1. The Kakutani fixed point theorem applies to functions operating on subsets of this. The standard formulation of the Vitali covering lemma has a collection in this as its subject. Transformations in these are called rigid motions. One way to generalize length to subsets of this is the Lebesgue measure. Each point in a manifold has a neighborhood that is homeomorphic to a set in one of these. The linear combinations of either the rows or columns of a real valued matrix make a closed, zero containing subset of this. It is a metric space whose metric function is the Pythagorean theorem for its dimension and its inner product is the dot product. For 10 points, name these spaces symbolized by a blackboard capital R to the n, which are named for the Greek author of the *Elements*.

ANSWER: **Euclidean** Space [prompt on **metric space**]

001-11-30-13102

2. This city joined Peschiera, Verona, and Legnago in a group of symbiotic Austrian fortresses known as the "Quadrilateral." After the death of Matilda of Canossa, this city was led by the Bonacolsi family. One ruler of this city was Francesco II, who cheated on his wife Isabella d'Este with Lucrezia Borgia. Dagobert von Wurmser proved unable to defend this city from the forces of Napoleon Bonaparte in a 1796 to 1797 siege that led to the Treaty of Campo Formio. The Treaty of Cherasco ended a 1628 to 1631 war between France and the Holy Roman Emperor over control of this city after the death of its ruling Gonzaga line. For 10 points, name this Lombard city.

ANSWER: **Mantua**

015-11-30-13103

3. This thinker argued that children begin by stating "observation sentences," then move on to "observation categoricals." He argued that many theories could adequately describe the world in his idea of "ontological relativity." In another thought experiment, he argued that one cannot know whether the word "gavagai" means "rabbit" or "let's go hunting." This man analyzed the sentence "All bachelors are unmarried" to reject the analytic/synthetic distinction, and he proposed the Indeterminacy of Translation thesis. For 10 points, name this philosopher who wrote *Two Dogmas of Empiricism*.

ANSWER: Willard van Orman **Quine**

080-11-30-13104

4. This right was ruled against in the context of fugitive slave laws in the case *Ableman v. Booth*. A campaign of this name was launched by James Hamilton, Jr., but was opposed by William Drayton and Robert Hayne. This doctrine was put forth in a report commissioned by William Preston and prompted the retaliatory Force Bill. Spelled out in the "South Carolina Exposition and Protest," it was first called for in the Kentucky and Virginia Resolutions. It was the namesake of a "crisis" following the Tariff of Abominations. For 10 points, name this action advocated by Thomas Jefferson, James Madison, and John C. Calhoun that supported the invalidation of an unconstitutional law by a state.

ANSWER: **nullification**

020-11-30-13105

5. The equation for the BET isotherm can be derived by adding, for the first and second layers, these values of condensation and evaporation. The Lindemann mechanism accurately correlates the changing concentration of reactants with this value. Two ratios of constants involved with this value are related by the Swain equation, which quantifies the differences of this parameter for hydrogen versus deuterium and tritium, illustrating the isotope effect that affects this parameter. The Eyring equation also quantifies this parameter, which is related by a power of the concentration of the reactants equal to the order of the reaction. The Arrhenius equation also determines, for 10 points, what value, the speed of a reaction?
ANSWER: reaction **rate** [accept reaction **rate constant** since many clues are referring to equations to obtain it]

6. In a short story by this author, Michael erects a barbed wire fence alongside the namesake walkway near the school he supervises. Besides "Dead Men's Path", he wrote of his country's civil war in "Girls at War" and wrote of Jonathan being robbed after converting his money into egg-rashers in "Civil Peace." In one of his novels, a heated battle between the Okperi and Umuaro is stopped by Captain Winterbottom. That work centers on a priest of the god Ulu named Ezeulu and is titled *Arrow of God*. In his best known work, the protagonist executes Ikemefuna and is sent into exile for seven years after his gun accidentally explodes. For 10 points, name this creator of the character Okonkwo, the Nigerian author of *Things Fall Apart*.
ANSWER: Chinua **Achebe**

7. This man included the section "Why the Mediator Had to Be True God and True Man" in a twenty-one-part confession that he wrote in 1560. Earlier, he had violated canon law by carrying a two-handed greatsword while serving as bodyguard to George Wisehart. After returning from Geneva, he never completed his two planned sequels to a work which caused his falling-out with Elizabeth I by claiming that the Bible forbade women from ruling over men, known as the *First Blast of the Trumpet.* This influential member of the "kirk" preached for what became Presbyterianism. For 10 points, identify this Protestant reformer who was active in Scotland.
ANSWER: John **Knox**

8. This artist depicted his wife sitting in a car and painting a mountain in his painting *Jo in Wyoming*. His *Two Comedians* shows the title figures clad in white holding hands on a stage. He depicted a pensive, blond woman in a blue uniform leaning against the wall of a theater in one of his works, and painted a row of businesses, including a barber's shop, in another. In addition to his *New York Movie* and *Early Sunday Morning*, this artist painted a pair of women having lunch with parts of the title sign visible through the window in *Chop Suey*. For 10 points, name this American painter, best known for depicting a group of nocturnal diner patrons in *Nighthawks*.
ANSWER: Edward **Hopper**

9. This poet implores "to the flowing water say: I am" in a sonnet addressed to "[a] silent friend of many distances." Another poem describes a creature whose vision "has grown" weary" from pacing so it "seems to him there are a thousand bars." This poet wrote about "eyes like ripening fruit" and a object "still suffused with brilliance" in a poem ending with the assertion "You must change your life." He wrote "thing-poems" such as "The Panther" and penned a collection discussing the "City of Pain" and Picasso's painting of acrobats that frequently mentions Gaspara Stampa. This poet of "Archaic Torso of Apollo" also dedicated a collection to Vera Knoop. For 10 points, name this German poet who asked, "Who, if I cried out, would hear me among the angelic orders?" in *The Duino Eligies*.
ANSWER: Rainer Maria **Rilke**

10. A highly endangered species of crocodile is restricted to the basin of this river as well as that of the Meta River. Tributaries of this river include the Caura, the Atabapo, and the Apure, as well as the Arauca. Another tributary of this river joins it near a waterfall whose name is Spanish for "drizzle." That tributary, whose source is in the Guiana Highlands, is the Caroní River. The Casiquiare Canal connects this river to the Rio Negro, thus connecting it to the Amazon system. For 10 points, name this river of Venezuela.
ANSWER: **Orinoco** River

11. This man showed how interaural level differences and interaural time differences lead to sound localization. He first mathematically described the instability of a denser fluid when placed above a less dense fluid, an instability co-named for Taylor. The viscosity and thermal diffusivity appear in the denominator of his namesake number, which is low when conduction occurs and high when convection occurs. For a circular aperture, 1.22 times the wavelength divided by the aperture's diameter yields this man's criterion, which gives the minimal angular separation required to resolve two separate images. When the natural frequency of the atom is much greater than that of incident radiation, his namesake scattering occurs. For 10 points, name this physicist who won the 1904 Nobel Prize for the discovery of argon.
ANSWER: John William **Strutt**, Lord **Rayleigh** [accept either]

12. One of this deity's exploits was witnessed by Battus, a shepherd this deity turned into stone. Statues of this deity often showed a head on top of a uniform stone pillar, where genitalia were attached at an appropriate position; Alcibiades was accused of desecrating those statues. This deity's son with Aphrodite was so beloved by the nymph Salmacis that the gods made them one being, male and female. Offspring of this deity include a satyr conceived with the nymph Dryope named Pan. This deity once stole the cattle of Apollo. For 10 points, name the messenger of the Greek gods.
ANSWER: **Hermes** [or **Mercury**]

13. The second of Felix Mendelssohn's three Opus 16 fantasies for piano is one of these pieces. Chopin wrote four unusually dark examples of these pieces, including his Opus 20 and his Opus 31. Mendelssohn's incidental music to *A Midsummer Night's Dream* includes one of these pieces after the overture. The third movement of nearly all of Bruckner's symphonies is one of these pieces, since it was the main form of the third movement of the Romantic symphony. Beethoven's symphonies replaced the minuet with one of these pieces, which is usually played quickly and humorously. For 10 points, identify this type of piece, whose name is Italian for "joke."
ANSWER: **scherzo** [or **scherzi**]

14. A massacre by this nation's army of students was recorded in a 1971 work by Elena Poniatowska. This nation had a severe 1994 economic crisis known as the "December mistake." One person from this country wrote the children's book *The Story of Colors* and is the leader of a movement called "The Other Campaign." That figure always wears a ski mask, holds the title "Sub commander," and was inspired by a 1968 massacre in his country shortly before the Summer Olympics. This country was led by Ernesto Zedillo and Carlos Salinas, both members of a party in power nearly 70 years. For 10 points, name this country that saw the dominance of the PRI end in 2000 with the election of Vicente Fox.
ANSWER: **Mexico** [or United **Mexican** States; or Estados Unidos **Mexicanos**]

15. The largely ignored published version of this poem substitutes "wild sad eyes" for the eighth stanza phrase "wild wild eyes." The protagonist of this poem makes an accessory called a "fragrant zone." One of its characters has a lily on his brow and a fading rose on his cheeks. Its opening stanza describes a lake where sedge has withered and no birds sing. Its tenth stanza describes "pale kings and princes" who sing that the title character "hath thee in thrall." It describes the encounter between a knight and an elusive lady referred to as a "faery's child," and partially takes place in an "elfin grot." For 10 points, name this poem by John Keats whose French title translates as "The Beautiful Lady Without Pity."
ANSWER: "La **Belle Dame Sans Merci**"

16. This program was supervised by the Medium Machine Building Ministry, and it was faciliated by removing the city renamed "Arzamas 16" from maps. A major leap in this program, whose first output was "Joe-1," was made when the "first idea" and "second idea" were combined in the "layer cake" device. Intelligence was provided to this program by the spy Klaus Fuchs, and that information was added to the research of Yakov Zeldovich and Andrei Sakharov to produce items such as "Tsar Bomba." For 10 points, identify this weapons program which, like its American counterpart, was ultimately restricted by START, SALT, and other anti-proliferation treaties.
ANSWER: the **Soviet nuclear** weapons program [or anything in the ballpark]

17. The Munro-Kellie hypothesis concerns a decrease in volume of this substance upon injury, and the Dandy Walker malformation obstructs the flow of this substance. The beta-2 transferrin assay is used to detect this substance, and infection by Cryptococcus neoformans causes the pressure of this substance to increase. Oligoclonal bands appear in this substance in sufferers of multiple sclerosis, and this substance is produced in the choroid plexus before flowing through a series of four ventricles. It occupies the subarachnoid space. A lumbar puncture is commonly used to collect this substance, which makes up seven percent of the volume of the skull. For 10 points, name this clear substance that cushions the brain and spinal cord.
ANSWER: **cerebrospinal fluid** [or **CSF**]

18. This man's suite of music written to honor an Austrian composer was adapted into the ballet *Mozartiana* by George Balanchine. This composer is said to have been annoyed when Alexander III called one of his ballets "very nice." That ballet contains the "Garland Waltz" and the "Procession of the Fairy Tales," and features leitmotifs representing Carabosse and the Lilac Fairy. In addition to *The Sleeping Beauty*, he composed a ballet in which Odette is transformed into a bird by the curse of Rothbart, as well as one which includes the "Dance of the Mirlitons" and the "Dance of the Sugar Plum Fairy." For 10 points, name this composer of the ballets *Swan Lake* and *The Nutcracker*.
ANSWER: Pyotr Ilyich **Tchaikovsky**

19. This thinker called the gratification of emotions "affectivity" which he contrasted with "neutrality" in his discussion of "pattern variables." His students Wilbert Moore and Kingsley Davis expanded his educational theories about people finding the appropriate job in society to create the theory of role allocation. He outlined adaptation, goal attainment, integration, and latency as the four components of his "AGIL" paradigm and his best-known work offers a "voluntaristic" methodology to define the "unit act." For 10 points, name this Harvard sociologist who pioneered his action theory in *The Structure of Social Action*.
ANSWER: Talcott **Parsons**

20. This novel's protagonist gets revenge on the dog Bonkers for biting off part of his ear as a child by biting off its ear. One character is a former tight end for the Cleveland Browns who undergoes a sex-change operation and is named Roberta Muldoon. Michael Milton's penis is mostly bitten off by the main character's wife Helen Holm in the same car wreck that kills his son Walt. The protagonist's mother is assassinated when she becomes a feminist leader after writing her autobiography *A Sexual Suspect*. The nurse Jenny Fields names the title character after the ball turret gunner who impregnated her, who she calls the "Technical Sergeant." For 10 points, name this novel whose title character is is the author of *The Pension Grillparzer*, written by John Irving.
ANSWER: *The **World According to Garp***

21. One of these is given by the gyromagnetic ratio times the angular momentum vector crossed with the magnetic field; that form of this phenomenon can cause the precession of the magnetic moment at the Larmor frequency. A set of "planetary" gears, beginning with a "sun" gear, comprise a device that acts as a "multiplier" of this quantity. When two applied force vectors oppose one another, they form a couple and their moment is known as this term. Power is the dot product of angular velocity at this quantity A second condition of static equilibrium is that in addition to force, the sum of these terms must be zero. This term is computed by taking the cross product of lever arm and force. For 10 points, identify this rotational analog of force.
ANSWER: **torque** [accept **moment** until mentioned]

22. This man spent part of his later life advocating a "Danubian federation" which would include Romania, Serbia, and Croatia. He first became politically active by distributing handwritten letters describing the proceedings of the "long Diet," and his later career included opposition to the Augsleich in the Cassandra letter. He became a national leader following a Croatian invasion and the fall of the Batthyany government, and after his own deposition, learned English from reading Shakespeare. For 10 points, name this beneficiary of the revolutions of 1848, who led the nationalists of Hungary.
ANSWER: Lajos **Kossuth**

23. The main character of this play hides money in the wainscoting of his house after the notary Bonnefoi tells him he can't will his assets to his wife. Beralde brings in a troupe of performing gypsies in an attempt to warm the heart of the protagonist, who is incensed to find his daughter's suitor posing as her music teacher. The main character is impressed by the histrionic speeches of Thomas Diaforious and Dr. Purgon. The maid Toinette helps the title character fake his death, which allows him to learn that his wife Beline is only after his money. This play ends when the title character allows his daughter Angelique to marry her beloved Cleante. For 10 points, name this Moliere play about Argan, the title hypochondriac.
ANSWER: *The **Imaginary Invalid*** [or *Le **Malade Imaginaire***; accept *The **Hypochondriac*** before "hypochondriac" is read]

1. He is shot while his mother haggles with soldiers over the price of the bribe to secure his freedom. For 10 points each:
[10] Name this character serving as an army paymaster who is executed by Catholic soldiers when he refuses to reveal the location of his regiment's cashbox.
ANSWER: **Swiss Cheese** Feyos
[10] Swiss Cheese is the younger son of Anna Fierling, the title character of this play who follows the army around in her wagon selling various goods during the 30 Years War.
ANSWER: *Mother Courage and Her Children* [or *Mutter Courage und Ihre Kinder*]
[10] Identify this German playwright of *Mother Courage and Her Children* who also wrote *The Rise and Fall of the City of Mahagonny*.
ANSWER: Bertolt **Brecht**

094-11-30-13201

2. Paul Draper's take on this issue is his "hypothesis of indifference," inspired by Hume's insistence that one cannot conclude that the world has a pure cause either way in *Dialogues Concerning Natural Religion*. For 10 points each:
[10] Identify this philosophical problem that asks how the title concept can be present when there is an omnipotent God.
ANSWER: problem of **evil**
[10] This philosopher used the example of Job to suggest that man's suffering is God's suffering. His Gifford and Hibbert lectures were compiled into *The World and the Individual* and *The Problem of Christianity*.
ANSWER: Josiah **Royce**
[10] Another response to the problem of evil involves the negation of this seemingly optimistic solution proposed by Leibniz for his theodicy.
ANSWER: there is no **best of all possible worlds**

020-11-30-13202

3. After being on the losing side of World War II, members of this group undertook a forced march known as the Bleiburg Massacre. For 10 points each:
[10] Name this Croation nationalist group that opposed the Chetniks, whose goals were explicitly stated in 1941 as "a third of Serbs should be killed, a third converted to Catholicism, and a third deported."
ANSWER: **Ustase** [or **Ustashe**; or **Ustasha**]
[10] Of course, the Serbs were trying to do their own version of ethnic cleansing - this Serb was arrested on May 26, 2011 for war crimes including orchestrating the Siege of Sarajevo and the 1995 Srebrenica massacre.
ANSWER: Ratko **Mladic**
[10] Not to be outdone, this Communist leader unsuccessfully attempted to eradicate both Croat and Serb nationalists in Yugoslavia during his several-decade rule that ended with his 1980 death.
ANSWER: Josep Broz **Tito**

003-11-30-13203

4. It concludes with the two main characters singing the love duet "Ist Ein Traum." For 10 points each:
[10] Name this comic opera in which Baron Ochs tries to woo Sophie by having Octavian present the title object to Sophie, only to have her fall in love with Octavian.
ANSWER: Der **Rosenkavalier** [or The **Knight of the Silver Rose**]
[10] This German man composed *Der Rosenkavalier* and *Also Sprach Zarathustra*.
ANSWER: Richard Georg **Strauss**
[10] This sadomasochistic Australian composer wrote a "Ramble on the Last Love Duet in *Der Rosenkavalier*" and arranged an English folk tune in his piano piece "Country Gardens."
ANSWER: Percy **Grainger**

5. This process may occur due to bottleneck events. For 10 points each:
[10] Identify this process of forming new types of organism that occurs because of evolution. Its sympatric form occurs when a single parent organism forms two new ones in a geographic area.
ANSWER: **speciation**
[10] This type of speciation occurs when a population of species splits into two new populations of species due to both of them living in a differnet geographic environment.
ANSWER: **allopatric** speciation
[10] A parent species and all of its descendants in the tree of life are said to be members of the same this group in a paper proposed by Julian Huxley. If there is one single common ancestor, then this construct is said to be monophyletic.
ANSWER: **clade**

6. For 10 points each, name these American composers.
[10] This composer incorporated elements of jazz into his *Concerto in F* and *An American in Paris*.
ANSWER: George **Gershwin**
[10] The poetry of Allen Ginsburg inspired this composer to write "Wichita Vortex Sutra" and *Hydrogen Jukebox*. He also composed the 2005 opera *Waiting for the Barbarians* and the score for *Koyaanisqatsi*.
ANSWER: Philip **Glass**
[10] After this composer's death, his wife Marian founded a prominent art colony in Peterborough, New Hampshire, which bears his name. This late-19th century Romantic composer is best known for his *Woodland Sketches*, which include "To a Wild Rose."
ANSWER: Edward **MacDowell**

7. Answer some questions about optics, for 10 points each.
[10] This principle states that every point of a wave front is the source of secondary wavelets, and the propagation of the wave can be described in terms of those secondary wavelets.
ANSWER: **Huygens**-Fresnel principle
[10] Fresnel extended Huygens' principle to explain this phenomenon, which is the apparent bending of light around small obstacles.
ANSWER: **diffraction**
[10] This pattern results from diffraction when light passes through a circular aperture. It consists of a bright central region surrounded by concentric rings.
ANSWER: **Airy** pattern [accept **Airy** disk]

8. One of these texts describes a war at the end of time between the Sons of Light and the Sons of Darkness. For 10 points each:

[10] Name these religious texts, which were likely written by the Essenes. They were discovered in Qumran.

ANSWER: **Dead Sea scrolls**

[10] The Dead Sea scrolls predict the coming of two of these figures, including one descended from Aaron who will restore the Temple in Jerusalem. Orthodox Jews believe that this figure will be descended from King David and bring about world peace.

ANSWER: **messiah** [or **mashiach**]

[10] Members of the Jewish organization Chabad believe that this Hasidic rabbi was the messiah, even though he died in 1994. In 1991, one of the cars in his motorcade hit and killed a seven-year-old African American boy, sparking a riot in Crown Heights.

ANSWER: the **Lubavitcher** Rebbe [or Menachem Mendel **Schneerson**]

9. A woman in this poem staying as a guest with the central family later travels through Europe to prophesize the return of Jesus. For 10 points each:

[10] Name this autobiographical poem subtitled "A Winter Idyll" in which a family exchanges stories during a fierce, three-day storm.

ANSWER: "**Snow-Bound**: A Winter Idyll"

[10] *Snow-Bound* was written by this Fireside Poet who described an elderly woman who tells Stonewall Jackson, "Shoot, if you must, this old gray head, / but spare your country's flag" in his poem "Barbara Frietchie."

ANSWER: John Greenleaf **Whittier**

[10] One of Whittier's earliest works was a 900-line poem about this fortune-teller from Massachusetts.

ANSWER: Moll **Pitcher**

10. These substances are made up of a hydrophilic head and a hydrophobic tail. For 10 points each:

[10] Name these substances that work to reduce interfacial and surface tension.

ANSWER: **surfactant**s [or **surface active** agents]

[10] Surfactants can form into these groups when not near the surface of a solution. Once there is no more room for surfactants at the surface, a critical concentration for these has been reached.

ANSWER: **micelle**s

[10] Some of these molecules that contain both a cation and anion can work as surfactants. These molecules are also known as internal salts.

ANSWER: **zwitterion**s

11. The "Grand Canyon" of this park's namesake river is found in this park's northern section and runs for nineteen miles. For 10 points each:

[10] Name this park largely contained by northwest Wyoming, the first national park created.

ANSWER: **Yellowstone** National Park

[10] This river splits into its North Fork near Yellowstone's east entrance. It shares its name with a Native American tribe whose members included Cameahwait and Sacagawea.

ANSWER: **Shoshone** River

[10] Yellowstone National Park was established after its exploration by the 1871 geological survey of this man. He is the namesake of the valley between Yellowstone Falls and Yellowstone Lake.

ANSWER: Ferdinand Vandeveer **Hayden**

12. In one experiment, people who were paid one dollar to enthusiastically describe the monotonous task of turning pegs later said that they enjoyed the task of turning pegs much more than those who were paid twenty dollars to describe it. For 10 points each:
[10] That experiment carried out by Merill Carlsmith demonstrates what psychological phenomenon in which a person's attitudes and beliefs are in conflict?
ANSWER: **cognitive dissonance**
[10] This man first theorized cognitive dissonance in his book about Marian Keech's UFO cult, co-written with Henry Riecken and Stanley Schachter.
ANSWER: Leon **Festinger**
[10] This was the book in question, which describes Sister Thedra's communication with the planet Clarion.
ANSWER: *When Prophecy Fails*

13. Name these pop artists, for 10 points each.
[10] This painter of soup cans and Marylin Monroe created a film showing John Giorno sleeping for five hours.
ANSWER: Andy **Warhol** [or Andrew **Warhola**]
[10] This American painter of *Painting With Two Balls* is best known for his depictions of targets and American flags.
ANSWER: Jasper **Johns**
[10] This Swede is known for amplified sculptures of everyday objects like clothespins and lipstick tubes.
ANSWER: Claes **Oldenburg**

14. Identify the following about Louis the Fat of France, for 10 points each.
[10] Louis the Fat was briefly appointed guardian of this woman, who later married both Louis VII and Henry II of England.
ANSWER: **Eleanor** of Aquitaine [or **Aliénor** d'Aquitaine or **Éléonore** de Guyenne]
[10] After the assassination of Charles the Good, the count of this place, Louis backed William Clito to succeed the throne. Another ruler of this place and Hainaut, Baldwin IX, went on to become the Byzantine Emperor.
ANSWER: County of **Flanders**
[10] Early in his reign, Louis fought against this eldest son of William the Conqueror in Normandy. This man fought with his brother William II and later helped capture Jerusalem on the First Crusade.
ANSWER: **Robert Curthose** [or **Robert II** or **Robert III** or **Robert Courteheuse** or **Robert Shortstockings**; prompt on **Robert**]

15. Seyfert galaxies, which emit ionizied gas spectral lines contain these regions. For 10 points each:
[10] Identify these region of certain galaxies that emit high levels of radiation, most likely because of a super-massive black hole in its center.
ANSWER: **active galactic nuclei** [or **AGN**]
[10] These types of active galactic nuclei are the brightest known objects in the universe. Their name indicates that they emit radiation similar to that of stars.
ANSWER: **quasar**s
[10] These functions give the relative intensity of radiation given off by a galaxy at different frequencies. For an AGN, these have a big blue bump and are approximated as F sub v is proportional to v to the negative alpha where alpha is between zero and one.
ANSWER: **spectral energy distribution** [or **SED**]

16. The rebuilding of this city was led by the Marquess of Pombal, which is why one area of it is known as the Pombaline Lower Town. For 10 points each:
[10] Name this city, the site of a 1755 earthquake.
ANSWER: **Lisbon** [or **Lisboa**]
[10] Lisbon was the starting point of this 1974 revolution, which overthrew Portugal's Estado Novo.
ANSWER: **Carnation** Revolution
[10] This Prime Minister, who served from 1968 to 1974, was overthrown in the Carnation Revolution.
ANSWER: Marcelo **Caetano**

17. This essay was first printed in the *Philistine*, but sold over forty million copies after being turned into a pamphlet. For 10 points each:
[10] Name this motivational essay about a soldier who brings important information to a Cuban leader during the Spanish American War.
ANSWER: *A **Message to Garcia***
[10] *A Message to Garcia* was by a leader of the Arts and Crafts movement with this surname. Another man with this surname wrote the novel *Battlefield Earth* and established the system of dianetics.
ANSWER: **Hubbard**
[10] Elbert Hubbard died on the sinking of this British ship by a German U-boat, which was a factor in the United States' decision to enter World War I.
ANSWER: RMS *Lusitania*

18. Answer the following about the early history of California, for 10 points each.
[10] This revolt against Mexican forces was led by William B. Ide and supported by John C. Fremont. It was put down by the arrival of John D. Sloat, who claimed California for the United States.
ANSWER: **Bear Flag** Revolt
[10] The population of California exploded during this time period from 1848 to 1855, where the discovery of a precious metal lead to a rush of propsectors.
ANSWER: California **Gold Rush**
[10] This Confederate campaign lead by Henry H. Sibley attempted to take control of California and other Union territories during 1862. The defeat of Sibley's forces at the Battle of Glorieta Pass effectively ended the Confederates' efforts.
ANSWER: **New Mexico** campaign

19. This author created a series of novels centered around the character Enderby. For 10 points each:
[10] Name this author who also wrote *Earthly Powers*.
ANSWER: Anthony **Burgess** [or John Burgess **Wilson**]
[10] Burgess is clearly better known for this work, in which the violent Alex is arrested and undergoes the Ludovico technique.
ANSWER: *A **Clockwork Orange***
[10] In *A Clockwork Orange*, this invented language is spoken by the members of Alex's gang.
ANSWER: **Nadsat**

20. The most political story in this collection is "Ivy Day in the Committee Room." For 10 points each:
[10] Name this James Joyce short story collection which also includes the stories "Araby" and "Eveline."
ANSWER: *__Dubliners__*
[10] In the final *Dubliners* story, "The Dead," this character suddenly learns of his wife's continuing thoughts for Michael Furey.
ANSWER: Gabriel **Conroy** [or **Gabriel** Conroy]
[10] This first story of *Dublinners* concerns the death of a priest and its effect on the unnamed narrator.
ANSWER: "The **Sisters**"

21. A set of numbers has the "pairwise" form of this property if and only if none of the elements of the set are multiples of each other. For 10 points each:
[10] Identify this property that is necessary for the moduli of numbers if the Chinese Remainder Theorem is to hold. Numbers that have this property have a GCD of one.
ANSWER: **coprime**
[10] It's been shown that all of these numbers, which take the form of "two to the two to the n plus one" are pairwise coprime. Named for a Frenchman, their namesake thought they were all prime.
ANSWER: **Fermat** numbers
[10] The Green-Tao Theorem shows that there exist arbitrarily long ones of these sequences composed of primes. They are sequences such that the difference between adjacent elements is constant.
ANSWER: **arithmetic progression**