



High School Academic Pyramid Questions

Fall 2008
ACF-Format Set #1

Round 4

Tossups

1. A person of this rank marries Mosca despite being in love with Fabrizio del Dongo in *The Charterhouse of Parma*. The first narrative poem by Chaucer is titled "the book of" a person of this rank. Another person of this rank is strangled on the orders of her brothers Ferdinand and the Cardinal in a John Webster play about one "of Malfi." In a poem, the portrait of a woman of this rank is "painted on the wall" by Fra Pandolf. For 10 points, name this noblewoman who titles a Robert Browning poem about "My Last" person of this rank, the wife of a duke.

ANSWER: **duchess**

2. The release of this catecholamine cannot be controlled in pheochromocytoma, and both it and an unmethylated precursor are transported by VMAT1. While it triggers vasoconstriction in smooth muscle, it dilates blood vessels in skeletal muscle. In the liver, its interaction with its beta-receptors causes glycogen to be broken down into glucose for energy. Frequently used to treat anaphylactic shock and secreted by glands that sit above the kidneys, for 10 points, identify this hormone and neurotransmitter responsible for the "fight or flight" response.

ANSWER: **adrenaline** [or **epinephrine**; do not accept noradrenaline or norepinephrine]

3. William Holman Hunt depicted this figure carrying a lantern and knocking on a wooden door in *The Light of the World*. An extremely foreshortened Andrea Mantegna painting depicts the corpse of this figure, who was controversially painted "in the house of his parents" by John Everett Millais. This figure is recognized by Cleophas in Caravaggio's painting *The Supper at Emmaus*. For 10 points, name this religious figure commonly depicted in paintings of his entry into Jerusalem, temptation by Satan, and crucifixion.

ANSWER: Jesus Christ [accept either or both names; accept clear-knowledge equivalents]

4. One of the claimants in this war chose to abdicate the Polish throne upon the death of his brother Charles IX. Another of the claimants had the support of the Holy Catholic League, and was assassinated by royal bodyguards; this was the one "of Guise". The surviving claimant, the lone Huguenot, founded the Bourbon dynasty and converted to Catholicism, supposedly saying, "Paris is well worth a mass." For 10 points, name this late-sixteenth-century War of Religion, which saw a battle for the French throne between three guys with the same name.

ANSWER: **War of the Three Henrys**

5. She starred in a music video where her character's love interest emerges from her tears and slays a Rajah, and she recently introduced a new line of vegan shoes. In addition to "Carmencita," she is set to star opposite Jake Gyllenhaal and Toby Maguire in the Jim Sheridan directed film *Brothers*. She starred as a toy store manager in *Mr. Magorium's Wonder Emporium* and as Evey in *V for Vendetta*. For 10 points, name this actress who starred opposite Zach Braff in *Garden State* and played Padme in *Revenge of the Sith* and *Attack of the Clones*.

ANSWER: Natalie **Portman** [or Natalie **Hershlag**]

6. Chitosan is a polysaccharide used effectively in bandages and ineffectively as a weight loss miracle because it swells as this quantity increases. Instruments used to measure it sometime account for its variation due to temperature, and those instruments generate a current at an electrode with high resistivity. The physiological one is fairly constant since deviations can denature enzymes. For ten points, give the term for this quantity, the negative base-ten logarithm of a solution's concentration of hydronium ions.

ANSWER: **pH** [prompt on acidity or basicity or equivalents]

7. The majority opinion in this case analyzed the creation of Lord Ellenborough's Act and ruled in favor of James Hallford. This decision expanded a previous case's doctrine of penumbras. Decided along with its companion case *Doe v. Bolton*, its majority opinion was written by Justice Harry Blackmun, who argued that the 14th Amendment guaranteed citizens the right to privacy, and ruled that the act in question was legal up to the first trimester. For 10 points, name this 1973 case that established a woman's right to an abortion.

ANSWER: **Roe v. Wade** [or **Wade v. Roe**]

8. One character with this surname is has a vision of the Devil, who mocks him for asserting that "all men will unite to take from life all it can give." Another character with this surname studies with Father Zossima. One tells the story of "The Grand Inquisitor," while another member of this family desperately pursues Grushenka before being falsely convicted for Smerdyakov's murder of Fyodor. For 10 points, Aloysha, Dmitri, and Ivan are all members of what family, which appears in a namesake novel by Fyodor Dostoevsky?

ANSWER: **Karamazov** Family [or **Brothers Karamazov**]

9. The anonymously authored *Vulgate Cycle* is sometimes named for this man, and he titles its longest section. Chretien de Troyes chronicled his rescue of a woman abducted by Meleagant in a story that labeled this man "The Knight of the Cart." This son of King Ban of Benwick accidentally killed Sir Gareth and faced off against the Dolorous Guard and fathered a son with Elaine who went on to capture the Holy Grail. For 10 points, name this father of Galahad, one of the strongest Knights of the Round Table.

ANSWER: Sir **Launcelot** du Lac

10. An agreement reached between this monarch and his Russian counterpart at Bjorko was ratified by neither country, leaving the state of a railroad connecting his capital city with Baghdad unresolved. He appointed Theobald von Bethmann-Hollweg to succeed Otto von Bismarck as Chancellor and backed Admiral von Tirpitz's suggestion that he begin to build a navy to rival Britain's. He abdicated and fled to the Netherlands on November 9, 1918, two days before his country officially lost World War I. For 10 points, name this last Kaiser of Germany.

ANSWER: **Wilhelm II** [or **William II**]

11. The fingers of this species exhibited large apical tufts. They used Mousterian tools, had an average cranial capacity of 1200 to 1800 cubic centimeters, and evolved from *Homo ergaster*. They lived from 130,000 to 28,000 years ago, coexisting with *Homo sapiens*, and the back of their skulls contained a protruding occipital bun. For 10 points, name this species of early humans whose skulls featured heavy brow ridges and low, sloping foreheads, named for their discovery in a German valley.

ANSWER: **Neanderthals** [or **Homo neanderthalensis**]

12. This man directed a film where Rita Heyworth played Elsa Bannister, *The Lady From Shanghai*. He directed an adaptation of Booth Tarkington's novel *The Magnificent Ambersons*, as well as a movie that includes "News on the March" and focuses on a man whose run for governor is ruined by an affair with the singer Susan Alexander. He formed the Mercury Theatre Company, and created and presented a radio adaptation of *The War of the Worlds*. For 10 points, name this director who portrayed a man who pines for his sled Rosebud in *Citizen Kane*.

ANSWER: George Orson Welles

13. One island in this body of water includes the locales of Darren and Alzour. In addition to containing Tarut Island, it bordered the early Dilmun and Lakhmid civilizations on its south shore, and the port of Siraf was a notable Sassanian port which served its north shore. Its west end is marked by the Shatt al-Arab, while its east end is separated from the Gulf of Oman by the Strait of Hormuz. Qatar juts into, for 10 points, what sea, containing the Tigris delta, which shares its name with the former name of Iran?

ANSWER: Persian Gulf [prompt on Arabian Gulf; do not accept The Gulf]

14. Differential traveltimes of PKP are often used to explain "super-rotation" in this region. The boundary between this area and another sees S-Waves dissipate. This area is separated into an inner solid region, and an outer liquid region, the rotation of which likely gives rise to the Earth's magnetic field. For 10 points, name this region of compressed nickel and iron, located below the Gutenberg Discontinuity with the mantle at the center of the earth.

ANSWER: the Earth's core [accept inner core before "S-Waves" is read; do not accept more specific answers afterwards]

15. One writer from this country wrote *The Other Shore* and *One Man's Bible*. In a novel from this country, Sandy and Pigsy accompany Aware-of-Vacuity, the Monkey King, on a mission to retrieve some scriptures. A block of jade descends from heaven to start the events of another novel from this country. In addition to *Journey to the West* and *The Dream of the Red Chamber*, its literature includes the story of Wei, Wu, and Shu fighting for prominence, the *Romance of the Three Kingdoms*. For 10 points, name this country, home to such authors as Lu Xun and Du Fu.

ANSWER: China

16. One figure in this work orders to chop a tree plentiful in fruits, whose stump is then banded, and the reigns of Darius of Mede and Cyrus the Great are described anachronistically in it. Its final book describes the destruction of Bel and the Dragon. Its namesake has visions of four beasts coming out of the sea, and another involving a two horned ram from the East and also recounts the writing of "mene, mene, tekel upharsin" at Belshazzar's feast. For 10 points, identify this book from the Old Testament, whose namesake survives after being cast into a lion's den.

ANSWER: Book of Daniel

17. The 1380 Battle of Kulikovo occurred near this city and, and in 1610 a Swedish army occupied this city to bail out Vasili Shuisky. The Nazi Operation Typhoon was a plan to capture this city, and the capital was moved from here in 1712. This city was burned to the ground after General Kutuzov won the 1812 Battle of Borodino, which prevented Napoleon Bonaparte from occupying it, and the foundation for the Kremlin was laid here in 1367. For 10 points, name this city which in 1918 became the capital of Russia again.

ANSWER: Moscow

18. One approximation for this process assumes negligible changes in temperature and only accounts for density changes in the buoyancy term; that approximation for it was developed by Boussinesq. This process occurs when a quantity equal to the product of the Grashof number and Prantl number is above 1700. Another law which assumes this process relates rate of heat transfer to surface area and difference in temperature, and was developed by Newton. For 10 points, identify this process, the primary mode of heat transport in fluids, which is different from conduction.

ANSWER: **convection** [or **convective flow**]

19. The speaker of the opening monologue of this play says he is the opposite of a stage magician because he gives you truth in the “disguise of illusion.” One character discusses Fitzhugh, who became “The Wolf of Wall Street,” and learns that her daughter has quit typing school. This play ends with the revelation that Betty is engaged to Jim O’Connor, ruining Amanda’s plans to find a “gentleman caller.” For 10 points, name this play about Tom and Laura Wingfield, a work by Tennessee Williams named for Laura’s collection of fragile animals.

ANSWER: *The **Glass Menagerie***

20. His serial works include *In Memoriam Dylan Thomas*, as well as a ballet choreographed by George Balanchine that includes a sarabande and a galliard, *Agon*. He composed a work that includes the fugal interplay of an oboe and flute, “Expectans expectavi Dominum,” in his *Symphony of Psalms*, and one of his scores represents Ivan Tsarevich’s struggle against Katschei. Another of his works opens with a bassoon ad libitum and includes “The Adoration of the Earth.” For 10 points, name this composer of *The Firebird* and *The Rite of Spring*.

ANSWER: Igor Fyodorovich **Stravinsky**

21. Brian Kernighan’s criticism of this language mentions how arrays of different lengths are considered different types, making operations on an arbitrary string impossible. Complex types can be defined in “record” blocks, and pointers are dereferenced with the carat. This language features a “repeat-until” loop. The program as a whole terminates with a period, and its main output function is “write.” Its object-oriented dialect called Delphi by Borland, for 10 points, name this programming language, named for a French mathematician with a famous wager.

ANSWER: **Pascal**

22. In one work, this character is enthralled by the songs of The Shaper, and gets philosophical insight from a dragon. In another, he is “the shape of a man” but “bigger than any man,” and his mother is impervious to the sword Hrunting. He is the spawn of Cain, and his head requires four men to carry it after he is killed by a Geatish warrior who frees the mead hall Heorot from this character’s deadly attacks. For 10 points, name this monster, the antagonist of Beowulf.

ANSWER: **Grendel**



HSAPQ

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Bonuses

1. For 10 points each, name these French painters.

[10] This impressionist painted a series of depictions of Rouen Cathedral at different times of the day, as well as numerous paintings of haystacks and water-lilies.

ANSWER: Claude **Monet**

[10] This artist's paintings of women include *Girl With a Watering Can*. He also painted *Le Moulin de la Galette* and *The Luncheon of the Boating Party*.

ANSWER: Auguste **Renoir**

[10] This painter of *The Floor-Scrapers* appears in *The Luncheon of the Boating Party*. He depicted the newly-designed boulevards of Paris in his painting *Paris, Rainy Day*.

ANSWER: Gustave **Caillebote**

2. "The Ghost of Marjorie Kinnan Rawlings" and "To my Friend Ezra Pound" are among the poems found in his collection *Pictures from Brueghel*. For 10 points each:

[10] Name this Modernist poet of "Desert Music" and *Spring and All*, who confessed "I have eaten the plums that were in the icebox" in "This is Just to Say."

ANSWER: William Carlos **Williams**

[10] This Williams poem centers on a title object "beside the white chickens" and "glazed with rain water."

ANSWER: "The **Red Wheelbarrow**"

[10] Williams wrote five books of this epic poem named after his hometown in New Jersey.

ANSWER: **Paterson**

3. It can be constructive or destructive. For 10 points each:

[10] Name this phenomenon, associated with the principle of superposition, which occurs when two waves traveling in a medium interact.

ANSWER: **interference**

[10] This experiment, performed by two American scientists, used the interference pattern generated by light waves reflected by mirrors to disprove the existence of luminiferous ether.

ANSWER: **Michelson-Morley** experiment

[10] This principle, named for a Dutch scientist, states that every point on a wavefront is a source of secondary waves.

ANSWER: **Huygens** principle

4. It was written from 1266 to 1273, after its author underwent a mystical experience which made him doubt the usefulness of Scholastic writings. For 10 points each:

[10] Name this work by a noted philosopher of the Dominican order, which attempted to systematize all of Catholic doctrine into a single, logically organized text.

ANSWER: **Summa Theologiae** [or **Summa Theologica**; or **Sum of All Theology** or reasonable equivalents]

[10] The *Summa Theologiae* was written by this canonized Scholastic philosopher, who had earlier written the *Summa Against the Gentiles* and *On the Government of Princes*.

ANSWER: Saint Thomas **Aquinas** [or San Tommaso **d'Aquino**]

[10] Thomas Aquinas was a student of this patron saint of scientists, who wrote extensive guides to scientific knowledge and was a leading opponent of the "two truths" doctrine of Averroes.

ANSWER: **Albertus Magnus** [or **Albert the Great**; or **Albert of Cologne**; prompt on **Albertus**]

5. This country's admiral Juan Williams helped defeat Bolivia and Peru in the War of the Pacific. For 10 points each:

[10] Name this country that secured its independence upon winning the battles of Chacabuco and Maipu.

ANSWER: **Chile**

[10] This commander, the son of an Irish father, became the second supreme dictator of Chile.

ANSWER: Bernardo **O'Higgins**

[10] In 1973, a CIA-backed coup overthrew Chilean president Salvador Allende and replaced him with this general who ruled until 1990 and was arrested for human rights violations in 1998.

ANSWER: General Augusto **Pinochet** Ugarte

6. The title character has affairs with Rodolphe Boulanger and Leon Dupuis. For 10 points each:

[10] Name this novel about a French woman who marries the country doctor Charles.

ANSWER: **Madame Bovary**

[10] This author of a novel about a Carthaginian priestess, *Salammbô*, wrote *Madame Bovary*.

ANSWER: Gustave **Flaubert**

[10] This novel of experience by Flaubert focuses on Frederic Moreau, who becomes infatuated with Marthe Arnoux.

ANSWER: A **Sentimental Education**

7. Answer the following about English architects, for 10 points each:

[10] His Queen's House became part of the National Maritime Museum, and he applied Palladio's principles of architecture to construct the Royal Banqueting Hall.

ANSWER: Inigo **Jones**

[10] This scientist and founder of the Royal Society used the Great Fire of London to redesign the city, as well as using the extra space to build St. Paul's Cathedral.

ANSWER: Sir Christopher **Wren**

[10] Inigo Jones argued that this structure was a Roman temple instead of a Druid site in a work about it "restored." It contains a ring of bluestones surrounded by a ring of larger sarsen stones.

ANSWER: **Stonehenge**

8. The first part of this process sees the formation of tetrads. For 10 points each:

[10] Identify this process which produces four haploid cells called gametes.

ANSWER: **meiosis**

[10] This event takes place when similar portions of DNA are swapped between non-sister chromatids. It usually occurs during Prophase I and is indicated by the presence of chiasmata.

ANSWER: **crossing over** [or **crossover**]

[10] Besides the ovum, the three cells produced from the primary oocyte that are discarded during meiosis are known by this two word term.

ANSWER: **polar bodies**

9. Among the early leaders of this group were Hercules Göldli and Kaspar von Silenen. For 10 points each:

[10] Name this group of former Helvetian mercenaries, officially founded on January 22, 1506, whose uniforms probably weren't designed by Michelangelo despite the common myth.

Answer: **Swiss Guard**

[10] The Swiss Guard is charged with guarding this tiny country located wholly inside the city of Rome, which is home to the Pope.

Answer: **Vatican** City

[10] The original Swiss Guard was blessed by this "Warrior Pope," a patron of the arts who commissioned a new ceiling for the Sistine Chapel.

Answer: **Julius II** [or **Giuliano** della **Rovere**]

10. This social scientist founded the anthropology department at Columbia, where his students included Alfred Kroeber. For 10 points each:

[10] Name this anthropologist who studied the Kwakiutl and promoted cultural relativism in works like *The Mind of Primitive Man*.

ANSWER: Franz **Boas**

[10] Boas also taught this anthropologist, the author of *Zuni Mythology* and *Patterns of Culture*.

ANSWER: Ruth **Benedict**

[10] In *The Chrysanthemum and the Sword*, Ruth Benedict controversially contrasted the "guilt culture" of the West with the "shame culture" of this Asian country.

ANSWER: **Japan**

11. Identify the following about some mathematical curiosities, for 10 points each:

[10] Generated by adding a half twist to a rectangle and joining the two ends produces this non-orientable surface with one side and one edge.

ANSWER: **Möbius strip**

[10] Dividing the sides of one of these shapes into thirds, and using the middle segment from each side as a base for one of these creates a Koch snowflake.

ANSWER: **equilateral triangles** [prompt on: **triangles**]

[10] This structure is formed by rotating the curve $y = 1/x$ over x about the x axis for x ranging from 1 to any arbitrary number. It has a finite volume, but has an infinite surface area.

ANSWER: **Gabriel's horn**

12. This character swears that she will marry Freddy-Eynsford-Hill. For 10 points each:
[10] Name this cockney flower girl who is taught to speak in an upper class accent by Henry Higgins.

ANSWER: Eliza Doolittle [accept either or both names]

[10] Eliza Doolittle appears in this play by George Bernard Shaw.

ANSWER: **Pygmalion**

[10] George Bernard Shaw also wrote this play about the title Salvation Army volunteer, who is the daughter of the unscrupulous arms dealer Andrew Undershaft.

ANSWER: **Major Barbara**

13. He was once forced to transform himself into a white mare and give birth to Sleipnir in order to avoid paying a giant for repairing the walls of Asgard. For 10 points each:

[10] Name this Norse trickster god, who in his normal male form fathered Hel, Fenrir, and the Midgard Serpent with Angrboda.

ANSWER: **Loki**

[10] Loki thus cheated on this wife of his as both a male and a female. She stuck with Loki anyway, catching the poison that dripped over his face after he was bound by the Aesir.

ANSWER: **Sigyn**

[10] One of Loki's most mischievous acts was giving Hoder an arrow made out of this plant, the only thing in the universe that had not taken an oath never to harm Hoder's brother Balder.

ANSWER: **mistletoe**

14. Answer the following about some Russian cities, none of which are Moscow, for 10 points each:

[10] This "window to the west" lies on the River Neva next to the Gulf of Finland. It was formerly known as Leningrad and contains the Winter Palace and the Hermitage museum.

ANSWER: **Saint Petersburg** [or **Petrograd**]

[10] This city is Russia's largest Pacific port, and it is also the terminus of the Trans-Siberian Railway. It also suffers from rampant pollution, rendering two-thirds of its districts unlivable.

ANSWER: **Vladivostok**

[10] Astrakhan is a major city which borders this body of water, which also has such ports as Astara, Iran and Baku, Azerbaijan.

ANSWER: **Caspian** Sea

15. She organized the International Congress of Women to oppose World War I. For 10 points each:

[10] Name this social worker whose time at Toynbee Hall inspired her to co-found an organization with Ellen Starr.

ANSWER: Jane **Addams**

[10] Addams founded this settlement house in Chicago which offered relief from poverty and vocational classes to its members.

ANSWER: **Hull House**

[10] Addams was an original charter member of this organization, which grew out of the Niagara Movement and published the magazine *The Crisis*.

ANSWER: **NAACP** [or the **National Association for the Advancement of Colored People**]

16. The fiftieth cantata of Bach and the writings of Socrates were both major influence on his fourth and final symphony. For 10 points each:

[10] Name this German composer who penned the popular *Hungarian Dances* and caused controversy in religious circles with his upbeat, non-Latin work, *A German Requiem*.

ANSWER: Johannes **Brahms**

[10] Brahms was a close friend, and possibly more, with Clara Wieck, the widow of this German composer of *Papillons*, *Carnaval*, and the *Rhenish* and *Spring* symphonies.

ANSWER: Robert Alexander **Schumann**

[10] Composed after receiving an honorary degree from the University of Breslau in 1879, this Brahms piece incorporates "Gaudeamus igitur" and other campus drinking songs.

ANSWER: **Academic Festival Overture**

17. In this novel, the protagonist discovers that his nose allows him to hear the thoughts of other people born at the same time he was. For 10 points each:

[10] Identify this novel about Saleem and Shiva Sinai.

ANSWER: **Midnight's Children**

[10] In this book, which earned its author a fatwa, the actors Gibreel Farishta and Saladin Chamcha are trapped on a hijacked plane.

ANSWER: *The* **Satanic Verses**

[10] This author wrote *Midnight's Children* and *The Satanic Verses*.

ANSWER: Salman **Rushdie**

18. One of these states that the divergence of a magnetic field is equal to zero. For 10 points each:

[10] Identify these four partial differential equations, which address the properties of the electric and magnetic field.

ANSWER: **Maxwell's** equations

[10] This law states that the amount of emf induced in a circuit is equal to the opposite of the derivative of the magnetic flux.

ANSWER: **Faraday's** law of induction

[10] This law provides an expression which may be integrated along the path taken by a current starting at a given point in order to calculate the resulting magnetic field.

ANSWER: **Biot-Savart** law

19. She wrote about a plague that destroys the human race in her novel *The Last Man*. For 10 points each:

[10] Name this British author of *Lodore* and *Valperga*.

ANSWER: Mary Wollstonecraft **Shelley** [prompt on **Shelley**]

[10] Mary Shelley is better known for this novel about a Swiss scientist who creates and abandons a monster, which then follows him to the Arctic.

ANSWER: **Frankenstein**

[10] The epigraph to *Frankenstein* comes from this epic poem whose second book features a meeting of devils in Pandemonium led by Beelzebub.

ANSWER: **Paradise Lost**

20. The American contingent in this war was known as the Lincoln Brigade. For 10 points each:
[10] Name this war in which the government of Manuel Azana y Diaz fell to the Falange in 1939.

Answer: **Spanish Civil War**

[10] This man, the generalissimo of the Falange, came to power at the end of the Spanish Civil War and ruled Spain until 1975.

Answer: Francisco **Franco** Bahamonde

[10] Perhaps the best-known event of the Spanish Civil War was the German bombing of this Basque town, later immortalized in a Pablo Picasso anti-war painting.

Answer: **Guernica**

21. Identify the following about a structure from organic chemistry. For 10 points each:

[10] These structures have two atoms of a certain element sharing a sigma bond and a pi bond. Compounds containing them exhibit cis-trans isomerism.

ANSWER: **carbon-carbon double bond** [or **C-C double bond**; prompt on **double bond**]

[10] This functional group is characterized by a carbon-carbon double bond, and is exemplified by propene, pentene, and hexene.

ANSWER: **alkene** [or **olefin**]

[10] The substituents across a carbon-carbon double bond are described by two letters, which are the first letters of the German words for “together” and “opposite.” Name either.

ANSWER: **E** or **Z** [do not accept “entgegen” or “zusammen”]