

## **Packet of Michigan, Michigan State Students**

### **Packet 9**

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#### Tossups

1. **This composer's third symphony contains a viola which plays to a lagging rhythm in its first movement and ends with a repeat of its motto theme. One dance by this composer contains a solo for saxophone and quotes this composer's first symphony. A piece by this composer was made into a ballet by Michel Fokine who also helped this composer create (\*) *The Symphonic Dances*. The most famous piece by this composer contains a notoriously difficult piano solo section that was played by this composer at its debut. For 10 points, identify this Russian pianist and composer of several piano concertos and *Rhapsody on a Theme of Paganini*.**

ANSWER: Sergei Rachmaninoff

2. **This character recalls watching a girl's tears fall on a checkerboard. This character writes a paper about the significance of his brother's baseball glove. This character convinces several girls he saw Gary Cooper, and this character gets in an altercation with a pimp named (\*) Maurice. After his expulsion from Pencey Prep, this character travels back to New York City, where he wonders where ducks go in the winter. For 10 points, name this phony-hating protagonist of *The Catcher in the Rye*.**

ANSWER: Holden Caulfield (accept either name)

3. **In weddings performed in this religion, an egg is broken on the ground to represent the destruction of evil. The Gathas are a series of holy texts written by this religion's founder. Truth and falsehood are represented in this religion's concepts of asha and druj. Practitioners of this religion pray in the presence of (\*) fire, and place their dead on structures called dakhmas, or Towers of Silence. In this religion, Ahriman is locked in a struggle with Ahura Mazda. For 10 points, identify this ancient Persian religion.**

ANSWER: Zoroastrianism

4. **One person with this surname spent his retirement at "the Kykuit" in Westchester, New York. Another member of this family worked as the Vice President of the Columbus Castings Company under Samuel Bush. A four-term governor from this family was scrutinized during a campaign amid his divorce from Mary Clark. That member of this family was also Ford's (\*) vice president. An older member of this family was criticized by muckraker Ida Tarbell and founded Standard Oil alongside his brother William. For 10 points, name this family that included Nelson, and the particularly wealthy John.**

Answer: Rockefeller family

5. Jonathan Foer likely took inspiration from this novel when writing *Extremely Loud and Incredibly Close*, reflected partly in the shared name of their protagonists. One character in this novel decides to only eat fish and later dies after watching eels emerge from a dead horse. A possible father of this novel's protagonist dies during a raid on a Polish post office, while the other is shot after attempting suicide by (\*) swallowing a Nazi pin. This novel's protagonist can shatter glass with his voice. For 10 points, Oskar Matzerath stops growing at the age of three after being given the title instrument in what novel by Günter Grass?

ANSWER: *The Tin Drum*

6. This city's airport is the third largest in the world by passenger traffic, and is the home to one of the world's largest buildings in its Terminal 3. A diamond trading hub has developed in this city and this city is notable for its Gold Souk [*rhymes with book*]. This city is home to several artificial islands including the Palm (\*) Jumeirah and the island called the world's only seven-star hotel. The namesake mall of this city is the world's largest, and another mall in this city houses a ski slope. One skyscraper in this city was completed in 2009 and is the tallest in the world. For 10 points, name this city in the United Arab Emirates, home of the Burj Khalifa.

ANSWER: Dubai (accept Emirate of Dubai)

7. Bertrand Russell wrote the introduction to a work by this thinker, but this thinker said that Russell's introduction was full of misunderstandings. One work by this philosopher includes “the thought is the significant proposition” as the second of (\*) seven basic propositions. Rush and Anscombe edited one work by this thinker. That work begins from a quote from Augustine's *Confessions* and is critical of his early work. This thinker explains the relationship of an individual's mind to the mind of others in his “beetle-in-a-box” thought experiment. For 10 points, identify this philosopher who wrote *Tractatus Logico-Philosophicus* and *Philosophical Investigations*.

ANSWER: Ludwig Wittgenstein

8. A depiction of a tree of life known as the Ished Tree was found at a temple devoted to this god who had a bird named Bennu connected to his soul. This god had a secret name according to one myth that allowed Isis to get more powerful. In one story, humans were created by this god's tears. (\*) Uraeus encircles a disc held by this god. Akhenaten supposedly tried to suppress the cult of this god and replace him with Atum. Apep is fought off daily by this god who fathered Hathor. For 10 points name this falcon-headed, Egyptian creation and sun god.

ANSWER: Ra (or Re, prompt on “Atum” but accept “Atum-Ra” before mention of “Atum”)

9. This city's government was led by two annually elected officials called Suffets who did not control the army. This city also had a court known as the Council of 104 that oversaw constitutional matters, which Aristotle compared to the Spartan ephors. In one battle fought against this city, the Numidians joined up with Publius Cornelius (\*) Scipio in attacking people from this city. The Roman senator Cato the Elder, urged for war against this city by ending every speech he made with the phrase “this city must be destroyed!”. The Battle of Zama was fought against—for 10 points—what city home to Hannibal Barca that fought against Rome in the three Punic Wars?

ANSWER: Carthage (prompt on “Punic Empire”)

10. One film by this director ends with American soldiers joining a German hostage in singing a folk song. In another film by this director, a character sings the song “Daisy Bell” after attempting to kill Dr. Bowman; that film features a match cut after an ape throws a bone in the air. (\*) This director made a film in which a man repetitively types the sentence “all work and no play makes Jack a dull boy.” That film is about a family staying in the Overlook hotel and stars Jack Nicholson. For 10 points, identify this director of *2001: A Space Odyssey* and *The Shining*.

ANSWER: Stanley Kubrick

11. **The entropy of these objects is proportional to the speed of light cubed times a specific surface area. These objects are best seen using x ray and gamma ray telescopes. Photons get slower as they near these objects. According to one theorem, these objects can be characterized by their charge (\*), angular momentum, and mass. Subject to the No-hair theorem, 2 times big G times mass over the speed of light squared describes their Schwarzschild radius. One type of these objects is posited to be at the center of galaxies; that is their “supermassive” variety. For 10 points, name these objects from which no light can escape.**

ANSWER: Black Holes (accept Supermassive Black Holes)

12. **This leader gradually scaled back his country’s NATO involvement by citing a policy of “national independence”. After receiving money from Paul Reynaud, this writer of *The Enemy and the True Enemy* issued the Appeal of 18 June. Later in life, this man would cause the “empty chair crisis.” The (\*) OAS tried to assassinate this man who called a cease fire in Algeria by putting forth the Evian Accords. This man resigned in 1968 after student protests erupted which lead to the rise of his successor George Pompidou. For 10 points, name this leader of the Free French resistance that was the first president of the Fifth Republic.**

ANSWER: Charles de Gaulle

13. **A related pathway to this process includes an Isomerization Phase in which a Rubose-6-phosphate can be made into the chiral xylulose-5-phosphate. A disease that affects this process can cause chronic hemolytic anemia. Enzymes used in this process include hexokinase and phosphofructokinase. The products of this oxygen independent metabolic pathway include (\*) NADH and a Hydrogen ion. This process is followed by the breakdown of pyruvate into an acetyl group, and the Krebs Citric acid cycle. For 10 points, name this process that yields 2 ATP and 2 NADH that is the first step of cell respiration.**

ANSWER: glycolysis (accept Pentose Phosphate Pathway until “chronic hemolytic anemia”)

14. **In Act IV of this play, the title character mentions a “dog’s obeyed in office” and says “I am even the natural fool of fortune”. One naked character claims he is being chased by the devil while another character holds a trial in which a defendant is a stool. Though married to (\*) Albany, a character in this play has an affair with a character who deceives his father named Edmund. At the end of this play, the protagonist dies moments after his daughter Cordelia dies. For 10 points, name this Shakespearean tragedy about a king whose daughters divvy up his kingdom.**

ANSWER: King Lear

15. **At a siege led by this leader, the opposing military leader retreated into the fog and died, and an eight-year-old was beheaded. That siege ended with the Gemma Armistice. After his death, this man was deified and given the title “Light of the East”. This former member of the Council of Five Elders snuck a supply of (\*) arquebuses to his troops at the battle of Sekigahara, which ended up turning the tide of the battle in his favor. This leader ended the Warring States Period and established a capital at Edo. For 10 points, identify this Japanese military leader who formed the last shogunate.**

ANSWER: Tokugawa Ieyasu

16. **This law can be given as a second order tensor that equals the product of a second order strain tensor and a fourth order stiffness tensor. The differential equation  $y''''$  equals  $y$  is like this physical law. The constant term in this equation can be found using the Bulk Modulus or (\*) Young’s Modulus. This isotropic equation holds because for small distances, the displacement is proportional to the load. The integral of this equation with respect to distance yields the equation for elastic potential energy. This equation describes a simple harmonic oscillator. For 10 points, identify this spring equation in which  $F$  equals negative  $kx$ .**

ANSWER: Hooke’s Law

17. **As a liquid, this substance’s absorption spectrum has a minimum at 418 nanometers, but strongly absorbs infrared and ultraviolet light. This substance immediately sublimates at pressures below .006 atm, and the supercritical fluid of this substance is used in oxidative hazardous waste removal. Most metal oxides, sulfides, and silicates, as well as alkanes, are (\*) insoluble in this polar aprotic solvent. The comparatively high heat of fusion and specific heat capacity of this substance are due to its molecules’ capability to form four hydrogen bonds. For 10 points, what is this colorless, odorless substance commonly referred to as the “universal solvent”?**

ANSWER: Water (accept H<sub>2</sub>O, dihydrogen monoxide, DHMO, hydric acid, hydrol)

18. **In a novel in this literary genre, Dinah Brand is a possible mole for the gangster Max Thaler but is later killed with an icepick. Major Palgrave has a heart attack says Doctor Graham in another story in this genre. A novel by the same author in this genre contains a ring inscribed “From R”, and was narrated by a character who overdoses on (\*) Veronal at the novel’s end. In another novel in this genre, a diamond is given to Rachel Verinder. *The Moonstone* by Wilkie Collins is usually seen as the first novel in this genre where the character Hercule Poirot is associated with. Agatha Christie wrote in –for 10 points– what literary genre in which character solved crimes?**

ANSWER: Mysteries (accept detective fiction prompt on “thrillers”)

[Editor’s note: *That first novel is Red Harvest by Dashiell Hammett.*]

19. **The Arizona Diamondbacks were no-hit by a pitcher of this NL team in 2006 while Joe Girardi was the manager of this team. In 2011, the Securities and Exchange Commission investigated this team and its city because of the financing of its stadium. A player from this team was first in the NL in steals in 2014 and 2015. This team agreed to a five year, 80-million-dollar contract with former Baltimore Oriole (\*) Wei-Yin Chen in the offseason. In 2016, the 3000<sup>th</sup> hit of Ichiro Suzuki’s career was made for this team that also featured second baseman Dee Gordon and the late Jose Fernandez. For 10 points, identify the NL East team that Giancarlo Stanton plays for in South Florida.**

ANSWER: Miami Marlins (accept either and accept “Florida Marlins” before “2011”)

20. **In a Byzantine painting of this figure, this figure is in a blue robe and is called “enthroned”. White mountains are in the background of one painting in which this figure picks up a child who is holding a lamb. An Edvard Munch painting titled for this figure featured a bare-breasted woman with (\*) a red halo. Angels surround this figure as this figure looks to the bottom right in one painting by Parmigianino titled for this figure “with the long neck”. John the Baptist is featured alongside this figure near a river in a painting by da Vinci. For 10 points, name this Biblical figure often painted with infant Jesus.**

ANSWER: The Virgin Mary (or Madonna, prompt on “Mary”, accept Mary mother of Jesus or equivalents)

21 (TB). This scientist believed that it was possible to change metals, and he wrote an account about the degradation of gold. His first book published about chemistry is *The Sceptical Chymist*. This scientist argued against Franciscus Linus by running an experiment with a J shaped tube. In one of this man’s laws, which is also named for Mariotte, ammonia deviates more than hydrogen gas. For 10 points, name this Anglo-Irish scientist who is best known for his law that says the pressure of a gas is inversely proportional to its volume.

ANSWER: Robert William Boyle

22 (TB). Prior to this event, one side’s leader predicted that one man would “make a fuss, then make more of a fuss, and then agree”. This event was preceded by Operation Anadyr and Rudolf Anderson died during this event. During this event Valerian Zorin was confronted by Adlai Stevenson who told him he’d wait till “hell froze over” for the former’s answer about possible weapons. The removal of Jupiter missiles from Turkey was part of the agreement that ended this event in which the United States enforced a naval blockade of a country led by Fidel Castro. For 10 points, name this Cold War event: the closest the United States and the Soviet Union ever came to all-out war.

ANSWER: Cuban Missile Crisis (accept Caribbean Crisis)



## Bonuses

1. This measure can delay a vote from being held on a certain bill while in the Senate. For 10 points each:

[10] A cloture procedure requires two thirds of the senators to agree to end this action. Senators can speak for hours on end during this action.

ANSWER: **Filibuster**

[10] Wayne Morse, a senator from this state, filibustered for over 22 hours against the Submerged Land Acts which dealt with Tidelands Oil legislation.

ANSWER: **Oregon**

[10] To stop the passage of the Civil Rights Act of 1957, this senator from South Carolina gave the longest-ever one man filibuster in history. It totaled over 24 hours.

ANSWER: Strom **Thurmond**

2. Answer the following about developmental theories in psychology for 10 points each.

[10] This Swiss psychologist included “sensorimotor” and “preoperational” as the first two of his four stages of intellectual development.

ANSWER: Jean **Piaget**

[10] A moral developmental schematic was created by this creator of “The Heinz Dilemma”. This psychologist argued that few people will reach the “Post-conventional Morality” level where people question societal moral reasoning.

ANSWER: Lawrence **Kohlberg**

[10] In Vygotsky’s social learning cognitive model, this concept is separate from thought at the beginning of the life cycle. Vygotsky differed from Piaget in that he thought the internalization of this concept is central to development.

ANSWER: **language** (accept equivalents such as “**language acquisition**”)

3. Through induction, this circuit component is used to step up or step down voltages. For 10 points each:

[10] Name this component that is commonly seen on top of utility poles.

ANSWER: **Transformer**

[10] Transformers step up or step down this kind of current. This current was partially developed by Nikola Tesla.

ANSWER: **Alternating** Current (accept **AC**)

[10] To change DC current to AC, one might use this device. This device is commonly used to power portable devices such as flashlights and power tools in conjunction with a battery.

ANSWER: Power **Inverter**

4. Jorge Luis Borges made a lot of fantastical and often crazy short stories in his career, so answer some questions about them for 10 points each:

[10] This type of structure appears in one Borges story named “of Babel”. This type of building contains several hexagonal rooms and contains books of every possible combination of 25 characters.

ANSWER: **library**

[10] The concept of the infinite or near infinite also appears in “The Book of Sand” which parallels this earlier Borges story about Sufism and a coin that represents possible futures.

ANSWER: “**The Zahir**” (or “**El zahir**”)

[10] In this Borges story, a German spy named Yu Tsun must escape Britain and give secrets to his boss The Chief. Yu Tsun also learns about a labyrinth and an intentionally confusing novel in this short story.

ANSWER: “**The Garden of Forking Paths**” (accept “**El jardín de senderos que se bifurcan**”)

5. This composer included *Einstein on the Beach* into his *Portrait Trilogy* of operas. For 10 points each:

[10] Name that American composer who also composed the music for films like *The Truman Show* and *Koyaanisqatsi* [pr. “Ko-yan-i-skatchee”].

ANSWER: Philip **Glass**

[10] This opera of Glass’ “Portrait Trilogy” is titled for an Egyptian and includes extra percussion and a synthesizer while omitting violins in arias such as “Funeral of Amenhotep”.

ANSWER: **Akhenaten**

[10] Glass, along with other Americans including Steve Reich, Terry Riley and LaMonte Young, belongs to this 20<sup>th</sup> century school of music that emphasizes simplicity as an opposition to the academic music of Pierre Boulez.

ANSWER: **minimalism**

6. Several Greek goddesses have taken their frustrations out on humans in various myths. Answer some questions about these quarrels for 10 points each:

[10] Niobe had her children killed by Apollo and this goddess of the hunt because she boasted that this goddess’ mother Leto was inferior to her.

ANSWER: **Artemis** (do NOT accept “Diana”)

[10] Artemis transformed herself into a deer to get these two giants who lusted after her to spear each other to death.

ANSWER: **Otus** and **Ephialtes** (or the **Aloadae**)

[10] Some myths say that Hera turned this former priest of hers into a cow for sleeping with Zeus. In other myths, it is Zeus that transforms this woman into a cow.

ANSWER: **Io**

7. One of India’s most controversial leaders was also its only female one. For 10 points each:

[10] Name this 3rd prime minister of India who ruled by decree for 3 years by declaring a state of emergency. She shared a surname with India’s independence leader.

ANSWER: **Indira Gandhi** (prompt on Gandhi)

[10] During Gandhi’s first term as prime minister, she oversaw India’s first nuclear test, which was given this codename. This test was the first nuclear detonation by a nation not on the U.N. Security Council.

ANSWER: Operation **Smiling Buddha** (or **Pokhran-I**)

[10] Indira Gandhi was assassinated on October 31, 1984 by two bodyguards of this faith in response to the Indian army’s conduct in Operation Bluestar in Amritsar, Punjab.

ANSWER: **Sikhism**

8. The Force is strong with this bonus. For 10 points each,

[10] The mystical “Force” was explained to actually be a bunch of microscopic organisms called “midichlorians” in the prequels of this multimedia franchise.

Answer: **Star Wars**

[10] Notable Force users include the Jedi Master Obi-won Kenobi, Sith Lord Darth Vader, and this scavenger from the desert world Jakku played by Daisy Ridley in *The Force Awakens*.

ANSWER: **Rey**

[10] According to Wookieepedia, this is the home-world of the Sith. This Outer Rim world is covered in mountains and desert and contains the grave of Darth Bane.

ANSWER: **Moraband** (also accept **Korriban**)

[Editor’s note: I am not sure how the reliability of Wookieepedia compares to Wikipedia, but this bonus seemed cool to me while I was editing it.]

9. Recently, lots of new information about inheritance has been published, but how do well do you know classic inheritance? For 10 points each:

[10] Identify this Austrian monk and part-time botanist who studied pea plants and established the Law of Segregation.

ANSWER: Gregor **Mendel**

[10] Assuming standard Mendelian genetics, what is the probability that two hybrid plants have an offspring that expresses the recessive phenotype?

ANSWER: **25%** (or  $\frac{1}{4}$ )

[10] In contrast with height in pea plants, some phenotypes such as human height have this type of inheritance associated with quantitative characters.

ANSWER: **polygenic** inheritance (accept word forms like **polygenes** or equivalents to “**multiple gene** inheritance”)

10. One character in this play named Botard doesn't believe in the title creatures because he is a skeptic. For 10 points each:

[10] Identify this absurdist play where characters like Jean turn into the title animal. Jean later says that humanism is dead.

ANSWER: **Rhinoceros**

[10] *Rhinoceros* was written by Eugène Ionesco who also penned this avant-garde play. A family where everyone is named Bobby Watson and a woman who always has her hair in the eponymous style appear in this play.

ANSWER: **The Bald Soprano** (accept “**The Bald Prima Madonna**” or “**La Cantatrice Chauve**”)

[10] Ionesco was a playwright born in this country. Ilarie Voronca, Benjamin Fondane and Tristan Tzara were also natives of this country with capital at Bucharest.

ANSWER: **Romania**

11. While running for Canadian Prime Minister in 2015, Justin Trudeau vowed to legalize this plant but has not yet legalized it. For 10 points each:

[10] Identify this plant that can be sold at medical dispensaries in states like California.

ANSWER: **marijuana** (accept the plethora of names for **weed** such as “**hash**”, etc.)

[10] This Alabama Senator and Trump appointee for Attorney General has been very anti-weed throughout his career as evidenced by the fact he said “it’s in fact a very real danger” at a Senate hearing.

ANSWER: Jeff **Sessions**

[10] In 2016, voters in this state approved Question 2 which made recreational marijuana legal for those over 21. Previously, this state’s AG Adam Laxalt was opposed to extending overtime pay.

ANSWER: **Nevada**

12. This artist depicted a white man with a crutch who is surrounded by young girls dressed in white. For 10 points each:

[10] Name this artist that depicted a shadowy man looking at a partially undressed woman on its left side in his *The Interior*.

ANSWER: Edgar **Degas** [pr. “Day-gah”]

[10] Degas is more well known for depicting this action usually in either in pink or white. This action is undertaken by the subjects of Degas’ *The [this action] class*.

ANSWER: **dance** (accept word forms such as **dancing**)

[10] Degas also created this painting in which a woman with a hat stares gloomily at her green beverage.

ANSWER: **L’Absinthe** (or *The Absinthe Drinker* or *The Glass of Absinthe*)



13. This character accidentally kills Mary Dalton then decapitates her and burns her body in a furnace. For 10 points each:

[10] Name this unfortunate main character who is arrested after he murders his girlfriend Bessie Mears.

ANSWER: **Bigger** Thomas

[10] Bigger is the main character of this author's novel *Native Son*. This author also wrote the autobiographical *Black Boy*.

ANSWER: Richard **Wright**

[10] The protagonist of this fictional autobiography written by James Weldon Johnson witnesses a lynching and then decides to pass as white and give up his ragtime music composition.

ANSWER: **Autobiography of an Ex-Colored Man**

14. Answer the following about Christianity in Michigan for 10 points each.

[10] John Kellogg belonged to this denomination, and began his cereal company in Battle Creek, Michigan, partially in an attempt to promote the vegetarian diet of this religious sect.

ANSWER: **Seventh-Day Adventist** (prompt on "evangelism")

[10] This Evangelist began the first of his so-called "Crusades" in Grand Rapids, Michigan. This Southern Baptist and popular televangelist spoke at many revival meetings.

ANSWER: Billy **Graham**

[10] This Catholic priest broadcasted from Royal Oak, Michigan throughout much of the 1930's. He was eventually forced to quit radio due to his Anti-Semitic and pro-Nazi views.

ANSWER: Charles **Coughlin**

*[Editor's Note: After reading through this set, it is pretty evident that the plurality of the writers of this packet came from Michigan. I apologize if any non-Michiganders are annoyed by the copious Michigan content.]*

15. This poem famously ends with the anaphoric phrase "To strive, to seek, to find, and not to yield". For 10 points each:

[10] Name this dramatic monologue named after a Roman mythological hero in which the speaker mentions his son who "whom [he] leave[s] the sceptre and the isle".

ANSWER: "**Ulysses**"

[10] "Ulysses" was written by this Victorian poet who also wrote about the "six hundred" who march "into the valley of Death" in "The Charge of the Light Brigade".

ANSWER: Alfred Lord **Tennyson**

[10] The character of Ulysses is also related to this other Tennyson poem that opens with a character saying "Courage" and mentions "branches" "laden with flowers and fruit".

ANSWER: "**The Lotus-eaters**"

16. For 10 points each, answer some questions about an Iron Chancellor.

[10] This man became the Foreign Minister of Prussia in 1862, a position from which he embarked on an ambitious campaign for German Unification.

ANSWER: Otto von **Bismark**

[10] One major step towards unification was Prussian victory in the Seven Weeks War against Austria, which saw a decisive Prussian victory at this battle. The Prussians used breech-loading rifles and there was a forced march by Crown Prince Frederick.

ANSWER: Battle of **Koniggratz** (also accept Battle of **Sadowa**)

[10] After unification, Bismark became the first Chancellor of Germany. While Chancellor, he initiated this policy campaign that aimed to curb Catholic influence in Germany.

ANSWER: **Kulturkampf**

17. Answer some questions about the non-English-speaking parts of the United Kingdom for 10 points each.

[10] This island in the Irish Sea between England and Northern Ireland speaks a Gaelic language close to Scottish and Irish in the language of Manx.

ANSWER: Isle of Man (or Mann)

[10] This constituent country of the UK has its own language but only 19% of residents over 3 can speak the language. Cities in this country include Cardiff and Swansea.

ANSWER: Wales (or Cymru)

[10] In Southeastern England, this language is spoken by a people known for their custard and “cyder” who live in cities such as Truro and St Austell.

ANSWER: Cornish (accept Cornwall because that is the place)

18. Answer some questions about matrices for 10 each.

[10] This value for a 2 by 2 matrix is  $ad-bc$ . For larger matrices, alternative methods such as column replacement can be used.

ANSWER: determinant

[10] The product of these values is the determinant of a matrix. These values can be found by taking the determinant of a matrix  $A$  minus  $\lambda I$  and setting that equal to 0.

ANSWER: eigenvalues

[10] An  $n$  by  $n$  matrix with  $n$  distinct eigenvalues has this property. A matrix will also have this property if a matrix [please read slowly] with basis vectors as columns called  $P$  multiplied by a matrix  $D$  times  $P$  inverse equals  $A$ .

ANSWER: diagonalizable (accept word forms like diagonalizability)

19. Dr. Livingstone, I presume? Answer some questions about European exploration of Africa for 10 points each.

[10] The above quote was said by this man, a journalist for the *New York Herald* who found Livingstone near Lake Tanganyika. This man later claimed much of the Congo for the Belgian King Leopold II.

ANSWER: Henry Morton Stanley

[10] Livingstone had gone missing while searching for the source of this river, a quest that obsessed Europeans for decades. Stanley confirmed earlier hypotheses that this river’s “White” tributary originated in Lake Victoria.

ANSWER: Nile River

[10] Some of the earliest European missionaries were Catholics from this European country who visited the Congo and Ethiopia in the 15th and 16th centuries. King Nzinga converted with the help of people from this country.

ANSWER: Portugal

20. Answer the following about the strong acids for 10 points each;

[10] This acid is produced in the contact process. Unlike many common strong acids, this acid is diprotic.

ANSWER: sulfuric acid

[10] *Aqua regia* is a mixture of hydrochloric acid and this strong acid. This acid has red and white fuming types, and is produced using the Ostwald process.

ANSWER: nitric acid

[10] Generally, the strength of an acid increases as this value becomes more negative. It’s not pH, but this value appears in the Henderson-Hasselbach equation.

ANSWER: pKa (accept acid dissociation constant)

21 (TB). This goal was completed in its entirety in 1982. For 10 points each:

[10] Name this event that is celebrated every year in the country it took place on July 1<sup>st</sup>. During this event, a Nother American country became separate from the UK.

ANSWER: **Canadian Independence** (accept obvious equivalents)

[10] This Canadian unifying event consisted of three different uprisings including the Patriot War. This event led to the merger of Lower and Upper Canada into a single government and to the issuing of the Durham report.

ANSWER: Rebellions of **1837**

[10] A Canadian leader of this surname led the Upper Canada Rebellion but had his forces defeated at the Battle of Montgomery. The grandson of this man was the Canadian PM during the Second World War

ANSWER: **Mackenzie** (also accept **Alexander Mackenzie** or **William Lyon Mackenzie King**)