



HSAPQ

High School Academic Pyramid Questions

2008-2009
ACF-Format Set #3

Round 13

Tossups

1. In one of his poems, a soldier stays behind from his unit to reflect on the title building, and this poet notes that “after many a summer dies the swan” in a poem about a man who got “immortal age beside immortal youth.” One of his characters decides he “cannot rest from travel” and decides “To (*) strive, to seek, to find, and not to yield.” He also wrote about the heroics of a group that rode “into the valley of death” during the Crimean War. For 10 points, name this British poet laureate, the author of “Locksley Hall”, “Ulysses,” and “The Charge of the Light Brigade.”

ANSWER: Alfred Lord Tennyson

2. Included in his “realistic songs” is one entitled “You Drunken Sot!” One of his works began as incidental music to *The Witch*, while another includes the “Hopak of the Young Ukranians” and is an opera titled *Sorochintsy Fair*. His most well-known opera is based on a (*) Pushkin play and is called *Boris Gudonov*. For 10 points, name this composer who had many of his works completed by Rimsky-Korsakov and who composed a work about a witches’ Sabbath, *Night on Bald Mountain*.

ANSWER: Modest Petrovich Mussorgsky

3. The protagonist of this play assumes another character’s new bonnet belongs to the maid, and that character has a dying sister named Rina and constantly hints at her nephew having children. One character in this play is killed at Madame Diana’s establishment when his (*) gun accidentally discharges while he is looking for a manuscript that the protagonist had stolen. When Judge Brack attempts to blackmail her over the death of Eilert Loveborg, the titular wife of Georg Tessman kills herself. For 10 points, name this Henrik Ibsen play.

ANSWER: Hedda Gabler

4. One work by this man depicts a white marble Jesus on a black cross and is often known as the “Escorial Crucifix.” His works include a bronze bust of the banker Bindo Altoviti, and a semicircular bronze relief entitled the *Nymph of Fontainebleau*. Two figures representing (*) Neptune and Earth lean away from each other in one of this man’s works done in gold, and he sculpted a triumphant hero holding a Gorgon’s head in another. For 10 points, name this Florentine goldsmith and sculptor of the Francis I’s *Salt Cellar* and *Perseus with the Head of Medusa*.

ANSWER: Benvenuto Cellini

5. Operations Fall Martin and Autumn Mist were rejected in favor of this attack, and toward the end of it, operations North Wind and Base Plate were launched as a counter-counter attack. This engagement saw heavy fighting at Elsenborn Ridge, St. Vith, and the Losheim Gap, and Joachim Peiper committed the (*) Malmedy Massacre during it. When asked to surrender by Gerd von Rundstedt in the town of Bologne at this battle, Anthony McAuliffe replied “Nuts.” For 10 points, name this Allied victory, the last offensive of World War II.

ANSWER: Battle of the Bulge [prompt on Ardennes Offensive]

6. When combined with Fourier's Law, this principle yields the heat partial differential equation. Its analogue for black holes contains a surface gravity over 8 pi term and gives the change in mass. Hess' law is a consequence of this law, which was developed by James (*) Joule, and it results from the application of the law of conservation of energy to thermodynamics. For 10 points, name this law that can be stated as "d U equals Q minus W," showing that change in internal energy is equal to heat transferred minus work done.

ANSWER: first law of thermodynamics [accept law of the conservation of energy before mentioned]

7. Uncyclopedia lists Oscar Wilde as the source for everything this man knows, below which it quotes this man saying "the above quote is completely accurate." He selected *Rachel Getting Married* as his favorite movie of 2008 on his blog, whose features include "Wordplay Wednesday" and bewildering conversations with his son Dylan. He was defeated by (*) Brad Rutter in the Ultimate Tournament of Champions, and this *Brainiac* author fell to Nancy Zerg when he failed to identify H&R Block. For 10 points, name this man who won \$2.52 million on *Jeopardy!*

ANSWER: Ken Jennings [or Kenneth Wayne Jennings III]

8. Cities in this state include California and Indiana. Its town of Reading is near the Five Corners, just southwest of Emmaus. In this state's northeast, Wilkes-Barre sits down Route 81 from (*) Scranton. Featuring rivers like the Susquehanna and the Allegheny, in addition to Erie, this state's other cities include a famously flooded city, Johnstown, and Valley Forge. For 10 points, identify this state where the battle of Gettysburg was fought and whose largest city is Philadelphia.

ANSWER: Pennsylvania

9. The GLUT family of proteins is associated with this structure, and one model of its movement is known as the elastic Brownian ratchet model. In epithelial cells, the GPI anchor sorts proteins into those designated for the apical or basolateral domains of this structure. Singer and Nicholson modeled this structure as a (*) fluid mosaic, and it is composed of a hydrophilic outside and a hydrophobic core, which make up its phospholipid bilayer. For 10 points, name this outermost structure of an animal cell.

ANSWER: cell membrane [or plasma membrane; accept phospholipid bilayer early; prompt on biomembrane; prompt on membrane]

10. In her later life, this person discussed age discrimination in the book *The Fountain of Age*. She first became prominent after analyzing the results of a questionnaire sent to unhappy Smith College alumnae. One of her works concludes that many women felt (*) "unreal" as a result of living through others rather than performing creative work. For 10 points, name this first president of the National Organization for Women, the author of *The Feminine Mystique*.

ANSWER: Betty Friedan [or Bettye Naomi Goldstein]

11. A table in this painting shows the artist's name and the date 1875, and the artist depicted himself in the shadow of a doorway grasping a railing. A woman in the bottom left corner of this painting covers her face with her hands, and a man in the top left is taking (*) notes. Four men perform the main action of the painting under the guidance of the title character, whose bloodied hand is holding a scalpel. For 10 points, name this work in which the titular doctor at Jefferson Medical School lectures to his students during a surgery, painted by Thomas Eakins.

ANSWER: *The* Gross Clinic

12. One of its properties, discovered by Gross, Politzer, and Wilczek, is known as asymptotic freedom. It is characterized mathematically as a non-Abelian gauge theory of the symmetric group SU3, a fundamental tenet of quantum chromodynamics. It is experienced by all (*) hadrons, and the magnitude of this force drops off exponentially with distance, but at close range it is one hundred times more powerful than the electromagnetic force. For 10 points, identify this fundamental force in which gluons bind quarks into particles such as protons and neutrons.

ANSWER: **strong** nuclear force [prompt on **nuclear force**; accept **quantum chromodynamics** or **gcd** until mentioned]

13. Luigi Cherubini's *Requiem No.1* was composed in memory of this person, who once attempted to flee his country disguised as a servant to Madame Korff, but was captured in Varennes. His reign saw the Affair of the Diamond Necklace, and he dismissed the author of the *Six Edicts*, (*) Turgot, and replaced him with Jacques Necker. This man's reign saw the beginning of the Paris Commune, the storming of the Tuileries Palace, and the Tennis Court Oath. For 10 points, name this French king, the husband of Marie Antoinette who was guillotined in 1792.

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

14. This figure died after drinking from Tilphousa while on the way to Delphi. Menoecus killed himself because of this figure, and he engages in revelries with Cadmus in *The Bacchae*. In one story this figure settles a bet between Zeus and Hera over which gender enjoys (*) sex more, and by killing a mating snake, he was turned into a woman for seven years. For seeing Athena naked he was struck blind, and Odysseus goes to the underworld so this man can foretell how he will return home. For 10 points, name this blind prophet of Greek mythology.

ANSWER: **Tiresias**

15. The protagonist of this play's attempt to plant a garden reflects his desire to work with his hands, like his brother Ben who got rich diamond-mining in the jungle. One prop in this play is a rubber hose attached to a gas pipe, and one character in this play steals a (*) fountain pen from Bill Oliver after asking for a loan to start a sporting goods store. Desperate to help his unsuccessful son Biff, the main character kills himself for the insurance money. For 10 points, name this play about Willy Loman, a work of Arthur Miller.

ANSWER: **Death of a Salesman**

16. The Copper Riots occurred here in 1662, and Stenka Razin was killed in this city after leading a revolt south of here. Mathias Rust landed his airplane in this city, which was was burned by Tatars in 1571. It was removed as the seat of power in (*) 1712 after a rival city was constructed on the Baltic, and was evacuated after the Battle of Borodino. This city was the home of Boris Gudonov and the capital city during the rule of dictators like Khrushchev. For 10 points, name this city that has been the capital of Russia since 1918.

ANSWER: **Moscow** [or **Moskva**]

17. These objects undergo a phenomenon known as folding, and data collected from one of these objects was initially thought to be a "glitch" due to a "starquake." Those that emit X-rays are thought to have formed when the more massive star in a binary system underwent a supernova and formed a (*) "normal" type of this kind of star. They were discovered by Anthony Hewish and Jocelyn Bell in 1968 using a radio telescope, and initially dubbed "little green men". For 10 points, name these rotating neutron stars, known for emitting periodic pulses of radio waves.

ANSWER: **pulsars**

18. This author wrote a satirical novel about the schoolteacher Odili's opposition to the Minister of Culture, Nanga. In addition to *A Man of the People*, he wrote about a character who staples people's hands in the fictional Republic of Kangan. In another of his novels, (*) Obi accepts bribes after he is sent to study in England by the Umuofia Progressive Union. Umuofia is also the setting of his most famous novel, in which Okonkwo hangs himself. For 10 points, name this author of *Anthills of the Savannah*, *No Longer at Ease*, and *Things Fall Apart*.

ANSWER: Chinua Achebe

19. They are divided into two groups of five great Septs by the Vindhya Mountains, and members of this group derive their name from an aspect that is paired with the universal spirit, Atman, in the *Upanishads*. Initially the whole world consisted of this group, but those who embraced passion became (*) Kshatriyas, while those who embraced goodness and passion became Vaisyas. The highest of the four varnas, they are responsible for performing vital religious tasks and reciting sacred scripture. For 10 points, name this priest class of the Hindu caste system.

ANSWER: Brahman [or Brahmin; or Brahmana]

20. This country has enjoyed good commercial relations with Britain since the Methuen Treaty and previously was ruled by several kings descended from the British noblewoman Philippa of Lancaster, who married into this country's ruling House of Aviz. It was ruled by the (*) Braganza Dynasty during the 1755 earthquake which leveled its capital. In the twentieth century, this country fell under the dictatorship of Antonio Salazar and lost its colonies of Goa, Mozambique, and Angola. For 10 points, name this country whose explorer Pedro Cabral colonized Brazil.

ANSWER: Portugal

21. One of this author's poems sees the speaker look at the world through a pane of ice before wondering if his rest is "just some human sleep." In another of his poems, a boy dies after his arm is mutilated by a "buzz-saw" that "snarled and rattled in the yard." This author the collection (*) *A Boy's Will* observed that "Home is the place where, when you have to go there, / They have to take you in" in his poem "The Death of the Hired Man." For 10 points, name this American poet of "Fire and Ice," "Birches," and "Stopping By Woods on a Snowy Evening."

ANSWER: Robert Frost

22. A cantilevered beam bends by an amount inversely proportional to the moment of inertia and this quantity, while a rod in tension will be stretched an amount inversely proportional to cross-sectional area and this quantity. It is not constant for materials in the plastic region since (*) Hooke's law doesn't hold, and it is the value of the slope on a stress-strain diagram, as it is equal to stress divided by strain. For 10 points, name this measure of elasticity, named for a British physicist who verified the wave nature of light with a double slit experiment.

ANSWER: Young's modulus [prompt on modulus of elasticity]

23. This man served as an assistant to Archibald MacLeish in the State Department and defeated Dwight Green in a gubernatorial election. This politician had a confrontation with Valerian Zorin in which he stated that he would wait for an answer until hell froze over, during his stint as (*) Ambassador to the UN during the Cuban Missile Crisis. John Sparkman and Estes Kefauver served as vice presidential candidates to, for 10 points, which Illinois politician who lost both the 1952 and 1956 presidential elections to Dwight Eisenhower?

ANSWER: Adlai Ewing Stevenson



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Bonuses

1. His enemies included Widukind, leader of the Saxons, and he set up a palace school whose head was Alcuin. For 10 points each:

[10] Name this man who was crowned Holy Roman Emperor by Pope Leo III in 800 AD.

ANSWER: Charlemagne [or Charles the Great; or Charles I; or Carolus Magnus; prompt on Charles]

[10] This father of Charlemagne was the first Carolingian king.

ANSWER: Pepin the Short [or Pepin III or Pepin the Younger; prompt on Pepin]

[10] This tutor of Lothair I wrote the biography *Life of Charlemagne*.

ANSWER: Einhard

2. It is typically thought to have been founded by the nineteenth century Danish thinker Soren Kierkegaard, who formulated a “Christian” variety of it. For 10 points each:

[10] Name this school of philosophy whose twentieth-century adherents included Karl Jaspers and Gabriel Marcel.

ANSWER: Existentialism

[10] One proponent of Existentialism was this Frenchman and lifelong partner of Simone Beauvoir, who works include *Critique of Dialectical Reason*. He also wrote fiction like *Dirty Hands*.

ANSWER: Jean-Paul Sartre

[10] Sartre’s clearest formulation of Existentialism is to be found in this 1943 treatise. Its second chapter introduces the form of self-deception known as “mauvais foi,” or “bad faith.”

ANSWER: Being and Nothingness [or L’Être et le Néant]

3. This author wrote stories about “The Handsomest Drowned Man in the World” and “A Very Old Man with Enormous Wings.” For 10 points each:

[10] Name this Colombian author of *No One Writes to the Colonel* and *Autumn of the Patriarch*.

ANSWER: Gabriel Jose de la Concordia García Marquez [prompt on partial name]

[10] This García Marquez novel concerns the Buendía family’s time in the village of Macondo.

ANSWER: One Hundred Years of Solitude [or Cien años de soledad]

[10] In this García-Marquez novel, Fermina Daza rejects Florentina Ariza to marry Dr. Juvenal Urbino.

ANSWER: Love in the Time of Cholera [or El amor en los tiempos del cólera]

4. It has regions of low density referred to as Kirkwood gaps, where any orbiting body would have orbital resonance with Jupiter. For 10 points each:

[10] Identify this large collection of planetoids located primarily between three and three point five astronomical units from the sun.

ANSWER: **asteroid belt**

[10] To date, this is the only body in the asteroid belt large enough to be designated a dwarf planet. It was also the first asteroid discovered, being spotted by Giuseppe Piazzi in 1801.

ANSWER: 1 **Ceres**

[10] Similar to asteroids but orbiting between the orbits of Jupiter and Neptune are these objects. The first one discovered, Chiron, sparked debate about whether it was an asteroid or a comet.

ANSWER: **Centaurs** [or **Centaur** objects]

5. The government he set up fell apart when his son Richard took over. For 10 points each:

[10] Name this man, who created the Triers and Rejectors as part of his Puritan government and succeeded the beheaded Charles I. He was the first Lord Protector of England.

ANSWER: Oliver **Cromwell**

[10] This military force arose out of a dispute between Cromwell and Henry Montagu and became the main Parliamentary force in the English Civil War. It won at Marston Moor.

ANSWER: Parliamentary **New Model Army**

[10] The New Model Army fought royalists under Prince Rupert of the Palatinate at this battle twenty miles south of Leicester. This victory essentially ended the war in Cromwell's favor.

ANSWER: Battle of **Naseby**

6. This author depicted Evgeny Irtenyev's obsessive lust for the peasant Stepanida in *The Devil*. For 10 points each:

[10] Name this author of *The Power of Darkness*, as well as works like *Hadji Murat*, *Family Happiness* and *The Cossacks*.

ANSWER: Leo **Tolstoy**

[10] Tolstoy fictionalized Napoleon's 1812 invasion of Russia in this massive novel.

ANSWER: **War and Peace** [or **Voyna i Mir**]

[10] This character in *War and Peace* marries Natasha Rostova after being deceived by Elena Kuragin and attempting to assassinate Napoleon.

ANSWER: **Pierre Bezukhov** [both or either names acceptable]

7. This goddess' hall is Folkvangr, and with Odin she splits the spirits of warriors slain in battle. For 10 points each:

[10] Name this goddess of love and beauty from Norse mythology.

ANSWER: **Freya** [or **Freyja**]

[10] Like her father Njord and her brother Frey, Freya was of this race of gods and was living with the Aesir as a hostage.

ANSWER: **Vanir**

[10] Freya rode around in a chariot pulled by two of these animals. In Egyptian mythology, Bast has the head of this animal.

ANSWER: **cats**

8. He proposed a system of internal improvements known as the American System. For 10 points each:
[10] Name this senator from Kentucky nicknamed “The Great Compromiser.”

ANSWER: Henry **Clay**

[10] Henry Clay lost the election of 1844 to this Democrat, the former Speaker of the House. His presidency saw the beginning of the Mexican War.

ANSWER: James Knox **Polk**

[10] This senator criticized the Mexican War by sending the “spot resolutions” to Polk. He later gained national prominence with his Cooper Union speech.

ANSWER: Abraham **Lincoln**

9. A restatement of this law relates the curl of the electric field to the time derivative of the magnetic field. For 10 points each:

[10] Name this law of electromagnetism that gives the electromotive force generated by a changing magnetic flux.

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

[10] The negative sign in Faraday’s law is a result of this law, which gives the direction of flow for an induced electromagnetic field.

ANSWER: **Lenz’s** law

[10] Lenz’s law is a form of this principle generally applied to chemistry that states that changing some property of a system in equilibrium will result in an opposing change.

ANSWER: **Le Chatelier’s** principle

10. A small boat can be seen in the bottom left corner of this painting next to an arched bridge. For 10 points each:

[10] Name this painting which also features a locomotive crossing another bridge on the right.

ANSWER: ***Rain, Steam, and Speed: The Great Western Railway***

[10] This artist of *The Burning of the Houses of Parliament* and *The Fighting Temeraire* painted *Rain, Steam and Speed*.

ANSWER: Joseph Mallord William **Turner**

[10] This fellow English Romantic artist painted *Dedham Vale* in addition to depicting the titular horse-drawn cart crossing a river near Willy Lott’s cottage in *The Hay Wain*.

ANSWER: John **Constable**

11. This author of *Crime and Custom in Savage Society* described the “kula ring” in one of his major works. For 10 points each:

[10] Name this Polish-born anthropologist, who studied the Trobriand Islanders in his *Argonauts of the Western Pacific*.

ANSWER: Bronislaw Kasper **Malinowski**

[10] Malinowski developed this theory of culture, which held that all actions serve integral social purposes. Talcott Parsons later combined it with structuralism.

ANSWER: **functionalism**

[10] Malinowski was the instructor of this anthropologist, who later became president of Kenya. Malinowski wrote the foreword to this man’s study of the Gikuyu, *Facing Mount Kenya*.

ANSWER: Jomo **Kenyatta** [or Kamau **Ngengi**]

12. Phenols and enols are weak organic varieties of this class of substances. For 10 points each:
[10] Name this class of compounds that increase hydrogen atom activity when dissolved in water. They have a pH less than 7.0 and accept base pairs of electrons in the Lewis model.

ANSWER: **acids**

[10] This model in acid-base theory defines acids as proton donors. This model links an acid with a conjugate base and explains how boric acid is acidic, even though it doesn't ionize.

ANSWER: **Brønsted–Lowry** model [or **Brønsted–Lowry** theory; accept word forms]

[10] This Swedish chemist's definition of an acid states that it produces hydrogen ions in solution.

ANSWER: Svante August **Arrhenius**

13. She was appointed by Governor Frank Murkowski to the Alaska Oil and Gas Conservation Commission. For 10 points each:

[10] Name this current governor of Alaska, who ran as the Republican vice-presidential candidate in the 2008 election with John McCain.

ANSWER: Sarah Heath **Palin**

[10] This three word nickname is given to a structure in Ketchikan, Alaska, opposed by Sarah Palin. It is a structure to connect the airport on Gravina island to the mainland.

ANSWER: the "**Bridge to Nowhere**"

[10] This other young Republican governor was accused of witnessing an exorcism, and was a potential pick for McCain's vice presidential ticket. He is Indian and governs Louisiana.

ANSWER: Bobby **Jindal**

14. Name some waterfall-related things for 10 points each.

[10] This Venezuelan waterfall named for an American pilot is the world's tallest.

ANSWER: **Angel** Falls [or **Parakupa** Vena; or **Kerepakupai** merú]

[10] This large cataracts on the Brazil-Argentine border is located on a namesake river.

ANSWER: **Iguazu** Falls [or Cataractas de **Iguazu**]

[10] This South American river was once home to the Sete Quedas falls, until the Itaipu dam flooded them. This river merges with the Uruguay River to form the Rio de la Plata.

ANSWER: **Paraná** River [or Rio **Paraná**]

15. They can form through adaptive radiation or reproductive isolation, and their development through natural selection is a fundamental principle of evolution. For 10 points each:

[10] Name this biological classification that consists of a group of organisms that possess similar characteristics and are capable of interbreeding.

ANSWER: **species**

[10] These diagrams can be used to illustrate the evolutionary relationships between organisms that share a common ancestor. Closely related organisms are located on adjacent branches.

ANSWER: **phylogenetic tree** [prompt on **tree**]

[10] Phylogenetic trees can be subdivided into these classifications, which consist of a group of organisms that are descended from a common ancestor.

ANSWER: **clade**

16. The second facility named at this place frequently used Zyklon B gas on its victims and was named Birkenau. For 10 points each:

[10] Name this facility in Poland that was also the site of experiments by a man nicknamed "The Angel of Death," Joseph Mengele.

ANSWER: Auschwitz [or Oswiecim]

[10] Auschwitz was used as a death camp in this event instigated by the Nazis to eliminate non-Aryan society. Mahmoud Ahmedinejad denies that it ever happened.

ANSWER: the Holocaust [prompt on Final Solution; prompt on Endlösung]

[10] This head of Gestapo Department B4 for Jewish affairs was responsible for transporting prisoners to death camps, and was tried in Jerusalem after his capture in Argentina.

ANSWER: Karl Adolf Eichmann

17. One of these objects was placed by Pope Clement XI to face the Pantheon in Rome, and is located in a fountain created by Giacomo della Porta. For 10 points each:

[10] Name this type of monument, an example of which is Cleopatra's Needle.

ANSWER: obelisk

[10] An obelisk known as Agonalis is located in Piazza Navona, which is home to this man's *Fountain of the Four Rivers*. He also made the baldachin that is located in St. Peter's Basilica.

ANSWER: Gian Lorenzo Bernini

[10] Bernini also sculpted the *Ecstasy of St Theresa*, which is located in this chapel of Santa Maria della Vittoria in Rome.

ANSWER: Cornaro Chapel

18. This character kills the Shaper in the middle of a prediction that the Danes will be restored to greatness. For 10 points each:

[10] Name this title character of a John Gardner novel, a monster that raids King Hrothgar's mead hall before being killed by a Geat hero. His mother then comes out to wreak havoc.

ANSWER: Grendel

[10] Grendel is killed by this title character of an Anglo-Saxon epic, He later dies while killing a dragon, and in one scene goes to the bottom of a lake in full armor.

ANSWER: Beowulf

[10] *Beowulf* was recently translated into modern English by this Irish poet of the collection *The Death of a Naturalist* and *Digging*.

ANSWER: Seamus Heaney

19. This dance became used as the replacement of a scherzo in many Romantic symphonies, and it is derived from the Landler. For 10 points each:

[10] Name this dance in 3/4 time. Examples of it include one from "The Merry Widow" and "The Beautiful Blue Danube."

ANSWER: waltz

[10] This man is often called the "Waltz King" for his work writing waltzes like "The Beautiful Blue Danube" and "Tales of the Vienna Woods."

ANSWER: Johann Baptist Strauss the younger

[10] This work by Johann Strauss the elder, not the younger, is a military work dedicated to the governor of Lombardy-Venetia.

ANSWER: Radetzky March

20. Maria begins flirting with Henry Crawford after this novel's characters decide to perform the play *Lovers' Vows*. For 10 points each:

[10] Name this novel that begins with Mrs. Norris bringing Fanny Price to the title location.

ANSWER: **Mansfield Park**

[10] This author of *Emma* wrote *Mansfield Park*.

ANSWER: Jane **Austen**

[10] In this Austen novel, the machinations of Lady Catherine de Bourgh fail to prevent Elizabeth Bennett from marrying Fitzwilliam Darcy.

ANSWER: **Pride and Prejudice**

21. He wrote about a mythological figure's contentment in *The Myth of Sisyphus*. For 10 points each:

[10] Name this French existentialist author of *The Fall*.

ANSWER: Albert **Camus**

[10] In this Camus novel, Mersault is put on trial for killing an Arab.

ANSWER: *The **Stranger*** [or *L'Étranger*; or *The **Outsider***]

[10] In this Camus novel, Dr. Rieux is the first to notice the dead rats that result in the quarantine of Oran.

ANSWER: *The **Plague*** [or *La **Peste***]

22. To the chagrin of many mathematical physicists, it appears to be incompatible with Newton's theory of general relativity. For 10 points each:

[10] Identify this branch of physics that describes everything in terms of statistical probabilities and relies heavily upon wave-particle duality.

ANSWER: **quantum** mechanics [accept **quantum** physics]

[10] The aforementioned wave-particle duality was introduced by this Frenchman. His namesake wavelength for particles is equal to Planck's constant divided by mass.

ANSWER: Louis de **Broglie**

[10] Another famous result from quantum mechanics is this principle, which states that it is impossible to simultaneously measure the exact position and momentum of a particle.

ANSWER: Heisenberg **uncertainty** principle

23. Name some events from the Protestant Reformation for 10 points each:

[10] This meeting arranged by Frederick, Elector of Saxony featured Martin Luther's famous utterance "Here I stand; I can do no other," but he still got outlawed for heresy.

ANSWER: **Diet of Worms**

[10] This meeting in the Netherlands branded the Remonstrant followers of Jacob Arminius as heretics, basically establishing Calvinism as the official religion.

ANSWER: **Synod of Dort** [or **Synod of Dordrecht**]

[10] The Catholic church finally realized that Protestantism was a real problem and responded with this council beginning in 1545 which started the Counter-Reformation.

ANSWER: Council of **Trent**