

Michigan Fall Tournament (Written by Will Nediger, Kurtis Droge, Cody Voight, Saul Hankin, Ben Forster, Siddhant Dogra, and Peter Jiang)

Packet by Dartmouth A

Warm-Up Tossup (Optional)

In his first appearance, this character was voiced by Norm MacDonald; since then he has been voiced by Adam Carolla. A child version of this character wears a pro-smoking T-shirt. He claims that he hates clothes shopping because he is “minus an ass,” and in one appearance he wears a Providence College sweatshirt. He lives with his mother, who makes fun of him for taking his cousin to prom and warns him about a hen laying eggs in his tummy. This character facilitates time travel in the episode “Meet the Quagmires.” In another episode, he asks out a pet shop employee named Amy with help from Peter Griffin. For 10 points, name this character who wears a black robe, carries a scythe, and is pretty bad at his job of claiming people when they die.

ANSWER: **Death** [accept nothing else; even his mother calls him “Death”]

Tossups

1. A former ruler of this country ordered the killing of Gian Rinaldo Monaldeschi after the latter revealed that ruler’s plans to become the ruler of Naples. A ruler of this country notably organized his infantry linearly, rather than into *tercios*, and employed lighter artillery for greater mobility. A nationalist party in this country called the “Hats” advocated war with Russia during the eighteenth century, during which this country experienced an “Age of Liberty.” This country was led by a queen who converted to Catholicism and whose father died at the Battle of Lutzen. Along with Poland, this country was ruled by the House of Vasa, which included Queen Christina and her father, Gustavus Adolphus. For 10 points, name this Scandinavian country whose capital was the site of the Stockholm Bloodbath.

ANSWER: Kingdom of **Sweden** [or Konungariket **Sverige**]

2. A rebel in this book acquires a mace with a head in the shape of a cow after meeting a man with eighteen sons, seventeen of whom have been killed by the current ruler. One character in this book successfully undergoes trial by fire after he is accused of rape. A different character in this book spends some time imprisoned in a well where his beloved delivers him food every day. A white-haired man named Zal in this book uses a magical feather to aid his wife Rudabeh in the birth of his son via a caesarean section. It’s not the Quran, but in this book, a horse whose name translates as Lightning can only be tamed by one man, who later executes seven labors. In two famous episodes, Zal is abandoned by his father on a mountain to be raised by the bird Simurgh, and Rostam unknowingly kills his son Sohrab in combat. For 10 points, name this book chronicling tales from Iran, an epic by Ferdowsi.

ANSWER: **Shahnameh** [or **Book of Kings**]

3. An important contributor to the spectral lines of these objects is collisional excitations. These objects are often found in conjunction with Wolf-Rayet stars and can, in that case, take on the shape of a pinwheel. One subtype of these objects, sometimes called Strömgren spheres and usually found with young O- and B-type stars, has characteristic emission lines of ionized hydrogen. That subtype is H II regions, and another subtype is their planetary type. The creation of one of these objects was observed by Chinese astronomers in 1054, after a supernova in Taurus. For 10 points, name these interstellar clouds of gas and dust exemplified by the Crab.

ANSWER: emission **nebulae** [or planetary **nebulae**; or **H II** regions until is read]

4. Enhancer traps are often used in combination with P-element induced mutagenesis in this organism. Krüppel negatively regulates the pair-rule enhancer *eve* stripe 2 in this organism, which also contains the morphogenic maternal effect gene *bicoid* discovered by Nüsslein-Volhard and Wieschaus. In this organism, serrate and delta ligands function in the Notch signaling pathway, which when mutated produces abnormal macrochaetae. Particularly useful for the large polytene chromosomes found in its salivary glands, its famous mutants include *clock*, *shaker*, *ultrabithorax*, and white-eyed. For 10 points, name this model organism with four pairs of chromosomes that was studied by Thomas Hunt Morgan, a genus of insect.

ANSWER: *Drosophila melanogaster* [or *Drosophila melanogaster*; or common fruit flies; or vinegar flies; prompt on flies]

5. Maimonides classified this action into eight levels using the metaphor of a ladder. Luke 11:14 states that “everything will be clean for you” after performing this act. One of the Three Pillars of Sikhism, Vand Chhako, mandates this action, which is often performed in langars. This action is exemplified by the Shi’a practice of *khums*. Jesus praises a widow’s performance of this action in order to teach the “lesson of the widow’s mite.” One form of this action in Islam is called *sadaqah*, which is similar to the Jewish concept of *tzedakah*. In Islam, this practice is mandated if your income is above the *nisab*, in which case you must perform *zakat*. For 10 points, name this action that involves giving to the poor.

ANSWER: charity [accept giving alms; accept tzedakah before mentioned; accept giving to the poor and similar answers until mentioned]

6. A female historian of this dynasty advised women to be submissive to their husbands in *Lessons for Women*. Some rulers of this line allied with the “Grandchildren of the Crow” against an empire whose first leader was Modu. A rebellion against this dynasty preached the Way of Supreme Peace and was led by three Zhang brothers. One ruler from this line sent an expedition in search of the heavenly horses, had the writer of the *Records of the Grand Historian* castrated, and instituted monopolies on salt and iron. The rule of this dynasty, whose family name was Liu, was interrupted by the interregnum of a Confucian scholar who opposed the Red Eyebrows, Wang Mang. Its decline came in the wake of the Yellow Turban Rebellion. For 10 points, name this dynasty founded by Liu Bang, which had emperors such as Wudi and succeeded the Qin.

ANSWER: Han Dynasty [or Han Chao]

7. The parodic nature of one of this composer’s works is argued for by William Kinderman and by Alfred Brendel, who gave its movements titles like “Cheerful Spook” and “The Virtuoso at Boiling Point.” The fourth and last movement of one of his works consists of a *Largo* introduction and a demanding three-voice fugue. Ludwig Nohl discovered another of his works, whose A minor opening theme is marked “Poco moto.” A piano sonata by this composer opens with an *Adagio sostenuto* movement with the right hand playing triplets, and ends with a stormy *Presto agitato*. This composer’s “Bagatelle in A Minor” is more commonly referred to by its dedication to an unknown woman. He composed the *Hammerklavier* and a piano sonata subtitled “Quasi una fantasia” whose nickname was coined by Ludwig Rellstab. For 10 points, name this composer of the *Diabelli Variations*, *Fur Elise* and the *Moonlight Sonata*.

ANSWER: Ludwig van Beethoven

8. During one campaign, this man was attacked for making a woman worship “Aqua Buddha” in college. In that campaign, this man became one party’s candidate after Jim Bunning declined to run for re-election. This man was criticized after stating on Rachel Maddow that he disagreed with the parts of the Civil Rights Act outlawing private discrimination. This man, who defeated Jack Conway to win his current office, ran an ophthalmology clinic before being elected to his current position. This co-author of *The Tea Party Goes to Washington* launched a filibuster of John Brennan’s appointment to the CIA in opposition to drone strikes, which

led people to say they would “Stand With” this man. For 10 points, name this current Junior Senator from Kentucky and son of libertarian Republican presidential candidate Ron.

ANSWER: Rand Paul [prompt on partial answer]

9. In one scene, this character claims that he once possessed a heart, but has since hardened into the texture of India-rubber. In the first appearance of this character, he sprains his ankle after his horse slips on some ice. A lightning storm destroys the chestnut tree under which this character proposes to his future wife. This character relates that “happiness is near” to a woman while disguised as a gypsy fortune teller. For a time, it seems as if this character will wed Blanche Ingram. This owner of Thornfield Hall meets his future spouse when he hires her as a governess to take care of his ward, Adele. He employs Grace Poole to keep the insane Bertha Mason under confinement, though Bertha ends up starting a fire that leaves this character blinded. For 10 points, name this Charlotte Bronte character, the love interest of Jane Eyre.

ANSWER: Edward Rochester [accept either name]

10. A mixture of this compound and hydrogen peroxide is used in the Piranha clean. This compound is produced along with hydrogen iodide in the Bunsen reaction, part of a cycle used to produce hydrogen gas. This compound is reacted with sodium chloride in the Mannheim process and is useful in the production of fertilizer because it is added to apatite in the "wet method" of phosphoric acid production. This compound can reversibly add a blocking group to benzene rings and protonates nitric acid for electrophilic aromatic substitution. A vanadium-five oxide catalyst is used for the production of this compound in the contact process. For 10 points, name this diprotic acid with formula H₂SO₄.

ANSWER: sulfuric acid [or oil of vitriol]; or H₂SO₄ until it is read]

11. The realist position with respect to these things has been defended by Byrne and Hilbert. C.L. Hardin has written many papers on them, as well as a book about them “for philosophers.” A thought experiment developed by Frank Jackson imagines a woman named Mary who is an expert on these things but has never personally experienced them. To illustrate his “new riddle of induction,” Nelson Goodman proposed that objects might change with respect to this property at a particular future time *t*. David Hume argued that it is possible to imagine one of these things without having experienced it by imagining a “missing” one. For 10 points, name these properties which are perceived by the cone cells of the retina.

ANSWER: colors [prompt on sense perceptions; prompt on qualia; antiprompt on specific colors]

12. In a plotless film named after a city by this director, subway workers discover a room full of ancient frescoes that fade away when exposed to air. In another film by this director, the lead actress and a blond, bearded man lead a dance to the song “Ready Teddy” at the nightclub “Baths of Caracalla.” Nadia performs a striptease to “Patricia” in that film, which opens with a shot of a Jesus statue being carried by a helicopter and includes a sequence culminating with Sylvia and Marcello cavorting in the Trevi Fountain. Another of his films opens with a dream sequence in which the main character rises out of his car and starts to fly. That film is about a director named Guido Anselmi struggling to make a film, and its title refers to the number of movies this director had already made. For 10 points, name this director of *Roma*, *La Dolce Vita* and *8 ½*.

ANSWER: Federico Fellini

13. In one work, this author compared his knowledge of his dead father to his knowledge of the ancient Romans; that work ends with a quote from the oracle of Delphi including “everything studies itself first.” This man’s works are usually split into the A, B, and C passages based on their date of composition. He famously stated “I myself am the matter of my book.” In one work, he criticized Europeans for calling New World natives barbaric while ignoring their own faults. In another work, he applied the principles of skepticism to defend a previous thinker’s *Theologia Naturalis*. The death of his friend Étienne de la Boétie inspired him to write a

work including sections like “Of Vanity,” “Of Cannibals,” and “An Apology for Raymond Sebond.” For 10 points, name this French writer known for his *Essays*.

ANSWER: Michel de Montaigne

14. The characteristic form of this quantity can be calculated as the square of the asymptotic velocity of an object escaping from a massive body. In relativity this quantity is a 4-vector along with momentum, while in classical mechanics this quantity can be calculated as the derivative of action with respect to time. The virial theorem relates the average value of one form of this quantity over time to another. An operator representing this quantity is multiplied by the wavefunction in the general time-dependent Schrödinger equation; that operator is often represented as the sums of T and V and is symbolized H. To calculate a system's Lagrangian, one form of this quantity, which is represented by the Hamiltonian, is subtracted from another. For 10 points, name this quantity with kinetic and potential forms.

ANSWER: energy [or kinetic energy]

15. The leaders of some of these institutions were cleared of involvement in a trust by the Pujo Committee. Some of these institutions were discussed during a meeting on Jekyll Island and were the subject of the Aldrich Plan. The Gramm-Leach-Bliley Act removed some restrictions on these institutions, that, until 2011, were subject to Regulation Q. During a namesake war in the 1830s, a corrupt series of these institutions were pejoratively termed “wildcat” or “pet” these. One of these institutions was opposed by Andrew Jackson and led by Nicholas Biddle, while Alexander Hamilton championed the creation of a national one of them. The Glass-Steagall Act governed the operations of these institutions. For 10 points, name this type of institution that lends money.

ANSWER: banks [accept more specific answers]

16. In one of this artist's portraits, a black bird rests on a branch next to a woman dressed in brown who wears a white shawl and holds a squirrel. In a Madonna by this artist, Mary wears a blue dress with an orange sash and stands in front of a shell-like recess. One series of woodcuts created by this artist shows skeletons appearing in various everyday scenes. This artist used a dead body fished up out of the Rhine as a model for one of his paintings, *The Body of the Dead Christ in the Tomb*. This creator of the *Darmstadt Madonna* and the *Dance of Death* showed two standing men resting their arms on a table with a globe on it in a painting with an anamorphic skull at the bottom. For 10 points, name this artist of *The Ambassadors*, a court painter to Henry VIII.

ANSWER: Hans Holbein the Younger [prompt on Hans Holbein]

17. Deities from this region are depicted on the Pillar of the Boatmen. This region was populated by several peoples who elected a chief magistrate called a *vergobret* as their leader. Marcus Postumus established a third-century empire named after this region, which was also the origin of Gaius Vindex's rebellion against Nero. The Arverni and Sequani tried to defeat the Aedui during a conflict in this region, which was home to the cities of Lutetia and Lugdunum. One leader who defeated Ariovistus at the Battle of Vosges in this region said that it was divided into three parts; that leader won a victory in this region at Alesia, thus subduing Vercingetorix. For 10 points, name this region roughly corresponding to modern-day France, the location of a war about which Julius Caesar penned some commentaries.

ANSWER: Gaul [or Gallia; I guess you can prompt on France or Francia until “three parts”]

18. Controversy erupted over whether this author plagiarized the life experiences of Muriel Gardner in the section “Julia” of her book *Pentimento*. In one play by this author, Albertine enters into a relationship with a black chauffeur named Henry. In that play, Julian finances his sisters' trip to Europe with money that he obtained from a real estate scam. In another play by this author, Amelia Tilford arrives too late to stop the suicide of one of the main characters after discovering that her granddaughter Mary has faked some accusations

against her teachers. A character created by this author does not want her invalid husband Horace to lend money to her brothers Benjamin and Oscar for the construction of a cotton mill. This playwright of *Toys in the Attic* and *The Children's Hour* is best known for a play about Regina Hubbard. For 10 points, name this author of *The Little Foxes*.

ANSWER: Lillian Hellman

19. A virgin goddess in this myth system becomes pregnant after eating fruit containing the sperm of the moon god. In this myth system, the first humans are a race of dimwitted giants created by breathing into stones who are wiped out and replaced by a new group created from smaller rocks. One god in this myth system keeps the Milky Way in a jug and uses it to create rain; that god is Ilyapa. In this mythology, a man plants a golden staff into the ground to mark the site where a new city will be constructed; that man is the son of a god represented by a golden disk with a human face. This mythology features realms known as Pachas and the creator god Viracocha. For 10 points, name this Andean mythology whose sun god Inti is the father of Manco Capac.

ANSWER: Incan mythology

20. This book discusses the upper-class residents of big cities in a chapter whose title is inspired by Ward McAllister's comment that there were only 400 people of importance in New York, "The Metropolitan 400." This book argues that the powerlessness of the modern middle class, among other things, invalidates the "theory of balance." It says that, because the U.S. never experienced a feudal stage, conservatives do not have pre-capitalist models but still promote traditionalism, in the chapter "The Conservative Mood." It claims that the title entity has become more reckless in the 20th century in its chapter "The Higher Immortality." Its opening chapter, "The Higher Circles," introduces the idea that the military, the state, and corporations have an inordinate amount of influence. For 10 points, name this C. Wright Mills book which discusses a group of powerful individuals who dominate American society.

ANSWER: *The* Power Elite

21. This character visits a mystical tavern owner who advises him to make merry by day and night. This character, whose lusts are such that no virgin is left to her lover, rejects the advances of a woman who had betrayed several previous lovers including a lion, horse, and stallion. A snake sheds its skin after taking a plant from this character, who had tied stones to his feet in order to sink to the bottom of a river to obtain that plant. This character befriends a steppe-dweller with whom he wrestles in the gates of a city and later journeys with that friend to a cedar forest. He seeks immortality by visiting the survivor of a flood and slays the Bull of Heaven and Humbaba along with his companion, the wild man Enkidu. For 10 points, name this king of Uruk, the protagonist of a Sumerian epic.

ANSWER: Gilgamesh

Bonuses

1. These systems are governed by Hooke's Law. For 10 points each:

[10] Name these systems in which the restoring force is proportional to the displacement from the equilibrium position.

ANSWER: SHO [or SHM; or simple harmonic oscillators; or simple harmonic motion]

[10] Pendulums can be approximated as simple harmonic oscillators if one makes this approximation, which is essentially a truncation of the Taylor series of the sine function to one term.

ANSWER: small-angle approximation [or obvious equivalents, such as the displacement takes places at small angles]

[10] This condition occurs in harmonic oscillators when the Q-factor is equal to one-half. Under this condition, the system does not oscillate, but rather approaches the equilibrium state as quickly as possible without overshooting.

ANSWER: critical damping [do not prompt on partial answer]

2. For 10 points each, name some authors who have written about a common theme.

[10] In the best known novel by this author of *The Gospel According to Jesus Christ*, a doctor's wife is the only character who does not lose the ability to see, leading to general chaos.

ANSWER: Jose Saramago

[10] This French-language author from Belgium wrote a one act play called *The Blind*. His better known works include *Pelléas and Mélisande* and *The Blue Bird*.

ANSWER: Maurice Polydore Marie Bernard Maeterlinck

[10] A traveler in the Andes declines to have eye surgery to stay with the girl he loves from the title land of this author's short story "The Country of the Blind." He also wrote *The Time Machine*.

ANSWER: Herbert George Wells

3. This ruler ordered the massacre of thousands of Danish settlers on St. Brice's Day. For 10 points each:

[10] Name this Anglo-Saxon king succeeded by the Dane Sweyn Forkbeard. His Old English name and title was a pun meaning "noble counsel, no counsel."

ANSWER: Æthelred the Unready [or Æthelred II; or Æbelræd Unræd]

[10] In this 991 battle, the earl Byrhtnoth attempted to repulse an invasion of Viking forces, but his defeat led to the payment of the first Danegeld.

ANSWER: Battle of Maldon

[10] One manuscript says that the leader of the Viking forces was Olaf Tryggvason, a ruler of this kingdom. Later in the Middle Ages, this kingdom would unite with Denmark and Sweden in the Kalmar Union.

ANSWER: Kingdom of Norway [or Kongeriket Norge]

4. Udhiyyah is the term that refers to entities that undergo this during Eid al-Adha, a holiday partially named after this practice. For 10 points each:

[10] Name this practice that also occurs during the festival to Gadhimai in Nepal. In Judaism, it was once known as qorbanot, and other versions of this practice include the hecatomb, ashvamedha, and the taurobolium.

ANSWER: animal sacrifice

[10] In the case of *Church of Lukumi Babalu Aye v. City of Hialeah*, laws specifically targeting this religion's animal sacrifice rituals were ruled unconstitutional. This religion blends Catholicism with Yoruba traditions.

ANSWER: **Santeria**

[10] This Hebrew term refers to a trained slaughterer of animals. This person usually makes several cuts into the animal, allowing its blood to drain out rapidly.

ANSWER: **shochet**

5. This region is the only majority-Buddhist region in Europe. For 10 points each:

[10] Name this region in Russia with capital Elista. It is named for a group of Oirat descendants who migrated there around the seventeenth century, many of whom returned to Dzungaria under the leadership of Ubashi Khan.

ANSWER: **Kalmykia**

[10] This longest river in Europe flows through an eastern portion of Kalmykia. This river empties into the Caspian Sea near the city of Astrakhan.

ANSWER: **Volga** River

[10] These people who worked on the Volga River, known in Russian as *burlaks*, are the subject of a folk song published by Mily Balakirev and a painting by Ilya Repin.

ANSWER: Volga **boatmen** [accept **barge haulers**]

6. Answer the following about a Nobel-winning poet, for 10 points each.

[10] This poet claimed that "there is no godless art" and "beauty is virginal and is not to be found at carnival or fair" in "Decalogue of the Artist." Her other works include *Sonnets of Death* and *Tenderness*.

ANSWER: Gabriela **Mistral** [or Lucila Godoy **Alcayaga**]

[10] *Sonnets of Death* was inspired by the suicide of this railway worker who was a close friend of Mistral.

ANSWER: Romelio **Ureta**

[10] Mistral is from this Latin American country, whose other poets include Roberto Bolaño and Victor Jara, the latter of whom was murdered in the aftermath of Pinochet's 1973 coup.

ANSWER: **Chile**

7. These compounds make good aprotic solvents due to their low reactivity, but they form dangerous peroxides if left alone too long. For 10 points each:

[10] Name these molecules containing an oxygen atom connected to two alkyl or aryl groups. A common example of these molecules is the anesthetic "diethyl" variety.

ANSWER: **ethers**

[10] Crown ethers are a common example of the phase-transfer type of these reagents, which are not consumed in a chemical reaction, but do speed it up by lowering the activation energy.

ANSWER: **catalysts**

[10] Cyclic ethers, which are called epoxides, can react with nucleophiles like Grignard reagents in a ring-opening reaction. Where does the nucleophile attack in the presence of an acid catalyst?

ANSWER: at the **more substituted** carbon atom [or obvious equivalents]

8. This work contains a long finale "in the tempo of the scherzo" which contains a development section that begins with two long drum rolls involving gongs. For 10 points each:

[10] Name this symphony, which contains a folk dance in A-flat major in its *andante moderato* movement, followed by a scherzo in C minor. The composer referred to the climax of its third movement as a "death-shriek."

ANSWER: **Symphony** No. **2** by Gustav **Mahler** [or **Resurrection Symphony**]

[10] The *Resurrection Symphony* was written by this Austrian composer of the "Titan" Symphony and the "Symphony of a Thousand."

ANSWER: Gustav **Mahler**

[10] The lyrics of this Mahler work are partially based on a Tang dynasty poem by Qian Qi. It contains the movements, “Of Youth,” “Of Beauty,” and “The Farewell.”

ANSWER: *Das Lied von der Erde* [or *The Song of the Earth*]

9. Peasants and clergy were exempted from the levy on these items, which was aimed at the nobility. For 10 points each:

[10] Name these items, possessors of which were required to pay a special tax and carry tokens saying that they were “a superfluous burden” as part of a series of reforms targeted at the boyars.

ANSWER: beards [prompt on facial hair]

[10] The tax on beards was introduced by this reformist tsar, who wanted the boyars to look more westernized.

ANSWER: Peter the Great [or Peter I; or Pvotr Alexeievich; accept Pvotr for Peter; prompt on Peter]

[10] Another part of Peter’s plan to curb the power of the boyars came through implementing this system that specified fourteen levels for military, civil, and judicial service positions.

ANSWER: Table of Ranks

10. On the back of one of this painter’s portraits are the words “beauty adorns virtue” and a sprig of juniper. For 10 points each:

[10] Name this artist of a portrait of Ginevra de’ Benci, as well as a portrait of an unknown woman titled *La belle feronnière*, and a portrait of Cecilia Gallerani holding an animal.

ANSWER: Leonardo da Vinci [accept either underlined portion]

[10] The aforementioned works are three of only four portraits of women by Leonardo. The fourth is, of course, this painting of a woman with an enigmatic smile.

ANSWER: Mona Lisa [or *La Gioconda*]

[10] A drawing of a fiancée from this city is also sometimes attributed to Leonardo. His *Last Supper* can be found in this city’s church of Santa Maria della Grazie.

ANSWER: Milano

11. The economic calculation problem was formulated as a critique of this economic system by Ludwig von Mises, after which he titled one of his books. For 10 points each:

[10] Name this system of government that is paired with capitalism and democracy in the title of a Joseph Schumpeter book. The second “S” in the U.S.S.R. stood for this system, a version of which has been enacted in Scandinavia.

ANSWER: socialism [accept word forms; do not accept communism]

[10] Ludwig von Mises was an economist from this heterodox school of economics associated with libertarianism. Also including Friedrich von Hayek, one of its theories is that business cycles occur due to central bank policies.

ANSWER: Austrian School

[10] The economic calculation problem occurs because prices set by central planners are unable to perform this function as effectively as they would in a free market. Michael Spence created a model of *this* in the job market.

ANSWER: signalling

12. In this story, the narrator visits the Place of the Gods, which is named for figures like ASHING, Lincoln, Biltmore and Moses. For 10 points each:

[10] Name this short story about a hunting group that avoids the Dead Places after the Great Burning. The narrator realizes that “the place newyork” was built by men and that his people “must build again.”

ANSWER: “By the Waters of Babylon”

[10] This author of “The King of Cats” wrote “By the Waters of Babylon.” He won a Pulitzer for an epic poem about the American Civil War, *John Brown’s Body*.

ANSWER: Stephen Vincent Benét

[10] Benét also wrote a story about Daniel Webster defending Jabez Stone in a trial against this evil figure, who also appears in *Paradise Lost*. He visits Moscow in the guise of Professor Woland in *The Master and Margarita*.
ANSWER: the **Devil** [accept **Satan** or other equivalents]

13. These equations come in ordinary and partial forms, depending on the type of function involved. For 10 points each:

[10] Name these functions which involve the function itself and its derivatives.

ANSWER: **differential** equations

[10] The homogeneous solution of many differential equations can be found by one of these expressions of the solutions, in which each solution is multiplied by a constant and then added together.

ANSWER: **linear combinations**

[10] Finding the inhomogeneous solution is often done via this method, in which the constants in front of a linear combination solution of the inhomogeneous case are replaced with functions of a variable.

ANSWER: **variation of parameters** [or **variation of constants**; or **Duhamel**'s principle]

14. This philosopher distinguished between positive and negative liberty in his lecture “Two Concepts of Liberty.” For 10 points each:

[10] Name this British philosopher who also wrote about Tolstoy’s view of history in “The Hedgehog and the Fox.”

ANSWER: Isaiah **Berlin**

[10] Berlin wrote a book about this many critics of the Enlightenment. One of those critics is Giambattista Vico, who theorized that all societies pass through this many stages of development. George Berkeley wrote this many dialogues between Hylas and Philonous.

ANSWER: **three**

[10] Another of the three critics of the Enlightenment discussed by Berlin is this German philosopher who was influenced by Hamann. He coined the term *Volksgeist* as well as the term “nationalism.”

ANSWER: Johann Friedrich **Herder**

15. The protagonist of this novel befriends Cranly at university, and he falls in love with Emma Clery. For 10 points each:

[10] Name this novel whose protagonist becomes a pious Catholic after hearing a fire and brimstone sermon delivered by Father Arnall.

ANSWER: A **Portrait of the Artist as a Young Man**

[10] This author created Stephen Dedalus in *A Portrait of the Artist as a Young Man*. Stephen also appears in his novel *Ulysses*.

ANSWER: James **Joyce**

[10] The death of this person occurs just before Stephen returns home from Clongowes Wood College for the Christmas holidays. His father recites how he once spat on a woman who lambasted this person, while Dante Riordan defends the Catholic Church’s decision to condemn this person after it is revealed that he had an extramarital affair.

ANSWER: Charles **Parnell**

16. For 10 points each, name some stuff about the early history of Islam.

[10] This first of the rightly guided caliphs began the expansion of the Arabs and launched the Ridda Wars to secure his position as caliph upon coming to power.

ANSWER: **Abu Bakr** as-Siddiq

[10] This general was known as the “Drawn Sword of God” or Sayf Allah al-Maslul for his victories, such as the Battle of Yarmouk. He earlier won the battle of Uhud against the Muslims, but turned to Muhammad’s side.

ANSWER: **Khalid** ibn al-Walid

[10] The Battle of Yarmouk was a victory for the Muslims over this empire that controlled Egypt and the Levant at the time. Its centuries-long squabbles with the Sassanid Empire were put to an end by the Muslim conquest.

ANSWER: **Byzantine** Empire [or **Eastern Roman** Empire; or **Basileion ton Rhomaion**]

17. A consequence of punctuated equilibrium is that selection can occur at this level of biological organization. For 10 points each:

[10] Name this taxonomic rank usually defined based on the ability of members to interbreed.

ANSWER: **species**

[10] This type of species is composed of a chain of interbreeding populations that are too genetically distinct to interbreed at the chain's ends.

ANSWER: **ring** species

[10] The canonical example of a ring species is *Ensatina eschscholtzii*, found in the coniferous forests surrounding California's Central Valley, which is a lungless example of this order of amphibians.

ANSWER: **salamander** [or **Caudata**]

18. Watching Indian children's television will tell you that this figure grew up in Brindavana and that he has blue skin, among other things. For 10 points each:

[10] Name this eighth avatar of Vishnu, a prominent character in the *Mahabharata*. In the *Bhagavad Gita*, this character utters the line, "I am become Death, destroyer of worlds."

ANSWER: **Krishna**

[10] During the Battle of Kurukshetra, Krishna served this military role in the Pandava army because it did not require the wielding of weapons.

ANSWER: **charioteer** for Arjuna [accept obvious equivalents like **chariot driver**]

[10] Krishna's brother Balarama taught Bhima in the use of this weapon, which Bhima used to defeat Duryodhana, leader of the Kauravas. Vishnu wields one of these weapons called Kaumodaki.

ANSWER: **mace** [prompt on **clubs**]

19. Answer the following about the military history of the American Civil War, for 10 points each.

[10] At Cold Harbor, the Army of the Potomac conducted an assault against Confederate troops that were protected by *these*. Warfare in World War I was characterized by a proliferation of networks of these fortifications.

ANSWER: **trenches** [prompt on "ditches" or "holes" or other such answers]

[10] The Battle of Brandy Station was one of the larger Civil War battles fought primarily between this type of force. John Buford was a commander of this type of force.

ANSWER: **cavalry** [accept equivalents such as **mounted** troops or **horsemen**]

[10] Civil War rifled muskets normally fired these deadly bullets named for a French manufacturer. These bullets' grooves caused them to spin as they left the rifle barrel, giving them stability in flight.

ANSWER: **Minié** ball

20. Name the following about the Maya in modern art, for 10 points each.

[10] The Mayan Revival Movement occurred in this discipline. Twentieth-century movements within this discipline included Art Deco, brutalism and deconstructivism, while its earlier movements included Gothic and Romanesque.

ANSWER: **architecture**

[10] This architect incorporated Mayan styles in his designs of the Ennis and Millard Houses. His Hollyhock House was built in the shape of the pyramid at Palenque.

ANSWER: Frank Lloyd **Wright**

[10] This artist was inspired by a plaster cast of the Chac Mool statues found at Chichen Itza to create his *Family Group*. A site used by the Manhattan Project in Chicago is the site of his sculpture *Nuclear Energy*.

ANSWER: Henry **Moore**

21. This policy is illustrated using a diagram of three arrows, representing fiscal stimulus, monetary easing, and supply-side reform. For 10 points each:

[10] Name this policy, which has been promoted by girls in Triumph International bras wearing pins with “2%” on them, referencing the targeting of a 2% inflation rate by the country’s central bank.

ANSWER: **Abenomics** [accept equivalents like **Abe** Shinzo’s **economic policy**]

[10] Abenomics is currently being implemented in this country, whose prime minister is Shinzo Abe. This country experienced a “Lost Decade” in the 1990s after the bursting of a real estate bubble.

ANSWER: **Japan** [or **Nippon**-koku; or **Nihon**-koku]

[10] Some have called this planned event, on which Japan is forecasting expenditures of eight billion dollars, as the “fourth arrow” of Abe’s economic plans.

ANSWER: **2020 Olympics** [or **Tokyo Olympics**; or anything indicating that the **Olympics** are coming to **Japan**; prompt on just “Olympics”]