

1. Cromwell's rule limits the cases where this theorem can be applied. This theorem is used to find the credibility interval. This theorem is used by the Expectation-Maximization algorithm, and can also be used to solve the Monty Hall Problem. The CRM114 program uses a Markov Field to improve upon results obtained with this theorem in spam filtering. This theorem is used to calculate the posterior (*) probability, and relates the actual probability of an event to the measured probability in a test. For 10 points, name this theorem which allows probability to change upon the acquisition of new evidence and is written as the probability of A given B equals probability of B given A times probability of A over probability of B.

ANSWER: Bayes' theorem [or Bayes' law]

<Nutter>

2. The Marquis de Custine published a travelogue deriding the savage rule of this man. Count Von Ficquelmont helped steer the foreign policy of this man, who promoted Sergey Uvarov's "Official Nationality" doctrine of "Orthodoxy, Autocracy, and Nationality." This man ordered limited reform under Pavel Kiselyov but created the nefarious Third Section, suppressed the November Uprising, and helped (*) Franz Josef I put down Lajos Kossuth's revolt. He died while his forces were besieged at Sevastopol. This man's brother Constantine was favored by the Decembrists. For 10 points, name this Tsar who led Russia into the Crimean War and ruled between Alexander I and Alexander II.

ANSWER: Nicholas I [or Nikolay I]

<Bentley>

3. A di-iso-butyl hydride of this element is used to transform acid chlorides into aldehydes. Like iron, a Lewis acid of this element is often used in Friedel-Crafts reactions. One method for extracting this element uses an aqueous sodium hydroxide and works because this element is soluble in strong bases, but iron oxide is not. That process is supplemented by a cathodic deposition of this element through the use of (*) molten cryolite and the oxide of this element. This element is produced by the Bayer and Hall-Heroult processes. It is the most abundant metal in the Earth's crust and extracted from bauxite. For 10 points, name this lightweight element with atomic number 13, a metal often used in soda cans.

ANSWER: Aluminum [or Al]

<Bentley>

4. Many of this man's final poems were destroyed but reconstructed by his editor, James Laughlin. He described how the edge of a petal of an "obsolete" flower "cuts without cutting" in "The Rose" and declared that "the pure products of America go crazy" in "To Elsie", both of which appeared a collection whose title poem opens "By the road to the contagious hospital". In another poem, this author of (*) *Spring and All* apologizes for eating some "delicious" items "which you were probably saving for breakfast". His Imagist poems included one about an object "glazed with rain water beside the white chickens". For 10 points, name this poet of the epic *Paterson*, as well as "This is Just to Say" and "The Red Wheelbarrow".

ANSWER: William Carlos Williams [or WCW]

<Bentley>

5. This experiment was criticized in Chris Ferguson's paper "Blazing Angels or Resident Evil?" that claimed that the effect this study produced was short-lived and that it misinterpreted the motivations of its subjects. A 1992 paper co-written by Elizabeth Loftus questioned the ethics of this study that was organized by three people including Sheila and Dorothea Ross. Performed in the Stanford University (*) nursery, its subjects were given a series of small hammers and interacted with an object painted like a clown while shouting "sockeroo!". For 10 points, identify this 1963 psychological experiment that involved children imitating adults' violent behavior against the namesake objects conducted by Albert Bandura.

ANSWER: the bobo doll study/experiment

<Weiner>

6. An accidental clatter created when the producer dropped one of the clavés inspired the title of this musician's "Upstage Rumba". The title Japanese zither-like instrument inspired this musician's "Koto Song", which he included on his *Jazz Impressions of Japan*. Two measures of 3/4 alternate with two of 4/4 in his piece "Three to Get Ready." His namesake quartet featured the drummer (*) Joe Morello. One piece by him groups 9/8 as 2 + 2 + 2 + 3 and is titled "Blue Rondo à la Turk." That piece appears on an album by him that includes a Paul Desmond-composed song in 5/4 time. For 10 points, name this American jazz pianist who explored his love of unusual time signatures and polyrhythms on tracks like "Take Five" on his album *Time Out*.

ANSWER: David "Dave" (Warren) Brubeck

<Lawrence>

7. Along with a composer, this author organized a competition to preserve a lyrical musical tradition known as the "deep song". This author identified a dark creative force known as the "duende" in a lecture given at Buenos Aires before the premiere of one of his plays, in which three woodcutters sing a mournful song as a beggar woman and the (*) moon emerge, gleefully predicting death for the main characters. In another of his plays, Adela has a secret affair with Angustias's fiance Pepe el Romano, who is shot by their overprotective mother. In the former play, Leonardo Felix crashes the title event and runs away with the Bride. For 10 points, name this Spanish playwright who wrote *The House of Bernarda Alba* and *Blood Wedding*.

ANSWER: Federico Garcia Lorca [or Federico del Sagrado Corazon de Jesus Garcia Lorca]

<Gupta>

8. One man helped cause this event by narrating about Eurypylus, who heard an oracle's demand for a single human sacrifice. The date of this event was foretold by a snake eating a bird's nest. A fleet briefly sailed to Tenedos and back before this event, though Epeius stayed. The abandoned man Sinon was captured before this event, which is followed by *nostos* stories in the lost Cyclic poems. A sacred statue, the (*) Palladium, was stolen to aid this event, during which Neoptolemus killed a king. It occurred after snakes ate the doubtful Laocoon and included the tossing of baby Astyanax off a wall as well as the rape of Cassandra, who predicted it. For 10 points, name this bloody battle in which Priam died and soldiers unloaded from a wooden horse.

ANSWER: the fall of Troy [or the sack of Troy; or Iliupersis; accept answers with Ilium or Ilion in place of "Troy;" accept answers involving the use of the Trojan Horse; prompt on "Trojan War"; prompt on "end of the Trojan War"]

<Jackson>

9. A 1975 decree established an "industrial city" on the shore of this body of water at Yanbu. This body of water surrounds the Farasan Islands and the Dahlak Archipelago, and the proposed Bridge of the Horns might soon span its outlet. This sea forms the eastern side of the disputed Hala'ib Triangle. At its north, it is connected to gulfs by the Strait of Jubal and the internationally monitored Strait of Tiran, which was briefly closed in (*) 1967. The Hejaz abuts this sea which the Bab el-Mandeb links to the Gulf of Aden. The Gulf of Aqaba is an extension of this sea, and Jeddah and Port Sudan are ports on its coast. Its Gulf of Suez separates the Sinai Peninsula from the rest of Egypt. For 10 points, name this sea between the Arabian Peninsula and Africa.

ANSWER: Red Sea [or al-Bahr al-Ahmar; or al-Bahr al-Qalzam; or Qeyyih Bahri; or Yam Suph; or Yam Adom]

<Wasserman>

10. This man became temporarily catatonic after his daughter Roshanara sent him a box with the severed head of his eldest son, who had sought to unify his empire's dual faiths in *The Mingling of Two Oceans* before losing at Samugarh. Niccolao Manucci's *Storia de Mogor* documents the later reign of this son of princess Manmati. His son Shuja led one of the factions in the succession war that followed this man's 1658 (*) illness. Asaf Khan advised this father of Dara Shikoh, who commissioned the Jama Masjid Mosque and the Peacock Throne and built the Red Fort at his new capital after succeeding Jahangir. For 10 points, name this fifth Mughal emperor, the grandson of Akbar and father of Aurangzeb, who buried his wife Mumtaz in the Taj Mahal.

ANSWER: Shah Jahan [or Prince Khurram]

<Bentley>

11. One interpretation of this man's work asks how we know the plus sign won't return a sum of 5 for high inputs by acting as a "quus sign". This deviser of the rule-following problem called facts with no factual subparts "atomic facts" in his early period, rejecting that idea in favor of non-overlapping connections between terms, dubbed "family resemblances." Moritz Schlick invited this man to talk to the (*) Vienna Circle, which loved his work. This man described two construction workers in one example of a "language game;" he dismissed private languages in *Philosophical Investigations*, and claimed that "what we cannot speak about we must pass over in silence." For 10 points, name this eccentric Austrian author of *Tractatus Logico-Philosophicus*.

ANSWER: Ludwig Wittgenstein

<Jackson>

12. This substance is transported by a heterodimer of OST-alpha and OST-beta, and by NTCP and MRP2. One component of this substance is synthesized by 7-alpha hydroxylase and is conjugated to glycine or taurine. Cholestyramine is used to sequester one component of this substance, which is required to absorb vitamins A, D, E, and K. The vessels that carry this substance produce by gamma-glutamyl transferase and alkaline phosphatase; those vessels are called canaliculi. This substance contains degraded porphyrin, and it is secreted into the (*) intestines in order to emulsify fat droplets. This substance is produced in the liver and stored in the gallbladder. For 10 points, name this yellow substance which contains bilirubin, important in digestion.

ANSWER: bile

<Mukherjee>

13. William Wrede said this text features commands for silence because its central figure had to hide his identity. In this book, a man in Bethsaida sees tree-like shapes while his vision is getting fixed, and near its end a group of women "said nothing to anyone, for they were afraid". One man in this book says that things men say and do, not the food they eat, make them unclean. In the two-source hypothesis, this text is about as old as the Q source. A young man who runs away (*) naked in this work is said to be its author. A possible original ending for this book features three women at an empty tomb midway through its sixteenth and final chapter, before they hear about the Resurrection. For 10 points, name this synoptic Gospel between Matthew and Luke.

ANSWER: Gospel according to Mark [or Gospel of Mark; or to euangelion kata Markon]

<Jackson>

14. This quantity's namesake waves are low-level excitations in continuously symmetric magnetic lattices, and magnons are the quantizations of those waves. A theorem partly named for this quantity states that the wavefunction of a system is either symmetric or antisymmetric under particle interchange, depending on the particles' value for this quantity. Though (*) Pauli initially rejected this concept, his namesake matrices are used in its mathematical formulation, and it doubles the number of possible states according to the Pauli exclusion principle. This quantity, which is denoted by the quantum number "m sub s," has a magnitude of one-half for protons, electrons, and many other fermions. For 10 points, name this form of intrinsic angular momentum.

ANSWER: spin [prompt on "angular momentum" before mention]

<Eltinge>

15. One character in this novel is judged harshly for her country manners by the two Miss Gunns, while two brothers in this novel get into an argument over whether or not to sell a horse named Wildfire. Near the end of this novel, the eldest son of a squire reveals to his wife Nancy his previous relationship with Molly Farren. Its title character's (*) pocketknife was stolen by William Dane, implicating him in a crime he didn't commit in his hometown of Lantern Yard. In one scene, the skeleton of Dunstan is found at the bottom of a pit with a bag of gold belonging to the title character, who redeems himself by raising Godfrey Cass's daughter Eppie. For 10 points, name this George Eliot novel about a "Weaver of Raveloe".

ANSWER: Silas Marner: *The Weaver of Raveloe*

<Bentley>

16. One of this composer's orchestral works is a triptych within a triptych in which the tubular bells mark the transition from the second section to the third, which depicts "the morning of a festival day". Another of his orchestral works opens with a solo flute playing a descending chromatic figure from C-sharp to G and then rising again. He is not Spanish, but this composer's *Iberia* is the second of his three (*) *Images* [ih-MAHJ] for orchestra, and he also wrote a set of three "symphonic sketches" depicting, among other things, the "Play of the Waves," while his first major orchestral work was inspired by a poem of Stephane Mallarmé. For 10 points, name this French composer of *La Mer* and *Prelude to the Afternoon of a Faun*.

ANSWER: Claude Debussy

<Rosenberg>

17. **Thomas Matthews was court-martialed during this war for failing to hold a blockade at the Battle of Toulon. Kurt von Schwerin urged his king to flee the field at an early battle in this war, but then won a victory that influenced the advent of the oblique order tactic. Stringer Lawrence and the Nawabs of Arcot fought in a side theater of this war, whose main portion saw clashes at Fontenoy and Mollwitz. Including the First (*) Carnatic War and the War of Jenkins' Ear, it was triggered by the claims of Charles Albert in defiance of Charles VI's Pragmatic Sanction. Beginning with the invasion of Silesia by Frederick the Great, for 10 points, name this conflict over Empress Maria Theresa's right to sit on the Habsburg throne in Vienna.**

ANSWER: War of the Austrian Succession [or King George's War; anti-prompt with "be less specific" on "War of Jenkins' Ear," "First Carnatic War," or (First or Second) "Silesian War"]

<Bentley>

18. **The names of the people depicted in this painting can be seen on an oval-shaped stone cartouche that hangs on the right of its central arch. The drummer on the right-hand side of this painting is partially cut off due to an alteration, and a helmeted man whose eyes peer out from behind the flag bearer may be a self-portrait of the artist. A (*) chicken hangs from the illuminated white dress of a girl in this painting, which also depicts a man in yellow holding a sword in his left hand who is standing next to Frans Banning Cocq. For 10 points, name this Rembrandt painting named for its dark finish.**

ANSWER: *The Night Watch* [or *De Nachtwacht*; accept *The Shooting Company of Frans Banning Cocq* and *Lieutenant Willem van Ruytenburch preparing to march out* before mentioned]

<Bentley>

19. **Fort Lee was abandoned prior to this battle, where a musket ball severed the artery of James Monroe. Sullivan's column moved along an abandoned road to trap the losing side at this battle, while local militia under Cadwalader and Ewing were cut off from it by weather conditions. The winning side here used the Benjamin Rush-inspired password "Victory or Death" and commandeered several Durham (*) boats. The losing side under Johann Rall was erroneously held to have spent the night before drinking, while the victors at this battle were able to repulse a subsequent attack by Cornwallis at the Battle of Princeton. For 10 points, name this December 26th 1776 battle won after Washington crossed the Delaware, fought at the present-day capital of New Jersey.**

ANSWER: First Battle of Trenton [prompt on "Washington Crossing the Delaware" or similar answers before mentioned]

<Bentley>

20. **In one poem, this man advises a "Western Voyager" to "avoid the wild tigers in the morning" and asks "When will you come back?" That poem by this man describes the title route as "harder than climbing the sky". One of his poems relates how "my shadow creeps about at my side" and contemplates meeting friends "at last on the cloudy river of the sky". This poet's nostalgia for his hometown is the subject of "Quiet Night Thought". The speaker of another of his poems says "At (*) fourteen I married my Lord you". "Hard is the Road to Shu" and "Drinking Alone by Moonlight" are among the works of this man, a contemporary of Du Fu who wrote a poem translated by Ezra Pound as "The River Merchant's Wife". For 10 points, name this Tang Dynasty poet.**

ANSWER: Li Po [or Li Bo; or Li Bai; or Li Pai; or Li Taibai; or Rihaku]

<Carson>

21. In September 2012, this president's government negotiated an end to a four-month strike by university professors. A month earlier, this president was photographed writing out an angry note about forest policy. This politician became chief of staff in 2005 following the resignation of José Dirceu in the Mensalao scandal over bribes to legislators. In 2010, she defeated (*) Jose Serra of the Social Democratic Party to win office. This leader of the Workers Party was formerly imprisoned by the military dictatorship for her role in the violent Colima leftist group. For 10 points, name this successor to Lula da Silva and current president of Brazil.

ANSWER: Dilma Vana Rousseff

<Weiner>

22. Geoffrey Wain tries to blame a military defeat in this war on his nephew Neil Macrae in Hugh MacLennan's novel *Barometer Rising*. Stepan Astakhov's life is saved during this war by his rival, the Cossack Gregor Melekhov, in Mikhail Sholokhov's novel *And Quiet Flows the Don*. The aftermath of this conflict is depicted in *The Road Back*, a sequel to a novel which also features the character Tjaden. In that novel, the schoolmaster (*) Kantorek encourages his students to fight in this war, where they meet the scheming corporal Himmelstoss. Kemmerich and Kat also die in that novel, which ends with the death of Paul Baumer. For 10 points, name this conflict, the setting of Erich Maria Remarque's *All Quiet on the Western Front*.

ANSWER: World War I [or the Great War; or the first World War]

<Bentley>

23. Optical frequency combs are used to improve the accuracy of these devices. Norman Ramsey proposed using a second microwave pulse to cancel out Doppler shifts in a precursor to these devices designed by Harold Lyons that placed ammonia molecules in a waveguide absorption cell. These devices were placed aboard airliners in the Hafele-Keating experiment, which was a test of (*) special relativity. Modern examples of these devices typically use cold Cesium-133 or Rubidium-87, and they work by exploiting the frequency of transition between states of atoms. The US Naval Observatory has an ensemble of these devices, which are required for GPS satellites and NTP servers. For 10 points, name these extremely accurate timekeepers.

ANSWER: atomic clocks [prompt on "clock" or similar answers implying timekeeping]

<Nutter>

24. This man issued legislation that officially adopted his banker Agostino Chigi into his family. This man's foes met at the Conciliabulum of Pisa, triggering a rhetorical war between Jacques Almain and his chief apologist, Thomas Cajetan. This man joined Louis XII, Maximilian I, and Ferdinand II to fight Venice in the League of Cambrai, and imprisoned Cesare (*) Borgia shortly after taking his highest office. In 1511, this nephew of Sixtus IV formed the Holy Alliance against France. This predecessor of Leo X was the first Pope to use Swiss mercenaries as bodyguards. The *Dying Slave* was created for the tomb of this man born Giuliano della Rovere, who also patronized the painting of the Sistine ceiling. For 10 points, name this "Warrior Pope".

ANSWER: Julius II [or Giuliano della Rovere before mentioned]

<Bentley>

1. He depicted his dead lover wearing boxing shorts and boots against a pink background in the left panel of *Triptych in Memory of George Dyer*. For 10 points each:

[10] Identify this artist who also created a study of the nurse in *The Battleship Potemkin*.

ANSWER: Francis **Bacon**

[10] Grotesque figures whose faces are almost entirely made up of a large mouth appear in studies Francis Bacon made for three figures at the base of this scene. This scene takes place in between the procession to Calvary and the Deposition in narratives of the Passion.

ANSWER: The **Crucifixion** of Jesus Christ

[10] Bacon drew on a Diego Velazquez portrait to paint a man who held this religious office screaming.

ANSWER: **Pope** [or the **Papacy**]

<Bentley>

2. This god wrote a namesake book supposedly buried near Memphis that would give the reader the spells needed to control the gods. For 10 points each:

[10] Name this Egyptian god with the long beak of an ibis. He took up residence on the moon and served as a divine scribe.

ANSWER: **Thoth** [or **Djehuty**; be lenient with vowels]

[10] Thoth was sometimes described as the son of this bird-headed god, who drove the sun barge across the sky each day. He was sometimes merged with Amun or Atum.

ANSWER: **Ra** [or **Re**]

[10] Thoth was central to a pantheon of this many gods, worshipped at Hermopolis in contrast to the Ennead of Heliopolis. A group of this many Chinese demigods is led by the sword-wielding Lu Dongbin.

ANSWER: **eight** [or **Ogdoad**; or **Eight** Immortals; or **Baxian**]

<Bentley>

3. Among his 20 surviving toccatas include his *Toccata in E minor*, and he collected four sets of choral variations in his *Musical Thoughts on Death*. For 10 points:

[10] Name this German composer who also collected six arias and variations in his *Hexachordum Apollinis*.

ANSWER: Johann **Pachelbel**

[10] Pachelbel is most famous for a work of this type in D major, in which a melody is started by different instruments at different points in time.

ANSWER: **canon**

[10] A "crab canon" and "perpetual canon" are among the pieces included in this J.S. Bach collection, a series of puzzle-based contrapuntal treatments of a theme provided by Frederick the Great.

ANSWER: *The* **Musical Offering** [or *Das* **Musikalische Opfer**]

<Chonai>

4. Answer some questions about an unmoving body, for 10 points each:

[10] A system is said to be in the static type of this state when the sum of the forces and torques on bodies in it is zero, and the bodies are all at rest. There also exists a "dynamic" type.

ANSWER: **equilibrium**

[10] The stability of an equilibrium can be determined by finding the second derivative of this value at the equilibrium point.

ANSWER: **potential energy** [or **PE**]

[10] A system's equilibrium is stable if the second derivative has a value in this range at the equilibrium point.

ANSWER: **greater than zero** [or things like **zero to infinity**]

<Nutter>

5. This man ran unsuccessfully for mayor of New York in 1905 and was kicked out of Harvard for organizing massive alcohol-fueled parties. For 10 points each:

[10] Identify this advocate of the Spanish-American War, who built a large castle in California and served as the inspiration for the character of Charles Foster Kane.

ANSWER: William Randolph **Hearst**

[10] Hearst's *New York Morning Journal* plundered many writers from the *New York World*, which was run by this rival publisher. This man now lends his name to a series of prestigious journalism prizes.

ANSWER: Joseph **Pulitzer**

[10] Hearst later ran for Governor of New York, but was defeated by this man. This man would later be defeated in a presidential race when his opponent campaigned on the slogan, "He kept us out of war".

ANSWER: Charles Evans **Hughes**

<Bentley>

6. For 10 points each, answer these things about the plant hormone auxin.

[10] Auxin controls this plant behavior, in which a plant will grow towards a source of light. This occurs because auxin triggers growth on the dark side of the shoot.

ANSWER: **phototropism** [do NOT accept "phototaxis"]

[10] Auxin is transported by this active process, which uses PIN proteins. It can be prevented by acid trapping and by the drug Quercetin.

ANSWER: **polar** auxin transport [or **polar** transport]

[10] The expression of these proteins may be regulated by auxin. Split into alpha and beta families, they loosen cell walls by disrupting non-covalent bonds between cellulose fibrils.

ANSWER: **expansins**

<Morlan>

7. One portion of this work addresses both diligent people and procrastinators, exclaiming "Fools! your Reward is neither Here nor There." For 10 points each:

[10] A description of a "moving finger" that "writes: and, having writ, moves on" and an expression of a desire for "a jug of wine, a loaf of bread, and thou" can be found in what collection of quatrains by Omar Khayyam?

ANSWER: *The* **Rubaiyat** of Omar Khayyam

[10] This English poet of "Euphranor" and a "Bird's-Eye view" of Attar's *Conference of the Birds* created the most famous translation of the *Rubaiyat*, from which all of the preceding quotes originate.

ANSWER: Edward **FitzGerald**

[10] This other Persian poet wrote several rubaiyat himself in his collection *Divan*. He intended his best known work, the *Spiritual Couplets*, to be a devotional text for fellow Sufis.

ANSWER: Jalal ad-Din Muhammad **Rumi** [or Jalal **ad-Din** Muhammad Balkhi; or **Mowlana**]

<Gupta>

8. This family was a rival of the Ravensburger Gesellschaft, and it reached its zenith in the early 16th century when it controlled Europe's copper trade. For 10 points each:

[10] Identify this German family, whose members included Jakob the Rich.

ANSWER: **Fuggers** [or **Fugger** Dynasty or House of **Fugger**]

[10] The Fuggers, like the later Rothschild family, were dominant in this industry. In the United States, the FDIC provides guarantees for customers who patronize businesses in this industry.

ANSWER: **Banking** [or **finance**]

[10] Jakob Fugger helped secure the election of this man to Holy Roman Emperor. This son of Philip the Handsome was the last Holy Roman Emperor to be crowned by a pope, and fought the Schmalkaldic League at Muhlberg.

ANSWER: **Charles V** [or **Charles I** or **Carlos V** or **Carlos I**]

<Bentley>

9. This novel's protagonist kisses her future husband, George Emerson, in a field of violets while looking for Mr. Beebe. For 10 points each:

[10] Name this novel, in which Lucy Honeychurch ends her engagement with Cecil Vyse. It opens with Lucy and Charlotte Bartlett complaining about their accommodations in the Pension Bertolini.

ANSWER: ***A Room with a View***

[10] *A Room with a View* was written by this English author, who also wrote about Adela Quested accusing Dr. Aziz of raping her in the Marabar Caves in *A Passage to India*.

ANSWER: Edward Morgan **Forster**

[10] In this Forster novel, the allure of Italy eventually entraps both Lilia Herriton and her companion Caroline Abbott, despite the interference of Lilia's brother Philip.

ANSWER: ***Where Angels Fear to Tread***

<Nutter>

10. Name this economists and economic policies who influenced Latin America, for 10 points each:

[10] This man taught the "Money and Banking Workshop" to Chilean economists that became influential in Augusto Pinochet's government. This Chicago economist promoted the free market in books like *Capitalism and Freedom* and the TV program *Free to Choose*.

ANSWER: Milton **Friedman**

[10] This man drew up a plan for Bolivia fiscal reform in 1985. He has argued global poverty can be eliminated through foreign aid in works such as *The End of Poverty* and *Common Wealth*.

ANSWER: Jeffrey **Sachs**

[10] Sachs' plan was intended to stop this phenomenon, where the value of money falls at an accelerating rate. When this occurred in 1923 Germany, prices doubled every four days.

ANSWER: **hyperinflation** [do NOT prompt or accept "inflation"]

<Bailey>

11. This novel was published posthumously after its author committed suicide near Biloxi in 1969. For 10 points each:

[10] Name this John Kennedy Toole novel about the intellectual slob Ignatius J. Reilly, who works as a hot dog vendor and as an employee at Levy Pants.

ANSWER: A **Confederacy of Dunces**

[10] A *Confederacy of Dunces* is set in this Southern city, also the setting for most of Nelson Algren's *A Walk on the Wild Side*. Reilly works in this city's French Quarter.

ANSWER: **New Orleans**, Louisiana

[10] While teaching in New Orleans, this author helped to get *A Confederacy of Dunces* published years after Toole's suicide. This man's most famous novel, also set in New Orleans, is about Korean War veteran Binx Bolling, who escapes from the world into popular culture.

ANSWER: Walker **Percy**

<Cheyne>

12. This clastic rock consists of individual pieces that are roughly two millimeters or greater in diameter. When they undergo metamorphosis, the prefix "meta-" is appended to their name. For 10 points each:

[10] Name these rocks that are distinguished from breccias due to the rounded deposits, such as boulders and pebbles that comprise it.

ANSWER: **conglomerate**

[10] Conglomerate is an example of this kind of rock, which is one of the three main classes of rock along with metamorphic and igneous.

ANSWER: **sedimentary** rock

[10] Pressure induced by metamorphosis on the sedimentary rock shale is responsible for this property of slate. This property, which comes from a Latin word meaning "leaf," is the layering visible in many metamorphic rocks.

ANSWER: **foliated** [accept word forms]

<Jose>

13. The Royal Cemetery at this site contains the tomb of Queen Puabi, and its most prominent structure, a temple, was constructed by King Nammu. For 10 points each:

[10] Identify this site northeast of Eridu, first excavated by J. E. Taylor, and later by Leonard Woolley. Its residents believed in an underworld called Irkalla.

ANSWER: **Ur** [or Tell el-**Muqayyar**]

[10] Ur had one of these terraced step-pyramid temples at its center dedicated to the goddess Nanna. Babylon had another.

ANSWER: **ziggurats** [or **ziggurat**]

[10] This chief Canaanite god was presumably encountered by Abraham when Abraham traveled from Ur to Canaan. This rain god's name simply means "Lord."

ANSWER: **Ba'al** [or **Hadad**]

<Bentley>

14. This scientist is one namesake of an equation relating the number of moles and the chemical potential to entropy, temperature, pressure, and volume. For 10 points each:

[10] Name this man who names a phase rule relating degrees of freedom and number of phases, as well as a measure of free energy defined as $H - TS$.

ANSWER: Josiah Willard **Gibbs**

[10] This equation derived from the Gibbs-Duhem equation gives the slope of a coexistence curve in terms of the latent heat of the transition and the specific volume change.

ANSWER: **Clausius-Clapeyron** equation

[10] Ehrenfest grouped phase transitions by this parameter, the lowest discontinuous derivative of free energy. It is 1 for fusion and vaporization, and 2 for ferromagnetic transitions.

ANSWER: **order** of a transition

<Chen>

15. Following the revelation of this plot, its namesake was denied a chance to serve under Lafayette on a Canadian campaign. For 10 points each:

[10] Identify this plot to replace the commander-in-chief of the Continental Army with Horatio Gates.

ANSWER: **Conway Cabal**

[10] This general was the target of the plot. In the French and Indian War, this Virginian was forced to surrender at the Battle of Fort Mifflin.

ANSWER: George **Washington**

[10] Thomas Conway was replaced as Inspector General of the Continental Army by this man. The *Regulations for the Order and Discipline of the Troops of the United States*, this man's *Blue Book*, helped professionalize the American army.

ANSWER: Friedrich Wilhelm von **Steuben** [or Baron von **Steuben** or Friedrich Wilhelm Ludolf Gerhard Augustin von **Steuben** or Friedrich Wilhelm August Heinrich Ferdinand von **Steuben**]

<Bentley>

16. This animal was likened to philosophers who know “many little things” in an essay by Isaiah Berlin, unlike “hedgehogs” who see the world through one big idea. For 10 points each:

[10] Name this animal. In another allegory for leadership, another thinker contrasted it with the lion, since it can discover traps but cannot frighten wolves.

ANSWER: **foxes**

[10] This Florentine argued that a good leader must be both lion and fox in a monograph arguing that it is better to be feared than loved, his *The Prince*.

ANSWER: Niccolo **Machiavelli**

[10] In this other book, Machiavelli drew lessons from ancient Rome to assess the challenges of running republics.

ANSWER: **Discourses on Livy** [or **Discourses on the First Ten Books of Titus Livy**; or **Discourses on the First Decade of Titus Livy**; or **Discorsi sopra la prima deca di Tito Livio**]

<Jackson>

17. Answer the following about the conservation of an endangered species, for 10 points each:

[10] In 2009, four individuals of the Northern White subspecies of this animal, which is thought to be extinct in the wild, were relocated to a conservatory in Kenya to be watched over by armed guards.

ANSWER: **rhinoceroses** [or **rhinos**]

[10] The rhinoceros is endangered because of poaching for this keratinized body part, which is an important component of traditional Chinese medicine and for the saifani handle of the Yemeni janbia dagger.

ANSWER: **horns** [do not accept answers such as “antler” or “tusk”, as these are not equivalent]

[10] John Hume has argued that the only way to save rhinoceroses from extinction is by legalizing the trade of humanely farmed rhino horns. Hume has set up a rhino farm in this country, where over 40 miners were killed during the Marikana massacre during a wildcat strike in August 2012.

ANSWER: **South Africa**

<Bentley>

18. In one scene from this play, a character who is supposedly betrothed to Christine decapitates a canary named Serena, prompting Serena's owner to fantasize about the annihilation of men. For 10 points each:

[10] Name this play in which the valet Jean and the title character pursue a scandalous relationship before the latter decides to commit suicide with a razor.

ANSWER: **Miss Julie** [or **Froken Julie**; or **Miss Julia**; or **Miss Juliet**]

[10] *Miss Julie* is by this author of the *Ghost Sonata*, a Swedish playwright who rocketed to fame on the strength of his novel *The Red Room*.

ANSWER: Johan August **Strindberg**

[10] This Strindberg character dubs Earth "Dust" and notes that humanity seems to be "half foolish and half mad" after sending his daughter Agnes down to Earth to ascertain the nature of human suffering.

ANSWER: The Voice of **Indra**

<Mehigan>

19. John Mead Howells and Raymond Hood drew inspiration from this building's Butter Tower when designing the Chicago Tribune Building. For 10 points each:

[10] Identify this cathedral, briefly the tallest building in the world from 1876 to 1880. It was also the subject of a series of paintings by Claude Monet.

ANSWER: **Rouen** Cathedral [or Cathedrale Notre-Dame de **Rouen**]

[10] This other French cathedral is held to contain the veil of the Virgin Mary. This cathedral was able to support larger-than-usual clerestory windows because, in a novel development, it was planned with flying buttresses from the outset.

ANSWER: **Chartres** Cathedral [or Notre-Dame d'**Chartres** or Cathedral of Our Lady of **Chartres**]

[10] An innovation of Gothic architecture was the use of this type of vault, in which a framework of arches is constructed first before the masonry is laid on. The pointed arches of this type of vault redirect weight downward, reducing the need for buttressing.

ANSWER: a **ribbed** vault [or **ogival** vault; prompt on "arched" vault]

<Bentley>

20. This object was legendarily delivered to Osei Tutu during a thunderstorm. For 10 points each:

[10] Identify this object, the ceremonial throne of Ashanti rulers in West Africa.

ANSWER: **Golden Stool**

[10] The Ashanti Empire was based out of this modern-day West African country. More recent leaders from this country include Kwame Nkrumah and Kofi Annan.

ANSWER: Republic of **Ghana**

[10] This British field marshal razed the Ashanti capital of Kumasi in 1873. He arrived too late to relieve Charles Gordon in Khartoum, but had more success putting down Louis Riel's Red River Rebellion.

ANSWER: Garnet Joseph **Wolseley**, 1st Viscount Wolseley of Wolseley, Baron Wolseley of Cairo and of Wolseley

<Bentley>

21. A two-dimensional version of this technique separates protein by both size and isoelectric point. For 10 points each:

[10] Name this separation method where an electric field is used to move proteins and DNA into bands of similar size. It is visualized using Coomassie blue or ethidium bromide.

ANSWER: **gel electrophoresis** [prompt on partial answer]

[10] Gel electrophoresis is used in this technique, which is used to confirm an HIV infection. In this technique, proteins are transferred to a membrane and probed with an antibody.

ANSWER: **Western** blot [or **immunoblot**]

[10] The gel used for SDS-PAGE consists of this polymer. Its formation is often triggered using TEMED and APS.

ANSWER: **polyacrylamide**

<Morlan>

22. This man controversially met with Hitler at Imatra in 1942, and succeeded Risto Ryti in his highest political office. For 10 points each:

[10] Identify this general who lends his name to a famous Scandinavian defensive formation.

ANSWER: Baron Carl Gustaf Emil **Mannerheim**

[10] Carl Mannerheim was a leader of this country, which fought the USSR in the Winter and Continuation Wars. At times it has been part of both Sweden and Russia.

ANSWER: Republic of **Finland** [or **Suomi**]

[10] In the 1920s, the League of Nations notably arbitrated Finland's dispute with Sweden over these islands in the mouth of the Gulf of Bothnia. The League found them to be over 90% Swedish in population, and thus naturally awarded them to Finland.

ANSWER: **Aland** Islands [or **Ahvenanmaa**]

<Bentley>

23. A character in this book is exiled to the planet Terminus. For 10 points each:

[10] Name this 1951 novel consisting of several short stories, the first in its namesake series. Its first story tells of Hari Seldon's development of the new field of "psychohistory," which has major implications for the Galactic Empire.

ANSWER: **Foundation**

[10] *Foundation* was written by this author, who also created the Three Laws of Robotics in his collection, *I, Robot*.

ANSWER: Isaac **Asimov** [or Isaak Yudovich **Ozimov**]

[10] This supercomputer appears in many Asimov short stories, including "Franchise," where it chooses one person to vote for the entire U.S., and "The Last Question," which ends with it creating the universe. Its name parodies a real-life early computer.

ANSWER: **Multivac** [or Multivac **AC**; do not accept "UNIVAC"]

<Cheyne>