



High School Academic Pyramid Questions

2008-2009
ACF-Format Set #3

Round 1

Tossups

1. This body holds a one-to-two resonance with the objects known as Twotinos. This object is itself surrounded by rings named for Arago and Lassell, while its outermost Adams ring sports clumps referred to as arcs. This body's atmosphere exhibits a feature known as the Wizard's Eye, and this body has the strongest winds in the solar system, although its largest storm had apparently (*) disappeared by 1994 and was known as the Great Dark Spot. Visited in 1989 by Voyager 2, for 10 points, name this parent planet of the moon Triton and the outermost gas giant of the solar system.

ANSWER: Neptune

2. This author recounted how books made him weak in an autobiographical work about exercising, *Sun and Steel*. Noburo kills his mother's lover Ryuji for abandoning the life of a seaman in one of this man's novels, and another of his works features the scandalous pregnancy of Satoko, the lover of Kiyooki. This author of *The Sailor who (*) Fell from Grace with the Sea* included his novel *Spring Snow* in his *Sea of Fertility* tetralogy. For 10 points, name this Japanese author of *Confessions of a Mask* and *The Temple of the Golden Pavilion* who committed seppuku on live television.

ANSWER: Yukio Mishima [accept in either order]

3. The Festival of the October Horse featured a sacrifice to this god, and Anna Perenna tricked this god into marrying her, thinking she was Minerva. The Roman battle standards initially lost at Carrhae were installed in a temple to this god built by Augustus, who worshiped him as Ultor. Flora used a magical herb to help Juno give (*) birth to this god without a father. The woodpecker was sacred to this god, and he impregnated the vestal virgin Rhea Silvia, becoming the father of Romulus and Remus. For 10 points, name this Roman god of war.

ANSWER: Mars [accept Ares]

4. An early form of this idea was expanded by the German epidemiologist Max von Pettenkofer and introduced by Johann Dobereiner, while John Newlands compared it to a musical scale in his development of laws regarding it; those were the law of triads and the law of octaves. Glenn (*) Seaborg made the last major modification to this object, and either Lothar Meyer or Dmitri Mendeleev is credited with introducing its modern form. For 10 points, name this ubiquitous figure that gives the atomic weight, number, and symbol for every element.

ANSWER: periodic table of the elements

5. Scriabin claimed that this key was "golden brown," citing an aria about gold and jewels in this key from *The Miserly Knight*. One musical work in this key originally contained an opening and closing march and two minuets before its composer axed both marches and a minuet to turn it into the *Haffner Symphony*. Another piece in this key was originally paired with a (*) gigue in the same key and contains a notable one-four-six-three-four-one-four-five chord progression. For 10 points, name this relative major of B minor, in which Johann Pachelbel wrote a notable canon.

ANSWER: D major [prompt on D; prompt on early Haffner symphony]

6. This character consoled a librarian who he believed “need[ed] a little tenderness” in one episode, and he coached Miss Rhode Island in the Miss America pageant in another. He also refused to wear a red ribbon in an AIDS walk, gave a “Peterman (*) Reality Bus Tour,” and has a mysterious friend named Bob Sacamano. He wrote a coffee-table book about coffee tables, and hid his first name from his friends for years before his mother Babs revealed it to be Cosmo. For 10 points, name this character played by Michael Richards, Jerry’s next door neighbor on *Seinfeld*.

ANSWER: Cosmo Kramer

7. One of these entities protects the sleeping Charlemont in *The Atheist's Tragedy*. Another one is brought on stage by Revenge to witness the death of Balthazar in Kyd's play *The Spanish Tragedy*. One of these figures tells Brutus "thou shalt see me at (*) Philippi" in *Julius Caesar*, while the presence of another torments Macbeth at a banquet after the murder of Banquo. Another one recounts how Claudius killed him by pouring poison in his ears. For 10 points, name these supernatural beings, one of whom tells Hamlet to revenge his murder.

ANSWER: ghosts

8. Giuseppe Fieschi attempted to assassinate this man with several rigged guns that ended up killing eighteen other people instead. With Charles Francois Dumouriez, this man deserted the French army in 1793. His advisors included Louis Mole and Francois Guizot, and his father was the duc (*) d’Orleans. He came to power due to the support of the Marquis de Lafayette, and his reign was known as the July Monarchy. For 10 points, name this man who served as the citizen king of the French before being succeeded by Napoleon III.

ANSWER: Louis Philippe

9. A sequel to this work by T. C. Boyle sees the protagonist fined for having a product made in Hong Kong, and this work’s protagonist is often spotted near the Kalinkin Bridge. Its protagonist is on his way to a coworker’s for tea when two men jump him and push him into a snowbank after stealing the title (*) object, which was made by Petrovich. The protagonist haunts St. Petersburg until a “certain important personage” gives him a warm garment. For 10 points, name this story in which Akakei Akakeiavich is robbed of the title jacket, by Nikolai Gogol.

ANSWER: “The Overcoat” [accept “The Cloak”; accept “Shinel”]

10. The Kakabeka Falls are located on a tributary of this body of water, the Kaministiquia River, and it is also fed by the Nipigon and St. Louis Rivers. The Porcupine Mountains are to its south, and Copper Island is an extension of Keweenaw Peninsula in this feature. Manitou and Madeline are among the Apostle Islands in this lake, which drains via the St. (*) Marys River and also contains Isle Royale. Called Gichigami in Ojibwe, the Mesabi Iron Range is to its northwest, and its western terminus is at Duluth, Minnesota. For 10 points, name this largest of the Great Lakes.

ANSWER: Lake Superior

11. He created the Jesuit priest Frey Antonio, who he claimed was a real author of a work outlining Abul Hassan’s conquest of a frontier town as well as Boabdil’s capture by Ferdinand I. This author of *The Alhambra* and *A Chronicle of the Conquest of Grenada* also wrote a work in which (*) Diedrich Knickerbocker describes a man in the Catskills who sleeps for twenty years. This man wrote of Brom Bones, who is a rival for the hand Katrina von Tassel with Ichabod Crane. For 10 points, name this author of “Rip Van Winkle” and “The Legend of Sleepy Hollow.”

ANSWER: Washington Irving

12. A test for its rate of occurrence uses the International Normalized Ratio, which can be increased with a deficiency in Vitamin K. Christmas factor and Factor VIII are two of thirteen plasma factors necessary for this process, another of which is von (*) Willebrand's factor. This process is hindered in people with Bernard-Soulier syndrome. This process forms a fibrin network upon an accumulation of thrombocytes, and it is deficient in hemophiliacs. For 10 points, name this process in which platelets help to seal up damaged blood vessels.

ANSWER: coagulation [or blood clotting]

13. Richard Stockton, Daniel Rodney, and Robert Harper were members of this party who received vice presidential votes from the Electoral College. This party's last major candidate, Rufus King, ran twice for vice president under Charles (*) Pinckney. One member of this party published a Report on Manufactures, and policies of this party were attacked in the Virginia and Kentucky Resolutions. One member of this party warned against foreign entanglements in his farewell address. For 10 points, name this early political party of Hamilton, Adams, and Washington.

ANSWER: Federalist Party

14. One of the more easterly discoveries of this group was at the Kebara Cave on Mount Carmel in Israel. This group used the Levallois technique to produce Mousterian tools and was named for the German valley where their fossils were first discovered in 1856. A common descendant of (*) *homo heidelbergensis* along with modern humans, they may have interbred or fought with *homo sapiens* near the end of the Ice Age. For 10 points, name this pre-modern hominid which possessed a large browridge and inhabited Europe until about thirty thousand years ago.

ANSWER: Neanderthals

15. Eunuchs who held power in this polity included Joseph Bringas and a man known as "the chamberlain" whose nephew would win the Battle of Kleidion. Claimants to this state's throne ruled in Trebizond, Epirus, and Nicaea after it was replaced by the (*) Latin Empire. It was later restored by Michael Palaeologus, and among its more successful rulers were Basil the Bulgar-Slayer and Justinian. For 10 points, name this empire which ceased to exist after Mehmed II captured Constantinople, also known as the Eastern Roman Empire.

ANSWER: Byzantine Empire [accept Byzantium; accept Eastern Roman Empire before it is read; prompt on Roman Empire or equivalent]

16. He made five versions of his best-known print, which includes a horseman holding a lance and is entitled *Three Crosses*. One painting by this man shows the dissection of the criminal Aris Kindt, and another is a group portrait of sampling officials entitled *The (*) Syndics of the Cloth Guild*. This man's best-known work includes a girl carrying a chicken and depicts the company of Willem van Ruytenburch and Frans Banning Cocq. For 10 points, name this Dutch artist of *The Anatomy Lesson of Dr. Nicolaes Tulp* and *The Night Watch*.

ANSWER: Rembrandt [or Rembrandt Harmenszoon van Rijn]

17. The effects that this theory describes can be illustrated by a set of four Bianchi identities and sixteen coupled nonlinear partial differential field equations, which can be solved using the Schwarzschild metric. According to this theory, a flat Minkowskian (*) spacetime would be seen in empty space, and it can be used to explain frame dragging and lensing due to the curvature of space. For 10 points, an accelerating reference frame is equivalent to a reference frame in a certain type of field according to what theory of gravitational forces proposed by Einstein?

ANSWER: General Relativity [or GR; prompt on relativity]

18. This thinker's minor works include a *History of Henry VII*. Many of his philosophical works were penned for a Latin collection known as the *Instauratio Magna*, as with his *De augmentis scientiarum*. Better known are a work that describes Salomon's House and a utopian society on the island of Bensalem, as well as a work in which he outlines four (*) "idols of the mind" that oppose his empirical system. For 10 points, identify this English philosopher of *The New Atlantis* and the *Novum Organum*, who is often credited with formulating the scientific method.

ANSWER: Francis Bacon, Viscount Saint Albans [prompt on Saint Albans]

19. He defeated the forces of Erns von Mansfeld at Desau, and his designs for a maritime empire on the Baltic crumbled when he lost at Stralsund. He was granted the Duchy of Mecklenburg after driving the dukes from their lands, and his lieutenants Matthias Gallas and Ottavio Piccolomini conspired against him. He was assassinated in Eger while attempting to start negotiations with Sweden. His forces killed (*) Gustavus Adolphus, but lost the Battle of Lutzen. For 10 points, name this imperial general of the Thirty Years' War, the subject of a set of plays by Friedrich Schiller.

ANSWER: Albrecht von Wallenstein

20. This work's themes may have been taken from an unfinished E flat major symphony, though no program was ever released for it. It contains the then-unprecedented notation of *pppppp*. Arnold Schoenberg described this work's finale as "start[ing] with a cry and end[ing] with a moan;" that finale is marked *adagio lamentoso*. Its second movement features a "limping waltz" in 5/4 time, and its composer (*) died just nine days after its premiere. For 10 points, name this final symphony of Peter Tchaikovsky, named for its expressiveness of emotion.

ANSWER: *Symphonie Pathetique*, No. 6 in B minor [accept Tchaikovsky's Symphony No. 6; accept Symphony No. 6 after "Tchaikovsky"]

21. After moving to Paris, this author wrote a novel in which Gilbert Blount is murdered by Cross Damon. This author wrote about a mob that burns Bobo alive after four black children encounter a white woman at a swimming hole in his short story "Big Boy Leaves Home," which appears in his collection *Uncle Tom's Children*. He gained renown for a novel about a character defended by the lawyer (*) Boris Max after accidentally strangling Mary Dalton. For 10 points, name this author of *Black Boy* who wrote about Bigger Thomas in *Native Son*.

ANSWER: Richard Wright

22. Most of its population was killed in 1238 by Bat Khan. By the terms of 1667's Treaty of Andrusovo, this city became part of an autonomous Cossack state. Simon Petyura declared an independent nation here in 1918, and *The Tale of Bygone Years* claims that this city was founded by the brothers Shchek, Kiy, and Khoriv. Oleg of Novgorod made it capital of the first East Slavic state in 882 CE, and the nearby (*) ravine of Babi Yar was the site of a massacre by Nazis during World War II. For 10 points, name this foremost city of the Rus, the capital of Ukraine.

ANSWER: Kiev

23. A generalized form of this statement is named for Brahmagupta, and this statement's namesake proved it in Proposition 1.8 of his *Metrica*. To use it, calculate half of the sum of the side lengths, known as the (*) semiperimeter, to find the difference between the semiperimeter and each side length, then multiply the semiperimeter by the product of those differences, and take the square root. For 10 points, identify this geometric theorem, named for a Greek mathematician, which gives the area of a triangle in terms of side lengths.

ANSWER: Heron's formula [accept Hero's formula]



HSAPQ

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Bonuses

1. For the monomial x -to-the- n it is equal to n times x -to-the- n -minus-one. For 10 points each:

[10] Identify this fundamental concept from calculus, which for a function f -of- x is equal to the instantaneous rate of change of f -of- x at every point.

ANSWER: first **derivative** of f -of- x [do not accept "differential"]

[10] This important statement identifies integrals as anti-derivatives, stating that the definite integral of a function from a to b is equal to its anti-derivative evaluated at b minus its anti-derivative at a .

ANSWER: **Fundamental Theorem of Calculus** [prompt on **Fundamental Theorem**]

[10] This two-dimensional analog of the Fundamental Theorem of Calculus relates the line integral around a closed curve to the double integral over the area it bounds.

ANSWER: **Green's Theorem** [accept **Stokes' theorem**]

2. This king was the father of both Richard the Lion-Hearted and King John. For 10 points each:

[10] Name this Plantagenet ruler of England whose knights killed Thomas á Becket.

ANSWER: **Henry II** [prompt on **Henry**]

[10] This wife of Henry II was a patron of the arts and later served as regent for Richard I during that king's time on the Crusades.

ANSWER: **Eleanor of Aquitaine** [or **Éléonore d'Aquitaine**; prompt on partial answer]

[10] Eleanor was previously married to this king of France, whose allies included Abbot Suger and Pope Alexander II.

ANSWER: **Louis VII** [prompt on **Louis**]

3. This author wrote about an idealistic doctor taught by Max Gottlieb in *Arrowsmith*. For 10 points each:

[10] Name this American author of *Dodsworth* and *Main Street*.

ANSWER: Sinclair **Lewis**

[10] The title character of this Lewis novel has an affair with Tanis Judique before reconciling with his wife Myra. It focuses on a realtor who becomes dissatisfied with his boosterism and conformity.

ANSWER: **Babbitt**

[10] After being kicked out of Mizpah Theological Seminary for sleeping with Lulu Bains, the title character of this novel becomes a renowned Methodist preacher.

ANSWER: **Elmer Gantry**

4. After leaving office due to poor health, this man was never seen again in public. For 10 points each:
[10] Name this General Secretary of the Soviet Union who was succeeded by Konstantin Chernenko. He became leader upon the death of Brezhnev.

ANSWER: Yuri Vladimirovich **Andropov**

[10] Konstantin Chernenko was succeeded by this last leader of the Soviet Union. He was famously instructed by Ronald Reagan to "Tear down this wall!"

ANSWER: Mikhail Sergeevich **Gorbachev**

[10] The Soviet Union kept forces in this country until 1989. The mujahedeen forces in this country were backed by the United States, and Osama Bin Laden trained troops here.

ANSWER: Islamic Republic of **Afghanistan** [or Jomhuriyah Eslamiyah **Afghanestan**]

5. It is the home of the Giant's Causeway. For 10 points each:

[10] Name this smallest of the four primary subdivisions of the United Kingdom, with capital at Belfast.

ANSWER: **Northern Ireland** [do not accept or prompt on "Ireland"]

[10] Northern Ireland roughly corresponds with this historical province of Ireland. It lies due north of Leinster and northeast of Connacht.

ANSWER: **Ulster** [or **Ulaidh**]

[10] Located in Northern Ireland is this largest lake in the British Isles. It is drained by the Lower Bann River.

ANSWER: Lough **Neagh** [or Loch **Neathach**; accept Lake **Neagh**]

6. This work was published in *Barrack-Room Ballads*. For 10 points each:

[10] Name this poem in which the title water carrier is dubbed "a better man than I."

ANSWER: "**Gunga Din**"

[10] "Gunga Din" is a poem by this British poet who also wrote *The Jungle Book* and "The White Man's Burden."

ANSWER: Joseph Rudyard **Kipling**

[10] This Kipling poem contains a title word that denotes conditions like being able to "keep your head." The speaker notes that when these conditions are met, "you'll be a man, my son!"

ANSWER: "**If--**"

7. His religious views resulted in his being removed from the faculty at Oxford. For 10 points each:

[10] Name this British theologian who, in 1382, was the first to translate the Bible into English.

ANSWER: John **Wycliffe**

[10] These followers of Wycliffe included John Oldcastle among their numbers.

ANSWER: **Lollards** [accept **Lollardy**]

[10] This 1414 to 1418 ecumenical council ended the Great Schism, condemned Wycliffe, and resulted in Jan Hus being burned at the stake.

ANSWER: Council of **Constance**

8. It was led by a very obese general who named himself emperor of the Great Yen dynasty in 755 CE. For 10 points each:

[10] Name this Chinese rebellion whose namesake leader was probably of Turkish origin.

ANSWER: **An Lushan** Rebellion

[10] The An Lushan Rebellion attempted to overthrow this dynasty, whose great poets included Li Po and Du Fu.

ANSWER: the **Tang** Dynasty [or **Tang** Chao]

[10] This rebellion in China took place from 1850 to 1864. Nearly twenty million were killed in this upheaval, whose leader Hong Xiuquan believed he was the younger brother of Jesus.

ANSWER: **Taiping** Rebellion

9. Salvador Dalí painted the one of "Port Lligat" with a missing torso. For 10 points each:

[10] Name this figure who appears "with the Long Neck" in a work by Parmigianino.

ANSWER: the **Madonna**

[10] *Madonna of the Rocks* was painted by this Italian, whose other works include a drawing of the *Vitruvian Man*, and the portrait known as the *Mona Lisa*.

ANSWER: **Leonardo da Vinci** [accept either]

[10] This "faultless" painter created *Madonna of the Harpies* and was the teacher of Jacopo da Pontormo. His other works include a fresco cycle of the life of John the Baptist.

ANSWER: Andrea del **Sarto**

10. This poet claimed to have invented "the color of the vowels" in his masterwork. For 10 points each:

[10] Name this poet who was shot in the wrist by his lover, and who wrote "The Drunken Boat," *Illuminations*, and *A Season in Hell*.

ANSWER: Jean Nicolas Arthur **Rimbaud**

[10] Rimbaud's lover was this other French poet of the *Saturnine Poems*.

ANSWER: Paul-Marie **Verlaine**

[10] Rimbaud and Verlaine were major proponents of this school of poetry, which also included Stephane Mallarme.

ANSWER: **Symbolism** [accept word forms]

11. Zurga is elected king of the title characters in an opera by this man that includes a priestess named Leila and the duet "Au fond du temple saint." For 10 points each:

[10] Name this French composer of the opera *The Pearl Fishers*, the piano pieces collected in *Jeux d'enfants*, and incidental music for *L'Arlésienne*.

ANSWER: Georges **Bizet**

[10] The title character of this Bizet opera is a gypsy who loves the toreador Escamillo but is killed by the corporal Don Jose. It is based on a novel by Prosper Mérimée.

ANSWER: **Carmen**

[10] This aria from *Carmen* features a descending chromatic melody and is sung by Carmen outside the cigarette factory in Act I. Its first line translates as "Love is a gypsy boy, 'tis true."

ANSWER: "**Habanera**"

12. This figure fashioned the first lyre out of a tortoise shell after stealing Apollo's cattle. For 10 points each:

[10] Name this messenger god of Greek mythology who possessed some winged sandals.

ANSWER: **Hermes**

[10] Hermes killed this hundred-eyed figure that Hera had set as a watchman on Io. After his death, Hera gave his eyes to the peacock.

ANSWER: **Argus**

[10] Hermes was the son of this nymph, one of the Pleiades.

ANSWER: **Maia**

13. Chris Martin has suggested that they will disband following the release of their fifth full-length album in late-2009. For 10 points each:

[10] Name this British alternative rock band that released *Viva La Vida* in June 2008.

ANSWER: **Coldplay**

[10] Martin claims that he "drew a line for you" and that "your skin and bones" turn into "something beautiful" in this Coldplay song whose refrain claims that all is the titular color.

ANSWER: "**Yellow**"

[10] Martin asks "don't you" do the title action of this Coldplay song playable on Guitar Hero World Tour, which begins "So I look in your direction, but you pay me no attention, do you?"

ANSWER: "**Shiver**"

14. This work contains sections like "The Woodcutter's Song" and "The Sands Betrayed." For 10 points each:

[10] Name this poem, an epic about South America, which contains the section "The Heights of Macchu Picchu."

ANSWER: **Canto General** [accept **General Song** or English equivalents]

[10] This Chilean poet who wrote odes to "A Fresh Tuna in the Market" and to "Onions" wrote *Canto General*.

ANSWER: Pablo **Neruda** [accept Neftali Ricardo **Reyes** y Basoalto]

[10] Neruda wrote "in you everything sunk" in this poem, the twenty-first in a collection that also includes *Twenty Loves Poems*.

ANSWER: the "**Song of Despair**" [accept "A **Song of Despair**"; accept "una **canción desesperada**"]

15. Autoionization of water produces a hydrogen cation and this anion. For 10 points each:

[10] Name this anion, which is discharged into solution by all Arrhenius bases.

ANSWER: **hydroxide** [accept **OH⁻¹**]

[10] This kind of organic molecule contains a hydroxide group and is written ROH. A common example is the drinkable C₂H₅OH, or "ethyl" variety.

ANSWER: **alcohol**

[10] This kind of molecule is the product of the Pinacol rearrangement and contains two hydroxide groups. The "ethylene" version is commonly used as antifreeze.

ANSWER: **diol** [or **glycol**]

16. The one of Parlemant was ended after the Peace of Rueil, and the one of the princes was instigated by the Great Conde. For 10 points each:

[10] Name these French civil wars of 1648 to 1653 that occurred during the minority of Louis XIV.

ANSWER: **Frondes**

[10] This cardinal, who served as the first minister of France following the death of Richelieu, was the target of the Frondes.

ANSWER: Cardinal Jules **Mazarin**

[10] In the Day of Dupes, this queen consort to Louis XIII and mother of Louis XIV failed to persuade Louis XIV to dismiss Richelieu.

ANSWER: **Anne of Austria**

17. Its proximal end is marked by the trochlear notch, which is bounded by the olecranon and coronoid processes. For 10 points each:

[10] Name this medial of the two bones in the forearm that articulates with the wrist bones near the base of the thumb.

ANSWER: **ulna**

[10] The lateral of the two bones in the forearm is this one, the most commonly fractured bone in people over 50 years old.

ANSWER: **radius**

[10] Tendons, nerves, and blood vessels pass through the namesake “tunnel” of these wrist bones, which include the scaphoid, hamate, and trapezium.

ANSWER: **carpals** [or **carpal tunnel**]

18. Schoenberg wrote an essay about this man “as Progressive.” For 10 points each:

[10] Name this German composer of a *Tragic Overture* and a first symphony often referred to as “Beethoven’s Tenth.”

ANSWER: Johannes **Brahms**

[10] Brahms’ Opus 49, No. 4 is one of these kinds of songs, often sung to get babies to go to sleep.

ANSWER: **lullaby**

[10] Near the end of this work, composed in honor of an honorary doctorate given by the University of Breslau, Brahms quotes the popular song “Gadeamus igitur.”

ANSWER: **Academic Festival Overture** [accept Opus **80**]

19. They share many properties with the more massive muon and tauon. For 10 points each:

[10] Name this negatively-charged subatomic particle, one of which may be found in every atom of hydrogen.

ANSWER: **electron** [accept **e-negative** or **e-minus**]

[10] The electron, muon, and tauon are each associated with one of these miniscule uncharged particles, which appear in weak force interactions. They were long thought to be massless.

ANSWER: **neutrinos** [accept anti-**neutrinos**]

[10] Electrons, muons, and tauons, in addition to neutrinos, comprise this class of subatomic particles. Unlike hadrons, they do not interact via the strong nuclear force.

ANSWER: **leptons**

20. The “stagflation” of the 1970s showed that this construct does not always hold. For 10 points each:
[10] Identify this economic graph, purporting to demonstrate an inverse relationship between inflation and unemployment.

ANSWER: the **Phillips** curve

[10] This monetarist and member of the Chicago School joined with Edmund Phelps to revise the Phillips Curve. He expressed his political views in *Capitalism and Freedom*.

ANSWER: Milton **Friedman**

[10] Friedman posited that the long-run Phillips Curve is vertical due to this value, posited to be about five percent, which limits how quickly the economy can grow without causing inflation.

ANSWER: **natural rate of unemployment** [or **NAIRU**; or **Non-Accelerating Inflation Rate of Unemployment**]

21. He wrote about a bug that “suck'd me first, and now sucks thee” in “The Flea” and dared “Go and catch a falling star” in another poem. For 10 points each:

[10] Name this metaphysical poet.

ANSWER: John **Donne**

[10] Donne claims the title concept is “slave to Fate, Chance, kings, and desperate men” in this poem and threatens to thwart it by waking “eternally.”

ANSWER: “**Death Be Not Proud**”

[10] In this poem Donne uses the image of a mathematical compass to allay his love’s fears at him leaving.

ANSWER: “A **Valediction: Forbidding Mourning**”

22. It was first created from rubidium ions, and it has exhibited phenomena such as super-slowed light. For 10 points each:

[10] Name this state of matter in which particles near absolute zero combine to form a large quantum mechanical entity.

ANSWER: **Bose-Einstein condensate** [or **BEC**]

[10] This other state of matter is composed of ionized gas and experiences strong electromagnetic phenomena. It is found in stars.

ANSWER: **plasma**

[10] Charge carriers in plasmas exclude electric fields over a length named for this man, who, like Einstein, names a model that improved on the Dulong-Petit Law.

ANSWER: Peter **Debye**

23. Name some American Revolutionary War generals, for 10 points each.

[10] This general won battles at Trenton and Yorktown before becoming president.

ANSWER: George **Washington**

[10] This leader of the Green Mountain Boys joined Benedict Arnold at Ticonderoga.

ANSWER: Ethan **Allen**

[10] This commander of Southern forces split his army, leading to a victory at Cowpens, and raced Cornwallis to the Dan before holding the British off at Guilford Courthouse.

ANSWER: Nathaniel **Greene**