



The Illinois Mathematics and Science Academy of Aurora, IL,



in partnership with Loyola Academy of Wilmette, IL, present

IMSANITY 3

-ROUND 2-

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Tossups

- (1) This quantity can be estimated for a given liquid using Watson's equation using its critical temperature. Kirchoff's equation can be used to estimate how this value for a reaction changes with temperature, and the Clausius-Clapeyron equation directly relates this quantity for vaporization to the natural log of vapor pressure. The change in this quantity divided by temperature is always less than the (*) entropy change for a spontaneous process, and calorimeters are used to measure this value for a reaction. For ten points, name this thermodynamic quantity, which like Gibb's free energy can be calculated using Hess's law.

ANSWER: enthalpy (accept enthalpy of vaporization before "reaction")

- (2) This number appears as the exponent in Legendre's Conjecture, which states that there is always a prime number between this power of n and this power of $n + 1$. Chebyshev proved that there is always a prime number between n and this number times n , a statement known as Bertrand's Postulate. Primes which are one less than a power of this number are of the (*) Mersenne type, and primes differing by this amount are referred to as twins. This is the number of positive integer factors that any prime number has. For ten points, identify this smallest prime number.

ANSWER: 2

- (3) During this event, Scottish law was invoked by Arlen Specter when he voted "not proven." The man at the center of this event had earlier been investigated regarding dealings with Susan McDougal and the suicide of Vince Foster and defended an earlier statement by saying, "It depends upon what the meaning of the word 'is' is." The advice to save a blue dress was given by (*) Linda Tripp. A report was issued by Kenneth Starr that stated that someone had lied when he said, "I did not have sexual relations with that woman." For ten points, name this scandal that resulted in the impeachment of President Bill Clinton.

ANSWER: Monica Lewinsky scandal (accept equivalents like "affair" for "scandal", accept Impeachment of Bill Clinton until mentioned and prompt on it thereafter)

- (4) In one scene of this novel, a woman testifies that she's known her cat since he was a kitten, and that he had never left Armavir. Everyone believes that the telegrams Styopa sends from Yalta are drunken jokes, and in his absence there is a disastrous magic show in the Variety Theater. One character predicts Berlioz's decapitation by streetcar, and the red-haired Hella, the illusionist Koroviev, fanged Azazello, and tomcat Behemoth accompany Professor Woland. It contains sections from a book that one of the title characters was writing about Pontius Pilate. (*) For ten points, identify this novel about the devil in Moscow which was written by Mikhail Bulgakov.

ANSWER: The Master and the Margarita (or Master I Margarita)

- (5) This man's *Piano Variations* are based on an E-C-D#-C# motif, and this composer used Schoenberg's twelve-tone technique in his *Connotations*. A solo clarinet and violin open the "siesta" section of another work by this man, which quotes the folk songs *El Malacate* and *El Palo Verde*. One ballet by this composer incorporates the song *Bonaparte's Repeat* in its main theme and includes movements titled "Saturday Night Waltz" and "Corral Nocturne." This composer of *El Salon México* quoted the (*) Shaker hymn *Simple Gifts* in a work depicting a pioneer couple. For ten points, name this American composer of *Rodeo* and *Appalachian Spring*.

ANSWER: Aaron Copland

- (6) In one story about this figure, he convinces others to count the number of yam fields so that they die when they say the correct number. This figure ignores the advice of Aso and invites fire into his house, causing the house to burn down, and drops a jar full of wisdom after his son Ntikuma proves to be even more wise. Though he is not Br'er Rabbit, one myth tells of him fighting and getting stuck to the Tar-Baby. He once traded a leopard, python, and hornets to (*) Nyame in exchange for all the world's stories. For ten points, identify this West African trickster spider god.

ANSWER: Kwaku Anansi

- (7) In one scene in this film, two characters comment about penetrating the sternum before injecting adrenaline into another character's chest, causing her to awaken. Another character and his partner visit a man played by the director of this film after he accidentally shot Marvin in a car. A boxer in this film does not take a dive, and a resulting incident revolving around his gold watch sees him murder Vincent. Starring Ving Rhames as the mobster Marsellus Wallace and the hitmen Jules and Vincent played by (*) Samuel L. Jackson and John Travolta, for ten points, name this 1994 Quentin Tarantino film.

ANSWER: Pulp Fiction

- (8) The speaker of one poem by this author sees the personifications of Love, Ambition, and Poesy “with bowed necks, and joined hands, side-faced.” He addressed a poem to a creature whose voice was heard “in ancient days by emperor and clown.” This author of *Ode on Indolence* began a poem “Much have I travel’d in the realms of gold” and in another poem asked “Where are the songs of spring?” This author of (*) *On First Looking into Chapman’s Homer* and *To Autumn* tells an “immortal bird” “thou wast not born for death” and declares that “Beauty is truth, truth beauty.” For ten points, name this poet of *Ode to a Nightingale* and *Ode on a Grecian Urn*.

ANSWER: John Keats

- (9) The terms of the Washington Naval Treaty limited this navy to three-fifths of the size of two other countries. This navy was the first to send wireless messages, in a battle where, after spotting light from hospital ships, it crossed the enemy’s T. This navy apologized for firing on the USS Panay, and this navy’s leader was killed in Operation Vengeance when his plane was shot down. This navy won the Battle of (*) Tsushima Strait, but lost at the battles of Leyte Gulf and Coral Sea. Using such ships as the Yamato and the Musashi, for ten points, name this navy which in desperation used kamikazes to destroy enemy ships.

ANSWER: Imperial Japanese Navy

- (10) Colin Gum catalogued these objects of the southern hemisphere, and Sharpless did the same thing for the northern one. The Great Debate was a question of whether or not some of these objects were actually outside the Milky Way. Bok globules are often found in the H II regions which comprise the vast majority of these objects. Mass loss by Asymptotic Giant Branch stars produce one variety of these objects, while hot stars produce ionization to form the emission variety. The Coalsack is one of its dark variety, while the Helix one, with a white dwarf at its center, is its (*) “planetary” variety. For ten points, identify these interstellar clouds associated with star birth and death.

ANSWER: nebulae (or nebulas, accept emission nebulas until the end of the second sentence)

- (11) In a short story by this author, the title character pushes a palm reader into the river so that he can marry, and this author wrote a play where one character's brother, Gerald, practices proposing all the time. This author of *Lord Arthur Savile's Crime* wrote a play where Mrs. Erlynne pretends to own the title object to save her daughter the shame of running off with Lord Darlington. In addition to (*) *Lady Windermere's Fan*, he wrote a play wherein Cecily Cardew falls in love with Jack Worthing, and Gwendolen Fairfax finally learns that she can love Algernon Moncrieff. For ten points, identify this author of *The Importance of Being Earnest* and *The Picture of Dorian Gray*.

ANSWER: Oscar Wilde

- (12) George Harkins stated that "we are hedged in by two evils" in a letter after this event began. After the Treaty of Dancing Rabbit Creek, George Gaines oversaw this event. It was justified by the Treaty of New Echota, although it was not signed by the tribe's leader, John Ross. Andrew Jackson said "John Marshall has made his decision, now let him enforce it!" after the decision in *Worcester v. Georgia* failed to prevent this event. Caused by the (*) Indian Removal Act and resulting in the Cherokee relocation to Oklahoma, for ten points, name this forced movement of Indian tribes.

ANSWER: Trail of Tears (accept Choctaw Trail of Tears until "New Echota")

- (13) This man suggested repairing railroads and lowering interest rates in his *An Open Letter to President Roosevelt*. This man noted that "Europe lacks the means, America the will" to bring about the titular condition in his *The End of Laissez-Faire*. This economist wrote of four motives which cause individuals to hold cash rather than invest in a phenomenon he called the liquidity preference, and suggested that governments should (*) "prime the pump" to recover from a depression. For ten points, name this British economist who wrote *The General Theory of Employment, Interest, and Money*.

ANSWER: John Maynard Keynes

- (14) This organelle is affected by such drugs as erythromycin and tetracyclins, which is helped by the Shine-Delgarno sequence to recognize certain molecules which bind to it. These organelles are also the site of the wobble phenomenon. They contain three catalytic sites for the binding of tRNA molecules and the formation of peptide bonds. Assembled in the nucleolus, they contain two unequally sized subunits and can be bound either to (*) endoplasmic reticulum or free in a cell's cytosol. For ten points, name these non-membrane-bound organelles which are the site of protein translation.

ANSWER: ribosomes

- (15) This artist painted a dark-haired nude woman with her right hand behind her head, her eyes closed, and with a red halo in his *Madonna*. He also painted wide-eyed ladies and gentlemen experiencing the titular emotion in *Anxiety*. His series subtitled “A Poem about Life, Love and Death” included both of those works, *The Sick Child* and *Death in the Sickroom*, and was called (*) *Frieze of Life*. The most famous painting from that series sees a man on a bridge under a swirling orange sky performing the titular action. For ten points, name this Norwegian expressionist painter of *The Scream*.

ANSWER: Edvard Munch

- (16) More traditional observers of this holiday can use animals or unsuspecting friends to make an eruv. Zachor marks the one of these holidays before Purim, and Shuvah marks the one between Rosh Hashanah and Yom Kippur. Candles are lit right before the start of this holiday, and challah is eaten during the first meal. The Lecha Dodi is sung to welcome this holiday like a bride, and there are thirty-nine kinds of (*) prohibited activities, called melakhot. It begins on Friday at sundown and lasts until the sighting of three stars and Havdallah the next day. For ten points, identify this Jewish day of rest.

ANSWER: Shabbat (or Shabbos or Sabbath)

- (17) This philosophy seeks to view the world clearly by clearing away the *tuphos*, or smoke. One member of this school of thought joked that meals of only lentil would result in less sedition in his 36 *Epistles*. In addition to Crates of Thebes, another member of this school taught the founder of Stoicism, Zeno of Citium. That man would sleep in a tub and eat raw meat to illustrate this school’s principles of self-sufficiency, austerity, and shamelessness. Founded by Socrates’s pupil (*) Antisthenes, for ten points, name this Greek philosophy associated with Diogenes of Sinope that promotes asceticism and aims to attain happiness through harmony with nature.

ANSWER: cynicism

- (18) Case White was one operation that completed this action. The January Uprising and the November Uprising prompted this action to be completed a different time. The War of the Confederation of Bar and the defeat of the Kosciuszko Uprising led to this action. The presence of the Liberm Veto in the Sejm made it hard for this action to be prevented. This action occurred after three (*) partitions by Russia, Austria, and Prussia. Agreed to in the Molotov-Ribbentrop Pact, for ten points, name this action completed by the Soviet Union and Germany in 1939 in which a certain nation was dismantled.

ANSWER: annexing Poland (accept word forms, accept alternatives like conquering Poland or partitioning Poland, prompt on “invading Poland” or “attacking Poland”)

- (19) One character created by this author feels pain where his identical twin was mutilated, and the Grandmother wins \$25,000 for “Uncle Henry’s Day-Old Cake.” In one play, a character’s two empty picture frames contrast with another’s two parakeets. This author of *The American Dream* wrote about a character who feeds poisoned hamburgers to his landlady’s dog. One character brings home snapdragons in a play which contains the sections “Fun and Games,” “Exorcism,” and (*) “Walpurgisnacht,” and Jerry stabs himself with a knife held by Peter in this author’s *Zoo Story*. For ten points, identify this author of a play in which Nick and Honey witness the fighting of George and Martha entitled *Who’s Afraid of Virginia Woolf?*.

ANSWER: Edward Franklin Albee III

- (20) The “dye” version of these objects tends to be the most versatile because the medium is easy to change. These objects rely upon a phenomenon known as population inversion, which is created by q-switching. Using Doppler cooling, a magnetic field and one of these objects was used to cool matter into a Bose-Einstein Condensate, and the first of these used a synthetic ruby as the gain medium to create a coherent (*) monochromatic beam. CD readers and recent attempts at fusion reactors both contain, for ten points, what device which concentrates light?

ANSWER: lasers (or Light Amplification through Stimulated Emission of Radiation)

- (21) This author wrote about Mike Curly’s unsuccessful attempt to win back Caroline Dandy in *The Bridal Party*. He wrote about the conflict between Pat Brady and Monroe Stahr in an unfinished novel, and about Dexter Green’s ill-fated love for Judy Jones in a short story. This author of *The Last Tycoon* and *Winter Dreams* wrote a novel where the relationship between Nicole Warren and the psychoanalyst Dick Diver dissolves. In his most famous work, (*) George Wilson kills the title character after his wife Myrtle is run over by Daisy Buchanan. For ten points, identify the author of *This Side of Paradise* and *Tender is the Night*, who used Nick Carraway as narrator in *The Great Gatsby*.

ANSWER: Francis Scott Key Fitzgerald

Bonuses

- (1) Answer the following about intelligence agencies for ten points each.
- [10] Willy Brandt's aide was discovered to be a sleeper for the Stasi, the secret police of this nation.
ANSWER: East Germany (accept Democratic German Republic or Democratic Republic of Germany)
- [10] This intelligence agency abducted Adolf Eichmann from Argentina and launched Operation Wrath of God to get revenge for the 1972 Munich massacres.
ANSWER: Mossad (prompt on "Israel" or "Israeli Intelligence", accept the Institute for Intelligence and Special Operations)
- [10] This intelligence agency overthrew Iran's Mohammed Mosaddegh in Operation Ajax and trained Cuban exiles who landed at the Bay of Pigs.
ANSWER: Central Intelligence Agency or CIA (prompt on "American", do not accept or prompt on FBI)
- (2) This state is the primary home of the United States's Cajun population. For ten points each:
- [10] Identify this state whose city of New Orleans lies on the Mississippi River Delta.
ANSWER: Louisiana
- [10] This Louisiana lake, sitting just north of New Orleans, is spanned by the largest contiguous water bridge in the world. This lake is connected to the Mississippi River by the Industrial Canal.
ANSWER: Lake Ponchartrain
- [10] This other river partially forms the Texas-Oklahoma border before entering Louisiana, passing through the city of Shreveport, and joining the Mississippi.
ANSWER: Red River of the South
- (3) Astronomers may use a technique using this concept to produce higher resolution between telescopes without making them larger. For ten points each:
- [10] Identify this effect that produces the color in bubbles with thin walls, and usually manifests in several "fringes".
ANSWER: interference
- [10] This auditory effect may occur when waves of different frequencies constructively and then destructively interfere, forming a third oscillation with a frequency equal to the difference of the two original waves' frequencies.
ANSWER: beats
- [10] In a standing wave, this is a point where no movement occurs. Its opposite is an "anti" version.
ANSWER: nodes

- (4) The Puranas recount that this event was caused by the sage Durvasa, who cursed Indra and the other Devas to lose their power. For ten points each:
 [10] Name this event in which the Devas and the Asuras attempted to use Mount Mandara to draw Amrita, the nectar of immortality, from a certain body of water.
ANSWER: churning of the ocean of milk (accept equivalents like “churning of the milky sea”, accept samudra manthan)
 [10] In addition to Amrita, the Devas also produced this goddess of wealth, who became the consort of Vishnu. She is celebrated at Diwali.
ANSWER: Lakshmi
 [10] Vishnu had to intervene to prevent Mount Mandara from sinking into the ocean of milk by holding it up in the form of this animal. Another mythical example of this animal is one that “slowly and steadily” races a hare in a fable by Aesop.
ANSWER: turtle (or tortoise, accept Kurma)
- (5) One of its chapters, focusing on Victoria Wren, is a reworking of its author’s short story *Under the Rose*. For ten points each:
 [10] Identify this novel in which Benny Profane hangs out with the Whole Sick Crew and Herbert Stencil searches for the title entity.
ANSWER: V.
 [10] Pirate Prentice grows bananas on his roof in this other novel by the same author of *V*. It centers around Tyrone Slothrop’s search for a mysterious rocket with the serial number 00000.
ANSWER: Gravity’s Rainbow
 [10] This author wrote *Gravity’s Rainbow* as well as a novel in which Oedipa Mass investigates a secret postal company, *The Crying of Lot 49*.
ANSWER: Thomas Pynchon
- (6) This man created a three-part series of paintings consisting of *Philosophy*, *Medicine*, and *Jurisprudence* for the University of Vienna. For ten points each:
 [10] Name this Austrian painter of such works as *Tree of Life* and *Portrait of Adele Bloch-Bauer*.
ANSWER: Gustav Klimt
 [10] This most recognized work of Gustav Klimt uses paint and gold leaf to depict two yellow-clad lovers performing the titular action.
ANSWER: The Kiss (or Der Kuss)
 [10] Klimt was member and first president of this artistic movement. Joseph Maria Olbrich, an architect of the movement, designed its namesake hall, which now houses Klimt’s *Beethoven Frieze*.
ANSWER: Vienna Secession

- (7) Examples of these include Na^+ and Ca^{2+} , and they are often found in ionic solids. For ten points each:
 [10] Name this class of positively charged ions which generally form from the oxidation of metal atoms.
ANSWER: cations
 [10] Although not a metal, this element can become a cation in SN_2 reactions when one of its substituents is ionized in solution. It is the second-most abundant element in the human body by mass, and its reactions are the focus of organic chemistry.
ANSWER: carbon (prompt on “C”)
 [10] In SN_2 reactions, the electron-deficient carbon center of the trigonal planar cation is classified as one of these reagents.
ANSWER: electrophiles
- (8) David Copperfield wonders if he shall turn out to be this of his own life. For ten points each:
 [10] Identify this type of person, which Becky Sharp is notably not.
ANSWER: hero
 [10] According to its subtitle, this novel does not contain a hero. It does, however, contain George Osborne’s death at Waterloo, and Amelia Sedley’s marriage to William Dobbin.
ANSWER: Vanity Fair
 [10] This author of *Vanity Fair* wrote about a character who thinks he’s a gentleman, tries to court Nora, and dies in Fleet prison in *The Luck of Barry Lyndon*.
ANSWER: William Makepeace Thackeray
- (9) The two newer buildings at this city’s Kaiser Wilhelm Memorial Church were nicknamed by locals “Lipstick” and “Powderbox”. For ten points each:
 [10] Name this city, a panoramic view of which can be seen from the dome atop its Reichstag building. That dome was added to celebrate the reunification of this city in the 1990s.
ANSWER: Berlin
 [10] One block south of the Reichstag stands this historic entranceway to the city, which features twelve Doric columns and is topped by a statue of four horses pulling a chariot.
ANSWER: Brandenburg Gate (or Brandenburger Tor)
 [10] Southwest of Berlin sits Sanssouci, the Versailles-inspired summer palace of this king. Adolph Menzel painted this king performing a flute concert in Sanssouci.
ANSWER: Frederick II or Frederick the Great (prompt on “Frederick”)

- (10) He won the presidency in part by accusing the Eisenhower administration of creating a “missile gap”. For ten points each:

[10] Name this president who led the United States through the Cuban Missile Crisis a year after his failed Bay of Pigs Invasion.

ANSWER: John Fitzgerald Kennedy (or JFK)

[10] This Secretary of Defense under Kennedy advocated the ultimately successful blockade strategy in the Cuban Missile Crisis, but resigned after his escalation in Vietnam became unpopular.

ANSWER: Robert McNamara

[10] Robert McNamara used this doctrine to argue against nuclear war, particularly after the advent of nuclear submarines.

ANSWER: mutually assured destruction (prompt on “MAD”)

- (11) One character falls in love with a duke pretending to be the student Gualtier Malde, and is later killed, fulfilling the curse of Count Monterone. For ten points each:

[10] Identify this opera, in which Gilda is the daughter of the titular hunchbacked court jester.

ANSWER: Rigoletto

[10] *Rigoletto* is an opera by this Italian composer, who included “the drinking song” in *La Traviata* and wrote about an Ethiopian princess in *Aida*.

ANSWER: Giuseppe Verdi

[10] This assassin in *Rigoletto* is hired to kill the duke, but ends up killing Gilda instead. In the first act, Rigoletto compares himself to this character.

ANSWER: Sparafucile

- (12) He was frequently labelled a “bizarre” monarch during his reign, although he also took the titles of Prime Minister and President of his country. For ten points each:

[10] Name this only Muslim monarch of a European country, who was forced into exile before and after he took title as dictator of his country.

ANSWER: Zog I

[10] Zog was the leader of this predominantly Muslim country which was dominated by the influence of Italy during the post-World War I decades.

ANSWER: Albania

[10] King Zog ruled from this Albanian city, which now serves as its capital.

ANSWER: Tirana

- (13) Answer the following about a statistical technique for ten points each:

[10] This measure of central tendency is also known as the second quartile.

ANSWER: median

[10] The median of one of these objects is one measure of the best fit of a collection of data. The variables in a scatterplot are positively or negatively correlated based on the sign of the slope of a certain one of these objects.

ANSWER: line (or trendline or other similar things about a line which is good)

[10] This method, initially developed by Gauss, is the most common for computing linear regressions, and works by summing the squares of its residuals.

ANSWER: method of least squares

- (14) Contrary to an internet hoax, the company responsible for this device did not pay its fine with thirty truckloads of nickels. For ten points each:

[10] Identify this cellular device released in 2012, which came under fire for its copyright infringements of features such as “Slide to Unlock”.

ANSWER: Samsung Galaxy SIII (accept Galaxy Note)

[10] This tech company, formerly led by Steve Jobs, sued Samsung for patent violations, but a judge ruled that they were different because Samsung’s products were “not as cool” as this company’s.

ANSWER: Apple Inc.

[10] In response, Samsung threatened lawsuits against Apple’s iPhone 5. Those suits were shut down during the preliminary review by this organization. James Gildea, a judge in this organization, ruled that none of Samsung’s four patents were violated.

ANSWER: International Trade Commission or ITC

- (15) The protagonist prefers to read about Western ballet in books rather than watch live performances. For ten points each:

[10] Name this novel that follows the romance between Shimamura and the geisha Komako at a hot spring in the title place. It also features Komako’s rival, Yoko, caring for Yukio before dying in a fire.

ANSWER: Snow Country (or Yukiguni)

[10] *Snow Country* is a work by this Japanese author, who wrote about Shusai’s loss to Otake in *The Master of Go*.

ANSWER: Yasunari Kawabata

[10] Kikuji becomes obsessed with Fumiko Ota in a novel titled for a thousand of these animals. Traditionally, making a thousand of these birds out of origami is supposed to grant a wish.

ANSWER: cranes (accept Thousand Cranes or Senbazuru or tsuru)

- (16) Kennedy said that being a Berliner was comparable in prestige to holding this right, which Paul of Tarsus claimed by saying “Civis romanus sum.” For ten points each:
 [10] Name this right granted by the Edict of Caracalla to every freeman in the Empire. After the Social War, this right was granted to the allies.
ANSWER: Roman citizenship (prompt on “citizenship”)
 [10] Rome’s society was divided into patricians and this class of people. One of the secessions by this class of people forced the adoption of the Twelve Tables.
ANSWER: plebs or plebeians
 [10] As part of the deal that ended the first Plebeian secession, this office was created to check the power of the patricians. Their right to “veto” means “I forbid.”
ANSWER: Tribune of the Plebs (or Plebeian tribune or Tribune of the People or tribuni plebis)
- (17) In one of his works, Bogun kidnaps Helena, but Pan Yan manages to rescue her, and in another, Finvicius falls in love with the Christian Ligia. For ten points each:
 [10] Identify this author, best known for his novels *With Fire and Sword* and *Quo Vadis*.
ANSWER: Henryk Sienkiewicz
 [10] Sienkiewicz is an author from this country. *With Fire and Sword* was set during the Khmelnytsky Uprising, where Ukraine tried to liberate itself from a commonwealth between Lithuania and this country.
ANSWER: Republic of Poland
 [10] This author set a book primarily in Poland that focused on his time in Auschwitz. In addition to writing *Night*, this author said “the opposite of love is not hate, it’s indifference.”
ANSWER: Elie Wiesel
- (18) Name these books of the New Testament for ten points each.
 [10] This non-synoptic Gospel claims to be based on the testimony of the “Beloved Disciple” and is the final canonical Gospel.
ANSWER: Gospel according to John
 [10] This first and longest of the Pauline epistles advises that “love is the fulfilling of the law” and thus one should hold unconditional love towards all.
ANSWER: Letter to the Romans
 [10] During the Protestant Reformation, this epistle was used against Lutherans, whose doctrine of salvation by “faith alone” is contradicted by its emphasis on virtuous deeds.
ANSWER: Epistle of James

- (19) The Four Color Theorem concerns the planar type of this object. For ten points each:
 [10] Identify these mathematical objects consisting of vertices and edges. They were invented to solve the Königsberg Bridge Problem.
ANSWER: graphs (reluctantly prompt on “map(s)”)

[10] This theorem states that large complete graphs with colored edges contain monochromatic complete subgraphs. A special case of this theorem says that, among six people, three are mutual friends or mutual enemies.
ANSWER: Ramsey’s Theorem

[10] Ramsey’s Theorem generalizes this theorem, which states that, with $n + 1$ objects split into n groups, some group contains 2 objects. It is often stated in terms of its namesake bird.
ANSWER: pigeonhole principle
- (20) Rene Descartes hypothesized that this gland is the seat of the soul, and this gland is located outside the blood-brain barrier. For ten points each:
 [10] Name this endocrine gland, which in vertebrates is located near the brain and which produces the hormone melatonin.
ANSWER: pineal gland

[10] By controlling melatonin release, the pineal gland aids in this process, the oscillation of individual bodily function over a 24-hour cycle.
ANSWER: circadian rhythms

[10] Circadian rhythms are largely controlled by this small region in the brain which sends signals to other regions including the pineal gland. It also receives signals from the retina on visual clues.
ANSWER: suprachiasmatic nucleus
- (21) Thomas Durant created its namesake company, although he was eventually replaced by Oakes Ames as its head. For ten points each:
 [10] Name this American scandal which eventually saw the sale of highly overpriced stock of its namesake company to prominent members of Congress as a bribe.
ANSWER: Credit Mobilier scandal

[10] The Credit Mobilier company was connected to this transportation system. The scandal eventually put this project, part of the transcontinental one, into massive debt due to depletions of grants it had received from Congress.
ANSWER: Union Pacific railroad

[10] Another prominent member of the Credit Mobilier scandal was this Vice President under Ulysses S. Grant who was eventually replaced by Henry Wilson.
ANSWER: Schuyler Colfax