

Minnesota Undergraduate Tournament 2014: We're Not Happy 'til You're Not Happy
Questions by Billy Busse, Rob Carson, Mike Cheyne, Andrew Hart, Melanie Keating, and Bernadette Spencer
Round 3: Tossups

1. Deviations from this type of system causes phonons to have a non-infinite lifetime and is the reason behind thermal expansion in a crystal. In addition to modeling bond dissociation, the Morse potential also models deviations from this system. These systems are characterized by a potential possessing evenly-spaced energy levels and a ground-state energy of one-half times \hbar times ω . When the second-order linear differential equation that describes these systems is inhomogeneous, they are said to be (*) “driven.” The exponential decay of this behavior is referred to as damping. The potential energy of these systems is proportional to the square of the displacement from an equilibrium position. For 10 points, name these systems characterized by periodic sinusoidal movement which include springs and pendulums.

ANSWER: simple harmonic oscillator [or simple harmonic motion; accept “quantum” in place of “simple”]

2. One work by this artist shows the steamy breath of several horses pulling a trolley marked “Harlem” on its tracks. He also executed a work showing two horses pulling a carriage down the title snowy street. This artist of *Terminal* and *Winter: Fifth Avenue*, who dubbed his studies of his wife’s hands “portraits” in their own right, opened Gallery (*) 291 on New York City’s Fifth Avenue. This artist, who depicted higher-class passengers above deck separated by a gangway from the title lower-class passengers in his *The Steerage*, advocated for the pictorialist style in his magazine *Camera Work*, which was a mouthpiece for the Photo-Secessionist movement that he helped found. For 10 points, name this American photographer, the husband of Georgia O’Keeffe.

ANSWER: Alfred Stieglitz

3. This man wrote a poem whose ninth book tells the story of Byblis, who falls in love with her own twin brother, and of Iphis, who on the advice of Isis, is raised as a boy. One of his works takes the form of letters written by jilted heroines to their lovers. In a work composed of elegiac couplets that inspired a later sequel that lists “Remedies”, he claimed that “as Chiron was to Achilles,” he was to (*) Cupid. This poet, who wrote a book whose final episode before its epilogue is the apotheosis of Julius Caesar, penned the *Tristia* during his exile to the Black Sea. A book by this author of *Heroides* and *Ars Amatoria* includes the episodes of Diana and Actaeon, Apollo and Daphne, and other tales of transformation. For 10 points, name this Roman poet of the *Metamorphoses*.

ANSWER: Ovid [or Publius Ovidius Naso]

4. Marshall McLuhan claimed that this entity creates an “anti-environment” that reveals invisible habits of societies. Theodor Adorno argued that “it is self-evident that nothing concerning [this subject] is self-evident” in a book titled after the study of it. The separation of this from everyday life is decried in a book that rejects sole focus on the “expressive object” created by this subject. Another essay about this subject claims the public is “absent minded” judge of this subject and claims its (*) “aura” has been destroyed by the capitalistic title period of time. This subject is described “as Experience” by John Dewey, and Walter Benjamin examined forms of it “in the Age of Mechanical Reproduction”. For 10 points, name this broad creative discipline studied by aesthetics that includes painting and music.

ANSWER: art [or artwork; or aesthetics before mentioned; anti-prompt on things like “painting”, “music”, “sculpture”, “poetry”, or other forms of art]

5. This king began a conflict after a hawk from his royal army was thrown to the ground by a hawk owned by a religious minority. The Battle of Samugarh decided who would succeed this ruler, with Dara Shikoh losing to this man’s son. He placed the Koh-i-noor diamond on a relic built for him, which was later seized by Nader Shah. This man employed prolific architect (*) Ustad Ahmad Lahauri. The Peacock Throne was built for this ruler, who ordered the construction of the Red Fort. He spent his last days in house arrest after being locked up by his son, Aurangzeb. This man built a white mausoleum at Agra for his beloved wife Mumtaz. For 10 points, name this Mughal Emperor who erected the Taj Mahal.

ANSWER: Shah Jahan [or A’la Azad Abul Muzaffar Shahab ud-Din Mohammad Kurram]

6. This author claimed not to write “for the towering dead with their nightingales and psalms”, but for “the lovers, their arms ‘round the grief of the ages” in his poem “In My Craft or Sullen Art”. He described how “faith in their hands shall snap in two, and the unicorn evils run them through” in a poem which notes “though lovers be lost love shall not”. Another of his poems says that “the sabbath rang slowly in the pebbles of the holy streams” while the speaker “was (*) young and easy under the apple boughs”; that poem ends with the lines “Time held me green and dying / though I sang in my chains like the sea.” This author of “And Death Shall Have No Dominion” and “Fern Hill” wrote a villanelle which urges “rage, rage against the dying of the light”. For 10 points, name this Welsh poet of “Do Not Go Gentle Into That Good Night”.

ANSWER: Dylan Marlais Thomas

7. Tumors of the structure that primarily secretes this compound can be detected using an MIBG scan. Along with a related compound, this compound is secreted by pheochromocytomas. This compound can be synthesized by phenylethanolamine N-methyltransferase. Alpha and beta blockers work by blocking a group of receptors named for this compound. This catecholamine hormone is the primary secretion of the (*) chromaffin cells of the medulla of a certain gland. Food allergy emergencies can be treated using an injection of this hormone via one of its namesake “pens.” For 10 points, name this compound central to the fight-or-flight response which is produced in namesake glands which sit atop the kidneys.

ANSWER: epinephrine [or adrenaline; accept “noradrenaline” and “norepinephrine” before “phenylethanolamine” is read but do not accept or prompt on either afterwards]

8. This president was depicted in a cartoon being told “It’s better to be President than to be right!” by his mentor, and his first Secretary of State was the increasingly senile John Sherman. In one speech, he said that while walking through the White House after midnight, he became convinced the U.S. needed to “uplift and civilize and Christianize” a certain people. This man won the presidency thanks to a front- (*) porch campaign directed by Mark Hanna. During his term, he dispatched Commodore George Dewey to demolish an enemy navy. This man won his first term as president by defeating the Democrat who gave the “Cross of Gold” speech and also ran as a Populist. For 10 points, name this president during the Spanish-American War, who was assassinated by an anarchist in 1901.

ANSWER: William McKinley

9. Alban Berg once owned a preliminary sketch for this work’s finale that was written on toilet paper. The introduction of its second movement features an exchange between “the younger angels” and “the more perfect angels”. That movement’s exposition contains a baritone solo, which concludes with a shift to the major key as the trumpets introduce the “Accende lumen sensibus” theme. In this work’s finale, the “Chorus Mysticus” reprises (*) Gretchen’s theme and sings about the “eternal feminine”. Its first part contains a setting of the hymn *Veni creator spiritus*, while its second part sets text from Goethe’s *Faust*. Three choruses were used at its 1910 Munich premiere. For 10 points, identify this Gustav Mahler symphony in E-flat major, nicknamed for the large number of musicians its score calls for.

ANSWER: Symphony of a Thousand [or Gustav Mahler’s Symphony No. 8 in E-flat major; neither “Symphony” nor “Mahler” is required after they are read]

10. A Hall of Famer from this baseball team threatened to retire after the 1978 season to play professional golf. That player is the most recent Hall of Famer to win MVP’s at two different positions. This non-California team lost closer Rollie Fingers for a playoff run that ended when the Cardinals beat this team, known as “Harvey’s Wallbangers,” in the World Series. Cubs player Randall Simon was arrested for attacking a (*) mascot in this team’s stadium. Onetime owner Bud Selig moved this team from Seattle, when they were known as the Pilots. In July 2013, this team, whose games are announced by Bob Uecker, had its right fielder suspended for violating the league’s drug policy. This team employs Ryan Braun. For 10 points, name this baseball team which plays its home games in Wisconsin.

ANSWER: Milwaukee Brewers [accept either underline part; accept either part of Seattle Pilots until mentioned]

11. According to one source, this deity sometimes hangs out at a sunken bank and drinks from golden cups with the goddess Saga. This deity's position was usurped for a decade by a crafty wizard named Ollerus. He fathered a son with a goddess known alternately as Fjörgyn or Jörd. He presided over twelve judges called the Diar in his hall Gladsheim, while his other hall contained a throne from which he could see the entire universe called (*) Hlidskjalf. He gives all of his food to the wolves Geri and Freki and learns about the world from his ravens Hugin and Munin. With his brothers Vili and Ve, he killed the giant Ymir and fashioned the world from the body. This god carries the spear Gungnir and rides the eight-legged horse Sleipnir. For 10 points, name this one-eyed All-Father, the chief god of the Norse pantheon.

ANSWER: Odin [or Othin; or Woden; or Wotanaz]

12. In the *Postscript* to this novel, its author discusses unintendedly juxtaposing a scene in which the protagonist says that "haste" is what terrifies him most with one in which the antagonist says "Justice is not inspired by haste". Late in this novel, it is revealed that Berengar had enticed Adelmo to have sex with him, prompting the latter's suicide. At its climax, the protagonists find a heptagonal room called the *finis Africae*. Two former Dolcinians are targeted by one of this novel's antagonists, the (*) inquisitor Bernard Gui. At its end, a copy of Aristotle's *Comedy* is eaten by the monk Jorge of Burgos, who had poisoned its pages to commit the central crimes. For 10 points, identify this historical murder mystery starring Adso of Melk and William of Baskerville, a 1980 novel by Umberto Eco.

ANSWER: *The Name of the Rose* [or *Il Nome della Rosa*]

13. When a leader of this city was put on trial, he asked that if he was executed, the inscription read that he was being punished for "securing liberty" in a speech that caused his jury to laugh and drop the charges. Pausanias wrote that it built a gigantic lion statue at the site of one of its greatest losses, and the land near this city was called "the dancing floor of Ares." Its greatest power came under leaders such as Pelopidas. This city had a leader slain by Agesilaus II's forces at the Battle of (*) Mantinea. It employed a troop of 150 pairs of male lovers, which was thrashed at the Battle of Chaeronea by Philip II. Under Epaminondas, this city won the Battle of Leuctra against Sparta, and it possessed an elite force called the Sacred Band. For 10 points, name this Greek city mythically founded by Cadmus.

ANSWER: Thebes

14. Celebrants of this holiday often sing "Yedid Nefesh" during the Seudah Shilshit. This holiday's time is increased by declaring "Bo'i Kala" right after the Amida, thus fulfilling the tosafot halakhah. This celebration grants believers a preview of Olam Haba, the time of the Messiah. A braided candle and spices are used to mark the end of this celebration during the havdalah, which begins when three (*) stars are sighted. Conservative and Orthodox believers avoid the 39 melachot during this holiday. A silver cup full of wine is blessed and passed during this celebration, after which two loaves of challah are shared. Its commemoration is required by the fourth Jewish commandment, and work is strictly forbidden. For 10 points, name this weekly Jewish day of rest.

ANSWER: Shabbat [or Sabbath; or Shabbos; prompt on "day of rest"]

15. The SOHO and TRACE projects have observed a series of loops in this region which form a "magnetic carpet." Structures found in this region include polar plumes and helmet streamers. Alfvén waves and magnetic reconnection are two explanations for this region's namesake heating problem. Open magnetic field lines in this region's namesake (*) holes allow gas to escape, producing the fast solar wind. Billions of kilograms of plasma fly out into space during one of this region's namesake mass ejections. A temperature of over 1 million Kelvin characterizes, for 10 points, what outermost region of the Sun's atmosphere, which lies above the photosphere and chromosphere?

ANSWER: corona [prompt on the "atmosphere of the Sun"]

16. This painting appears to the left of a trio of women, one of whom pulls on a pair of green stockings, in its artist's later painting *The Models*. The artist of this painting re-stretched its canvas to add a red, orange, and blue border that sets it off from its white frame. Two soldiers face away from the viewer in the background of this painting, while a blonde girl in an orange dress runs off towards a (*) wooded area on its right side. A woman in the center of this painting sits in the shade and looks at a bouquet in her hands, while on its left side, a man in a red shirt reclines while smoking a pipe and a black dog sniffs the ground behind him. In the foreground of this painting, a woman with a black parasol has a monkey on a leash. For 10 points, name this pointillist masterpiece of Georges Seurat.

ANSWER: A Sunday Afternoon on the Island of La Grande Jatte--1884 [accept either underlined portion; accept either underlined portion of *Un dimanche après-midi à l'Île de la Grande Jatte*--1884; accept A Sunday on La Grande Jatte; accept "Isle" for "Island" in all cases]

17. In one paper, this thinker attacked people who dismissed criticisms by arguing that critics simply had "untrained introspection" and asserted that a certain type of person "recognizes no dividing line between man and brute". In another paper, he claimed that "there are no centrally initiated processes". He provided empirical support for his "chain of responses" hypothesis with an experiment conducted with Harvey Carr, in which mazes were (*) shortened, causing rats used to the longer maze to run into the walls. With Rosalie Rayner, this man conducted an experiment in which he struck a metal pipe with a hammer, causing an infant to associate the resulting fear with a white rat, then with all furry things. For 10 points, name this psychologist who conducted the "kerplunk" and "Little Albert" experiments and pioneered behaviorism.

ANSWER: John Broadus Watson

18. A former prime minister from this party was found dead in 1993 near a canal in what was apparently a suicide, despite two bullets being found in his head. It's not English, but this party had a leader who discussed the "Southern Wind" in Africa in his 1990 La Baule speech. Its first president formed a coalition government with the Rally for the Republic faction in what was called "cohabitation." That leader of this party was the president who authorized the bombing of the (*) Greenpeace vessel *Rainbow Warrior*. Its current leader previously was in a relationship with another member, Segolene Royal. This party's first president was Francois Mitterrand. For 10 points, name this left-wing French political party, whose current leader is President Francois Hollande.

ANSWER: Socialist Party of France [or *Parti socialiste*; or PS]

19. On one of these constructs, the barrier between an unstable and a metastable region is given by the spinodal, which always lies inside the binodal. Calculating properties at a point on one of these constructs can be done by drawing a tie line and applying the lever rule. The equation "C minus P plus 2" gives the number of degrees of freedom at a point on one of these constructs. Their Txy ("t-x-y") and Pxy ("p-x-y") variants can be used to show the location of (*) azeotropes. Three coexistence curves on the most common type of these constructs meet at the triple point. For 10 points, name these diagrams whose simplest versions typically display the pressure and temperature at which a material exists as a solid, liquid, or gas.

ANSWER: phase diagrams [the word "diagrams" is unnecessary after it is given in the tossup]

20. One of this author's characters is hit in the eye with a copy of *Human Development*, thrown by a girl who then tells her to "Go back to hell where you came from, you old wart hog". In the essay "The King of the Birds", she described living with forty pet peacocks. This author wrote about Mary Grace conveying a message from God to Mrs. Turpin in "Revelation" and penned a story in which the mute Lucynell is abandoned in the Hot Spot by the (*) one-armed Tom T. Shiftlet, who sees the title warning on a roadside billboard. In another of her short stories, the Bailey family gets into car accident caused when the grandmother startles her cat Pitty-Sing, and shortly thereafter the entire family is executed by a gang led by the Misfit. For 10 points, name this Southern author of "The Life You Save May Be Your Own" and "A Good Man is Hard to Find".

ANSWER: Flannery O'Connor [or Mary Flannery O'Connor]

TB. This man's illegitimate daughter was known as "Madonna Felice." His former secretary became the controversial cardinal Francesco Alidosi. This man excommunicated Alfonso d'Este, a duke of Ferrara, and he placed a republic under interdict during a conflict that featured the Battle of Agnadello. In attempting to fight (*) Venice, he created an alliance with such rulers as Louis XII, Maximilian I, and Ferdinand I of Aragon. This pope united various monarchs as the League of Cambrai. His tomb was initially to feature such sculptures as the "Dying" and "Rebellious Slave." This pope commissioned Michelangelo to paint the ceiling of the Sistine Chapel. For 10 points, name this 1500's pope known as the "Warrior Pope."

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

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Round 3: Bonuses

1. This organ's role in digestion is its production of bile, which emulsifies fats, allowing other enzymes to more efficiently break them down. For 10 points each:

[10] Name this organ which also breaks down toxins and is damaged in cirrhosis.

ANSWER: **liver**

[10] One of the first enzymes active in digestion is this salivary enzyme which breaks down carbohydrates into limit dextrins such as maltose.

ANSWER: **amylase**

[10] This digestive octapeptide hormone secreted by the duodenum in response to the presence of chyme stimulates the release of bile from the gallbladder and other digestive enzymes from the pancreas.

ANSWER: **cholecystokinin** [or **CCK**]

2. This man created a list of deities' official names called the indigitamenta, and he was reportedly advised by the nymph Egeria. For 10 points each:

[10] Name this semimythical Sabine-born second King of Rome, chosen as a compromise candidate between factions loyal to Tatius and Romulus.

ANSWER: **Numa** Pompilius

[10] Numa also introduced the Salii, a group of "leaping priests" dedicated to this father of Romulus and Remus, the Roman god of war.

ANSWER: **Mars** [prompt on "Ares"]

[10] Numa also built a famous temple to this deity, the doors of which were closed in times of peace and opened in times of war. He is the god of beginnings and transitions, as he can see the past and future simultaneously.

ANSWER: **Janus**

3. This man and his father are the first father/son pairing to each win a Medal of Honor. For 10 points each:

[10] Name this general who won his medal for his work in the Philippines Campaign during World War II. He led the United Nations Command in the Korean War until Harry Truman removed him in 1951.

ANSWER: Douglas **MacArthur**

[10] After being removed from command in the Korean War, MacArthur famously addressed Congress and quoted an old song in noting that old soldiers did not die, but simply did what action?

ANSWER: **fade away** [accept word forms here, but need those specific words]

[10] MacArthur was replaced in Korea with this general who was known as "Old Iron Tits." He would also replace Dwight Eisenhower as Supreme Allied Commander in Europe for NATO.

ANSWER: Matthew Bunker **Ridgway**

4. Heinrich Biber imitated five different types of them in his *Sonata Representativa in A*, while recordings of them play a large part in Einojuhani Rautavaara's *Cantus Arcticus*, a concerto "for [them] and orchestra". For 10 points each:

[10] Identify these especially musical animals, one of which also inspired Frederick Delius's *On Hearing the First Cuckoo in Spring*.

ANSWER: **birds** [accept **bird**song or variants; or **Aves**; reverse prompt on "cuckoo(s)" and sigh heavily]

[10] This Italian composer mimicked several different birds in his *Gli Uccelli* and wrote one of the first pieces to call for recorded birdsong, using a nightingale at the end of the third movement of his *Pines of Rome*.

ANSWER: Ottorino **Respighi**

[10] This chamber piece, composed in the Stalag VIII-A POW camp by the man who later wrote the *Turangalila Symphony*, has the clarinet and violin imitate a blackbird and a nightingale in its opening "Liturgy of Crystal".

ANSWER: **Quartet for the End of Time** [or **Quatuor pour le fin du temps**; by Olivier Messiaen]

5. W.W. Skeat published an authoritative edition of this poem in three parallel texts labeled A, B, and C, and it is divided into sections called “passus”. For 10 points each:

[10] Identify this Middle English poem by William Langland in which the narrator searches for Do-Well, Do-Better, and Do-Best, and is aided by the humble title character in a search for Truth.

ANSWER: **Piers Plowman** [accept *Visio Willelmi de Piers Plowman* or *William's Vision of Piers Plowman*]

[10] Various elements of *Piers Plowman* were regularly attributed to this author of *The House of Fame* and *The Parliament of Fowls*, whose magnum opus is undoubtedly *The Canterbury Tales*.

ANSWER: Geoffrey **Chaucer**

[10] Another Middle English poem, *Gawain and the Green Knight*, often uses this metrical device, in which a very short line of purely alliterative verse leads into a four-line passage of rhyming verse, usually forming an ABABA rhyme scheme.

ANSWER: **bob and wheel**

6. This ballet's title character, a role first performed by Carlotta Grisi, falls for man she thinks the the peasant Loys. For 10 points each:

[10] Name this ballet composed by Adolphe Adam about a girl who rescues her love, Albrecht, from the evil Wilis after her death.

ANSWER: **Giselle**, *ou Les Wilis* [or **Giselle**, *or the Wilis*]

[10] Since *Giselle* is commonly performed, many men have danced Albrecht, including this flamboyant Russian dancer, who choreographed *Jeux* and *The Afternoon of a Faun* and danced in Diaghilev's Ballet Russes.

ANSWER: Vaslav **Nijinsky**

[10] Nijinsky is perhaps best known for choreographing this ballet about pagan celebrations of the title season that was composed by Igor Stravinsky. Because it was so avant-garde, the 1913 premiere of this ballet almost caused a riot.

ANSWER: *The* **Rite of Spring** [or *Le* **Sacre du Printemps**; or **Vesna svyashchennaya**]

7. The genealogy program FamilySearch helps people obtain information needed to perform this action. For 10 points each:

[10] Name this type of temple ordinance which has been controversially performed on behalf of such people as George Washington, John Paul II, Adolf Hitler, and Jewish victims of the Holocaust.

ANSWER: **baptism** for the **dead** [accept equivalents; the point is that the people being baptized are dead]

[10] The most common practitioners of baptism for the dead are members of what Utah based church founded by Joseph Smith?

ANSWER: Church of Jesus Christ of **Latter-day Saints** [or **LDS** Church; or **Mormon** Church]

[10] Within the Mormon church, the two major orders of priesthoods are the Aaronic and this other one, which is named for a man who blesses Abram in Genesis 14.

ANSWER: **Melchizedek** priesthood

8. This ruler's foreign minister was Prince Felix of Schwarzenberg. For 10 points each:

[10] Name this ruler whose son Crown Prince Rudolf committed suicide in the Mayerling Incident. A member of the League of Three Emperors, this man named his nephew, the husband of Countess Sophie, as his heir.

ANSWER: **Franz Joseph** I of Austria [or **Francis Joseph** I]

[10] That ill-fated nephew was this man, whose assassination in Sarajevo precipitated World War I.

ANSWER: Archduke **Franz Ferdinand**

[10] Franz Ferdinand was slain by Gavrilo Princip, a member of the Serbian nationalist group known as “Unification or Death,” which shared many members with Young Bosnia. That group is better known by this English name.

ANSWER: **Black Hand**

9. In 1993 and 2008, this novel was named the “Booker of Bookers” as the best novel awarded that prize in its first 25 and 40 years of existence. For 10 points each:

[10] Name this novel whose characters include Shiva of the Knees and Parvati-the-Witch.

ANSWER: Midnight's Children

[10] *Midnight's Children* is titled for the exact time that Pakistan was split off from this country, Salman Rushdie's homeland.

ANSWER: Republic of India [or Bharat Ganrajya]

[10] In *Midnight's Children*, this man, whose wife Vanita is impregnated by William Methwold, is an impoverished accordionist and singer who raises Shiva. He shares his name with a nursery rhyme character.

ANSWER: Wee Willie Winkie [accept either underlined name]

10. The cholesteric mesophase is a type of nematic phase with this property. For 10 points each:

[10] Name this property possessed by 1-chloro-1-bromo-1-fluoroethane, in which a molecule is not superimposable on its mirror image.

ANSWER: chirality

[10] The letters R and S are used to denote types of a chiral molecule that possess the “stereo” form of this relationship. This relationship's “structural” form is possessed by n-butane and 2-methylpropane.

ANSWER: isomerism [accept word forms like “they're isomers”]

[10] This word is used to describe a compound that is not chiral despite possessing multiple stereocenters, due to the presence of some plane of symmetry.

ANSWER: meso

11. This character, who is referred to as a “little squirrel” by her husband, once forged her father's signature to obtain a loan, a fact over which she is blackmailed by Nils Krogstad. For 10 points each:

[10] Identify this character who slams the door as she leaves her husband Torvald at the end of an 1879 play.

ANSWER: Nora Helmer [prompt on “Helmer”; accept Nora Helmer]

[10] Nora Helmer is the protagonist of this Norwegian's play *A Doll's House*.

ANSWER: Henrik Johan Ibsen

[10] This Austrian author's first play is a sequel to *A Doll's House* called *What Happened After Nora Left Her Husband*. This reclusive author of *The Piano Teacher* won the 2004 Lit Nobel.

ANSWER: Elfriede Jelinek

12. ATTENTION: MODERATORS DO NOT REVEAL THE FULL ANSWERLINE IN THE FIRST PART.

This man was slain by killers probably employed by his half-brother Dingane. For 10 points each:

[10] Name this ruler and son of Nandi who used such military innovations as the “bull horns” formation. The empire he led from 1816 to 1828 would go on to fight the British at the Battle of Isandlwana decades later.

ANSWER: Shaka Zulu [or Shaka kaSenzangakhona]

[10] Shaka is considered the greatest leader of what Southern African kingdom that would fight the Voortrekkers and British in bloody 1800's wars?

ANSWER: Zulu Empire

[10] As ruler, Shaka's series of wars caused a series of migrations that would help cause this chaotic, bloody period in Southern Africa known by a term meaning “crushing”. The peak of the violence in this period came when King Mzilikazi ordered mass slaying of his enemies.

ANSWER: Mfecane [prompt on scattering, accept Difaqane or Lifaqane]

13. Maybe your guardian angel can help you answer these questions about angels in art. Let's hope you subbed them in at the half! For 10 points each:

[10] Two of the surviving fragments of this Renaissance artist's earthquake-ravaged *Baronci Altarpiece* depict angels. Two cherubs gaze upwards in his *Sistine Madonna*, but sadly, no angels appear in his *School of Athens*.

ANSWER: Raphael [also accept any of the underlined portions of the following: Raffaello Sanzio da Urbino]

[10] Fra Angelico's depiction of this event contains an angel in a pink dress with multi-colored wings standing before a woman in a colonnaded courtyard. The *Mérode Altarpiece* is a triptych of the same scene.

ANSWER: the Annunciation [accept equivalents, such as the Annunciation to the Blessed Virgin Mary or the Annunciation of the Lord]

[10] Breton nuns in black dresses and white bonnets, accompanied by a cow, watch Jacob wrestle with an angel against a red background in this artist's *Vision After the Sermon*.

ANSWER: Paul Gauguin [or Eugène Henri Paul Gauguin]

14. The Minnesotan ambient January temperature is pretty cold, but windchill makes it feel much colder because of this mechanism. For 10 points each:

[10] Name this form of heat transfer facilitated by fluid motion driven by an external source, such as a fan, a pump, or in the case of Minnesota, the wind.

ANSWER: forced convection [prompt on "convection," do NOT accept or prompt on "free convection" or "natural convection"]

[10] The extent to which convection is forced or free can be determined by the dimensionless number named for this scientist. This scientist also names the statement that the buoyant force on an object partially immersed in a fluid is equal to the weight of the fluid displaced by the object.

ANSWER: Archimedes of Syracuse

[10] Depending on the values of system parameters, convection also competes with this heat transfer mechanism, which is the dominant mechanism present in heat transfer between solids.

ANSWER: conduction

15. Margaret Thatcher's slogan "There is no alternative" may have been originated by this thinker. For 10 points each:

[10] Name this man who coined the phrase "survival of the fittest." In books like *Social Statics*, he popularized the application of evolutionary theory to non-scientific fields, such as within the study of society.

ANSWER: Herbert Spencer

[10] Spencer thus popularized the "social" form of this application of natural selection to sociology. This ideology takes its name from the scientific theorist who proposed evolution.

ANSWER: Social Darwinism

[10] This other Social Darwinist introduced the term "ethnocentrism" in his 1906 book *Folkways*. He also wrote an essay about *The Forgotten Man* and is considered an early libertarian.

ANSWER: William Graham Sumner

16. Answer the following about wine-producing regions of the world, for 10 points each.

[10] This country produces some of the world's best sauvignon blanc in the vineyards in its Marlborough and Hawke's Bay regions, though it also produces red wine from the area around its largest city, Auckland.

ANSWER: New Zealand [or Aotearoa]

[10] The criminally underrated Vinho Verde originated in the historical Minho province of this western European country. The fortified wine-producing archipelago of Madeira is one of its two Autonomous Regions.

ANSWER: Portugal [accept the Portuguese Republic or Republica Portuguesa]

[10] Egri Bikaver, or "the Bull's Blood of Eger", and a white dessert wine from the region of Tokaj are the most famous wines produced by this country. The 1920 Treaty of Trianon gave part of Tokaj to this country's northern neighbor.

ANSWER: Hungary [or Magyarország]

17. A man who avoided this disaster left soon before due to a sudden bout of diarrhea. For 10 points each:

[10] Name this 1120 disaster that killed William Adelin, a royal heir. This nautical disaster eventually helped kick off the period of English civil war known as the Anarchy.

ANSWER: White Ship disaster [or *la Blanche-Nef* disaster]

[10] William Adelin was the son of an English king of this name. The fifth king of this name won the Battle of Agincourt during the Hundred Years War and the seventh was the first Tudor king.

ANSWER: Henry

[10] Henry I was controversially succeeded by his daughter, Matilda, who battled Stephen of Blois during the Anarchy. Stephen was himself succeeded by Henry II, the first king from this English house whose other members include King John.

ANSWER: House of Plantagenet [prompt on Anjou or Angevins]

18. Identify the following American novels about World War II, for 10 points each.

[10] The landing of a V-2 rocket both begins and ends this Thomas Pynchon novel, in which Tyrone Slothrop slowly loses his mind while searching for the S-Gerät and a rocket with serial number 00000.

ANSWER: Gravity's Rainbow

[10] Willie Keith narrates this 1952 Herman Wouk novel, in which Barney Greenwald defends Stephen Maryk at a court-martial trial involving the latter's emergency relief of the cowardly Captain Queeg.

ANSWER: The Caine Mutiny

[10] After accidentally blinding a fellow enlisted man in a boxing match, Private Robert E. Lee Prewitt transfers to Schofield barracks in Hawaii, where he suffers "the Treatment" for his refusal to box again, in this James Jones novel.

ANSWER: From Here to Eternity

19. This scientist gave the first proof of the law of quadratic reciprocity, which is sometimes called his namesake "golden theorem." For 10 points each:

[10] Name this scientist, who also names a function whose integral is referred to as the "error function."

ANSWER: Carl Friedrich Gauss

[10] Gauss's golden theorem concerns the solvability of one of these statements between some square modulo some prime number. These statements are represented by a symbol that looks like an equals sign with an extra horizontal line in the middle.

ANSWER: congruences

[10] For all prime numbers p , a raised to the p is congruent to a mod p according to this man's "little theorem." The equation a to the n plus b to the n equals c to the n has no integer solutions for $n > 2$ according to this French mathematician's "last theorem."

ANSWER: Pierre de Fermat

20. Locke claimed this process should encourage physical health, sound moral character, and critical thinking skills and shy away from false tales of "goblins and sprites". For 10 points each:

[10] Name this term for the process of learning, often directed by authority figures like parents and teachers.

ANSWER: education [accept word forms]

[10] In "Some Thoughts Concerning Education", Locke examined how to instill proper thoughts in a mind that in this work, which distinguishes between simple and complex ideas.

ANSWER: Essay Concerning Human Understanding

[10] This Persian Islamic thinker also described the learning process in a work that described the two phases of an ideal maktab education. He also wrote the philosophical encyclopedia *The Book of Healing*.

ANSWER: Avicenna [or Ibn Sina; or Pur Sina; or Pur-e Sina; or Son of Sina; or Abū 'Alī al-Ḥusayn ibn 'Abd Allāh ibn Sīnā]

Extra. The secretion of the eccrine type of these glands consists primarily of sodium chloride and water. For 10 points each:

[10] Name these glands whose primary function in humans is thermoregulation. The apocrine variety of them opens into hair follicles.

ANSWER: **sweat glands**

[10] Sweat glands are found in this largest organ of the human body, which also contains hair. The epidermis is the outer layer of this organ.

ANSWER: the **skin**

[10] These touch receptors are located just under the surface of the skin, unlike a similar Pacinian receptor. When deformed by light touching pressure, they stimulate nerve endings, causing the touching sensation.

ANSWER: **Meissner's corpuscles** [or **tactile corpuscles**]