iron Law of Wages. Another of his theories states that even if one country can produce everything more efficiently than another country, it should not hinder free trade between the countries. For 10 points, name this English economist, the formulator of the theory of comparative advantage.

ANSWER: David **Ricardo**

Bonus: He wrote *A Monetary History of the United States* with Anna Schwartz, and theorized that consumer choices were based on long term income expectations. For 10 points each:

[10] Name this American economist, the author of *Capitalism and Freedom*, who developed the permanent income hypothesis.

ANSWER: Milton **Friedman**

[10] Friedman subscribed to this theory, which held that everything in the economy was based on the money supply.

ANSWER: **monetarism**

6. Franz Matt organized a government-in-exile in Regensburg in response to this event, and its goal was to put Erich Ludendorff in power. In a march to the Marienplatz, sixteen demonstrators and three policemen were killed, and the prison sentence that its leader incurred for his role in this event gave him time to write *Mein Kampf*. For 10 points, name this Munich-based coup in 1923 led by Adolf Hitler, which started in the namesake drinking establishment.

ANSWER: **Beer Hall Putsch** [or **Bierkeller Putsch**]

Bonus: Nicknamed the "Hammer," this man divided his lands between his sons Pepin the Short and Carloman. For 10 points each:

[10] Name this man who became mayor of the palace after the rule of his father Pepin of Heristal.

ANSWER: **Charles Martel** [prompt on **Charles**]

[10] The Moorish conquest of Europe was halted by this 732 battle, a victory for Charles Martel. Louis XI held his Estates General in this French city on the Loire.

ANSWER: Battle of **Tours**

7. This equation is used to provide corrections to the Butler-Volmer equation, from a special case of which it can be derived, and it appears in most models of solid oxide fuel cells. Katz and Keynes used this equation in their studies of a squid axon, and Goldman modified this equation to account for all ions. For a single ion, the ratio of the ideal gas constant to Faraday's constant is multiplied by temperature and the natural log of the reaction quotient in, for 10 points, what equation that yields the emf of an electrochemical cell?

ANSWER: **Nernst** equation

Bonus: For 10 points each, name these components of an electrochemical cell.

[10] Oxidation occurs at this electrode, which is contrasted with the cathode.

ANSWER: **anode**

[10] This type of "bridge" connects the two half-cells of the electrochemical cell, allowing for ion flow between the two half-cells, and is often filled with its namesake substance.

ANSWER: **salt** bridge

8. One character in this novel is alarmed when a corpse in a monastery starts to rot. Another character is raised by the servants Marfa and Gregory, has epilepsy, and discovers that his mother was the dimwitted Lizavetta. One of this novel's main characters enters a monastery where he learns from Father Zossima, and is told the parable of The Grand Inquisitor. Eventually, this novel reveals that Smerdyakov murdered Fyodor, the father of the title characters. For 10 points, name this Dostoyevsky novel about the siblings Dmitri, Alexei, and Ivan.

ANSWER: *The **Brothers Karamazov*** [or **Bratya Karamazovy**]

Bonus: She wrote about her grief over her son's arrest, the nature of death and spiritual comfort, and her relationship to her nation in the poem sequence "Requiem." For 10 points each:

[10] Name this Russian poet, who wrote about the dichotomy between the youth and passion of St. Petersburg with the suffering of post-revolutionary Leningrad in "A Poem without a Hero."

ANSWER: Anna **Akhmatova**

[10] Akhmatova asks who will grieve for the titular figure of this poem. Akhmatova claims "in my heart I never will deny her" for turning to watch God's destruction of Sodom.

ANSWER: "**Lot's Wife**"



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Category Quiz
Bonus Choices

Arts
Current Events
Geography
History
Literature
Math Calculation
Philosophy
Social Science

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Round 1

Category Quiz Tossups

9. Lambert Simnel and Perkin Warbeck were among the pretenders that this man faced, and Henry Stafford attempted to place this man on the throne in an abortive rebellion. The marriage of his sister Margaret to James helped lead to the union of the English and Scottish monarchies, and he married his son Arthur off to Catherine of Aragon. For 10 points, name this victor at Bosworth Field, the founder of England's Tudor Dynasty.

ANSWER: **Henry VII**

10. One character in this series has an underwater house burned down by a misplaced cigar, and questions if Harry Truman was hitting on him, saying he "wasn't hearing a no." Another character's mother used a degree in exolinguistics to pass her off as an alien orphan to give her a chance at a normal life. Its protagonist is unfrozen after a thousand years of cryogenic suspension, and first makes contact with a lab technician who dramatically welcomes him to the "World of Tomorrow!" For 10 points, name this cartoon featuring the crustacean doctor John Zoidberg, the one eyed Turanga Leela, and former pizza delivery boy Phillip J. Fry.

ANSWER: **Futurama**

11. This building includes a revolving service door near the kitchen and hidden pulleys used to bring up wine bottles directly from its cellar. Two dependencies are connected to this building by raised L-shaped wings. Its tripartite design and split-level porticoes were inspired by Palladio's Villa Rotunda. Its entrance features four Doric columns, and this red brick building includes an octagonal dome. For 10 points, name this personal residence built in Charlottesville by Thomas Jefferson.

ANSWER: **Monticello**

12. A discovery of an object in this work is called "a little pat on the back by God, or the gods, or both." The protagonist of this novel thinks of Song of Evil and Song of the Family while watching a scorpion. One character warns another to throw the titular object "back into the sea, or it will destroy us," but the protagonist's refusal results in the death of his baby son, Coyotito. For 10 points, name this novella in which Juana and Kito's lives are ruined by his discovery of the titular jewel, written by John Steinbeck.

ANSWER: **The Pearl**

13. Mount David and Spruce Knob, each the highest point in their states, can be found in this range. The Berkshire Hills run through Vermont as an extension of this chain, and Mount Washington can be found in its White Mountains. The Blue Ridge Mountains in this chain are followed by Skyline Drive, and another subchain mostly in West Virginia gets its name from a river that forms the Ohio, the Alleghenies. For 10 points, name this mountain chain of the eastern United States whose namesake trail runs from Maine to Georgia.

ANSWER: **Appalachian** Mountains [or **Appalachians**]

14. The CTLA-4 gene can trigger T-cells to attack the follicular cells of this structure, leading to Hashimoto's disease. Another condition arises when antibodies bind to a receptor and continually stimulate it, which can lead to blindness in extreme cases; that condition is called Graves's disease. The parafollicular cells of this gland secrete a hormone that reduces blood calcium levels, calcitonin, and its namesake hormones require iodine. For 10 points, name this gland that produces thyroxine and enlarges in goiter.

ANSWER: **thyroid** gland



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Category Quiz
Bonuses

Arts: This opera includes the "Flower Duet" and the coloratura solo "Bell Song." For 15 points, name this opera in which tragedy ensues after the title woman falls in love with a British officer, composed by Léo Delibes.

ANSWER: Lakmé

Current Events: He ran for a US Senate seat in 2006, losing to Ben Cardin, and he was the first African American elected at the state level in Maryland. For 15 points, name this Republican National Committee Chairman, who in March 2009 was forced to retract his attacks aimed at Rush Limbaugh.

ANSWER: Michael Steele

Geography: The royal residence of this country is in the city of Lobamba, and its largest city is Manzini. For 15 points, name this landlocked African nation known for its traditional "reed dance," which borders Mozambique.

ANSWER: Swaziland

History: He was defeated in the elections of 1998 by Gerhard Schröder. For 15 points, name this final chancellor of West Germany, who oversaw the reunification of Germany in 1990.

ANSWER: Helmut Kohl

Literature: The speaker recounts going to Ludlow Fair and tells of "Mithridates, he died old" after claiming "malt does more than Milton can / to justify God's ways to man." For 15 points, name this A.E. Housman poem whose title figure is told, "you eat your victuals fast enough."

ANSWER: "Terence, this is Stupid Stuff"

Math Calculation: The measure of an internal angle of a regular polygon is exactly twice the measure of an external angle of the polygon. For 15 points, how many sides does the polygon have?

ANSWER: 6 [accept hexagon]

Philosophy: In this work, Rene Descartes illustrates the res extensa with a piece of wax. For 15 points, name this work that doubts all previous knowledge using the system outlined in *Discourse on Method*.

ANSWER: Meditations on First Philosophy [accept Mediaciones de Prima Philosophia; prompt on Meditations but do not prompt on any other partial title]

Social Science: Her *The Second Stage* criticized the idolization of Superwomen, and her most famous work compares American women to Australian Aborigines. For 10 points name this first president of the National Organization of Women and author of *The Feminine Mystique*.

ANSWER: Betty Freidan



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Stretch Phase

15. In *Quartet for the End of Time*, only the cello and this instrument play in the “Eulogy to the Eternity of Jesus” movement. Movements like “Hail Bop” appear in John Adams’ concerto for this instrument. Edvard Grieg’s *Lyrical Pieces* were composed for this instrument, and Liszt wrote a set of “Transcendental” etudes for it. Beethoven’s fifth concerto for this instrument is nicknamed “Emperor,” and the “Moonlight” sonata is written for it. For 10 points, name this instrument with black and white keys.

ANSWER: piano [or pianoforte]

Bonus: It is believed that this figure drowned in the Jucar River while trying to escape a Celtiberian army during a siege of Helice, and he put down the Mercenaries' War. For 10 points each:

[10] Name this Carthaginian general who captured the Sicilian sites of Mount Ercte and Mount Eryx, but was forced to sue for peace after Gaius Lutatius Catulus ended the First Punic War.

ANSWER: Hamilcar Barca

[10] This son of Hamilcar and brother of Hasdrubal used Boii guides when he crossed the Alps with an army that included 37 elephants during the Second Punic War.

ANSWER: Hannibal

[10] Hannibal and the Carthaginian army eventually lost to forces under Scipio Africanus the Elder at this 202 BC battle that ended the Second Punic War.

ANSWER: Battle of Zama

16. One form of this god had the head of a scarab beetle, and according to one legend this god’s tears became bees. This god is sometimes aided by the helpful snake Mehen, who has a namesake board game. This god changed into a giant cat and tore off the head of the evil serpent Apep, and the war goddess Sekhmet is sometimes called the “eye of” this god, who emerges each day in the east and departs in the west. For 10 points, name this Egyptian god of the sun, who is sometimes combined with Amon.

ANSWER: Ra

Bonus: At the onset of a plague in Thebes, the Oracle of Apollo reveals that the plague is a punishment for this figure’s death. For 10 points each:

[10] Name this husband of Jocasta, killed at the meeting place of three roads in Phocis by his son, whom he had earlier left for dead on a mountain side.

ANSWER: Laius

[10] Laius’ death figures prominently in this play by Sophocles, in which the title character ultimately blinds himself when he learns he has killed his father and committed incest.

ANSWER: Oedipus Tyrannus [or Oedipus the King; or Oedipus Rex]

[10] In the final play of Sophocles’ Oedipus trilogy, *Antigone*, the feud between these two sons of Oedipus eventually leads to Antigone’s entombment and suicide. Name either one.

ANSWER: Polynices and Eteocles [accept either]

17. Forces from this country won the 1471 Battle of Brunckerburg under Sture the Elder, and an early center in what is now this country was Visby. Archbishop Trolle instigated a 1520 massacre in this nation's capital, known as that city's "bloodbath," that prompted the installment of this nation's Vasa dynasty. This nation's king Charles XII was defeated in the Great Northern War, ending its time as a major Protestant power in Northern Europe. For 10 points, name this Scandinavian country with capital at Stockholm.

ANSWER: **Sweden** [or **Sverige**]

Bonus: Dryer sheets are sometimes used to prevent the buildup of this phenomenon. For 10 points each:

[10] Name this type of electricity that is caused by a buildup of charge on a surface.

ANSWER: **static** electricity

[10] This type of generator can output millions of volts of static electricity, but the current remains small enough that touching it merely shocks and does not kill.

ANSWER: **van de Graaff** generator

[10] In contrast, this other device produces electricity in current form, allowing it to give off plasma discharge and light up fluorescent bulbs from several feet away.

ANSWER: **Tesla coil**

18. The Eötvös rule states that this property decreases as temperature increases. The Young-Laplace equation relates pressure to the total vertical force produced by this phenomenon as a function of the radius of curvature. Emulsifying agents belong to a class of compounds that decrease this property, surfactants, and within a capillary, a meniscus forms as a result of this phenomenon. For 10 points, name this property of fluids, which arises from the attraction between molecules located on the liquid's surface with each other and nearby molecules.

ANSWER: **surface tension**

Bonus: Originally the hero of independence in his native country, he later turned it into a one-party state under the Convention People's Party. For 10 points each:

[10] Name this advocate of Pan-Africanism, who secured his country's independence from the British before being overthrown in a 1966 coup while on a state visit to Vietnam.

ANSWER: Kwame **Nkrumah**

[10] Until the coup, Nkrumah led this country, which was known as the Gold Coast while under British control.

ANSWER: **Ghana**

[10] Also a former colony in British West Africa, this country faced a war of independence from Biafra. Its leaders have included Olusegun Obasanjo and Umaru Yar'Adua.

ANSWER: **Nigeria**

19. One poem by this name described how a "powerful but unrecorded race / Once dwelt in that annihilated place." That poem by Horace Smith was likely part of a competition with the better known poem of this name, in which a traveler describes seeing a "sneer of cold command" on a "shatter'd visage." This poem is named for a monument reduced to "Two vast and trunkless legs of stone," whose inscription reads, "Look on my Works, ye Mighty, and despair!" For 10 points, name this Percy Shelley sonnet about a statue of an ancient king.

ANSWER: "**Ozymandias**"

Bonus: The occurrence of this phenomenon signals the coming of Ragnarok, and it will force brother to kill brother in its innumerable wars. For 10 points each:

[10] Name this occurrence of three successive winters without an intervening spring.

ANSWER: **Fimbulwinter**

[10] This fire giant and leader of the forces of Muspellheim battles Freyr at Ragnarok; his fires will engulf the earth.

ANSWER: **Surtr**

[10] This wolf bit off Tyr's hand when he was chained down, and will devour Odin but will be slain by Vidarr at Ragnarok.

ANSWER: **Fenrir** [or the **Fenris** wolf]

20. Robin Canup suggests that this body was formed from a giant impact of a Kuiper Belt object. Similar objects to this entity include Nix and Hydra, and this object was discovered in 1978 by James Christy when he noticed a periodic bulge in photographs of the body it orbits. This body is located in a system in which the center of gravity is not located within the object this body orbits, one of the reasons that orbited body is no longer a planet. For 10 points, name this object that orbits Pluto, named for the Greek ferryman of the dead.

ANSWER: **Charon** [accept **Pluto I**]

Bonus: For 10 points each, name these poems by Robert Frost.

[10] Beginning "He saw her from the bottom of the stairs / before she saw him," this poem ends with a husband telling his wife "I'll bring you back by force! I will!"

ANSWER: "**Home Burial**"

[10] The narrator has "miles to go before" he sleeps in this poem, in which his horse cannot figure out why they are resting "without a farmhouse near."

ANSWER: "**Stopping by Woods on a Snowy Evening**"

[10] The maxim "Good fences make good neighbors" ends this poem, in which the titular action keeps one man's apples from interfering with his neighbor's pine cones.

ANSWER: "**Mending Wall**"

21. This dynasty simultaneously fought Muslims in the Dungan and Panthay rebellions, and combined with the Nian rebellion, these would lead to the self strengthening movement led by Li Hongzhang and Zeng Guofan. This dynasty also saw the establishment of the Kingdom of Heavenly Peace in Nanjing by Hong Xiuquan during the Taiping Rebellion. For 10 points, name this Chinese dynasty whose internal problems were overshadowed by the Boxer Rebellion and the Opium Wars against the British, a Manchu dynasty of China that ended in 1912.

ANSWER: **Qing** Dynasty [prompt on early **Manchu** dynasty]

Bonus: Their kinetics can be described with the Michaelis-Menten equation, and these proteins lower the activation energy of a reaction. For 10 points each:

[10] Give the general name for these catalytic proteins.

ANSWER: **enzyme**

[10] This type of model for enzyme activity suggests that the substrate of an enzyme reshapes the enzyme's active site while binding is occurring. It modifies the traditional lock and key model.

ANSWER: **induced fit**

[10] This is the word for a compound that must be bound to an enzyme in order for it to function.

ANSWER: **cofactor** [accept **coenzyme**]

22. Tom Thumb's victory over Queen Glumdalca's giants highlights a work dubbed the "this word" of "this words," a play by Henry Fielding. Fletcher and Beaumont wrote a work about Melantius and Evadne titled after the maid's one of them. Vendice holds a skull in his hand at the beginning of a play by Cyril Tourneur named for the "Reverger's" one, while a play whose title ends with this word sees Balthazar fall in love with Bel-Imperia before Hieronymo goes mad and cuts out his tongue. For 10 points, name this concept, a "Spanish" version of which was written by Thomas Kyd.

ANSWER: **tragedy** [or **tragedies**]

Bonus: The first chord of this opera contains the notes F, B, D sharp, and G sharp, and is named after one of the title characters. For 10 points each:

[10] Name this opera in which the two title characters from Celtic myth are doomed after they drink a love potion.

ANSWER: **Tristan and Isolde** [or **Tristan und Isolde**]

[10] This German composer of *Tristan and Isolde* is most famous for his massive *Ring of the Nibelung*.

ANSWER: Richard **Wagner**

[10] The "Bridal Chorus" from this Wagner opera is often played at weddings today. The title knight marries Elsa, but she dies after he is carried away to join the other knights of the Holy Grail.

ANSWER: **Lohengrin**



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Tiebreakers + Extras

1. Like some arthropods, most members of this phylum bind oxygen to copper in a plus two oxidation state within the metalloprotein hemocyanin, which is suspended in hemolymph. Organisms in this phylum are characterized by the presence of a tongue-like ribbon with chitinous teeth called a radula. Some members possess a conchiolin and calcium carbonate shell secreted by a soft mantle covering. For 10 points, name this animal phylum that contains cephalopods, such as cuttlefish, and gastropods, such as snails.

ANSWER: **Mollusca** [accept **mollusks**]

2. This figure won military victories at Varese and at Volturno. He first gained fame fighting for the separatist Republic of Rio Grande do Sul in the War of Tatters, and later unleashed his legion in the Uruguayan Civil War. Better known are his defense of Mazzini's short-lived Roman Republic and a campaign against King Francis II of Naples, after which he subordinated himself to Count Cavour and Victor Emmanuel II. For 10 points, name this leader of Italian unification, who conquered the Kingdom of the Two Sicilies with his Red Shirts.

ANSWER: Giuseppe **Garibaldi**

3. This artist painted a book being reflected properly in the mirror faced by his patron Edward James, although the mirror paradoxically displays James's back, in *Not to be Reproduced*. His painting *Golconda* depicts men in suits falling from the sky. This artist also painted a room, bare save for a mirror hanging above a clock on the mantle, in which a small train emerges from the fireplace. Another of his paintings includes the words "This is not a pipe." For 10 points, identify this Belgian surrealist painter of *Time Transfixed* and *The Treachery of Images*.

ANSWER: Rene **Magritte**

Extra 20-point bonus:

The third section of this poem repeats the word "Holy" over and over. For 10 points each:

[10] Name this poem, whose narrator "saw the best minds of [his] generation destroyed by madness,"

ANSWER: "**Howl**"

[10] This beat generation poet wrote "Sunflower Sutra" as well as "Howl."

ANSWER: Allan **Ginsburg**

Extra 30-point bonus:

For 10 points each, name the following things related to tornadoes.

[10] The tell-tale funnel cloud that forms around a tornado is made out of this gas, which is made visible due to strong rotation.

ANSWER: water vapor

[10] This is the term given to a tornado that forms over water.

ANSWER: waterspout

[10] Tornadoes can be measured as F1 through F5 on this scale of tornado strength, named for a Japanese scientist.

ANSWER: Enhanced Fujita Scale