



HSAPQ

High School Academic Pyramid Questions

2008-2009
NSC-Format Set #2

Round 3

Related Tossups &
Bonuses

1. One ruler of this nation was overthrown at the Battle of Caseros after persecuting followers of Juan Lavalle with the Mazorca, a secret police. In addition to Juan Manuel de Rosas, this nation was led by Bartolome Mitre when it fought against Paraguay with Brazil and Uruguay during the War of the Triple Alliance, and during the late 1970's it experienced state persecutions in the Dirty War. Earlier, it was ruled by a man supported by the descamisados and succeeded by his wife Isabel. For 10 points, name this country ruled by Juan Peron.

ANSWER: Argentina

Bonus: It was founded by Babur after he defeated Ibrahim Lodi at the First Battle of Panipat. For 10 points each:

[10] Name this Indian empire.

ANSWER: Mughal Empire

[10] During his reign, this son of Humayun repealed the jizya and enacted other religious reforms tolerant of the Hindus.

ANSWER: Jalaluddin Muhammad Akbar [or Akbar the Great]

2. An equation relating diffusion and viscous flow is named after Stokes and this man, and an equation relating diffusion and conduction in ionic solutions is named for Nernst and this man. John Bell resolved a paradox named after this man, Podolsky, and Rosen. He used osmotic pressure as the basis for his investigations into Brownian motion, and proposed the particle theory of light to explain the photoelectric effect. For 10 points, name this physicist who also proposed the equivalence principle and other hallmarks of special relativity.

ANSWER: Albert Einstein

Bonus: It is the constant of proportionality between a photon's frequency and energy. For 10 points each:

[10] Name this constant, symbolized h , that when divided by two pi gives Dirac's constant.

ANSWER: Planck's constant

[10] This man's namesake wavelength is given by Planck's constant over a particle's momentum. He hypothesized the wave-particle duality of any moving object.

ANSWER: Louis de Broglie ("de BROU")

3. This composer contributed music to Broadway musicals like *Pardon My English* and *Oh Kay!* He borrowed the song "Échale Salsita" to compose his *Cuban Overture*, and he also composed an opera set on Catfish Row that includes the songs "Gone, Gone, Gone" and "Summertime." This man used blues and Charleston rhythms in his Piano Concerto in F, and one of this composer's works for piano and jazz band opens with a clarinet glissando. For 10 points, name this American composer of *Porgy and Bess* and *Rhapsody in Blue*.

ANSWER: George Gershwin [or Jacob Gershovitz]

Bonus: It includes movements named "The Grave-Song" and "The Convalescent." For 10 points each:

[10] Name this tone poem, which begins with trumpets playing the rising notes C-G-C.

ANSWER: Also Sprach Zarathustra [or Thus Spake Zarathustra]

[10] This German composed *Also Sprach Zarathustra*, as well as the opera *Der Rosenkavalier*.

ANSWER: Richard Strauss

4. This author collaborated with Gregory Bateson on *Balinese Character: A Photographic Analysis*, and Derek Freeman was a critic of this author of *Male and Female*. Research with Reo Fortune into the Manus of New Guinea is described in part of this author's autobiographical book *Blackberry Winter*, and this cultural determinist wrote a book examining *Sex and Temperament in Three Primitive Societies*. For 10 points, name this author of *Coming of Age in Samoa*.

ANSWER: Margaret Mead

Bonus: Robert Merton examined "social structure and" this concept, and it was first defined in "The Division of Labor in Society." For 10 points each:

[10] Name this sociological concept, resulting from the breakdown of societal standards and values, ultimately causing social instability.

ANSWER: anomie

[10] Emile Durkheim identified anomie as a major cause of the titular occurrence in this study of the forces that drive men to kill themselves.

ANSWER: Suicide

5. One neurometabolic disorder resulting from a mutation in these structures is called Leigh's disease, and a malfunction in them can also result in Leber's hereditary optic neuropathy. These structures contain channel proteins called porins, and they release cytochrome C during apoptosis. They contain two membranes, with folds in the inner one called cristae. These organelles may have originated as endosymbiotic prokaryotes, and they possess their own DNA. For 10 points, name these organelles that produce energy in animal cells.

ANSWER: mitochondria [accept mitochondrion]

Bonus: It can be decoupled by the protein thermogenin and pumps hydrogen atoms from the matrix into the inter-membrane space. For 10 points:

[10] Name this series of four enzyme complexes within the inner mitochondrial membrane that utilizes coenzyme Q in the Q cycle, and produces ATP through oxidative phosphorylation.

ANSWER: electron transport chain

[10] This element is reduced by complex IV of the electron transport chain, and serves as the final electron acceptor in the electron transport chain.

ANSWER: oxygen [accept O₂]

6. One character in this play believes that the "mind of God" contains the vastness of the universe, and several others sing "Blessed Be the Tie that Binds." That choir is led by Simon Stimson, a character who hangs himself in his attic. At the beginning of this play, a time capsule is placed in a bank. Wally and Mrs. Soames are among two dead souls whose voices are heard in its last act, "Death." This play is narrated by the Stage Manager and is set in Grover's Corners. For 10 points, name this play in which Emily Webb and George Gibbs marry and die, written by Thornton Wilder.

ANSWER: Our Town

Bonus: One of his plays ends with Jerry impaling himself on a knife after a bizarre conversation on a park bench. For 10 points each:

[10] Name this playwright of *The Sandbox* and *Zoo Story*.

ANSWER: Edward Albee

[10] In this Albee play, Martha and George play some vicious party games with Nick and Honey. Its final act reveals that Martha and George's son was imaginary all along.

ANSWER: *Who's Afraid of Virginia Woolf*

7. This ruler directly contradicted a papal prohibition to marry the daughter of Count Baldwin of Flanders. The later years of his reign saw church reform under his archbishop Lanfranc, as well as the defeat of Malcolm Canmore in retribution for his sheltering of Edgar Atheling, the successor of his great opponent, Harold Godwinson. He was succeeded on the mainland by Robert II and in England by William Rufus. For 10 points, name this victory at the 1066 Battle of Hastings, the first Norman king of England.

ANSWER: William the Conqueror [or William I, or William the Bastard; prompt on "William"]

Bonus: Although officially established in 1343, it is oftentimes dated back to a 1241 defensive alliance between Lübeck and Hamburg. For 10 points each:

[10] Name this economic coalition of German cities that dominated trade in northern Europe for much of the late Middle Ages.

ANSWER: Hanseatic League [or Hansa]

[10] Among the many ports founded by the Hanseatic League was this city in what is now northern Poland. During the 1980's its shipyards were the center of the Solidarity movement.

ANSWER: Danzig [or Gdansk]

8. In this people's belief system, a god represented by the planet Venus was a destructive force who failed to shoot down the sun, and their earth goddess wore a necklace of hearts taken from her victims. The rain god of this people was depicted with a crown of heron feathers, and carried four jugs, the last of which brought destruction. In addition to Tlahuizcalpantecuhtli, Coatlicue, and Tlaloc, they also worshipped a feathered serpent, who was said to one day return by boat. For 10 points, name this people of Central America, known for their worship of Quetzalcoatl.

ANSWER: Aztecs

Bonus: Usually acting on behalf of his father Nyame, at one point he decided to hoard all of the world's knowledge in a calabash. For 10 points each:

[10] Name this Ashanti god, often depicted as a spider, who gave the world stories after outsmarting various creatures.

ANSWER: Ananzi [accept Anansi]

[10] Ananzi is an example of this type of god, whose other forms include the Native American Coyote, the Chinese Sun Wukong, and occasionally the Greek Hermes.

ANSWER: trickster



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Category Quiz
Bonus Choices

Arts
Current Events
Geography
History
Literature
Math Calculation
Philosophy
Social Science

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Round 3

Category Quiz Tossups

9. The title character of one of this man's plays sees the Latin words "fly, man" appear on his arm in his own blood. This author wrote the line that begins John Donne's "The Bait," and created a character who trains a slave named Ithamore to be his evil aid before falling into a boiling cauldron after poisoning his own daughter Abigail. He wrote "come live with me and be my love" in "The Passionate Shepherd to His Love." For 10 points, name this author of *Doctor Faustus* and *The Jew of Malta*.

ANSWER: Christopher Marlowe

10. One artist from this country painted *The March of Humanity* and founded the radical magazine *Machete*. Another artist from this country painted *The Epic of American Civilization* on the walls of Dartmouth's Baker Library. A third artist from this country painted several self-portraits with monkeys, which also display her notable unibrow. Yet another artist from this country painted murals like *Man at the Crossroads* and *The Day of the Dead*. For 10 points, name this country home to David Siqueiros, Jose Orozco, Frida Kahlo, and Diego Rivera.

ANSWER: Mexico

11. The city of Gwadar in this country was once an Omani colony, and the Hunza and Nagar valleys are known for the longevity of their residents. Chitral and Gilgit are major cities in this country's north, and the colonial legacy can be seen in city names such as Abbottabad and Jacobabad. Kalat and Quetta are large cities in this country's portion of Baluchistan, and Muzaffarabad is the administrative capital of Azad Kashmir. It is home to cities such as Rawalpindi, Multan, Karachi and Lahore. For 10 points, name this country whose capital is Islamabad.

ANSWER: Pakistan

12. In 2004, he became the first NFL quarterback to throw for thirty touchdowns while throwing fewer than ten interceptions. In 2003, he found Freddy Mitchell to convert an improbable fourth and twenty-six against Green Bay in the NFC Championship Game. In 2008, he admitted he did not know the NFL had ties after his team tied Cincinnati, and he led his team to the 2009 NFC Championship game, in which he led a near-comeback against Arizona. For 10 points, name this former Syracuse quarterback who now starts for the Philadelphia Eagles.

ANSWER: Donovan McNabb

13. A Ramachandran plot can be constructed by extending a set of rules, developed by this scientist and Corey, which deals with the conformation and configuration of the polypeptide backbone. This scientist demonstrated that a defect in hemoglobin was the cause of sickle cell anemia, and he was the first to propose the concept of orbital hybridization. For 10 points, name this scientist who recommended a high intake of Vitamin C, and won Nobel Prizes in both Chemistry and Peace.

ANSWER: Linus Pauling

14. This city withstood a siege under the Holy Roman Emperor Henry IV due to its support of Countess Matilda. The 1293 Ordinances of Justice established this city's Signoria, and an event known as the Bonfire of the Vanities occurred in this city when it was led by the Dominican monk Savonarola. Pope Sixtus IV backed the Pazzi conspiracy, which took place in this city's cathedral, and it was the center of a feud between the Guelph and Ghibelline political factions. For 10 points, name this Italian city that was dominated by the Medici family during the 15th century.

ANSWER: **Florence**



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Category Quiz
Bonuses

Arts: This painting uses fallen spears to create a linear perspective, and features Niccolo da Tolentino wearing a magnificent red and gold hat. For 15 points, name this painting of a 1432 victory over Siena by Paolo Uccello.

ANSWER: *The Battle of San Romano*

Current Events: His attempts to flee the country failed when a company would only accept a wire transfer, and Jon Stewart recently blasted CNBC for letting this man off the air with only the question "How does it feel to be a billionaire?" For 15 points, name this perpetrator of what has been described as a massive Ponzi scheme.

ANSWER: Sir Allen Stanford

Geography: Its low salinity made it prone to freezing over as recently as the 1970s, and it is fed by the Don and the Kuban. For 15 points, name this shallowest sea on earth, connected to the Black Sea at the Strait of Kerch.

ANSWER: Sea of Azov

History: The father-in-law of John C. Fremont, this statesman and author of the memoir *Thirty Years' View* once fought a duel with Andrew Jackson. For 15 points, name this Missouri senator who earned the nickname "Old Bullion" for his support of hard money.

ANSWER: Thomas Hart Benton

Literature: In one work, this author told of Helen Graham, who marries the rascal Mr. Huntingdon. For 15 points, name this author of *Agnes Gray* and *The Tenant of Wildfell Hall*, a sibling to the author of *Villette*.

ANSWER: Anne Bronte [prompt on Bronte; accept Acton Bell; prompt on Bell]

Math Calculation: For 15 points, given a standard 52-card deck, calculate the probability that the top two cards are both aces. Express your answer as a fraction in lowest terms.

ANSWER: 1/221

Philosophy: He preceded William James in founding pragmatism. For 15 points, name this American author of "The Fixation of Belief" and "How to Make Our Ideas Clear."

ANSWER: Charles Sanders Peirce

Social Science: Historical ones involved John Law's Mississippi Company and the tulip trade. For 15 points, name this economic phenomenon in which prices become unsustainable and unreasonably high before suddenly collapsing.

ANSWER: bubbles



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Stretch Phase

15. Artistic depictions of this figure suggest that his obesity, ballooning skull, and other deformities might have been caused by either Fröhlich's syndrome or Marfan's syndrome. Towards the end of his reign, he adopted Smenkhkare as his coregent. Letters from Tushratta were among those excavated from his capital, Tell el-Amarna. He suppressed the worship of Amon-Re, and was succeeded by his son, Tutankhamen. For 10 points, name this husband of Nefertiti, who established a cult dedicated to the sun disk Aton.

ANSWER: Akhnaton [or Akhenaten; or Amenhotep IV; or Amenhopis IV]

Bonus: The "total internal" form of this phenomenon is actually a special kind of refraction. For 10 points each:

[10] Name this phenomenon by which a wave changes direction at a boundary, bouncing back into the medium from which it came rather than refracting into another medium.

ANSWER: reflection

[10] This phenomenon occurs to the reflected wave when it is perpendicular to the refracted wave. It occurs when the vibrations of a transverse wave are confined to a single plane.

ANSWER: polarization

[10] This is the angle of incidence at which an unpolarized incident wave will become a polarized reflected wave. It is equal to the arctangent of the ratio of indices of refraction.

ANSWER: Brewster's angle [prompt on polarization angle]

16. In one of this author's works, an encounter with Katya Bagnelli in Nice prompts the daughter of the Communist physician Lionel to return to her native country and treat crippled children. Another of her novels focuses on the evolving relationship between the Smales and their servant Mwawate. The discovery of a corpse by Jacobus prompts the rich industrialist Mehring to reevaluate the state of his life in this author's *The Conservationist*. For 10 points, name this South African author of *Burgher's Daughter* and *July's People*.

ANSWER: Nadine Gordimer

Bonus: The Soviet Union experienced a lot of growing pains during the early twentieth century. For 10 points each:

[10] Following the death of Lenin, this leader of the Red Army lost out in a power struggle to Joseph Stalin. He fled to Mexico, but was still murdered by a Stalinist assassin in 1940.

ANSWER: Leon **Trotsky** [or Lev Davidovich **Bronstein**]

[10] This 1921 to 1928 economic plan abandoned "war communism" and even reintroduced private ownership. Viewed as a sell-out, it was likewise assassinated by Joseph Stalin.

ANSWER: **New Economic Policy** [or **Novaya Ekonomicheskaya Politika**]

[10] What Stalin did like was this system of prisons and forced-labor camps for political dissidents.

ANSWER: **Gulag** system [or **Glavnoye Upravlyeniye Ispravitel'no-Trudovih Lagyeryey I koloniy**; or **Chief Administration of Corrective Labor Camps and Colonies**]

17. The term "shirk" is used in this religion to describe the sin of attributing divine traits to non-divine beings. Members of this religion use prayer beads to recite the ninety-nine names of God. Buraq is a flying horse that the founder of this religion used to make the "Night Journey," in which he ascended into heaven while visiting Jerusalem. Sects of this religion include the Seveners and the Twelvers, whose name denotes how many imams they recognize. For 10 points, name this religion, founded by Mohammad, that worships Allah.

ANSWER: **Islam**

Bonus: The speaker admonishes good men and grave men to "rage, rage against the dying of the light." For 10 points each:

[10] Name this poem in which the speaker asks his father to "curse, bless me now with your fierce tears, I pray" before making the title request.

ANSWER: "**Do Not Go Gentle into That Good Night**"

[10] "Do Not Go Gentle into That Good Night" is a poem by this British poet of the play *Under Milk Wood* and the short story collection *Portrait of the Artist as a Young Dog*.

ANSWER: Dylan **Thomas**

[10] This other Thomas poem recounts a young man who is held green and dying by time in the titular location, which is reminiscent of the Garden of Eden.

ANSWER: "**Fern Hill**"

18. A leading figure at this gathering's third session was Saint Charles Borromeo. It only moved to its primary site after failures to convene in Mantua and Vicenza. Its most important document is generally said to be *Benedictus Deus*, issued by Pius IV, and it also issued a namesake "Roman Catechism." First called by Pope Paul III, it organized opposition to Lutheran teachings while expanding the role of the new Jesuit order. For 10 points, name this 1545 to 1563 church council, held in northern Italy, that kick-started the Counter Reformation.

ANSWER: Council of **Trent**

Bonus: Found primarily in blood and lymph, they include basophils and eosinophils. For 10 points each:

[10] Identify these disease-fighting cells that come in granulocytic and agranulocytic classes.

ANSWER: leukocyte [or white blood cell]

[10] These leukocytes contain either CD4 or CD8 glycoproteins, which bind to MHC Class I or MHC Class II molecules, and are classified as either helper or cytotoxic.

ANSWER: T cells [accept T lymphocytes]

[10] Helper T cells are targeted by this retrovirus. Infection by this virus leads to a weakened immune system and vulnerability to opportunistic infection.

ANSWER: HIV [or human immunodeficiency virus; do not accept "AIDS"]

19. A phasor plot represents this function in a complex plane, and this function also appears in the Fourier and Laplace transforms. It is equal to the sum of the hyperbolic sine and hyperbolic cosine. Euler's formula states that this function of i theta equals $\text{cis } \theta$. This function, the only nonzero one to equal its own derivative, is often used in problems involving radioactive decay and compound interest. For 10 points, name this inverse of the natural logarithm, which involves a base e being raised to a power.

ANSWER: natural exponential function [accept exponentiation]

Bonus: In one of this man's plays, Pentheus is killed by the title characters, a group of madwomen led by his mother. For 10 points each:

[10] Name this ancient Greek playwright of *Bacchae* and *Medea*.

ANSWER: Euripides

[10] This Euripides play follows title characters such as Hecuba, Cassandra, and Andromache, as they reflect on how their lives have changed after their city was destroyed by the Greeks.

ANSWER: Trojan Women [or Troades; or Women of Troy]

[10] This Euripides play places the title woman in Egypt, where she is assured by Theonoe that her husband is alive; that husband later appears, shipwrecked on his way back from Troy.

ANSWER: Helen

20. One character in this novel dreams that mice are crawling all over him, and another is read the biblical story of Lazarus. That character receives a cross near the end of this work, and debates Lebezyatnikov. In this novel, the dastardly Pyotr Luzhin becomes engaged to the protagonist's sister. The central character is questioned by Porfiry Petrovich, and is befriended by Razumikhin, as well as the former prostitute Sonya. For 10 points, name this novel beginning with a murder committed by Raskolnikov, written by Fyodor Dostoevsky.

ANSWER: Crime and Punishment [or Prestupleniye i Nakazaniye]

Bonus: He was declared to be an outlaw by the Congress of Vienna. For 10 points each:

[10] Name this man, who escaped from exile on the island of Elba, and retook control of the French Army following his 1815 return to Paris.

ANSWER: Napoleon Bonaparte [accept either name]

[10] Napoleon's army marched into Belgium, where he was met and subsequently defeated by allied forces under the command of this man. He would later serve twice as Prime Minister of Great Britain.

ANSWER: Arthur Wellesley, Duke of Wellington [accept either underlined part]

[10] This name was given to time period during which Napoleon returned to power after escaping from exile. It ended with the restoration of King Louis XVII to the throne of France.

ANSWER: Hundred Days

21. This artist depicted four girls in a drawing room along with a Japanese vase in *The Daughters of Edward Darley Boit*. Two men in dark coats look at their instruments towards the left and two brightly clothed women wave their hands in the background as a plainly dressed woman dances in the foreground in *El Jaleo*. In another painting, he depicted a woman facing right, her hand on a curved red table, her pale skin contrasting with the dark background and black dress. For 10 points, name this painter who depicted Virginie Gautreau in *Madame X*.

ANSWER: John Singer Sargent

Bonus: He works for Potiphar and interprets the Pharaoh's dream about the coming of a famine. For 10 points each:

[10] Name this Old Testament figure, whose brothers sell him into slavery after he receives a colorful coat.

ANSWER: Joseph

[10] Joseph is the son of Rachel and this man, who also fathers Reuben, Simeon, and four others with Rachel's sister Leah.

ANSWER: Jacob

[10] This is the youngest son of Jacob, and his only other son with Rachel.

ANSWER: Benjamin

22. A weak form of this interaction can arise between a soft acid and soft base consisting of pi electrons. The low barrier form of this interaction occurs in enzymatic transition states where the donor and acceptor are closer than usual. Its presence in secondary protein structure allows for the formation of alpha helices and beta sheets. This type of interaction also links adjacent nuclear bases in DNA. For 10 points, name these bonds that form between electronegative elements with lone pair electrons and the namesake element, which occurs in liquids like ammonia and water.

ANSWER: hydrogen bond

Bonus: He designed Boston's Christian Science Center and the east wing of the National Gallery. For 10 points each:

[10] Name this Chinese-American architect of the JFK Presidential Library.

ANSWER: Ieoh Ming Pei

[10] Pei designed a glass pyramid that sits outside this French museum.

ANSWER: the Louvre

[10] Pei also created the building for this Cleveland museum, whose features include a glass pyramid sticking out of a square tower.

ANSWER: Rock and Roll Hall of Fame



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Tiebreakers + Extras

1. In the second act of this opera, a mezzo-soprano sings "Vieni: sul crin ti piovano" to try to forget her jealousy; earlier, she and two other members of a love triangle sing the trio "Veni, o diletta appressati." This opera's title character sings the arias "Ritorna vincitor" and "O patria mia," and it includes a "Triumphal March" celebrating a military victory. Though Amonasro escapes to his native land in the third act, the princess Amneris condemns her fiancé, an Egyptian officer, to capture and death. For 10 points, Radames is buried alive with an Ethiopian princess in what opera by Verdi?

ANSWER: Aida

2. These structures are lined by the tunica intima, tunica media, and tunica adventitia. The tunica media contains a circular layer of smooth muscle cells that contract and relax in vasoconstriction and vasodilation, respectively. One subset of these structures is inflamed in phlebitis and contains valves that fail to function in their "varicose" variety, while a second subset includes the aorta. For 10 points, name these structures through which blood flows, which include capillaries, arteries, and veins.

ANSWER: blood vessels [prompt on veins; prompt on arteries]

3. As a senator, this man backed Hattie Carraway and led a filibuster against the Glass Steagall Act. He built one third of a road after his state legislature gave him one third of the money he asked for. He simultaneously held the positions of senator and governor, and used the motto "Every Man a King" as part of his Share Our Wealth program, before he was shot by Dr. Carl Weiss in 1934. For 10 points, name this man, nicknamed the "Kingfish," who ruled over Louisiana politics during the 1930s.

ANSWER: Huey Pierce Long

Extra 20-point bonus:

This man wrote of being wakened to the thought of Judgment Day by "gunnery practice out at sea" in "Channel Firing." For 10 points each:

[10] Name this British author who also wrote novels like *Jude the Obscure* and *The Return of the Native*.

ANSWER: Thomas Hardy

[10] In this Hardy novel, Gabriel Oak works as a shepherd while hiding his love for Bathsheba Everdene, but they end up happily married in the end.

ANSWER: Far From the Madding Crowd

Extra 30-point bonus:

They depict bonds as lines between atoms. For 10 points each:

[10] Identify these molecule schematics that also show lone pairs of electrons.

ANSWER: Lewis dot structures [or Lewis diagrams]

[10] Multiple Lewis dot structures can be drawn for molecules exhibiting this phenomenon, in which electrons are delocalized over bonds.

ANSWER: resonance

[10] This quantity is calculated by subtracting the number of bonds and unshared electrons from valence electrons on an atom.

ANSWER: formal charge