

ICCS 2014
Packet 9

TOSSUPS

1. The Rescorla-Wagner formula can be used to calculate the magnitude of this process. One theory of this process claims that it is shaped by such consequences as reinforcement and punishment. That theory was the basis for Skinner's box. The effects of this process can fade away over time through a process known as "extinction," and this process comes in "classical" and "operant" types. For 10 points, name this type of learning in which a response is associated with a stimulus, as exemplified by Pavlov's dogs salivating at the sound of a bell.

ANSWER: **conditioning** [accept specific types like "**classical conditioning**" and "**operant conditioning**" conditioning; prompt on "learning"]

2. E. M. Anderson used Coulomb's criterion to explain these geological features in terms of three principal axes. Slickensides are striations left by these features. Rocks that form near these geological features include mylonite and cataclasite. Between two of the normal type of these features, horsts and grabens may form. Disruptions are horizontal at the strike-slip kind of these features, which are called transform when they occur near a plate boundary. For 10 points, name these large fractures in the crust that include the San Andreas.

ANSWER: **faults** [or **faultlines**]

3. One holder of this office outlined his party's objectives in "the light on the hill" speech. Another holder of this office mysteriously disappeared in 1967 while swimming at a beach. Those two holders of this position were Ben Chifley and Harold Holt. A constitutional crisis in 1975 resulted when John Kerr dismissed Gough Whitlam from this position and replaced him with Malcolm Fraser. This office's residence is the Lodge, although the only woman to hold this position, Julia Gillard, did not live there. Formerly held by Robert Menzies, for 10 points, name this governmental position currently held by Tony Abbott from Canberra.

ANSWER: **Prime Minister of Australia** [prompt on "leader of Australia"; do not accept "President of Australia"]

4. One author from this country wrote about an antique-book dealer who loses part of his memory, in the novel *The Mysterious Flame of Queen Loana*. A postmodernist novel from this country sees the Reader attempt to finish reading ten novels and is partly written in second person. A novel set here focuses on Adso of Melk and the friar William of Baskerville. Those books from this country are *If On a Winter's Night a Traveler* and *The Name of the Rose*. For 10 points, name this home country of Umberto Eco and Italo Calvino.

ANSWER: Republic of **Italy** [or **Italian** Republic; or Repubblica **Italiana**]

5. Thirteen attributes of this figure are the focus of the *selichot* read in the lead-up to the High Holidays. Sahih Muslim reports that this figure "loves odd numbers" because this figure has 99 names, such as al-Aziz and al-Ghaffar, in Islam. This figure's emanations are known as *sephirot* in Kabbalah mysticism. This figure is frequently referred to as "the Beneficent, the Merciful" or *ar-rahmani ar-rahim* in the Koran. For 10 points, identify this monotheistic deity venerated in Abrahamic religions.

ANSWER: **God** [or **Allah**; or **Elohim**; or **Abba**; or **Adonai**; or **Hashem**; or **YHWH/Jehovah/Yahweh**]

6. This architect was the namesake of a plan for the redevelopment of Oklahoma City in the 1960s; he also designed the Museum of Islamic Art in Doha, Qatar. A skyscraper he designed in Massachusetts had issues with windows falling out of it. At the request of Francois Mitterand, this architect worked on

another structure, which is in the courtyard of a French art museum. For 10 points, Boston's Hancock Tower and the glass pyramid outside of the Louvre were designed by what Chinese-American architect?
ANSWER: Ieoh Ming **Pei**

7. The right side of this painting shows a man trapped by fire. The top of this painting features a light bulb due to the similarity between the words for "light bulb" and "bomb" in a certain language. The very bottom of this work shows a flower growing from the hand of a dead person that still clutches a broken sword. This mural, which was created for the 1937 World's Fair, shows a woman crying while holding a baby under the head of a bull on its left, and the center shows a screaming horse. For 10 points, name this mural that Pablo Picasso painted in response to the Spanish Civil War.
ANSWER: **Guernica**

8. This profession is practiced by Jack Keefe, the protagonist of *You Know Me Al* by Ring Lardner. Don DeLillo recounts a story about people with this profession in "Pafko at the Wall," the prologue to his novel *Underworld*. Bump Bailey is a character with this profession. W.P. Kinsella often wrote about men who play this game for a living. A poem about this profession claimed "Cooney died at first" and is by Ernest Thayer. For 10 points, name this athletic profession held by Roy Hobbs in *The Natural* and the title figure of "Casey at the Bat."
ANSWER: **baseball** players [prompt on **athletes**]

9. Heating substances with sulfuric acid is used to determine the amount of this element in the Kjeldahl method. Two atoms of this element are triple bonded in a diazonium salt, and three atoms of this element connected by double bonds form an azide ion. It is reacted with hydrogen in the Haber-Bosch process, the main artificial method of fixing it. An atom of this element has a lone electron pair in amine groups. For 10 points, name this element with atomic number 7 whose diatomic form comprises 78% of Earth's atmosphere.
ANSWER: **nitrogen** [prompt on **N**]

10. Former Kentucky Governor Ernie Fletcher was nearly the victim of an event of this type in an incident preceding Ronald Reagan's funeral. The two largest single day death tolls for US soldiers in Afghanistan were the result of incidents of this kind. Conspiracy theorists claim that this action was performed by US fighter jets on orders from Dick Cheney near Shanksville, Pennsylvania, on 9/11. For 10 points, identify this type of attack that led to the death of 298 people in eastern Ukraine in July 2014.
ANSWER: **shooting down** an **aircraft** [accept synonyms and word forms; prompt on "plane crash"; accept **helicopter** for aircraft]

11. This work's line "Wolves shall succeed for teachers" is a jab at the Catholic Church. A character in this work says that he "who overcomes by force hath overcome but half his foe." At the end of this work, two characters take their "solitary way" and have the world "all before them." This poem's opening announces that it will pursue "things unattempted yet in Prose or Rhyme" and will "justify the ways of God to man." For 10 points, name this English epic in which Satan sneaks into Eden and corrupts mankind, a work by John Milton.
ANSWER: **Paradise Lost**

12. During this man's presidency, a political cartoon depicted merchants being bitten by a turtle while shouting "cursed ograbme." He produced a version of the Bible that eliminated miracles in order to promote his deist views. DNA tests suggest this man fathered a child with his slave, Sally Hemings. Inspired by classical architecture, this man designed his own estate named Monticello. During his presidency, the U.S. completed the Louisiana Purchase. For 10 points, name this U.S. president who was also the principal author of the Declaration of Independence.
ANSWER: Thomas **Jefferson**

13. The fields formed due to this phenomenon in the presence of complementary screens are related by Babinet's principle. A resolution limit due to this phenomenon corresponds to the radius of the first zero of the Airy disk and is named after Rayleigh. Davisson and Germer showed that electrons undergo this process, whose near-field and far-field results are given by the Fresnel and Fraunhofer formalisms. For 10 points, identify this process that results in interference fringes when light is passed through a narrow slit and is the bending of light by an aperture.

ANSWER: diffraction

14. This god used a staff to prevent a rising chair from crushing him against the roof of a dwelling and then used the chair to crush Gjalp and Greip, the daughters of Geirrod. In another story, this god lost a wrestling match against the old woman Elli and failed to drain a drinking horn connected to the sea. His sons, Modi and Magni, were not the children of his golden-haired wife Sif. This god was deceived by Utgard-Loki into attempting to lift a cat that is actually his mortal enemy, the Midgard Serpent. For 10 points, name this wielder of Mjölnir who was the Norse god of thunder.

ANSWER: Thor [or Donar; or Thunar]

15. A large effigy called Zozobra is burned during an annual festival in this state's capital city. Virgin Galactic is headquartered at the Spaceport America near this state's town of Truth or Consequences. Archeological sites along this state's Trails of the Ancients Byway include Aztec Ruins National Monument and Chaco Cultural Historical Park, as well as the city of Farmington. This state's White Sands Missile Range was the site of the 1945 Trinity nuclear test. For 10 points, name this southwestern U.S. state with a capital at Santa Fe.

ANSWER: New Mexico [accept Santa Fe or Fiestas de Santa Fe until "this state's"]

16. 28 milli-equivalents of this substance are found in Ringer's solution. Two molecules of this substance are shuttled to the liver to eventually undergo gluconeogenesis in the Cori cycle. This substance is essentially propionic acid with an extra hydroxyl group at the alpha carbon. This substance's namesake dehydrogenase produces it in order to regenerate NAD⁺; that process, which generates this substance from pyruvate, is anaerobic fermentation. For 10 points, name this acid that builds up in muscle during heavy exercise.

ANSWER: lactate [or lactic acid]

17. This composer frequently collaborated with Joseph Joachim, the dedicatee of his *Violin Concerto in D Major*. This composer quoted such songs as "Gaudeamus igitur" in a piece he wrote after receiving an honorary doctorate from the University of Breslau. He then wrote the *Tragic Overture* as a companion piece to that work. The first of this composer's four symphonies is sometimes called "Beethoven's Tenth." For 10 points, name this composer of the *Academic Festival Overture*, *A German Requiem*, and a famous lullaby.

ANSWER: Johannes Brahms

18. This character is mocked for calling certain playing cards "jacks" instead of "knaves" while visiting Satis House. He is apprenticed to his brother-in-law, whose catchphrase is "What larks!"; that character, Joe, is a blacksmith, which is why this character is nicknamed "Handel" by Herbert Pocket. This protagonist of a Dickens novel finds out that his mysterious benefactor is the convict Abel Magwitch, not Miss Havisham. For 10 points, name this narrator of *Great Expectations*.

ANSWER: Philip Pirrip [accept either underlined part; or Pip]

19. This man's major work contains a treatise discussing eternal law, natural law, and human law in its "First Part of the Second Part." This man dismissed his writing as mere "straw" and refused to finish it after a mystical experience. This student of Albertus Magnus replied to lists of objections and frequently cited Aristotle merely as "The Philosopher" in a tome that updated Augustine's definition of just war and

attempted to justify all of Catholic faith using reason. For 10 points, name this thirteenth-century Doctor of the Church who wrote *Summa Theologica*.

ANSWER: Saint Thomas Aquinas [or Tomaso d' Aquino; prompt on "Thomas"]

20. They're not Hussites, but during a conflict named for these people, the Wagenburg tactic was used. During a war named for these people, Martin Luther wrote a pamphlet decrying the "Murderous, Thieving Hordes" of them. A preacher who asked "When Adam delved and Eve span, who was then the gentleman?" helped galvanize support for an event named for these people, who were protesting Richard II's poll tax. For 10 points, name this class of relatively poor people that named a revolt led by Wat Tyler. ANSWER: peasants [or farmers; or Bauern]

21. An account of this location is given by Chinese ambassador Zhou Daguan. This location has two artificial, rectangular lakes called Barays, both of which include temples on islands in their centers. It served as the capital for a dynasty led by Jayavarman and Suryavarman, and it sits on the Siam Reap River. A large temple dedicated to Vishnu is found at this location, whose other archeological sites include the Preah Khan. For 10 points, identify this location where many temples, such as the 'Wat,' were constructed by the Khmer empire in Cambodia.

ANSWER: Angkor [accept Angkor Wat; accept "Khmer empire" until "artificial"]

22. One of this author's characters sells his slave Xury to a Portuguese sailor. The title character of another of his novels learns that her husband in Virginia is actually her brother and then moves back to England, where she has an affair with a married man and then marries two other men. One of this author's characters keeps track of dates by making notches on a Cross and discovers that his island is inhabited by cannibals. For 10 points, name this author of *Moll Flanders* who also wrote about Friday in *Robinson Crusoe*.

ANSWER: Daniel Defoe

23. This city was legendarily named after the brother of Shchek and Khoryv, who co-founded it with them. This city was the capital of a state that had a ruler who supposedly rejected Islam because of its prohibition on drinking alcohol. It's not Novgorod, but a grand prince of this city was named Yaroslav the Wise. This city was the capital of a state that was Christianized under Vladimir the Great and was called this city's namesake "Rus." For 10 points, name this capital of Ukraine.

ANSWER: Kiev

24. The first discovered greenbeard allele, Gp-9, was found in one of these animals. One species of these insects makes devil's gardens, and acacia trees host some in domatia. Another group of these animals uses leaves as a substrate for fungus cultivation. These eusocial animals belong to the family Formicidae, and with wasps and bees they form Hymenoptera. E. O. Wilson is an expert on these insects, some of which "farm" aphids for honeydew. For 10 points, identify these insects that include leaf-cutter and army types.

ANSWER: ants [or Formicidae before mentioned]

BONUSES

1. This equation contains an exponential term multiplied by a frequency factor, denoted A. For 10 points each:

[10] Name this equation developed by a Swedish chemist that calculates an equation's rate constant based on its frequency factor, activation energy, and temperature.

ANSWER: Arrhenius equation

[10] The potential energy of the reactant-product system is at a maximum when the reaction is in this state.

ANSWER: transition state [or activated complex]

[10] Consider the reaction A plus B forms C. If doubling the concentration of A doubles the reaction rate and changing the concentration of B has no effect, what is the order of the reaction?

ANSWER: first order [or order of one]

2. A series of works named after this city sees Amina banished from home after a car accident. For 10 points each:

[10] That series, composed of the works *Sugar Street*, *Palace of Desire*, and *Palace Walk*, was named after this capital city of Egypt.

ANSWER: Cairo [or al-Qahira; accept the Cairo Trilogy]

[10] The *Cairo Trilogy* was written by this author of *Children of Gebelawi*.

ANSWER: Naguib Mahfouz

[10] This other Mahfouz work centers on the recently freed Said Mahran and his plans to get revenge on those who put him in jail.

ANSWER: *The* Thief and the Dogs [or *El-lis's wal-kilab*]

3. Answer the following about music in the United States, for 10 points each.

[10] This man is most famous for his contributions to ragtime music, including hits such as *The Entertainer* and *Maple Leaf Rag*.

ANSWER: Scott Joplin

[10] This composer set text by James Agee to music in *Knoxville: Summer of 1915* but is more famous for his *Adagio for Strings*.

ANSWER: Samuel Barber

[10] This Minimalist composer's music often includes a technique called phasing, a form of repetition that appears in his *Clapping Music* and *Music for 18 Musicians*.

ANSWER: Steve Reich

4. This body of water was created in the 1960s by the creation of the Akosombo Dam on its namesake river. For 10 points each:

[10] Name this largest reservoir in the world, which has been the site of hundreds of boating accidents due to collisions with tall underwater trees.

ANSWER: Lake Volta

[10] Lake Volta is located within this African nation, whose capital is Accra. The last three presidents of this nation have had the first name John.

ANSWER: Republic of Ghana

[10] This northern neighbor of Ghana was known as Upper Volta until President Thomas Sankara changed it in 1984 to its current name. Blaise Compaoré has led this nation since 1987.

ANSWER: Burkina Faso

5. The *Res Gestae* inscription details this emperor's accomplishments. For 10 points each:

[10] Name this first emperor of Rome.

ANSWER: Augustus [or Octavian; or Gaius Octavius]

[10] Augustus's general Agrippa smashed Mark Antony and Cleopatra at this naval battle in 31 BCE.

ANSWER: Battle of **Actium**

[10] Augustus held this religious title and ended the practice of electing this official, so they were appointed by the emperor thereafter. Several popes have also held this title.

ANSWER: **Pontifex Maximus**

6. The protagonist of this novella calls Randolph an "infant Hannibal" due to his hatred of Rome. For 10 points each:

[10] Name this novella in which the title American girl strolls around Rome with Mr. Giovanelli and is shown around Vevey, Switzerland, by Winterbourne.

ANSWER: **Daisy Miller**

[10] *Daisy Miller* was written by this author of *The Turn of the Screw*. This man also wrote about Isabel Archer in *The Portrait of a Lady*.

ANSWER: Henry **James**

[10] Daisy Miller dies of this disease, having presumably caught it at the Colosseum. A name for this disease titles an Edith Wharton short story about Mrs. Ansley and Mrs. Slade.

ANSWER: **malaria** [or **Roman fever**]

7. This philosopher outlined an understanding of gender in terms of "performativity" in her essay *Performative Acts and Gender Constitution*. For 10 points each:

[10] Name this UC Berkeley gender theorist who argued that bodily acts establish an ontological or "core" gender in the book *Gender Trouble*.

ANSWER: Judith **Butler**

[10] This other gender theorist stated that women were "the privileged *Other*" in "Facts and Myths," the first volume of her magnum opus, *The Second Sex*.

ANSWER: Simone de **Beauvoir**

[10] Butler and de Beauvoir are considered major proponents of this movement, which promotes equality for women. It is typically divided into a first, a second, and a current third wave.

ANSWER: **feminism** [accept word forms like **feminist** movement, etc.]

8. Identify the following about some parts of a computer, for 10 points each.

[10] This important part of a computer typically contains an arithmetic logic unit. The speed at which these entities operate can be increased by overclocking.

ANSWER: **CPUs** [or **central processing unit**; prompt on "processor" or "microprocessor"]

[10] This extremely popular processor for lower-end devices like phones and tablets is licensed by a namesake British company. The v8-A version of this processor added 64-bit support, and this type of processor is typically cheaper to produce than an x86 processor.

ANSWER: **ARM**

[10] Rather than interact with hardware directly, programs will go through this layer of software, broken down into components like the kernel. Examples of this type of software include Unix and Linux.

ANSWER: **Operating Systems** [or **OS**]

9. In the second of these conflicts, one side attempted to siege Mafeking and Ladysmith. For 10 points each:

[10] Identify these conflicts in which the British fought settlers who attempted to establish the Orange Free State and the Transvaal Republic at the turn of the twentieth century.

ANSWER: **Boer** Wars

[10] This ethnic group attempted to establish the Orange Free State and the Transvaal Republic. They descended from the early Dutch settlers who came to the Cape of Good Hope.

ANSWER: **Afrikaners** [accept **Afrikaans**-speaking]

[10] This British Field Marshal imprisoned many Afrikaners in concentration camps during the Second Boer War. He earlier regained British rule in Sudan by winning the Battle of Omdurman.

ANSWER: Field Marshal Horatio Herbert **Kitchener**, 1st Earl Kitchener

10. This man was blinded and crippled after falling onto the plains of Aleion during an ill-fated and hubristic attempt to reach the top of Mount Olympus. For 10 points each:

[10] Name this hero of Greek mythology who married Philonoe after successfully completing an ostensible suicide mission set by King Iobates at the behest of Proetus of Tiryns.

ANSWER: **Bellerophontes**

[10] Bellerophon's most famous accomplishment is the slaying of this fire-breathing Lycian creature, which had a snake for a tail. It also had the heads of a lion and a goat.

ANSWER: the **Chimera**

[10] Bellerophon defeated the Chimera with the help of this divine winged horse.

ANSWER: **Pegasus**

11. Answer the following about Super Bowl 38, for 10 points each.

[10] This New England Patriots quarterback was named Super Bowl MVP. He had three touchdown passes during the game: one each to Deion Branch, David Givens, and Mike Vrabel.

ANSWER: Tom **Brady**

[10] The Patriots won the Super Bowl by defeating this team, which was led by quarterback Jake Delhomme and coached by John Fox at the time.

ANSWER: **Carolina Panthers** [accept either underlined part]

[10] Super Bowl 38's "wardrobe malfunction" occurred during a performance of this Justin Timberlake song, which features the line "I'm gonna have you naked by the end of this song."

ANSWER: "**Rock Your Body**"

12. Name these poets who wrote of parting, for 10 points each.

[10] In this man's poem *A Valediction: Forbidding Mourning*, the speaker compares himself and his lover to twin compasses, saying that "thy firmness makes my circle just."

ANSWER: John **Donne**

[10] This woman wrote "There's no use in weeping though we are condemned to part" in her poem *Parting*. She is better remembered for novels like *Villette* and *Jane Eyre*.

ANSWER: **Charlotte Brontë** [prompt on "Brontë"]

[10] This author of *Childe Harold's Pilgrimage* and *Don Juan* wrote of leaving his lover "in silence and tears" in his poem *When We Two Parted*.

ANSWER: George Gordon **Byron** [or Lord **Byron**]

13. Name these painters from Venice, for 10 points each.

[10] This master painted many portraits of Holy Roman Emperor Charles V, as well as *Sacred and Profane Love* and *The Venus of Urbino*.

ANSWER: **Titian** [or Tiziano **Vecelli**; or Tiziano **Vecellio**]

[10] This painter nicknamed "Il Furioso" painted a version of *The Last Supper* that was viewed from the diagonal, as well as *The Origin of the Milky Way*.

ANSWER: **Tintoretto** [or Jacopo **Comin**; or Jacopo **Robusti**]

[10] This artist was interrogated by the Inquisition over his version of *The Last Supper* with a disciple picking his teeth with a fork. He also painted *The Marriage at Cana*.

ANSWER: Paolo **Veronese** [or Paolo **Caliari**]

14. This foreign policy was mostly the brainchild of Philander C. Knox. For 10 points each:

[10] Give the two-word name for American foreign policy in the early 1900s that emphasized American economic investments and control within Latin America and East Asia.

ANSWER: **dollar diplomacy**

[10] Knox was the Secretary of State for this president, who was famous for being fat. More importantly, he became Chief Justice in 1921, eight years after leaving the White House.

ANSWER: William Howard **Taft**

[10] In 1912, as part of dollar diplomacy, U.S. marines occupied this Latin American country. The Iran-Contra affair involved a civil war in this country.

ANSWER: **Nicaragua**

15. When represented as coordinates, these entities can be thought of as the arrow connecting the origin to that coordinate. For 10 points each:

[10] Identify these things that, unlike scalars, have both a magnitude and a direction.

ANSWER: **vectors**

[10] This function takes two vectors and outputs a single number by summing the products of their corresponding coordinates. If this function is zero, then the vectors are perpendicular.

ANSWER: **dot product** [accept **scalar product** or **inner product**]

[10] For a given linear function, this is the set of all vectors that get mapped to the zero vector. The dimension of this space plus the dimension of the image space equals the dimension of the domain space.

ANSWER: **kernel** [accept **null space**]

16. In a one-act, one-man play by this author, the title character celebrates his sixty-ninth birthday by listening to a tape he recorded thirty years ago and recording another tape. For 10 points each:

[10] Name this Irish playwright who wrote *Krapp's Last Tape* and *Endgame*. He wrote about Vladimir and Estragon in another play.

ANSWER: Samuel **Beckett**

[10] Vladimir and Estragon appear in a play in which they are "Waiting for" this character. This character never shows up, but Vladimir and Estragon do meet Pozzo and Lucky.

ANSWER: **Godot** [accept **Waiting for Godot** or **En Attendant Godot**]

[10] In Vladimir and Estragon's second encounter with Pozzo and Lucky, they learn that Lucky is now mute and that Pozzo has been affected by this physical condition.

ANSWER: **blindness** [accept word forms and synonyms like "he **can't see**"]

17. This religion has had eleven gurus, with the current and final one being the Granth Sahib. For 10 points each:

[10] Name this religion whose initiated members form the Khalsa order.

ANSWER: **Sikhism**

[10] Wearing this headgear, known as a *dastar* or *pagri* in Punjabi, is mandatory for all members of the Sikh Khalsa.

ANSWER: **turbans**

[10] One of these items called a *kirpan* must be carried at all times by members of the Khalsa, which has sometimes caused legal problems for Sikhs in Europe and the United States.

ANSWER: **dagger** [or **knife**; or **sword**]

18. Answer these questions about abuses that French peasants suffered or allegedly suffered under the *Ancien Regime*, for 10 points each.

[10] Poor French peasants were especially burdened by the mandatory *gabelle*, a tax on this item. In Ghana, this item was often traded for gold.

ANSWER: **salt**

[10] While working for this "Sun King" of France, Jean-Baptiste Colbert increased the efficiency of the onerous taxation process that unfairly shifted the burden towards peasants.

ANSWER: **Louis XIV**

[10] In feudal France, this term denoted the alleged right of the manor lord to sleep with a peasant bride on her first wedding night.

ANSWER: **droit du seigneur** [or **jus primae noctis**; prompt on “right of the first night”]

19. Masonic symbols abound in this opera, which had its libretto written by Emanuel Schikaneder. For 10 points each:

[10] Name this opera in which Sarastro orders Tamino to pass a series of trials before he can marry Pamina.

ANSWER: *The **Magic Flute*** [or *Die **Zauberflöte***]

[10] *The Magic Flute* was written by this Austrian composer, who also wrote *Abduction from the Seraglio* and *Don Giovanni*.

ANSWER: Wolfgang Amadeus **Mozart**

[10] In *The Magic Flute*, the Queen of the Night sings this notoriously hard coloratura aria, which includes several high F’s.

ANSWER: “**Der Hölle Rache** kocht in meinem Herzen” [or “**Hell’s vengeance** boils in my heart”]

20. Both heparin and warfarin are used to stop this process, which relies on a namesake cascade of factors. For 10 points each:

[10] Name this biological process in which blood loss from an area of injury is stopped by the forming of a cross-linked fibrin thrombus over the wound.

ANSWER: **coagulation** [or blood **clotting**]

[10] This cofactor, which is required for the carboxylation of glutamate residues in blood clotting proteins, is found in large quantities in dark leafy vegetables.

ANSWER: Vitamin **K**

[10] This blood clotting factor is the one mutated in the “A” form of hemophilia.

ANSWER: Factor **8**

21. One character in this novel jumps off a bridge on June 2nd, 1910. For 10 points each:

[10] Quentin Compson is a character in what novel that concerns his relationship with his sister Caddy as well as the stories of his brothers Jason and Benjy?

ANSWER: *The **Sound and the Fury***

[10] *The Sound and the Fury* was written by this American author. His other works include *As I Lay Dying* and *Light in August*.

ANSWER: William **Faulkner**

[10] Quentin Compson also appears in this later Faulkner novel, in which he tells the story of Thomas Sutpen to his Canadian roommate at Harvard.

ANSWER: **Absalom, Absalom!**

22. One member of this family was elected as Pope Leo X. For 10 points each:

[10] Name this prominent Renaissance banking family, whose leaders included Cosimo and Lorenzo “Il Magnifico.”

ANSWER: **Medici**

[10] The Medici hailed from, and eventually took over, this Italian city, which was also ruled by the Dominican friar Girolamo Savonarola.

ANSWER: **Florence** (or **Firenze**)

[10] To be elected one of the nine Signoria who ruled Florence, one had to belong to one of the seven major organizations of this type.

ANSWER: **guilds** (or **arte** or **arti**)

23. For simple systems this quantity is usually given as the difference between kinetic and potential energy. For 10 points each:

[10] Identify this quantity from dynamical systems theory from which the equations of motion can be obtained by solving equations co-named for Euler and this quantity's French namesake.

ANSWER: **Lagrangian**

[10] The Lagrangian for the "true" trajectory of a dynamical system is the one that minimizes this quantity, the integral of the Lagrangian with respect to time.

ANSWER: **action**

[10] The action for this theory is given from the integral over all spacetime of the Ricci scalar times the square root of minus the determinant of the metric. This theory was a follow-up on a similarly named "special" theory and states that gravity is a consequence of the curving of space.

ANSWER: **general relativity** [prompt on partial answer, do not accept "special relativity"]

24. To err is human; to forgive, divine. For 10 points each:

[10] Name this verb form exemplified by "to err" and "to forgive." Your elementary-school grammar teacher may have told you to not split them.

ANSWER: **infinitives**

[10] In Latin, infinitives could be used as nominals only if they were in the nominative case. Otherwise, this other verb form was used, as in the phrase "Tempus est iocundum."

ANSWER: **gerund** [do not accept "gerundive"]

[10] Another use of infinitives in Latin was in indirect statements. Indirect questions, on the other hand, used this non-indicative verbal mood.

ANSWER: **subjunctive**