Tossups

1. This class was the target of the people who later defended themselves during the Trial of the 50 and the Trial of the 193, which both occurred in the wake of the Mad Summer of 1874. This class had its status defined legally through Chapter 11 of the Ulozhenie of 1649, and this group lost its right to petition following a 1767 decree. William Bervi and Alexander Dolgushin wrote pamphlets to try and manipulate the religious beliefs of these people, who were the general target of the Narodniks' "going to the people" effort. These people would provide barshchina or obrok to be part of communal obshchinas or mirs. Some of these people were forced to make redemption payments after their emancipation in 1861. For 10 points, name this class of people in Russia who often worked the land for the nobility.

ANSWER: Russian **peasant**s [or **serf**s; or **krestyanin**; or **muzhik**; or **krepostnoy**]

- 2. Many researchers test this faculty with "greebles," a series of objects designed by Isabel Gauthier. Yochoi Sugita found it was largely innate in a study in which infant monkeys were deprived of a certain stimulus for six, twelve, and twenty-four months. The fusiform gyrus has been called the FFA because of its control over this ability, which survives bizarre manipulations of stimuli in the Thatcher Effect. A man suffering from prosopagnosia, a deficiency in it, inspired the title of an Oliver Sacks essay collection about his unusual patients. People are worse at this ability when dealing with members of other races due to the cross-race effect, a fact lawyers frequently bring up to discredit eyewitnesses. For 10 points, *The Man Who Mistook His Wife for a Hat* is named for a disorder in what ability? ANSWER: facial recognition [or facial perception; or accept any answer that indicates the ability to recognize or differentiate faces]
- 3. In a story by this author, a mother finds her four sons in a madhouse, years after their planned attack on a convent was abandoned because they were moved by the music they heard within. He wrote a play based on the Battle of the Teutoburg Forest, as well as one in which the secretary Licht discovers the guilt of Adam, who is accused by Eve of destroying the title object. This author of "St. Cecilia, or the Power of Music" wrote a novella whose title character places an ad in the newspaper to find out the identity of the father of her unborn child. In another of his novellas, Josephe and Jeronimo are saved from execution by a 1647 natural disaster. For 10 points, name this German author of *The Broken Jug*, *The Marquise of O* and *The Earthquake in Chile*.

 ANSWER: Heinrich von **Kleist**
- 4. This party's rule was protested by over a quarter of a million people in the Silent March, which was followed by a leader of this party sending troops to take over the National Autonomous University and National Polytechnic Institute. Another leader of this party was criticized for refusing international aid following a devastating earthquake in 1985. This party further lost face following its obvious rigging of the 1988 presidential election, which was controversially won by a member chosen to run by the finger tap, or el dedazo. This party in power during the Tlatelolco Massacre at the 1968 Summer Olympics was founded by Plutarco Calles. For 10 points, name this political party that held power for over seventy years in Mexico before it was defeated by Vicente Fox of the PAN. ANSWER: **PRI** [or **Institutional Revolutionary** Party; or Partido **Revolucionario Institucional**]
- 5. This state's Ancient Bristlecone Pine Forest contains a world's oldest tree candidate called Methuselah. The Hells Angels Motorcycle gang was founded in its city of Fontana. A series of eruptions from 1914 to 1921 prompted the creation of a national park around its Lassen Peak. This state's Fallbrook County contains the vast majority of US avocado production. Its largest mountain range is separated from the White Mountains and Inyo Mountains by the Owens River. Santa Catalina is the largest of the Channel Islands off the coast of this state, which is the site of the Coachella Music Festival near its Salton Sea. Badwater Basin, the lowest point in North America, is found in Death Valley National Park in this state's Mojave Desert. For 10 points, name this site of San Diego and Los Angeles. ANSWER: California
- 6. The values of the multiset of these things associated to the Frobenius automorphism on a field of prime power order are the roots of unity. These things are bounded by Gerschgorin circles. For a given Jordan block, the diagonal consists of one of these numbers repeated. The multiset of them associated to a linear operator is called the

operator's spectrum. These quantities are either 0 or 1 for a projection operator, and are real for a self-adjoint operator. Unlike singular values, they are only defined for square matrices. These scalars are the solutions to a matrix's characteristic equation, and the product of all of them for a matrix equals the determinant. For 10 points, name these scalars that satisfy the equation "A ν equals lambda ν ", and which are associated to eigenvectors. ANSWER: eigenvalues [or characteristic values; prompt on "lambda"]

- 7. One of this composer's ballet suites contains a second-movement "March and Pastorale" and closes with a third-movement Passacaglia, and is adapted from his ballet about St. Francis of Assisi. He stopped giving opus numbers to his works after his *Konzertmusik for Brass and Strings*. One of this composer's works is an adaptation of incidental music written by one of his countrymen for Schiller's translation of the play *Turandot*. This composer of *Nobilissima Visione* also wrote a symphony with the movements "Angelic Concert," "Entombment," and "The Temptation of Saint Anthony," using themes from his opera about the creator of the Isenheim Altarpiece. For 10 points, name this German-born composer of *Symphonic Metamorphosis of Themes by Weber* and *Mathis der Maler*. ANSWER: Paul **Hindemith**
- 8. At this event, Augustin Bea got into a heated argument with a man who adopted the personal motto *Semper idem*, named Alfredo Ottaviani. Hundreds of gossipy letters about this event were published under the pseudonym Xavier Rynne. Supporters of *ressourcement* lost out to a policy of *aggiornamiento* at this meeting, whose Four Constitutions include *Lumen Gentium* and *Gaudium et Spes*. Marcel Lefebvre was excommunicated for defying this meeting's precepts. The declaration *Nostra Aetate* was issued on the subject of the Jews at this meeting, which was convened by John XXIII and continued by Paul VI. For 10 points, name this gathering which made Latin mass optional and eased relations with non-Catholics, the liberalizing, 20th-century ecumenical council. ANSWER: **Second Vatican** Council [or **Vatican II**]
- 9. Plant NIPs are analogous to these proteins. They can be experimentally inhibited in the lab with mercuric chloride. A mutation in a protein of this family labelled with the number "0" causes congenital cataracts. The bacterial GlpF protein is a member of this family. Nephrogenic diabetes insipidus is caused by a defect in one of these proteins. Two conserved asparagine residues in these proteins control their selectivity, forming the NPA and aromatic/arginine motifs. The most common type of them is a tetramer of six alpha helices surrounding an hourglass-shaped channel. Vasopressin stimulates their activity in the collecting duct of the kidney to regulate urine concentration. They allow in glycerol, but not charged species like protons. For 10 points, name these membrane proteins that transport water.

ANSWER: <u>aquaporin</u>s [prompt on major <u>intrinsic protein</u>s; don't accept or prompt on "membrane proteins" or "channel proteins"]

10. This character compares the cast-off shell of a cicada to the robe which a woman leaves behind when she flees his romantic pursuits. During a violent storm, he has a dream in which a spirit tells him to return home from his self-imposed exile. He discusses the qualities of an ideal woman with his friends on a rainy night in a chapter named after "the broom tree." This character has a son from an affair with his stepmother, whom he is attracted to because she resembles his dead mother. His death is implied in a blank chapter called "Vanished into the Clouds." This character, who is nicknamed "shining" because of his handsomeness, marries the Third Princess and Lady Aoi. For 10 points, name this protagonist of a Heian-era novel by Lady Murasaki.

ANSWER: Hikaru Genji

11. One character in this film flaps his arm like a chicken after toasting "To old D.H. Lawrence" and drinking from his bottle of Jim Beam. That character describes seeing forty UFOs during a campfire conversation. Its cinematographer Laszlo Kovacs employed quick cuts, flashing lights, and overexposed film in a sequence in which a Catholic prayer is heard over a scene of an acid trip outside a church. When the protagonists are jailed for parading without a permit, they meet an ACLU lawyer played by Jack Nicholson, who joins them on their pilgrimage to Mardi Gras. This film ends when rednecks in a pickup truck kill Billy and Wyatt, who wears an American flag on his leather jacket. For 10 points, name this 1969 Peter Fonda and Dennis Hopper film about a pair of counterculture bikers.

ANSWER: Easy Rider

12. A corrupt 1904 election in this state that included the slogan "Anybody but Peabody" led to this state having

three governors in one day. The Blonger Brothers operated in this state's capital city, which was also home to the Tivoli Club of Soapy Smith. The "Death Special" machine gun was used in this state by the Baldwin-Felts Detective Agency against striking coal miners. John D. Rockefeller's reputation was hurt after the 1914 Ludlow Massacre took place in this state. Green Russell's discovery in what would later be this state led to the arrival of many Fiftyniners during this state's namesake Gold Rush. For 10 points, name this state admitted to the union in 1876 that had a population boom during the Pike's Peak Gold Rush, which led to the creation of its cities Boulder and Denver. ANSWER: Colorado

13. This text notes that people who know their letters well can read the reflections of letters in water, after an aside about music. At the start of its fifth section, two characters interrupt after muttering "So, shall we let it go then, or what shall we do?" Near its end, this text compares a carpenter who builds a bed to the painter who paints an image of a bed. This text compares our inability to directly access the Good to our blindness upon staring at the sun, just before it likens thought and understanding to the longer two of four sections on a divided line. This text also imagines a space where a guessing-game takes place by firelight as shadows are cast on the wall. For 10 points, name this dialogue whose sixth of ten books includes the allegory of the cave, by Plato.

ANSWER: Plato's **Republic** [or **Politeia**]

14. The narrator of this novel likes referring to Miss Carolina Wilhelmina Amelia Skeggs by her full name. Poems interpolated into the text of this novel include "An Elegy on the Death of a Mad Dog" and "When Lovely Woman Stoops to Folly," the latter of which mirrors the plight of a daughter of the protagonist. At the beginning of this novel, the title character loses his fortune when the merchant who invested his money goes bankrupt and flees town. The protagonist of this novel has two daughters, Olivia and Sophia, the latter of who ends up marrying the benevolent Mr. Burchell, who turns out to be the uncle of the villainous Squire Thornhill. For 10 points, name this novel about Dr. Primrose by Oliver Goldsmith.

ANSWER: The Vicar of Wakefield

- 15. In Ovid's *Metamorphoses*, this character recounts the story of Caenis and the battle between the Centaurs and Lapiths. This person avoided death by using a spear to pole-vault into a tree during the Calydonian boar hunt. This man's son Antilochus was killed by the Aethiopian warrior Memnon in battle, and his shapeshifting brother Periclymenus was shot in the form of an eagle by Heracles, who killed all this man's siblings. In Book II of the *Iliad*, this man appears in a false dream sent to Agamemnon by Zeus. This "Gerenian horseman" and son of Neleus ran a "sandy-shored" kingdom which welcomed Telemachus before Sparta, though he couldn't say what happened to Odysseus. For 10 points, name this king of Pylos, a wise old man in the Homeric epics.

 ANSWER: Nestor
- 16. One type of these materials has a Hamiltonian that is invariant under time-reversal and Z_2 symmetry operations and is characterized by protected surface states that exhibit strong spin-momentum locking. A transition to one type of these materials occurs when poor wavefunction overlap and hence a small hopping term results from the separation of the two Hubbard bands. Those materials are typically transition metal oxides like nickel oxide. They are usually characterized by a very large band gap, which forces electrons to remain in the valence band. These materials, which come in "topological" and "Mott" types, experience breakdown at high voltages and have high resistivity. For 10 points, name these materials in which electric current does not flow, contrasted with conductors. ANSWER: <u>insulators</u> [or <u>dielectric</u>s; accept <u>Mott insulators</u>; accept <u>topological insulators</u>]
- 17. This painter, who outlined his theory of art in the essay "Revolt Against the City," showed two black cars about to collide with a red truck in *Death on Ridge Road*. A naked man holds a bucket over his head to bathe himself in this painter's black-and-white work *Sultry Night*. He showed rows of shocks of corn covered in snow in his painting *January*. In another of his paintings, a red curtain is pulled back to reveal a boy holding an axe. He painted three founding fathers in drag standing in front of Leutze's *Washington Crossing the Delaware* in *Daughters of Revolution*. For 10 points, name this regionalist painter of *Parson Weems' Fable* who depicted his sister standing next to his dentist in *American Gothic*.

ANSWER: Grant Wood

18. Partial rate factors quantify the reactivity of compounds through this mechanism. The Wheland intermediate forms during this mechanism, which has a partitioning effect because both steps are rate-determining. Silanes

undergo this reaction mechanism in an *ipso* fashion. Methyl red and methyl orange are synthesized in a variant of it called diazo coupling. The intermediate of this mechanism is an arenium cation. Sulfuric acid protonates nitric acid to facilitate nitration through this mechanism. In this mechanism, pi donors favor ortho or para substitution. In the presence of a Lewis acid, bromine will react with toluene under this mechanism, not addition. For 10 points, name this mechanism exemplified by the Friedel-Crafts reaction, in which an electron-deficient species attacks benzene. ANSWER: **electrophilic aromatic substitution** [or **EAS**; or **SEAr**; prompt on **substitution** or other partial answers; prompt on **Friedel-Crafts** alkylations or acylations; prompt on diazo **coupling**]

19. The protagonist of this novel gives a lengthy speech in Gloriani's garden exhorting another character to "Live all you can; it's a mistake not to." The protagonist of this novel travels with a former lawyer from Connecticut who courts Miss Barrace. An artist in this novel goes by both the name Little Bilham because of his diminutive size. Other characters in this novel include the beautiful Mamie Pocock and the curmudgeonly Waymarsh. This novel is about a man from Massachusetts who spurns Maria Gostrey to return to America. Its protagonist meets Madame de Vionnet after being sent on a mission to retrieve Chad Newsome from Paris. For 10 points, name this novel about Lambert Strether by Henry James.

ANSWER: The Ambassadors

20. The 1879 establishment of state-run, secular schools in this country started the School War, which led to an 1884 election beginning 30 years of dominance by the Catholic Party. G.M. Roentgen and David Mushet helped establish an iron works run by John Cockerill in this country's city of Seraing. An 1860 trial in this country that resulted in the wrongful execution of two men was a cause of the 1898 Equality Law, which established a second national language. A revolution in this country started following a performance of the opera *The Mute Girl of Portici*. Article VII of the 1839 Treaty of London guaranteed this country's independence and perpetual neutrality. For 10 points, name this European country whose 1914 invasion started the Western Front of World War I.

ANSWER: Kingdom of **Belgium** [or Royaume de **Belgique**; or Koninkrijk **Belgie**; or Koenigreich **Belgien**]

TB 1. One of these animals appears inside the Gundestrup cauldron next to a seated god holding a necklace and a serpent. In Hungarian folklore, Hunor and Magor chase a white one of these animals to Scythia. On the Pillar of the Boatmen, the head of the Celtic god Cernunnos resembles this animal. A part of this animal was stuck in Surt's eye after being used to kill Beli by Frey. Four of these creatures chew on the upper leaves of Yggdrassil. Two hunting dogs recognized one of these animals, which later bore Oisin after becoming human. In this form, Sadhbh met her husband Finn mac Cool. During his third labor, Heracles caught a bronze-footed animal of this kind in Ceryneia. For 10 points, name this animal which was eaten by hunting dogs after Actaeon became one for seeing Artemis bathe. ANSWER: deer [or stags; or harts; or hinds; or does]

Bonuses:

1. This quantity is equal to negative one minus the log of the reduced saturation pressure, when the reduced temperature equals 0.7. For 10 points each:

[10] Name this substance-specific quantity used in Lee-Kesler generalized correlations for virial coefficients. The SRK and PR equations of state include this quantity, which is normally symbolized omega, and is 0 for ideal gases.

ANSWER: Pitzer acentric factor

[10] The reduced temperature is equal to the temperature divided by the temperature of this state. Fluids beyond this point no longer can exist in multiple phases.

ANSWER: **critical point** [or **critical** temperature]

[10] Generalized correlations are used to calculate this quantity, which is equal to an infinite power series for pressure by the virial equation. It equals PV over RT, and is 1 for ideal gases.

ANSWER: $\underline{compressibility\ factor}$ [or $\underline{compression\ factor}$; or \underline{Z} ; prompt on partial answer]

2. Name some female American poets, for 10 points each.

[10] This imagist looks to "wade through black jade" in "The Fish." She wrote "I, too, dislike it" in "Poetry."

ANSWER: Marianne Moore

[10] This author of *A Change of World* wrote about performing the title action "not like Cousteau with his assiduous team" in "Diving Into the Wreck."

ANSWER: Adrienne Rich

[10] This poet mocks those broken-hearted over her death in "I Shall Not Care" and inspired Ray Bradbury with her poem "There Will Come Soft Rains."

ANSWER: Sara **Teasdale**

3. According to legend, Arnold von Winkelried died heroically while fighting for this modern-day country against Austria in the 1386 Battle of Sempach. For 10 points each:

[10] Name this country where the Protestant Reformation included two Kappel Wars, the second of which led to the death of Huldrych Zwingli in battle.

ANSWER: <u>Switzerland</u> [or <u>Swiss Confederation</u>; or <u>Schweiz</u>erische Eidgenossenschaft; or Confederation <u>Suisse</u>; or Confederazione <u>Svizzera</u>; or Confederazion <u>Svizzea</u>]

[10] Namesake squares using this weapon made Swiss mercenaries valuable in Renaissance-era Europe. This weapon "and shot" was a strategy of pairing it with firearms. It generally was much longer than a spear or halberd. ANSWER: **pike**s [prompt on "polearms"]

[10] Pikes were also the weapon generally used by these mostly-German mercenaries who served in the armies of Maximilian I and Charles V.

ANSWER: Landsknechten

4. The music patron Mitrofan Belaieff, who hosted "quartet Fridays" at his house, was the honoree of a collaborative string quartet on the theme B-La-F, echoing his name. For 10 points each:

[10] The first movement of the quartet was composed by this member of The Five, who also composed the *Russian Easter Festival Overture* and "The Flight of the Bumblebee."

ANSWER: Nikolai Andreyevich Rimsky-Korsakov

[10] The second movement was written by this composer, whose tone poems include *The Enchanted Lake*, *Kikimora* and *Baba Yaga*. Before hiring Stravinsky, Diaghilev asked this composer to score *The Firebird*.

ANSWER: Anatoly Konstantinovich Liadov

[10] The third movement was by this composer, who is known for the third-movement nocturne from his second string quartet, as well as the "Polovtsian Dances."

ANSWER: Alexander Porfiryevich Borodin

5. This thing is central to the Indian *yajna* ritual and the practice of *sati*, by which Indian wives killed themselves after their husbands' deaths. For 10 points each:

[10] Name this thing presided over by the Vedic god Agni, which appeared around a bush without destroying that bush in the Biblical book of Exodus.

ANSWER: a fire

[10] This endangered religion calls fire atar, and uses its purifying properties in worship at buildings which must be

built near clear water. Its priests wear white.

ANSWER: Zoroastrianism [or Mazdaism; or Parsis]

[10] Some Orthodox Christians believe that a bluish Holy Fire emerges from this place every Holy Saturday, which lights the surrounding candles without burning people. Al-Hakim razed this place.

ANSWER: Church of the <u>Holy Sepulchre</u> [or Basilica of the <u>Holy Sepulchre</u>; or <u>Church</u> of the <u>Resurrection</u>; or Tomb of Jesus <u>Christ</u>; or <u>Tomb</u> of <u>Jesus</u> Christ; prompt on "Jerusalem", "Old City", or "Golgotha"]

6. This book, subtitled "Civilization and Barbarism," begins with a lengthy description of Argentina's geography. For 10 points each:

[10] Name this book about the life of a leader nicknamed "the Tiger of the Plains."

ANSWER: <u>Facundo</u>: Civilization and Barbarism [or <u>Facundo</u>: Civilización y Barbarie]

[10] Sarmiento's *Facundo* influenced this Argentine literary genre, which focuses on Argentine cowboys. Perhaps the most famous novel from this genre is Ricardo Güiraldes' *Don Segundo Sombra*.

ANSWER: gaucho literature [or gauchesco]

[10] The greatest work of gaucho poetry is the two-part epic by José Hernández about this gaucho who befriends Sergeant Cruz.

ANSWER: Martín Fierro [accept either name]

7. Adam Scott's character describes this event as "the biggest helicopter-leasing event in the Western Hemisphere since 1997." For 10 points each:

[10] Name this climactic event in *Step Brothers* which is almost ruined when a 1980s Billy Joel cover-band storms off-stage, but is saved by Prestige Worldwide's stirring performance of Andrea Bocelli's "Por ti Volare."

ANSWER: the Catalina Wine Mixer

[10] This actor plays Brennan, who sings "Por ti Volare" at the Catalina Wine Mixer. He has also starred in *Elf* and *Talladega Nights*.

ANSWER: Will Ferrell

[10] Will Ferrell and Mark Wahlberg play police detectives in this 2010 movie. It opens with the violent deaths of cops played by Dwayne Johnson and Samuel L. Jackson.

ANSWER: The Other Guys

8. In Brazil, these people created mocambos or quilombos, including the large Palmares. For 10 points each: [10] Name these escaped slaves who created large independent communities in the New World and sometimes

organized attacks on the plantations they escaped.

ANSWER: Maroons

[10] Two Maroon Wars were fought on this Caribbean island, with the first being led by Cudjoe and Nanny.

ANSWER: Jamaica

[10] Joseph Chatoyer became a hero of this Windward island after fighting against the British with French assistance. In 1979, this island gained independence along with the Grenadines.

ANSWER: Saint Vincent

9. Some schemes for this process work by injecting carbon dioxide into deep, impermeable rock layers. For 10 points each:

[10] Name this class of processes by means of which carbon dioxide is removed from the atmosphere and stored in some sort of reservoir.

ANSWER: carbon capture and sequestration [or word forms; prompt on "(carbon) capture"]

[10] One way of achieving carbon sequestration is by seeding the ocean with this metal, which promotes the growth of carbon dioxide-consuming phytoplankton.

ANSWER: iron

[10] Iron fertilization of the ocean may help prevent this process, which occurs when atmospheric carbon dioxide dissolves, forming bicarbonate. This process has already resulted in significant coral bleaching in some areas. ANSWER: ocean **acidification** [or word forms; or anything that refers to the ocean becoming **more acid**ic]

10. This lecture series rejects the theory that we refer to a "cluster" of properties when we define an object, and built on work in modal logic that its deliverer did as a teenager. For 10 points each:

[10] Identify this set of three lectures given at Princeton by Saul Kripke, which proposed that proper names are

"rigid designators" that refer to a given object in all the possible worlds where it exists.

ANSWER: Naming and Necessity

[10] Kripke's theory of names outmoded this British philosopher's theory of definite descriptions, as presented in "On Denoting." This author of *Why I Am Not a Christian* co-authored *Principia Mathematica* with Whitehead.

ANSWER: Bertrand Russell

[10] In "Of Names," this British philosopher put forward a simpler theory in which the meaning of a name is its direct referent in our current world and nothing more.

ANSWER: John Stuart Mill

11. Evidence suggests that this woman is based on Lucy Sacheverell, who was given a nickname meaning "pure light." For 10 points each:

[10] Name this woman who is the addressee of a poem which proclaims "I could not love thee, dear, so much, loved I not honor more," narrated by a soldier going off to war.

ANSWER: Lucasta

[10] This Cavalier poet wrote "To Lucasta, Going to the Wars." He also wrote that "stone walls do not a prison make, nor iron bars a cage" inn his poem "To Althea, from Prison."

ANSWER: Richard Lovelace

[10] Lovelace's "The Grasshopper" is dedicated to this friend of his, a translator of Montaigne whose poem "The Retirement" appears in Walton's *Compleat Angler*. He shares his surname with an antiquarian whose library contained the *Beowulf* manuscript.

ANSWER: Charles Cotton

12. This opera opens with a bard asking in spoken word whether the opera takes place in the outside world or the inside world. For 10 points each:

[10] Name this opera in which Judith's title husband owns an estate with seven locked doors.

ANSWER: Duke <u>Bluebeard's Castle</u> [or A <u>Kekszakallu Herceg Vara</u>]

[10] *Duke Bluebeard's Castle* was written by this Hungarian composer who also wrote ballets titled *The Wooden Prince* and *The Miraculous Mandarin*.

ANSWER: Bela Viktor Janos **Bartok**

[10] Another treatment of the Bluebeard legend was this French composer's *Ariane et Barbe-bleue*. Iskender discovers the title Persian mythological creature in his ballet *La Peri*.

ANSWER: Paul Abraham **Dukas**

13. This collection of mathematical machinery can, when carried out to first order, be used to derive the fine-structure corrections to hydrogen. For 10 points each:

[10] Identify this set of approximation schemes that is used to derive the state of a system following a minor disturbance to an exactly-soluble system.

ANSWER: **perturbation** theory

[10] Perturbation theory must be handled with care when it is used on states that have this property. Two states have this property if they have the same energy.

ANSWER: **degeneracy** [or word forms]

[10] One way of lifting degeneracy of atomic states is by applying a magnetic field, which causes this effect in which the energy levels of states with different angular momenta are split.

ANSWER: Zeeman effect

14. Answer these questions about people from world mythology who freaked their parents out by being born as clumps of flesh, for 10 points each.

[10] In this region's mythology, Lleu was born as a ball of flesh and took human form after being stuffed in a chest. Its other myths include the Battle of the Trees, a red dragon which defeated a white dragon, and the prince Pwyll.

ANSWER: Wales [or Cymru]

[10] This group emerged from a clump of flesh borne by Gandhari after a two-year pregnancy. After Vyasa cut that clump into 101 pieces and placed them into jars, this group emerged. It included Duryodhana.

ANSWER: <u>Kaurava</u>s [or the 101 <u>child</u>ren of <u>Dhritarashtra</u>; or <u>Dhartarastra</u>; be careful and do NOT accept "Dhritarashtra," with the vowel after the r, by itself]

[10] In this country, Nezha was born inside a ball of flesh, but popped out after his father sliced it with a sword. It

also reveres the Queen Mother of the West, who grows peaches of immortality and is wed to the Jade Emperor.

ANSWER: China [or Zhongguo]

15. This work depicts an officer holding a sword in his right hand astride a horse on a smoky battlefield. For 10 points each:

[10] Name this painting which was exhibited at the 1812 Salon, named for a Napoleonic cavalryman preparing an attack.

ANSWER: The Charging Chasseur

[10] The Charging Chasseur is a painting by this master of military paintings who is better known for The Raft of the Medusa.

ANSWER: Theodore **Géricault**

[10] Etienne-Jean Georget commissioned Géricault to create ten paintings of this kind of person, including a woman with red-rimmed eyes and a white bonnet.

ANSWER: <u>insane</u> people [accept equivalents]

16. The corpse of this man started freshly bleeding when approached by Tobias, who was one of three men executed for killing him at Assawompset Pond in 1675. For 10 points each:

[10] Name this interpreter and Praying Indian whose death led to a war between a Josiah Winslow-led colony and the forces of Metacomet.

ANSWER: John **Sassamon** [or **Wassausmon**]

[10] Metacomet's English name was given to this war, which was preceded by John Sassamon's death.

ANSWER: King Philip's War

[10] Josiah Winslow was the first native-born governor of this New England colony, which had been founded in part by Winslow's father Edward. Edward Winslow and William Bradford wrote *Mourt's Relation* about this colony.

ANSWER: **Plymouth** Bay Colony [or **Plymouth** Plantation]

17. The interdental form of these sounds is formed by inserting the tongue between the teeth. For 10 points each:

[10] Name this class of sounds formed by closing or narrowing the vocal tract. Along with vowels they make up the main sounds formed in language.

ANSWER: consonants

[10] This class of consonants, also known as spirants, is formed by blocking the airstream without completely closing it, causing turbulent airflow. Examples in English include the "f" in "fine" and the "v" in "vine."

ANSWER: fricatives

[10] These consonants are formed by touching the tongue to a namesake ridge behind the teeth on the roof of the mouth. In English they include the "d" in "dot" and the "n" in "nail."

ANSWER: alveolar consonants

18. This woman was photographed with her friend Herta Schneider and dogs Negus and Katuschka by the photographer Heinrich Hoffmann, and she met her eventual husband while she was working for Hoffmann. For 10 points each:

[10] Name this woman who had twice attempted suicide in her twenties before she used a cyanide capsule to kill herself at age 33.

ANSWER: Eva Braun [prompt on "Hitler"]

[10] This husband of Eva Braun also committed suicide in his bunker in 1945, ending his twelve-year rule as Fuehrer of Germany.

ANSWER: Adolf Hitler

[10] Fritz Tornow and Werner Haase first tested the Heinrich Himmler-supplied cyanide capsules on this pet of Hitler. Erna Flegel said the death of this dog affected people in the bunker more than Eva Braun's death. ANSWER: **Blondi** [prompt on "Hitler's German Shepherd" or equivalent answers]

19. This structure is named for a Swiss scientist who, along with Heinrich Werner, sometimes names trench fever. For 10 points each:

[10] Name this set of muscle fibers that branch from the AV node and conduct signals towards the Purkinje fibers. ANSWER: **bundle of His** [prompt on partial answer]

[10] The delay between an impulse traveling through the bundle of His and the contraction of the ventricles is

visually apparent on the flat PR segment generated in this procedure, which measures the heart's electrical activity. ANSWER: <u>electrocardiogram</u> [or word forms; or <u>EKG</u>; or <u>ECG</u>]

[10] Patients with this pre-excitation syndrome have a shortened PR interval due to the presence of a delta wave. This disorder causes premature ventricular contraction as a result of the formation of the bundle of Kent. ANSWER: Wolff-Parkinson-White Syndrome

20. Characters in this novel include the slave Eunice, who is in love with her master Petronius. For 10 points each: [10] Name this novel set during the reign of Nero, which details the love between Marcus Vicinius and the Christian Ligia.

ANSWER: **Quo Vadis**: A Narrative in the Time of Nero [or **Quo vadis**. Powieść z czasów Nerona]

[10] In this novel by the author of *Quo Vadis*, Danusia saves Zbyszko from execution after he attacks Kuno von Liechtenstein.

ANSWER: The <u>Teutonic Knights</u> [or The <u>Knights of the Cross</u>; or <u>Krzyzacy</u>]

[10] This Polish author of *The Teutonic Knights* and *Quo Vadis* also wrote a historical trilogy including *With Fire and Sword*, *The Deluge*, and *Fire in the Steppe*.

ANSWER: Henryk Sienkiewicz