



1. The Lyman and Balmer series correspond to spectral emissions involving the ground state and first excited state of this element. This element is transformed in the CNO cycle that powers large stars and in the proton proton chain in smaller stars. Schrodinger developed his atomic theory after the Bohr model failed to explain elements more (\*) complicated than this one. Tritium and deuterium are isotopes of this element. For 10 points, name this most abundant element in the universe with symbol H.

ANSWER: hydrogen

123-11-41-09102

2. This man's 1827 variations on a theme by Mozart prompted Robert Schumann to declare "Hats off, gentlemen! A genius." Hans von Bulow gave such epithets as "Suffocation", "Chord", and "Raindrop" to this man's twenty-four *Preludes*. This composer of several ballades, mazurkas, and nocturnes for solo piano expressed his frustration at Russian force crushing an 1830 uprising in his (\*) "Revolutionary Etude." For 10 points, name this virtuoso pianist, the Polish composer of the "Minute Waltz."

ANSWER: Frederic Francois Chopin [or Fryderyk Franciszek Szopen]

002-11-41-09103

3. In response to losing about 150 cannons in one battle, this ruler had church bells across his lands melted down and fashioned into cannons. This man achieved one goal through the Treaty of Nystad, which ended a war that included the Battles of Narva and Poltava and which secured for this ruler a port on the Baltic Sea. This ruler also tried to (\*) westernize his country by introducing western clothing and forcing his boyars to pay a tax or shave their beards. For 10 points, name this victor in the Great Northern War, a modernizing tsar of Russia who built St. Petersburg.

ANSWER: Peter the Great [or Peter I of Russia; or Pyotr Veliky; or Pyotr Alekseyevich; prompt on Peter; prompt on Pyotr]

023-11-41-09104

4. The apobati was a variant of this activity. The original two factions that participated in this activity were sacred to winter and summer, though eventually four factions, the Red, White, Green, and Blue were created. It used a gate called a hysplex or carceres, and it began with the dropping of the maffa. The Nika (\*) revolts began as a riot during one of these events, whose participants were known as aurigae. For 10 points, name this activity that often occurred in the Circus Maximus, a type of race involving a horse-drawn conveyance.

ANSWER: chariot racing

048-11-41-09105

5. In this novel, three siblings who live at Marsh End are revealed to be the protagonist's cousins, and the missionary St. John Rivers proposes to the protagonist. This novel's protagonist tutors a French girl named Adele after leaving the Lowood School, where her friend Helen dies of consumption. The protagonist of this novel returns to her lover after his insane wife (\*) Bertha Mason burns down Thornfield Hall. For 10 points, name this novel whose title character marries Edward Rochester, a work by Charlotte Bronte.

ANSWER: Jane Eyre

105-11-41-09106

6. This experiment used a sheet of zinc sulfide as a detector and its setup is used in a namesake type of backscattering spectroscopy. Its results disproved JJ Thompson's plum pudding model. This experiment fired a series of alpha particles at a target, most of which (\*) passed straight through but some of which were reflected at large angles. For 10 points, name this experiment which showed that the atom mostly consists of empty space, conducted by Ernest Rutherford and named for the target used.

ANSWER: **Gold Foil** Experiment [or **Geiger-Marsden** Experiment; or **Rutherford** Experiment until names are mentioned]

147-11-41-09107

7. Among this state's possessions are Little Diomed Island. Prudhoe Bay is found in the extreme north of this state. This state's former capital was Sitka. Other sites in this state include Prince William Sound, the site of the 1964 Good Friday Earthquake, and the city of (\*) Nome on the Seward Peninsula. This state also controls the Aleutian Islands. For 10 points, name this state, this site of the Exxon Valdez oil spill, whose cities include Fairbanks and Anchorage.

ANSWER: **Alaska**

064-11-41-09108

8. The protagonist of this novel becomes enamored with a young French girl sent to him by his friend. Another character in this novel loses her ability to excel acting the role of Juliet due to her love for the protagonist, who blackmails the chemist Alan Campbell to dispose of a body. After causing the suicide of Sybil Vane and being (\*) corrupted by Lord Henry Wotton, the title character is found dead upon stabbing a creation of the painter Basil Hallward. For 10 points, name this novel about a man who remains youthful as his portrait ages, a work of Oscar Wilde.

ANSWER: *The **Picture of Dorian Gray***

014-11-41-09109

9. One writer applied this philosophical doctrine to psychiatry in the *General Psychopathology*. While that man, Karl Jaspers (YAS-pers), was a noted opponent of National Socialism, another proponent of this philosophy was a close collaborator of the Nazis who wrote about "authenticity" and "Dasein" in *Being and Time*. Besides Martin Heidegger, another philosopher of this school was the author of (\*) *Being and Nothingness*, Jean-Paul Sartre. For 10 points, identify this philosophy which examines man's need to confront an amoral universe.

ANSWER: **existentialism**

019-11-41-09110

10. The background of this painting, which was controversially cleaned by the Kecks in 1954, shows Alphonse Fournier leaning on a railing. In the lower right of this painting, a straw-hat-clad Gustave Caillebotte sits backwards on his chair. Its lower left shows its artist's future wife, Aline Charigot, holding a dog. In the foreground are several wine bottles and some fruit, intended to be (\*) consumed in the title event. For 10 points, identify this painting by Pierre-Auguste Renoir.

ANSWER: ***Luncheon of the Boating Party*** [or *Le **déjeuner des canotiers***]

140-11-41-09111

11. The amount of this color in the facial coloration of a mandrill is associated with its dominance. Stickleback fish attack any object that has this color on their underside. Phytochromes (FIE-toh-kromes), which control circadian rhythms in plants, are activated by light of this color. Algae of this color have phycobilisomes (fie-koh-BILL-lih-sohms) and are in the division rhodophyta (roh-doh-FIE-tah). A (\*) queen of this color names a hypothesis of evolutionary biology. Photoreceptors in the eye sense green, blue, and this color. For 10 points, name this color, also the color of human blood.

ANSWER: **red**

048-11-41-09112

12. An assassination attempt on this leader was made by Oscar Collazo and Griselio Torresola, who believed the assassination would advance Puerto Rican independence. A campaign against a "do-nothing, good-for-nothing Republican Congress" was launched by this President, who appointed James Forrestal as the first Secretary of Defense. He was able to continue his (\*) Fair Deal program after defeating Thomas Dewey in the 1948 presidential election. For 10 points, name this President who authorized the use of atomic bombs against Japan during World War II.

ANSWER: Harry S. Truman

130-11-41-09113

13. One phylum within this kingdom contains Woronin bodies. Their cell membranes have ergosterol (err-GAW-steh-roll) and they include the disease causing Aspergillus (ahs-purr-GILL-uhs). Phylums in this kingdom include Ascomycota (AHS-koh-my-kah-tuh) and basidiomycota (buh-SIH-dee-oh-my-kah-tuh). Penicillin was extracted from another member of this phylum. Their cell walls, like insect exoskeletons, are made of (\*) chitin (KIE-tin), and their bodies are composed of thread-like hyphae (HIGH-fay) that form a mycelium (my-suh-LEE-um). Members include bakers' yeast. For 10 points, name this kingdom that includes mushrooms.

ANSWER: fungi

048-11-41-09114

14. An article in *Life* by Albert Maisel called most of these institutions a "disgrace." Thomas Stanley Kirkbride created an early plan for the construction of these institutions, one of which was headed by Robert Gardiner Hill. Progressive reforms for these places supported by John Galt and (\*) Dorothea Dix included creating locations exclusively for its inhabitants rather than sharing the same location as criminals. For 10 points, name this type of institution that houses those with psychiatric illnesses.

ANSWER: mental asylums [or equivalents such as insane asylums, psychiatric hospitals, or state hospitals]

048-11-41-09115

15. This mythological figure reigned over Tiryns and founded Mycenae after trading kingdoms with Megapenthes. This figure's mother was impregnated by Zeus in the form of a shower of gold, after which he was locked in a chest thrown into the sea by Acrisius, whom he later accidentally killed with a discus. This figure killed a sea monster to save a woman chained to a rock after borrowing a wallet, the (\*) helmet of Hades, and winged sandals for an earlier task. For 10 points, name this rescuer of Andromeda and slayer of Medusa.

ANSWER: Perseus

014-11-41-09116

16. This city had a soccer team in the PDL that lasted for two years and folded in 2010. It had a hockey team that traded all-time scoring leader Ilya Kovalchuk to the New Jersey Devils in 2010. In the 2010-2011 season, this city's basketball team saw Al (\*) Horford and Joe Johnson make the All-Star team. This city's football team acquired Julio Jones in the 2011 NFL draft, and its hockey team had its last season in 2011 and will move to Winnipeg. For 10 points, name this city, which is home to the Falcons, Hawks, and Braves.

ANSWER: Atlanta

140-11-41-09117

17. **This man sculpted Neptune riding dolphins and blowing water through a conch shell in the Palazzo Barberini's *Triton Fountain*. He designed the baldacchino for St. Peter's Basilica, and he sculpted a clothed, contorted *David* releasing his sling. This sculptor of *The Fountain of the (\*) Four Rivers* showed an angel thrusting a spear at a moaning nun in the Cornaro Chapel. For 10 points, name this Italian Baroque sculptor of *Ecstasy of St. Theresa*.**

ANSWER: Gian Lorenzo Bernini [or Giovanni Lorenzo Bernini]

079-11-41-09118

18. **One character created by this author grows an amber beard when he decides to chew tobacco. That character is described by the word "chechaquo," meaning newcomer, and dies after failing to perform the title action under a spruce tree in this author's story "To Build a (\*) Fire." This author also wrote a novel in which the protagonist is kidnapped from Judge Miller's California estate and avenges the murder of his owner John Thornton. For 10 points, name this American author of *White Fang* and *The Call of the Wild*.**

ANSWER: Jack London [or John Griffith Chaney]

020-11-41-09119

19. **A weaker form of this condition is known as dysthymia, and the atypical form of this disease has reverse vegetative symptoms like overeating and over-sleeping. SIG E CAPS and the Beck Inventory are screening tools used to detect this disease, which is usually treated with selective (\*) serotonin reuptake inhibitors. Symptoms of this disease include decreased appetite, lack of energy, and suicidal thoughts. For 10 points, name this psychiatric disorder which is characterized by long periods of overwhelming sadness.**

ANSWER: depression

048-11-41-09120

20. **One character in this novel has a dream of going to Petrin Hill and seeing three men who seek death shot by rifles. In this work, a university professor named Franz betrays his wife to have an affair with the artist Sabina. The protagonists of this work own a dog named Karenin who dies of cancer. Those protagonists are killed in a (\*) car crash during the Prague Spring. For 10 points, name this novel about the womanizing Tomas and his love Tereza, the a novel by Milan Kundera.**

ANSWER: *The Unbearable Lightness of Being*

080-11-41-09121

21. **Heinrich Sudermann was elected to the post of Syndic in this organization. The Steelyard, which was this entity's main outpost in London, was one of its trading posts called kontors. This group's war with Denmark ended when Valdemar IV was forced to sign the Treaty of Stralsund. Lubeck was the capital of this league, which eventually lost (\*) commercial influence as Sweden gained power in the Baltic Sea. For 10 points, name this German trading alliance of the thirteenth to fifteenth century.**

ANSWER: Hanseatic League

127-11-41-09122

22. **This structure is located in the sella turcica (TUHR-sih-kah) of the sphenoid bone. It releases a compound that binds to receptors on the adrenal cortex, thereby releasing cortisol and aldosterone. Another compound it releases known as vasopressin regulates water retention in the body. One compound produced by this structure is inhibited by increased levels of somatostatin (soh-MAH-toh-stah-tin). Another compound is released by this structure during (\*) labor and breastfeeding. For 10 points, name this gland located at the base of the brain that releases growth hormone and oxytocin and is known as the "master gland".**

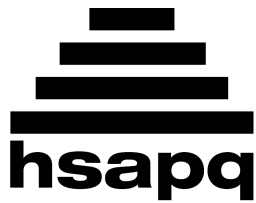
ANSWER: pituitary gland

064-11-41-09123

23. One poem by this author indicates the inadequacy of "whole mines of gold" and "all the riches that the Earth doth hold" in comparison to love. She described being "waken'd... with thund'ring noise" to "that fearful sound of 'fire' and 'fire'" in "Verses Upon the (\*) Burning of Our House." She also wrote "If ever two were one, then surely we" in "To My Dear and Loving Husband." For 10 points, identify this author of *The Tenth Muse Lately Sprung Up in America*, a Colonial American poet.

ANSWER: Anne Dudley **Bradstreet**

020-11-41-09124



1. This experiment was conducted in part by Rosalie Raynor, and its results extended to such objects as sealskin coat and a Santa Claus mask. For 10 points each:

[10] Name this experiment in which an infant began to associate loud, scary noises with furry objects despite having shown no initial fear of a rat.

ANSWER: Little Albert experiment

[10] This man conducted the Little Albert experiment at Johns Hopkins University.

ANSWER: John Broadus Watson

[10] Watson belonged to this school of psychology with Edward Thorndike and B.F. Skinner. It believes that a human's responses to stimuli are all gained by conditioning.

ANSWER: behaviorism

023-11-41-09201

2. Major Rudolf Anderson was the only casualty of this event. For 10 points each:

[10] Name this crisis that saw the Soviet Union attempt to place nuclear warheads on a certain island. It was resolved when the U.S. promised to remove its Jupiter missiles from Turkey.

ANSWER: Cuban Missile Crisis

[10] The Cuban Missile Crisis occurred during this man's administration. The Partial Test Ban treaty was signed by this man, who was assassinated by Lee Harvey Oswald.

ANSWER: John Fitzgerald Kennedy [or JFK; prompt on Kennedy]

[10] This man, Secretary of Defense under Kennedy and Johnson, was a proponent of the blockade response during the Cuban Missile Crisis. He is the author of *The Fog of War*.

ANSWER: Robert Strange MacNamara

149-11-41-09202

3. One story in this collection is about a boy's frustrating trip to the Araby bazaar. For 10 points each:

[10] Name this collection which also includes such stories as "Ivy Day in the Committee Room" and "A Painful Case" describing residents of the title European capital.

ANSWER: Dubliners

[10] *Dubliners* was written by this author, whose more experimental works include the novels *Ulysses* and *Finnegans Wake*.

ANSWER: James Joyce

[10] The longest story in *Dubliners*, "The Dead," features this character as the protagonist, who is attending an annual dance and dinner. His wife, Gretta, was once in love with a boy named Michael Furey.

ANSWER: Gabriel Conroy [or Gabriel Conroy]

052-11-41-09203

4. One of his most recent works was a series of orange nylon gates in Central Park. For 10 points each:  
[10] Identify this husband of Jean-Claude, a modern artist whose other works include wrapping the coast of Little Bay in Sydney, Australia.

ANSWER: **Christo** Vladimirov **Javacheff** [accept either underlined portion]

[10] Christo may be more famous for wrapping this Berlin home of the German parliament, which was burned in 1933 and rebuilt by Norman Foster in the 1990s.

ANSWER: the **Reichstag**

[10] Another of Christo's projects was to place hundreds of these objects in both California and Japan. Several people can be seen holding these objects to protect themselves in a Gustav Caillebotte painting depicting a Paris street.

ANSWER: **umbrellas** [accept obvious equivalents, like **parasols** or **bumbershoots**]

048-11-41-09204

5. Name some things about a Greek hero for 10 points each:

[10] Eurystheus of Argos had this hero perform a series of labors including killing the Lernean Hydra with the aid of his nephew Iolaus.

ANSWER: **Heracles** [or **Hercules**]

[10] Hercules's first labor was to kill this monster whose pelt he later wore.

ANSWER: **Nemean lion**

[10] This wife of Heracles killed him when she was tricked into giving him a robe smeared with the blood of the centaur Nessus.

ANSWER: **Deianeira**

123-11-41-09205

6. Answer the following about American mythology for 10 points each.

[10] This lumberjack was a giant who owned a similarly giant blue ox named Babe. He created the Great Lakes in order to provide Babe with a big enough watering hole.

ANSWER: Paul **Bunyan**

[10] Uncle Remus narrates stories about this troublemaker who is often in opposition to Br'er Fox and Br'er Bear. In one story, this character gets stuck to a tar baby.

ANSWER: **Br'er Rabbit**

[10] This legendary figure was raised by coyotes and used two rattlesnakes as whips. His love interest was Blue-Foot Sue, who rides a catfish.

ANSWER: **Pecos Bill**

137-11-41-09206

7. This fish includes the genus *Thunnus*, which maintains a warm body temperature through counter-current exchange. For 10 points each:

[10] Name this large fish whose aforementioned genus includes the bluefin and yellowfin species.

ANSWER: **tuna**

[10] This elasmobranch fish also maintains a warm body temperature through counter-current exchange. This fish breathes through ram ventilation and has dermal denticles which give its skin a sandpaper-like feel.

ANSWER: **shark**

[10] Most sharks follow a type of this mode of reproduction. It involves the development of an embryo inside the body of a mother and is contrasted with laying eggs.

ANSWER: ovov**viviparity** [or **live birth**; accept word forms]

066-11-41-09207

8. This experiment was the first to prove the wave nature of light. For 10 points each:

[10] Name this experiment, in which Thomas Young shined light through the namesake obstacle, which produced light and dark bands on a screen behind it.

ANSWER: **double slit** experiment

[10] The light and dark bands result from this phenomenon in which two waves superimpose. It can come in constructive and destructive types.

ANSWER: **interference**

[10] This other phenomenon also occurs in the double slit experiment. It is defined as light bending around an obstacle, and it can lead to patterns such as Newton's Rings and the Airy disk.

ANSWER: **diffraction**

140-11-41-09208

9. A major victory for one side in this long conflict was the Battle of Las Navas de Tolosa, in which the Almohads were defeated. For 10 points each:

[10] Identify this 800-year-long effort by Christians to reclaim the Iberian Peninsula from the Moors.

ANSWER: **Reconquista**

[10] This Moorish kingdom was the last one to be conquered, and it was finally defeated by an Aragon-Castile alliance.

ANSWER: Emirate of **Granada**

[10] This Spanish hero was active during the Reconquista, and he fought for Sancho II and Alfonso VI, as well as serving under the Muslim king al-Mu'tamin.

ANSWER: El **Cid** [or El **Campeador**; or Rodrigo **Diaz** de Vivar]

048-11-41-09209

10. The second of these uses a valveless trumpet, while the fifth of them features an "affettuoso" second movement for flute, violin, and harpsichord. For 10 points each:

[10] Identify this sextet of compositions that were written and titled for a German margrave. The last of them is unusually scored for no violins.

ANSWER: the **Brandenburg Concertos** [or **Six Concerts à plusieurs instruments**; or **BWV 1046-1051**; accept "concerti" for "concertos"]

[10] This German composer wrote the *Brandenburg Concertos*, as well as the *Mass in B minor*, the *St. Matthew Passion* and the *Tocatta and Fugue in D minor*.

ANSWER: **Johann Sebastian Bach** [prompt on partial answers]

[10] Bach wrote this collection of fourteen contrapuncti, the sixth of which is notably in "the French style." The last entry in this collection features a motif that spells out Bach's name.

ANSWER: *The **Art of the Fugue*** [or *Die **Kunst der Fuge***]

137-11-41-09210

11. In this novel, Clifford is imprisoned for murdering his uncle Jaffrey. For 10 points each:

[10] Name this novel in which the title structure is built by Thomas Maule and occupied by the cursed Pyncheon family.

ANSWER: *The **House of the Seven Gables***

[10] *The House of the Seven Gables* was written by this American author of such short stories as "Rappaccini's Daughter" and "The Birth-Mark."

ANSWER: Nathaniel **Hawthorne**

[10] Hawthorne may be most famous for writing this novel set in colonial Boston in which Hester Prynne is sentenced to wear the title mark of shame after committing adultery.

ANSWER: *The **Scarlet Letter***

014-11-41-09211



12. A rowboat rests on the bank of the river in the background of this painting. For 10 points each:

[10] Name this work in which a clothed woman bathes in the river while a nude woman sits with two fully dressed men beside the remnants of the title meal.

ANSWER: *The **Luncheon on the Grass*** [accept *Le **dejeuner sur l'herbe***]

[10] In this other painting by the same artist, a man in a top hat and the rest of the title location are reflected in a mirror behind a woman standing behind a number of wine bottles.

ANSWER: *A **Bar at the Folies-Bergere*** [accept *Un **bar aux Folies Bergère***]

[10] This artist of *The Luncheon on the Grass* and *A Bar at the Folies-Bergere* also painted a reclining nude woman wearing a black choker in his controversial work *Olympia*.

ANSWER: Edouard **Manet**

105-11-41-09212

13. This character attempts to murder her seducer Komarovsky at a Christmas party. For 10 points each:

[10] Name this nurse whose husband Pavel is secretly the revolutionary Strelnikov.

ANSWER: **Lara** Antipov [or Lara **Antipov**; or **Larisa** Feodorovna Guishar]

[10] Lara is the love interest of this Russian novel's title character named Yuri, who lives for a time with the chemistry professor Gromeko.

ANSWER: ***Doctor Zhivago***

[10] *Doctor Zhivago* was written by this Russian novelist.

ANSWER: Boris Leonidovich **Pasternak**

014-11-41-09213

14. The first man to hold this position had earlier transported artillery captured at Fort Ticonderoga to Boston to help get the British out of that city. For 10 points each:

[10] Name this cabinet position held in the Washington administration by James McHenry, as well as by its first ever holder, Henry Knox.

ANSWER: Secretary of **War**

[10] This post was held through Washington's first term and part of his second by Edmund Randolph.

ANSWER: **Attorney General**

[10] The Senate failed to confirm John Rutledge's recess appointment to this position by George Washington. This position then went to Oliver Ellsworth and was first held by John Jay.

ANSWER: **Chief Justice** of the Supreme Court

023-11-41-09214

15. This man's nickname probably came from his avoiding discussion of any doctrinal discussions. For 10 points each:

[10] Name this leader of the Dutch Revolt and first stadtholder of the United Provinces.

ANSWER: **William the Silent** [or **William I**; prompt on **William** of Orange]

[10] William was assassinated in 1584 by Balthasar Gerard, a member of this religion, which clashed with Dutch Protestantism and led to the Dutch Revolt.

ANSWER: Roman **Catholicism**

[10] Philip II tried to end the Dutch uprising with this governor-general. This man established the tribunal "Council of Troubles" whose many executions led to its nickname of the "Council of Blood."

ANSWER: Duke of **Alba** [or Fernando **Álvarez** de Toledo]

121-11-41-09215

16. A narrowing of the valve at the opening of this artery is called a stenosis. For 10 points each:

[10] Name this largest artery in the human body.

ANSWER: **aorta**

[10] The aorta opens into the left ventricle of this organ, which is separated into left and right halves by the septum.

ANSWER: **heart**

[10] If the cells in the wall of the aorta weaken, this extremely dangerous bulge can occur and eventually lead to internal bleeding.

ANSWER: aortic **aneurysm**

105-11-41-09216

17. This battle was fought in order to relieve Sir Philip Mowbray, and one side created a series of camouflaged pits. For 10 points each:

[10] Name this 1314 battle fought near Sterling castle, a key victory for the Scots in the first Scottish War of Independence.

ANSWER: Battle of **Bannockburn**

[10] The Battle of Bannockburn was won by this Scottish king, who killed John III Comyn at Dumfries several years earlier. In the Treaty of Corbeil, he revived Scotland's alliance with France.

ANSWER: **Robert the Bruce** [or **Robert I** of Scotland; or **Robert VIII de Bruce**; prompt on **Robert**]

[10] Nine years before Bannockburn, this Scottish knight was captured by the forces of Edward I and drawn and quartered for treason. He was knighted after defeating the English at Stirling Bridge.

ANSWER: William **Wallace**

048-11-41-09217

18. One novel by this author includes Dr. Govinda Lal, a scientist from whom Shula steals a manuscript. For 10 points each:

[10] Identify this author who wrote about a Holocaust survivor in *Mr. Sammler's Planet*, in addition to writing *Humboldt's Gift* and *The Adventures of Augie March*.

ANSWER: Saul **Bellow**

[10] The title character of this Bellow novel is a Jewish man whose second wife, Madeleine, carries on an affair with Valentine and ignores their daughter June.

ANSWER: **Herzog**

[10] Bellow's novels *Herzog* and *The Adventures of Augie March* are set in this city, called the "Hog Butcher for the World" in a Carl Sandburg poem.

ANSWER: **Chicago**

020-11-41-09218

19. This work's "General Prologue" opens by describing the coming of spring. For 10 points each:

[10] Name this work of Geoffrey Chaucer about a group of pilgrims traveling to the tomb of Thomas a Becket in the title location.

ANSWER: *The* **Canterbury Tales**

[10] The rooster Chauntecleer is married to Pertelote and escapes a fox in this tale that follows the Monk's Tale.

ANSWER: *The* **Nun's Priest's Tale**

[10] Arcite (ARK-ih-TAY) and Palamon fight for the love of Emily in this first of the Canterbury Tales.

ANSWER: *The* **Knight's Tale**

123-11-41-09219

20. This subfield consists of calculations, such as finding the percent yield of a given reaction. For 10 points each:

[10] Name this subfield of chemistry in which one uses proportions to calculate quantities in chemical reactions.

ANSWER: **stoichiometry**

[10] In most real-life chemical reactions, the amount of product formed is directly influenced by this quantity, which is the only reactant to get completely used up in the reaction.

ANSWER: **limiting reagent**

[10] Stoichiometry involving solutions often involves eliminating these molecules from the reaction equation, as they do not form a precipitate in the given reaction.

ANSWER: **spectator ions**

140-11-41-09220

21. The nuclear envelope disappears during this phase. For 10 points each:

[10] Name this first phase of mitosis.

ANSWER: **prophase** [do not accept “prophase I” or “prophase II”]

[10] These two small structures duplicate and move to the opposite ends of the cell during prophase in animal cells.

ANSWER: **centrioles** [or **centrosome**]

[10] During prophase, the centrosome radiates these fine filaments as asters and organizes them into the mitotic spindle.

ANSWER: **microtubules** [prompt on “spindle fibers”]

124-11-41-09221