1. The ecliptic alignment of the anisotropy (an-ICE-uh-trop-ee) in this entity could violate the Copernican principle. This entity is linearly polarized due to Thomson scattering. The gravitational redshift of photons from this entity is described by the Sachs-Wolfe effect. Its origins lie in the recombination epoch, when photons decoupled from matter. It has been mapped by WMAP and COBE and was discovered by Robert Wilson and Arno Penzias at Bell Labs. For 10 points, name this radiation with a temperature of 2.7 degrees Kelvin that permeates the universe and is a residual of the Big Bang.
ANSWER: **CMB**R [or **cosmic microwave background** radiation; or **relic** radiation]

127-13-97-02101

2. A holder of this position replaced the corrupt Simon Cameron and established a specially operated telegraph system and railway lines. The Tenure of Office Act was used to prevent that man, Edwin Stanton, from being removed from this post by the Andrew Johnson administration. After the close of World War II, this position's responsibilities were folded into the newly created Secretary of Defense. For 10 points, name this defunct Cabinet position that, prior to 1947, was in charge of most of the U.S. military.
ANSWER: secretary of **War** [do not accept "Secretary of Defense"]

121-13-97-02102

3. Linolenic (LIE-no-leen-ik) acid from this organelle is used to make jasmonic acid, and the Tic and Toc translocons help transport molecules into this organelle. This organelle contains the strongest known biological reducing and oxidizing agents in P700 and P680, respectively. This organelle likely originated as cyanobacteria which formed an endosymbiotic (END-oh-sim-bee-AH-tik) relationship with a eukaryote. It contains sacks called thylakoids which are surrounded by the stroma, where the Calvin cycle occurs. For 10 points, name this chlorophyll-containing organelle found in plants.
ANSWER: **chloroplast**s [prompt on **plastid**s]

237-13-97-02103

4. The head of this company attempted to create the South Improvement Company to control its shipments. Three ships belonging to this company were destroyed in the Panay incident. A political cartoon shows a baby Teddy Roosevelt wrestling with a snake representing this entity. A series of articles about this company published in *McClure's* magazine were written by Ida Tarbell. This company was found to be in violation of the Sherman Antitrust Act, leading to its split into companies including Conoco and Chevron. For 10 points, name this company headed by John D. Rockefeller.
ANSWER: **Standard Oil** Company

048-13-97-02104

5. After this battle, Gregorio Esparza was the only member of the losing side to receive a burial. William Barrett Travis wrote several letters requesting additional reinforcements before this battle. This battle became part of a slogan along with the similar Goliad massacre. Pneumonia caused Jim Bowie to be confined to bed during this battle, but Davy Crockett and the other defenders fought to the last man against Santa Anna. For 10 points, name this battle of the Texas Revolution in which a Mexican army massacre defenders of the namesake mission in San Antonio.
ANSWER: Battle of the **Alamo**

239-13-97-02105

6. This state has the largest sea cave in the United States, which has a two-hundred-foot elevator down to its lookout to watch Steller sea lions. This state is the westernmost of the two states that do not allow most drivers to pump their own gas. A 125-foot column inspired by Trajan's column is located in this state's city of Astoria. The Phantom Ship and Old Man of the Lake are both located in this state, where a caldera filled with water, creating Crater Lake. For 10 points, name this state in the Pacific Northwest where the Willamette Valley was the end of a namesake pioneer trail.
ANSWER: **Oregon**

7. The point group for this molecular geometry has a symmetry order of twenty-four and is called T sub d. This geometry is present in every carbon atom of cyclohexane (SIKE-lo-HECKS-ain), but none of the carbon atoms of benzene. The polyatomic ions sulfate and phosphate have this geometry. All alkanes have this geometry, and although it is not bent, molecules with this geometry have bond angles of 109.5 degrees. For 10 points, identify this geometry with four attached atoms and no lone pairs, which is the geometry of methane.
ANSWER: **tetrahedral** geometry

8. In a play by this man, the title character uses Bajazeth (BAH-juh-zeth) as a footstool and woos Zenocrate (zee-NAH-kruh-tay). This playwright wrote a prologue spoken by Machiavel in a play where the title character has his servant Ithamore deliver poisoned porridge to his daughter Abigail's convent. This author of *Tamburlaine the Great* wrote an influential play about a scholar who sells his soul to Mephistophilis. For 10 points, name this Elizabethan playwright of *The Jew of Malta* and *Doctor Faustus.*
ANSWER: Christopher **Marlowe**

9. In many countries, this subject is replaced by the "voseo" (voh-SAY-oh). In Spanish, affirmative commands with this subject connect the direct object to the end of the verb, and are usually conjugated with the third-person singular present tense. In the preterite (PRET-uh-rit), verbs with this subject end in "-aste" (AH-stay) or "-iste" (EE-stay). This subject should be used instead of "usted" (oo-STED) only in informal situations. For 10 points, identify this second-person singular subject, the Spanish word for "you."
ANSWER: **tú**

10. One of this author's narrators revels in his toothache and liver problems, explaining the joy that smart men find in inertia before recalling a night with the prostitute Liza. In another novel by him, an atheist college student tells of Jesus's imprisonment in the parable of the Grand Inquisitor. This author of *Notes from Underground* also created Smerdyakov (SMUR-juh-koff), who lives with his legitimate brothers Dimitri, Ivan, and Alyosha. For 10 points, name this Russian author of *The Brothers Karamazov* and *Crime and Punishment.*
ANSWER: Fyodor **Dostoevsky**

11. One of these two divine characters sent a giant crab named Carcinus (car-KEEN-us) to attack the feet of the other. The Milky Way originated from the breast of one of these two characters after she angrily stopped suckling the other. One of these mythical beings tried to prevent the other's birth by tying up Alcmene's (alk-MEE-neez) legs. When that failed, she dispatched two snakes to kill the other of these characters. For 10 points, name both the cow-eyed Greek goddess and the strongman she forced to perform twelve labors.
ANSWER: **Hera** and **Heracles** [or **Juno** and **Hercules**; or **Hera** and **Hercules**; or **Juno and Heracles**; any combination of acceptable answers may be given in either order, but do not accept or prompt if only one answer is given]

12. In a novel by this man, Richard Elster is the subject of a documentary by Jim Finley. This author of *Point Omega* wrote a novel in which Bill Gray travels to Beirut, entitled *Mao II.* This author of *Libra* wrote about waste management executive Nick Shay in his longest novel. In his most famous book, Jack Gladney is a professor of Hitler Studies who must contend with an "airborne toxic event." For 10 points, name this postmodern American novelist of *Underworld* and *White Noise.*
ANSWER: Don **DeLillo**

13. This concept is the first word in the title of a Sigmund Freud book that explains why the homosexual Dora feels revolted by Herr K. The "latent" form of this concept results from exposure to the conditioned stimulus before beginning a classical conditioning experiment. Clark Hull theorized a "reactive" form of this concept. If an animal learns that the presence of a conditioned stimulus signifies the lack of the unconditioned stimulus, this form of conditioning is said to have occurred. For 10 points, name this suppression of behavior that is contrasted in conditioning with excitation.
ANSWER: **inhibition**s [or **inhibitory**]

14. The poems of the Pearl Poet commonly use a repeating unit of this many lines called the bob-and-wheel. Sapphic stanza includes this many syllables in the final line of the poem. The first and third lines of a tanka poem contain this many syllables. This is the number of ancient Confucian classics. Blank verse contains this many metrical feet per line. Most of Shakespeare's plays have this many acts. The first and last line of a haiku have this many syllables. For 10 points, name this number of lines in a limerick.
ANSWER: **five**

15. The value for the glass transition in polymers is often found using a differential scanning variety of these devices. A sample is placed in a combustion crucible and ignited in the most common type of these devices found in labs, the bomb. A simple example of these devices can be created by nesting two styrofoam cups and capping them with a lid that has two holes, for a thermometer and stirrer. For 10 points, identify these devices that are used to measure the heat of a reaction and heat capacity of materials.
ANSWER: **calorimeter**s

1A. What father of Umberto I became the first king of a united Italy in 1861?
ANSWER: **Victor Emmanuel II** [prompt on partial answer]

1B. Which Pauline epistle, the longest, declares that "Death is the wages of sin?"
ANSWER: Epistle to the **Romans**

2A. What company made a leap as a content provider by distributing the original series *House of Cards* and airing the fourth season of *Arrested Development?*
ANSWER: **Netflix**

2B. What kind of simple diagram uses arrows to represent all the forces acting on a central object?
ANSWER: **free-body** diagram

3A. This is a 20-second calculation question. If A equals 6 and B equals 7, what is the value of the quantity A squared minus 2 A B plus B squared?
ANSWER: **1**

3B. This is a 20-second calculation question. Parallel lines AB and CD are intersected by line EF at points G and H, respectively. If angle AGE measures 20 degrees and angle DHF is acute, what is the measure of angle DHF?
ANSWER: **20** degrees

4A. What name did Andy Warhol give to his New York studio?
ANSWER: the **Factory**

4B. What letter is used to represent the equilibrium constant in chemistry and thermal conductivity in physics?
ANSWER: **k**

5A. Jose Marti (mar-TEE) is a revolutionary poet and national hero from what country?
ANSWER: **Cuba** [or Republic of **Cuba**]

5B. What mathematician developed a namesake "rule of signs" for determining the number of roots of a polynomial?
ANSWER: Rene **Descartes**

6A. What kind of computer program transforms source code into object code, to make it executable?
ANSWER: **compiler**

6B. What treatise defends the absolute rule of kings and calls the life of man "nasty, brutish, and short?"
ANSWER: *Leviathan*

7A. The terrorist group Al-Shabab (shuh-BOB) killed over sixty people in a 2013 attack on the Westgate Mall in what African country?
ANSWER: **Kenya**

7B. What American humorist wrote such novels as *Pudd'nhead Wilson* and *A Connecticut Yankee in King Arthur's Court?*
ANSWER: Mark **Twain** [or Samuel Langhorne **Clemens**]

8A.  What reclusive American poet wrote "My Life had stood - a Loaded Gun" and "Safe in their Alabaster Chambers?"
ANSWER: Emily **Dickinson**

8B.  What rookie quarterback led the New York Jets to an 8-8 record in 2013 after leaving West Virginia University?
ANSWER: Geno **Smith**

9A.  This is a 30-second calculation question. If you repeatedly roll two fair dice, what is the probability of rolling a seven before rolling a six?
ANSWER: **6/11**

9B.  This is a 30-second calculation question. Tommy walks a certain distance around a circular track. Evan walks, at the same speed, from the same starting point to the center of the track and then to a different point on the edge of the track. If Evan exactly meets up with Tommy again, then at what angle, in degrees, must Evan turn when he reaches the center? Express your answer in terms of pi.
ANSWER: **360/pi** degrees

10A.  What name was given to the subjugated slave-like class of people who did most of the agricultural work in ancient Sparta?
ANSWER: **helot**s

10B.  What monk founded genetics with his experiments on pea plants?
ANSWER: Gregor **Mendel**

1. Before giving a speech on this river, an Englishman was mysteriously found dead in Neston Park in 1864. It forms a swamp known as the "Sudd," which widens into a floodplain at the Bahr al Jabal (BAR ahl juh-BALL). This river's source was the subject of a debate between British explorers John Speke and Richard Francis Burton, and one of its tributary sources is located at Lake Tana. Its major tributaries are the "White" and "Blue," which meet up at Khartoum. The Aswan High Dam is built on this river. For 10 points, name this African river, the longest in the world.
ANSWER: **Nile** [or White **Nile**; or Blue **Nile**]

052-13-97-02117

2. Materials with this property exhibit a phenomenon in which heat is transferred by waves called second sound, resulting in a material with this property having the highest known thermal conductivity. In 2004, a team at Penn State first witnessed this property in a solid, which at first was thought to be a Bose-Einstein condensate. Materials with it can form a thin Rollin film and creep out of a container. This property is observed below a sharp discontinuity at 2.17 Kelvin, the lambda point. For 10 points, name this property observed when viscosity goes to zero at low temperatures.
ANSWER: **superfluid**ity

064-13-97-02118

3. George Balanchine re-choreographed this ballet specifically for Gelsey Kirkland. Some characters in this ballet perform a "round dance" and play a game with golden apples. Leopold Stokowski was renowned for his recordings of the berceuse (BARE-soo-zuh), the infernal dance, and other highlights from three suites excerpted from this ballet. Its protagonist destroys an egg holding the immortality of his enemy, and sees thirteen dancing princesses before encountering the title creature in the realm of Kaschei (kuh-SHAY) the Immortal. For 10 points, name this Stravinsky ballet about Prince Ivan.
ANSWER: The ***Firebird*** [or L'***oiseau de feu***; or ***Zhar-ptitsa***]

020-13-97-02119

4. Peter Cooper created this product, but he and Pearle B. Wait failed to popularize it before Orator Woodward succeeded. A 1993 test at Saint Jerome Hospital in Batavia confirmed the claim of Adrian Upton that an EEG on this substance could display the same brain waves as a human. Cecil B. DeMille used this product in *The Ten Commandments* to depict the parted waters of the Red Sea. This official state snack of Utah was once available in celery flavor, but its original four flavors were lemon, orange, strawberry, and raspberry. For 10 points, name this Kraft-brand gelatin.
ANSWER: **Jell-O** [prompt on **gelatin** until it is read]

023-13-97-02120

5. In a novel written in this language, the dog Karenin dies of cancer while Tomas cheats on Sabina with Tereza. That novel written in this language is *The Unbearable Lightness of Being*. A play written in this language describes Hugo Pludek's rise to the head of the Liquidation Office. That play in this language was written by a prominent politician and is titled *The Garden Party*. For 10 points, name this language used by Vaclav Havel and Milan Kundera, who set many of their writings in Prague.
ANSWER: **Czech** language [or **Bohemian**]

233-13-97-02121

6. This artist painted *San Giorgio Maggiore* (MUH-jor-ay) *at Dusk* during his 1908 trip to Venice. Louis Leroy mocked this artist's painting of a boat completely in black rowing toward the shore, illuminated by a very bright orange sun. In two series, he painted the Houses of Parliament and the Rouen (WOO-ahn) Cathedral at different times of day. This artist painted *The Japanese Bridge* near his home in Giverny (JIV-air-nee). His popular subjects included poplars and haystacks. For 10 points, name this painter of *Impression, Sunrise* and many depictions of water-lilies.
ANSWER: Claude **Monet**

7. This word describes a type of anucleated (EY-nook-lee-ate-ed) tube element used to transport carbohydrates through the phloem of vascular plants, as well as the plate that separates those tube elements. In chemistry, microporous alumino-silicates called zeolites (ZEE-oh-lites) act as a molecular type of this device. An ancient algorithm for finding prime numbers by systematically crossing out multiples of primes is named for one of these things of Eratosthenes (air-uh-TOSS-thuh-neez). For 10 points, name this device that can be used to mechanically separate tiny solids from liquids.
ANSWER: **sieve**

8. This short story features a secret which is found out by "gold, and the power of a woman's will." Its main character is accused of romancing the daughter of his "semi-barbaric" king. In this short story, the princess tells the main character to choose the right-most option in a ceremony which will end in either death or marriage to another woman for the protagonist. For 10 points, name this short story by Frank R. Stockton in which two identical doors conceal the title options.
ANSWER: "The **Lady, or the Tiger?**"

9. This politician's 1971 election bid was grounded in a slogan for "eliminating poverty." She put her son in charge of an aggressive family planning program which controversially included sterilization quotas. She died en route to an interview with Peter Ustinov. Her authorization of Operation Blue Star, which was an attack on the Golden Temple of Amritsar, ultimately led to her assassination by her own Sikh bodyguards, after which she was succeeded by her son Rajiv. For 10 points, identify this daughter of Jawaharlal (jah-WAH-hur-lol) Nehru and first female prime minister of India.
ANSWER: **I**ndira Priyadarshini **Gandhi** [prompt on **Gandhi**]

10. A story by this man is named for a phrase used by Brooklyn Dodgers announcer Red Barber. That story of his features Erwin Martin's attempt to orchestrate the firing of Ulgine Barrows for upsetting office efficiency. This author of *My Life and Hard Times* and "The Catbird Seat" wrote about a title character who daydreams that he is a surgeon, a marksman, and a fighter pilot. For 10 points, name this humorist who wrote "The Secret Life of Walter Mitty."
ANSWER: James **Thurber**

11. These compounds can be chlorinated using S–O–Cl 2 or brominated using P–Br 3. Both PCC and the Jones reagent oxidize these compounds to ketones. Though not amines (AA-meenz), the number of carbon atoms attached to their defining functional group determines whether they are primary, secondary, or tertiary. An example of these compounds is generated along with carbon dioxide when yeast enzymes consume glucose. These compounds have a hydroxyl group bounded to carbon atom. For 10 points, name these compounds whose examples include methanol, ethanol, and a type of isopropyl.
ANSWER: **alcohol**s

12. This man's government executed leaders of the "milk strike," and he attempted to advance a new philosophy he called "universism." As Minister of Defense under Peder Kolstad, this man became notorious for putting down a strike of hydroelectric workers. After forming the National Union Party in 1933, he never won a seat in the Storting. He served as Prime Minister under Josef Terboven, who led the occupation of his country. For 10 points, name this Norwegian officer who collaborated with the Nazis, and whose name has become a noun meaning "traitor."
ANSWER: Vidkun **Quisling**

13. This economist co-authored the paper "What Makes Advertising Profitable?" with William Adams and addressed the efficiency wage hypothesis in several papers written with George Akerlof. In November 2013, this person told Bob Corker that she would have the courage to "prick bubbles." She accumulated support for her current position after Lawrence Summers withdrew from consideration. This former chair of Bill Clinton's Council of Economic Advisers was confirmed in January 2014 to succeed Ben Bernanke. For 10 points, name this woman who became the new Chairman of the Federal Reserve Board.
ANSWER: Janet **Yellen**

14. This building was broken into several times by a youth known as "the boy Jones." Unlike similar locations such as Sandringham and Balmoral, it is not owned by an individual but rather the state. The Golden State Coach is located adjacent to this building at the John Nash-designed Royal Mews. During a war, a queen said she was glad this location was bombed because she could "look the East End in the face." The ceremony of "changing the Queen's Life Guard" occurs here. For 10 points, name this palace in London, the residence of the British monarch.
ANSWER: **Buckingham** Palace

15. The enzyme named after these things is absent in Cri du chat (CREE do sha) syndrome and was discovered in *Tetrahymena*. That enzyme, hTERT, adds TTAGGG to the ends of these things in humans, similar to what occurs in cancer cells. These things are subject to the end replication problem, and when very short, they lead to cellular senescence (suh-NESS-unce). The discovery of these things by Elizabeth Blackburn explained Leonard Hayflick's theory that cells could only divide a finite number of times. For 10 points, identify these series of repeating nucleotides at the ends of chromosomes.
ANSWER: **telomere**s

1. The second section of this novel intersperses events such as Prue's death in childbirth with the decay of a house. At the beginning of this book, James imagines killing his father because he insists the weather will be bad. The matriarch of the central family dies abruptly in this novel's section "Time Passes." In this novel, Lily Briscoe finally completes her painting and the Ramsays take a boat to the title structure. For 10 points, name this novel by Virginia Woolf.
ANSWER: *To the Lighthouse*

191-13-97-02132

2. This structure is located within the sella turcica. Cysts can be found in the pars intermedia, which separates this structure's anterior and posterior sections. Cancer of this structure often leads to excess levels of ACTH and Cushing's disease. It is connected to the hypothalamus through the infundibulum (IN-fun-DIB-yoo-lum). It secretes hormones like oxytocin (OCK-see-TOH-sin) and vasopressin, or ADH, to regulate different systems in the body. For 10 points, name this gland in the brain, an important part of the endocrine system.
ANSWER: **pituitary** gland

140-13-97-02133

3. Calculations involving this force can be improved by using the Bouguer (boo-JAY) or free-air corrections. An equipotential surface for this force is the geoid (JEE-oyd), the shape the oceans would take if they covered the Earth. A constant used in calculations with this force is equal to 6.67 times 10 to the minus 11. Because the Earth is an oblate spheroid, calculations involving this force deviate from Newton's law. For 10 points, name this attractive force that causes things to flow or fall towards the Earth's center.
ANSWER: **gravity**

066-13-97-02134

4. In this play, a character is told to find a Spanish costume in order to court the sister of Kastril, while another is blindfolded and humiliated in order to meet the "Queen of Fairy." The protagonist of this play deals with such characters as the tobacconist Drugger, the wealthy Sir Epicure Mammon, and the clerk Dapper, who wants to summon a familiar. In this play, Lovewit's butler Jeremy poses as Captain Face to join the con artist Subtle. For 10 points, name this Ben Jonson play featuring characters who desire the philosopher's stone.
ANSWER: The *Alchemist*

052-13-97-02135

5. Sonia Johnson was excommunicated by the Mormon church for supporting this initiative, which is the subject of the legally controversial "three-state strategy." Five states which ratified this law re-voted to rescind ratification in the subsequent years. This initiative was campaigned against by the Eagle Forum of Phyllis Schlafly, and this amendment's text was written by Alice Paul in 1923, even though it picked up support in the 1970s. For 10 points, identify this bill outlawing all discrimination based on sex, which fell just short of becoming a Constitutional amendment.
ANSWER: the **ERA** [or **Equal Rights** Amendment]

019-13-97-02136

This is a calculation question. In triangle VCU, altitude VO has length 9 units. If the side lengths of VCU are all integers, what is the smallest possible length of CU?
ANSWER: **24** units

What composer of the serenade *Eine Kleine Nachtmusik* (EYE-nuh KLAI-nuh NOKT-myoo-zik) had his requiem finished by Franz Sussmayer after his death?
ANSWER: Wolfgang Amadeus **Mozart**