1. If the condition for these two properties is satisfied by a function f of x comma y, the following iteration is exact: y-sub-n of x equals y-sub-zero plus integral with respect to t from x-zero to x of f of t comma y-sub-n-minus-one of t. These two properties can be shown by combining Osgood's condition and Peano's theorem. The contraction mapping principle can be used to prove the (*) Picard-Lindelöf theorem about these two properties. These two properties are part of Hadamard's three requirements for well-posedness. If a function f of x comma y satisfies the uniform Lipschitz condition in a given rectangle, then the IVP "y-prime equals f of x comma y" has these two properties. For 10 points, name these two properties that guarantee a differential equation has a solution and that it's the only solution.
ANSWER: **existence** and **unique**ness [*accept in either order*]

2. An appellee attorney in this case read aloud a letter by Secretary of State John Forsyth to a foreign ambassador as evidence of executive overreach. Its oral arguments were delayed by the death of Justice Philip Barbour. Josiah Gibbs found a translator for this case's initial trial by walking around New York City's harbor and counting to ten in a foreign language. The decision in this case held that neither the (*) Adams-Onis Treaty nor Pinckney's Treaty applied to the facts. The decision in this case was written by Joseph Story, who relied more on the arguments of Roger Baldwin than on the seven hour speech delivered by John Quincy Adams. For 10 points, name this 1841 Supreme Court case in which Joseph Cinque and dozens of other Mende mutineers were held to be free.
ANSWER: the ***Amistad*** case [*or: United States v. The **Amistad**]

3. An exceptionally boring novel in this genre includes the character of Olphaus Megaletor, who was inspired by Oliver Cromwell. Mynah birds are trained to call out things like "Attention!" in a novel in this genre about the journalist Will Farnaby. In a science fiction novel in this genre, T. E. Frazier acts as a guide for Professor Burris. The Feast of the (*) Family ceremony is celebrated in a novel in this genre whose narrator talks to Joabin the Jew and the governor of the House of Strangers. That novel depicts a college called Salomon's House on the island of Bensalem. The name of this genre was coined in a 1516 novel about the traveler Raphael Hythloday. For 10 points, name this genre of novel, the most famous of which was written by Sir Thomas More.
ANSWER: **utopia**n novels

4. A man following this person due to an affair involving Boudreau claims "It is I... Sidney Feldman" upon entering a building. While rehearsing in a mirror, this person claims to be employed as a pet psychiatrist, couch insurance salesman, and a tester of market positive thinking. A pen from a lawyer who specializes in divorce, property, and personal injury, all "kinda related," is used to (*) eliminate a Basque Nationalist who tries to kill this person. In the final scenes of his namesake film, he puts a TV over the head of the Dan Aykroyd-played Grocer. He returns to his hometown ten years after standing up the Minnie Driver-played Debi on prom night. For 10 points, name this John Cusack-played "professional killer" who gets into shenanigans while attending his high school reunion in Grosse Pointe.
ANSWER: Martin Q. **Blank** [*or:* **Martin** Q. Blank, **Marv**, **Marty**]

5. **This poet was greatly annoyed by a musical setting of one of his poems because it omitted two verses, and the composer responded that "a poet should be grateful to anyone who fails to perpetuate" a certain pair of lines from the poem. Frederick Kiddie accompanied the tenor Gervase Elwes at the premiere of a song cycle based on his poetry. Eleven of his poems were set to music by a composer who also wrote a rhapsody inspired by his poetry, George (*)** Butterworth. A song cycle based on this poet's works ends with the song "Clun." Ralph Vaughan Williams set six of his poems in the song cycle *On Wenlock Edge*. For 10 points, name this poet who inspired George Butterworth's *Six Songs from A Shropshire Lad*.
ANSWER: A. E. **Housman** [*or:* Alfred Edward **Housman**]

6. **The Sami religion traditionally involved feeding this substance to stone idols. Adherents gather three times per year in the Naples Cathedral to observe a ritual involving this substance. Each Ascension Day, the people of Bruges carry some of this substance from a basilica named for it on a procession around the city. The 96ᵗʰ Surah, al-Alaq, takes its name from a passage that claims humans were created from this substance. In Genesis, God exclaims that this substance (*)** "crieth unto me from the ground." In Exodus, the Jews avoid the plague on the firstborn sons by marking their doorposts with this substance. The major debate at the Marburg Colloquy was over whether Christians were metaphorically or actually drinking this substance. For 10 points, name this substance that is either represented by or transformed from wine during the Eucharist.
ANSWER: **blood** [*or:* **reindeer blood**, **blood clot**s, **Holy Blood**, the **Blood of Christ**, the **Blood of Abel**]

7. **Wender's synthesis of this compound starts by oxidizing alpha-pinene to verbenone. This molecule contains an oxetane ring bonded to its 6-8-6 tricyclic ring. An asymmetrical synthesis of this compound's C-13 side chain, using a lithium-chiral ester enolate-imine cyclocondensation and Whitesell's chiral auxiliary, is followed by Ojima's "beta lactam synthon method" to attach this compound's *N*-benzoyl-(2R,3S)-3-phenylisoserine side chain to a precursor. Commercially, this compound is created via semisynthesis from (*)** 10-deacetyl-baccatin III. Robert Holton barely beat Kyriacos Nicolaou to the first total synthesis of this compound, in the most hotly-contested race in organic chemistry history. For 10 points, name this anti-cancer drug that functions as a microtubule inhibitor and was isolated from the bark of the pacific yew.
ANSWER: **taxol** [*or:* **paclitaxel**; *prompt on:* **taxane**s]

8. **This artist's dictum that the color gray is the enemy of painting is quoted in a book which traces the influence of his love of brilliant colors on the Neo-Impressionists. That book was written by Paul Signac. A vast dark hall with a long, brightly lit table is the setting for his painting of the assassination of the Bishop of Liège. In May 2015, a Picasso painting inspired by one of (*)** this artist's works set a new record for the most expensive artwork sold at auction. That painting by this artist shows a black woman with her back to the viewer at the right while three women lounge on the ground next to a hookah. This painter of *Women of Algiers in Their Apartment* is best known for painting a woman holding the tricolor flag. For 10 points, name this painter of *Liberty Leading the People*.
ANSWER: Eugène **Delacroix** [*or:* Ferdinand Victor Eugène **Delacroix**]

9. **In a book with this color in the title, a woman reveals to the narrator that her father, whom he had been sleeping next to, is actually dead. In a novel, two painters who have gone blind discuss the meaning of this color and whether they would be able to understand this color if they had been born blind. The title character of *The Lady of the Camellias* wears a camellia of this color to signal that she is too (*)** sick to have sex. This color appears in the title of a collection of stories which includes "Crossing the Zbrucz" and "My First Goose." This color symbolizes the army, as opposed to the Catholic Church, in the title of a novel about Julien Sorel. For 10 points, name this color which, in the title of that Stendhal novel, is paired with "black."
ANSWER: **red**

10. **This man was targeted by three mentally insane assailants: John Frith, who threw a stone at him, Margaret Nicholson, who pulled a knife on him, and James Hadfield, who shot at him at the Drury Lane Theater. In a cartoon, John Bull farts at a poster of this man, only to be told "That is treason, Johnny." James Gillray lived during this king's reign and often included him in his satirical cartoons. Issue 45 of (*)** *The North Briton* criticized this king, which led to the arrest and trial of John Wilkes. Wilkes later suppressed an anti-Catholic riot during this king's reign that destroyed Newgate Prison. Toward the end of his life, this king experienced bouts of porphyria. For 10 points, name this king whose reign of sixty years was marked by the loss of British colonies in America.
ANSWER: **George III**

11. **According to Apollodorus, this man was the father of Argus, Phrontis, Cytissorus and Mela, four shipwreck survivors rescued by Jason. Phony messengers from an oracle announced that this man's death could end a drought that actually started when women in his city planted burnt seeds. This man married the princess Chalciope in a city he reached with help from his mother, a cloud shaped by Zeus to look like Hera. Because he was the child of the nymph (*)** Nephele, this son of Athamas galled his stepmother Ino, who conspired to have him sacrificed. Although this man escaped to Colchis, his sister plunged into the sea off the back of the ram that rescued them. For 10 points, name this brother of Helle who gave King Aeetes the Golden Fleece.
ANSWER: **Phrixus**

12. **The development of PHACOMP spurred early design work in these systems. To predict solubility in these systems, electronegativity versus ionic radius is plotted, and ellipses drawn, on Darken-Gurry maps, which are diagrammatic representations of the empirical Hume-Rothery rules. An example of these systems that displays the shape-memory effect, as well as superelasticity, is nitinol. The yield strength of these systems can be improved with precipitation (*)** hardening. A simple, non-isomorphic example of these systems with a single melting point is their eutectic type. The most common types of these systems are substitutional and interstitial, the latter's best example being steel. For 10 points, name these systems that are usually solutions of two or more metals.
ANSWER: metal **alloy**s [*or:* **solid solution**s; *prompt on:* **metal**s, **solution**s, binary **mixture**s, **binary** component systems, intermetallic **compound**s, **multiple component** systems]

13. In 2015, this country's national news agency released a list of over three hundred patriotic slogans, including one that promises to make it "a country of mushrooms." This country paid $666,666 to negotiate the release of a ship owned by the Ocean Maritime Management Company that was detained at the Panama Canal. Counterfeit money and illegal drugs are perpetuated by this country's Room 39. An adviser to this country's leader was not actually (*) fed to dogs after his 2013 execution. This country compared an opposing president to "a monkey in a tropical forest" in response to accusations that the "Guardians of Peace," who leaked a remake of *Annie* in late 2014, are based in this country. For 10 points, name this "Hermit Kingdom" that hacked Sony in response to the planned release of *The Interview*, which depicts the assassination of Kim Jong-un.
ANSWER: **North Korea** [*or:* **D**emocratic **P**eople's **R**epublic of **K**orea, **Chosŏn** Minjujuŭi Inmin Konghwaguk; *prompt on:* **Korea**; *do not accept:* "South Korea", "Republic of Korea"]

14. A non-Russian movement known as the Blue Army formed in response to one of these events. After one of these events, Catherine Labouré created a golden medallion that depicts the letter "M" above two hearts, one of which is impaled by a sword. One of these events necessitated the construction of an international airport in Knock, Ireland, which only has about 1,000 residents. Tepeyac Hill was where (*) Juan Diego witnessed one of these events. Lúcia Santos and her two cousins were told "three secrets" during these events, which may have predicted Mehmet Ali Agca's assassination attempt. Because of one of these events, the town of Lourdes is visited by six million pilgrims each year. For 10 points, identify these events in which the Virgin mother of Christ appears supernaturally.
ANSWER: **Marian apparition**s [*or:* obvious equivalents, such as **appearances** of the Virgin **Mary**; *prompt on:* answers that mention **Our Lady**]

15. The protagonist of one of this author's plays is pressured into marrying his brother's widow, but has an affair with a woman named Jane in the city where he works at an oil company. In that play, Remi vacillates over whether or not to return to his tribal village. The businessman Ahab and his wife Jezebel visit the protagonist of another of his plays, who is protective of the title deed to his one-and-a-half acre plot of land. That play was performed at the (*) Kamiriithu Community Education and Cultural Centre, which was subsequently burned down by the police. His play about Kiguunda and his daughter Gathoni led to his imprisonment. For 10 points, name this author of the plays *The Black Hermit* and *I Will Marry When I Want,* who also wrote novels such as *A Grain of Wheat.*
ANSWER: **Ngũgĩ** wa Thiong'o [*or:* James **Ngũgĩ**]

16. One work made of this material is Maurizio Cattelan's *The Ninth Hour,* a sculpture of Pope John Paul II being crushed by a meteor. The 16th century Italian sculptor Antonio Abondio was best known for his relief portrait miniatures made of this material. The Romans used this material to design the "imagines," depictions of a dead person's ancestors used for funerary rites. The Greek artist Pausias is traditionally held to have first mixed this material with pigment, inventing (*) encaustic painting. This material is said to be "lost" in a method in which a model sculpted with it is used to create a mold that molten material is poured into. One sculptor in this material used it to create death masks of Marie Antoinette and Robespierre during the Reign of Terror. For 10 points, name this material which was used in the hyper-realistic sculptures made by Madame Tussaud.
ANSWER: **wax** [*or:* **beeswax**]

17. This book relates the story of a group of surveyors who become trapped in a room with a dozen tarantulas. Some of its characters accept their deaths when they get lost in a snowstorm only to wake up to discover they were fifteen paces from an inn. In this book, a lawyer is tricked into thinking his client's ranch has been buried by a landslide that deposited a neighbor's ranch above it. Its characters include Jim Blaine, who jumps from subject to subject instead of telling the story of his grandfather's ram whenever he gets drunk. In this book, Scotty Briggs uses unintelligible slang to try to get a minister to officiate (*) Buck Fanshaw's funeral. It was inspired by a trip its author took to meet his brother Orion in Carson City. For 10 points, name this embellished semi-autobiographical account of Mark Twain's travels in the West.
ANSWER: *Roughing It*

18. **Several of these places were destroyed during the final stage of Case White, a combined Axis assault against the Partisans. Donald Bailey patented a design that allowed for the quick construction of these places. An Ottoman-built one of these places in Mostar was shelled during the Bosnian War, but was later rebuilt with the help of UNESCO. Milan Lukic's forces executed several civilians at one of these locations in Visegrad, which is blown up by retreating (*)** Austrians in a novel published in 1945. American soldiers captured one of them named after Erich Ludendorff after some of the Germans' dynamite failed to detonate during the Battle of Remagen. An attempt to bypass the Siegfried Line in Operation Market Garden necessitated the capture of several of them. Temporary examples of these places were termed "pontoon." For 10 points, identify these pieces of infrastructure useful for crossing supplies over water.
ANSWER: **bridge**s

19. **This book decries society's increased tendency towards the formalization of law, because such "juridification" de-couples law from natural conceptions of justice and shifts importance from the role of the citizen to the role of the client. This book distinguishes between qualitative and quantitative forms of what it calls "generalized media," the latter type of which includes money and power, and argues that quantitative media dominate qualitative media. This book argues that society has undergone a crisis of (*)** legitimation, which it characterizes as a colonization of lifeworld by systems. It presents rules for the "ideal speech situation," which is grounded in the title activity. For 10 points, name this magnum opus of Jürgen Habermas.
ANSWER: *The **Theory of Communicative Action*** [*or:* ***Theorie des kommunikativen Handelns***]

20. **The Flt3/Flk2 kinase is an "excellent marker" for differentiating these cells from macrophages. A type of these cells found in the epidermis is characterized by the presence of racket-shaped structures containing CD207, called Birbeck granules. CD103+/CD11b− and CD11b+ are the major subtypes of their "classical" type. These cells both constitutively express class II MHC molecules and, without requiring activation, have costimulatory activity, differentiating them from other APCs. They include (*)** Langerhans cells, and their follicular type is involved in maintaining B cell memory. They process and present antigens to activate T cells, forming the backbone of the adaptive immune response. For 10 points, name these cells of the immune system that resemble the branched projections of neurons.
ANSWER: **dendritic cell**s [*or:* **DC**s; *prompt on:* "**Langerhans** cells"]

1. These structures are usually windowless and are often built over a three-day period with volunteer labor. For 10 points each:
[10] Name these buildings which are never adorned with crosses and which are smaller than the Assembly Halls used for similar purposes.
ANSWER: **Kingdom Hall**s
[10] Kingdom Halls are used by this nontrinitarian Christian sect which teaches its adherents to knock on doors and to hand out copies of its magazine *The Watchtower*.
ANSWER: **Jehovah's Witnesses**
[10] One of the chief purposes of the Kingdom Hall is for this weekly ritual, in which adherents touch the "emblem" of bread and wine but only partake if they are sure they are among the 144,000.
ANSWER: **Lord's Evening Meal**

2. The narrator of this essay describes the advice of Father Abraham that the onerous taxes levied by the government pale in comparison to the losses caused by laziness and pride. For 10 points each:
[10] Name this essay which was originally published as the preface to the 1758 edition of *Poor Richard's Almanack*.
ANSWER: "The **Way to Wealth**"
[10] "The Way to Wealth" was written by this American who wrote about the certainty of death and taxes in a letter.
ANSWER: Benjamin **Franklin**
[10] As a teenager, Franklin published a series of letters in the *New-England Courant* using this feminine surname.
ANSWER: Mrs. Silence **Dogood**

3. Answer the following about the "important but long-neglected" Basque composer Andrés Isasi, for 10 points each.
[10] Isasi studied under this amusingly named German composer, who wrote the music for the popular opera *Hänsel und Gretel*.
ANSWER: Engelbert **Humperdinck**
[10] Isasi gave this number to his opus 83 string quartet, in E minor. Bruckner's *Symphony in D minor* is often given this number due to the empty set symbol he wrote at the top after receiving "harsh" criticism.
ANSWER: **zero** [*or:* obvious equivalents]
[10] The second movement of Isasi's *String Quartet No. 4 in D major* is in the style of, and named for, this type of work. Vadim Gluzman paired Bruch's *Violin Concerto No. 1* and *String Quintet in A minor* with Bruch's opus 85 work of this type—actually written for viola—on a recording that justly won a ton of praise and awards.
ANSWER: **romanze** [*or:* **romanza**, **romance**]

4. Answer the following about abnormalities that anyone, even Chris Ray, would have in their blood if they'd undergone an autosplenectomy as a result of sickle-cell anemia, for 10 points each.
[10] Though normally found only in bone marrow, you'd find red blood cells that do not lack this organelle. Naturally, that complicates counting white blood cells, which normally do have this organelle.
ANSWER: cell **nucleus**
[10] You'd also find abnormal red blood cells described by this word, due to the fact that they have a white band separating inner and outer concentrations of hemoglobin. Wikipedia notes that they also look like Mexican hats.
ANSWER: **target** [*or:* **bullseye**]
[10] You'd also find Pappenheimer bodies, which are granules of this substance within red blood cells.
ANSWER: **iron** [*or:* **Fe**]

5. The fourth king of this name took the epithet "Epiphanes," meaning "god manifest," inspiring his contemporaries to call him "Epimanes," meaning "the madman." For 10 points each:
[10] Give this name of the Hellenistic king defeated by the Romans in the "line in the sand" incident and by the Jews in the Maccabean Revolt. His more successful father, of this same name, lost to the Romans at Magnesia.
ANSWER: **Antiochus**
[10] Antiochus III and IV ruled this Hellenistic kingdom at the peak of its power. During Antiochus III's reign in the second century B.C., it reached from Anatolia eastward to northwest India.
ANSWER: **Seleucid** Kingdom
[10] After the Romans defeated Antiochus III at Magnesia, Rome forced the Seleucid Empire to agree to this punitive treaty. Rome extracted a 15,000 talent indemnity in this treaty that critically weakened the Seleucid Empire.
ANSWER: Treaty of **Apamea**

6. In the last part of this sequence, Hurricane Jasmine Forsythe kills LeBron James and the rest of the Miami Heat. For 10 points each:
[10] Name this six episode television arc which primarily features its protagonist's relationship with his neighbor Evanka's Hungarian speaking niece Amia.
ANSWER: "**Elevator**"
[10] The "Elevator" episodes appeared in the fifth season of this comedian's namesake TV show on FX. He pioneered directly selling tickets for his tours, and frequently jokes about raising his two daughters.
ANSWER: Louis **C.K.**
[10] Louis C.K. had a role in this directorial debut of Ricky Gervais, in which Gervais plays a man tasked with writing lecture films about the 1300s.
ANSWER: The *__Invention of Lying__*

7. This quantity is often surveyed using Schlumberger or Wenner electrode arrays, in a method analogous to the four probe method used to measure this quantity for a semiconductor wafer. For 10 points each:
[10] Name this quantity determined by measuring the potential difference between two electrodes and dividing by the current injected into the ground, while accounting for geometry.
ANSWER: electrical **resistivity** [or: apparent **resistivity**, ground **resistivity**; *do not accept:* "resistance"]
[10] For the Earth, the four probe method measures the apparent resistivity, which one can invert to obtain the actual resistivity using a "damped" method of this name. The "ordinary" method of this name is used for data fitting in linear regression analysis.
ANSWER: **least square**s
[10] The refraction of current paths between layers of resistivity is governed by the ratios of resistivities and the ratios of this function of the angle from normal of the current path. It differs seismic refraction, which is governed by Snell's law.
ANSWER: **tan**gent

8. History players hoping for a question about John Ball will have to make do with this literature bonus. For 10 points each:
[10] John Ball's literary legacy includes a couplet about these two people, who lose Paradise in Milton's *Paradise Lost*.
ANSWER: **Adam** and **Eve**
[10] This author wrote about the Peasants' Revolt in his novel *A Dream of John Ball*. He responded to *Looking Backward* in his novel *News from Nowhere*.
ANSWER: William **Morris**
[10] John Ball is also the name of the protagonist of this epic poem of World War I, whose other characters include Dai Greatcoat. It was written by David Jones.
ANSWER: *In Parenthesis*

9. A photograph taken by Roger Fenton shows a Crimean War-era road littered with these objects. For 10 points each:
[10] Name these projectiles, one of which was legendarily responsible for chipping off the nose of the Great Sphinx during Napoleon's invasion of Egypt.
ANSWER: **cannonball**s [*or:* **round shot**s]
[10] A Venetian cannonball destroyed much of this landmark's southern wall. This landmark's namesake frieze has often been compared to the Apadana Relief in Persepolis.
ANSWER: the **Parthenon** [*prompt on:* the **Acropolis**]
[10] This landmark was most likely chipped and fissured by a cannonball during Nadir Shah's 1739 invasion. It includes an inscription describing Chandragupta II and has somehow resisted corrosion for over a thousand years.
ANSWER: **Iron Pillar** of Delhi

10. Several metallic spheres were found under this city's Pyramid of the Feathered Serpent in 2013. For 10 points each:
[10] Name this city, where investigations in April 2015 have also revealed liquid mercury below the aforementioned temple. This site, located thirty miles east of Mexico City, has a name that literally means "birthplace of the gods."
ANSWER: **Teotihuacan**
[10] Teotihuacan's two largest pyramids are named for these two entities. Viracocha created these two entities after emerging from Lake Titicaca, which is why two islands in Lake Titicaca are named for them.
ANSWER: the **Sun** and the **Moon** [*accept in either order, but do not prompt on partial answer*]
[10] In another recent Mesoamerican archaeological feat, Christopher Fisher's team uncovered a legendary "City of the Monkey God" in this country. It shares the Mosquito Coast with its southern neighbor, Nicaragua.
ANSWER: **Honduras**

11. A 2002 book by Philip Steadman supported this theory, arguing that a number of paintings by a certain artist were set in the same room based on their dimensions. For 10 points each:
[10] Describe this theory, which Tim Jenison tested by reproducing *The Music Lesson*.
ANSWER: the theory that Johannes **Vermeer** painted with the aid of a **camera obscura** [*prompt on:* answers mentioning Vermeer using optical devices in general]
[10] Vermeer's most famous painting might be this portrait of a woman wearing a headscarf and the title piece of jewelry.
ANSWER: *Girl with a Pearl Earring* [*or: Meisje met de parel*]
[10] In the late 1660s, Vermeer painted two portraits of scientists, both of which are thought by some to depict Antoine van Leeuwenhoek. Name either.
ANSWER: The *Astronomer* [*or: De astronoom*] or The *Geographer* [*or: De geograaf*]

12. During the fight against Ravana in the *Ramayana*, Hanuman uproots one of these geographical features whole and brings it to Lanka to resurrect Lakshmana. For 10 points each:
[10] Name these sacred locations in mythology exemplified by the Greek Olympus.
ANSWER: **mountain**s
[10] In Hindu cosmology, every heaven and every hell is a level of this million kilometer tall mountain at the center of the universe. Angkor Wat was built to resemble this mythological location.
ANSWER: Mount **Meru**
[10] In Japanese mythology, these creatures take the shape of long-nosed *yamabushi*, or "mountain monks," to play pranks on prideful Buddhist priests.
ANSWER: **tengu**

13. Real men play real tennis. For 10 points each:
[10] A king of this name died after bumping his head on a door on the way to a tennis match. Another French king with this name tried unsuccessfully to besiege La Rochelle, and a third was overthrown during the July Revolution.
ANSWER: **Charles** [*or:* **Charles VIII**, **Charles IX**, **Charles X**]
[10] During the infancy of the French Revolution, 576 members of this group signed the Tennis Court Oath after being locked out of a different meeting. Abbé Emmanuel Joseph Sieyès published a pamphlet whose title asks "What is" this group — the answer: "Everything."
ANSWER: the **Third Estate** [*or:* le **tiers-état**; *prompt on:* **Estates-General**]
[10] This French king, whose wife Margaret of Burgundy was one of three women convicted in the Tour de Nesle affair, died after a particularly rousing game of tennis. He succeeded Philip the Fair and was known as "the Quarreler."
ANSWER: **Louis X**

14. Answer the following about Norwegian plays, for 10 points each.
[10] Norway's most famous playwright is, of course, this author of *A Doll's House* and *Ghosts*.
ANSWER: Henrik **Ibsen** [*or:* Henrik Johan **Ibsen**]
[10] At the end of *Ghosts*, Helene Alving has to decide whether or not to do *this* to her syphilitic son Oswald.
ANSWER: **euthanize** him [*or:* descriptions such as give him an **overdose** of **morphine**, obvious equivalents such as helping him **kill** himself]
[10] Patrice Chéreau directed a production of this man's play *I Am the Wind*. The 2010 International Ibsen Award went to this author of the play *Someone Is Going to Come*, who's possibly Europe's most performed living playwright.
ANSWER: Jon **Fosse** [*or:* Jon Olav **Fosse**]

15. Anyone, even Chris Ray, can run GNU and Linux programs on Windows because cygwin provides an API that's compliant with this set of standards maintained by IEEE and The Open Group. For 10 points each:
[10] Name this family of Unix-based standards that's designed to increase compatibility of programs between operating systems by defining a standard set of API, shell, and utility interfaces.
ANSWER: **POSIX** [*or:* **Portable Operating System Interface**]
[10] This BSD-derived operating system offered by Apple is a notable example of POSIX compliance. Before 2006, releases of this operating system could only be run on the PowerPC architecture.
ANSWER: Mac **OS X** [*prompt on:* "**Mac** OS"; *according to Wikipedia and no one else on the entire planet, the X is supposed to be pronounced as "ten", so you can take that on the off-chance that someone says it*]
[10] PowerPC was a prominent example of this CPU architecture that's also used by ARM processors. In computer science school, students often work with MIPS, another example of this architecture, which has generally has a fixed-length and highly-optimized instruction set.
ANSWER: **RISC** [*or:* **reduced instruction-set computer**]

16. This psychologist headed the committee that investigated the "famous case" of Clever Hans, eventually appointing Oskar Pfunget, who solved the case. For 10 points each:
[10] Name this German psychologist known for his research on music, partly covered in his works *Tonpsychologie* and *The Origins of Music*.
ANSWER: Carl **Stumpf**
[10] *The Origins of Music* was published in 1911, the year the *Ballets Russes* premiered this ballet featuring polyrhythmic textures and irregular, changing metres, which Stumpf had ascribed to indigenous music cultures. A well-known tone cluster from this ballet is composed of a C major triad and an F-sharp triad.
ANSWER: *Petrushka*
[10] 1911 also saw the premier of this composer's *Der Rosenkavalier* whose "complex tonality borders on the polytonality that Stumpf ascribed to an underdeveloped appreciation of harmonic function."
ANSWER: Richard **Strauss** [*or:* Richard Georg **Strauss**]

17. One of the targets of this action claimed that it killed his adopted daughter Hanna, although this claim was never confirmed and seems to have been fabricated. For 10 points each:
[10] Name this 1986 action which was also known as Operation El Dorado Canyon.
ANSWER: United States **bombing of Libya** [*or:* **Libya air strikes**]
[10] This American president ordered the Libya air strikes. He told Mikhail Gorbachev to tear down a wall.
ANSWER: Ronald **Reagan**
[10] The bombing of Libya was ordered in retaliation for the bombing of a discotheque in this city.
ANSWER: **Berlin**

18. At infinity, the spherical form of these functions yields the form of an outgoing wave, for the first kind, and an incoming wave, for the second kind. For 10 points each:
[10] Name these functions that arise in radiation problems. Those "of the first kind" and "of the second kind" are defined as a Bessel function of the first kind plus or minus i times a Bessel function of the second kind, respectively.
ANSWER: **Hankel** functions [*prompt on:* **Bessel** functions of the third kind, **Weber** functions]
[10] Hankel functions arise in solutions to the homogeneous form of this wave equation for a monochromatic wave. This equation states that the Laplacian of a potential, plus the square of wavenumber times the potential, equals zero.
ANSWER: **Helmholtz** equation
[10] The wavenumber, k, is usually defined as two pi over this quantity, symbolized lambda.
ANSWER: **wavelength**

19. This man's major philosophical work is in the form of a dialogue between a rabbi and a king of the Khazars. For 10 points each:
[10] Name this Spanish Jewish philosopher who attacked Aristotelianism in his *Kuzari*.
ANSWER: Judah **Halevi** [*or:* Yehudah **Halevi**]
[10] Halevi was influenced by this Islamic philosopher, who also attacked Aristotelianism in his *The Incoherence of the Philosophers*.
ANSWER: al-**Ghazali** [*or:* **Algazel**, Abu Hamid Muhammad ibn Muhammad al-**Ghazali**]
[10] *The Incoherence of the Philosophers* defended a version of occasionalism, a theory which states that this figure is the direct cause of all events.
ANSWER: **God** [*or:* **Allah**, obvious equivalents]

20. A poem written in defense of this thing ends "For [this thing] will never suit you, and you'll never suit [this thing]," and was written in response to the poem "Up the Country." For 10 points each:
[10] Name this thing, which was the subject of a poetic debate in *The Bulletin* in the 1890s.
ANSWER: the Australian **bush**
[10] The Bulletin Debate was between Henry Lawson and this other Australian bush poet, who wrote "The Man from Snowy River" and "Clancy of the Overflow."
ANSWER: Banjo **Paterson** [*or:* Andrew Barton **Paterson**]
[10] Paterson wrote the lyrics to this unofficial national anthem of Australia, about a "jolly swagman" who "camped by a billabong" and asked "who'll come" to do the title activity "with me?"
ANSWER: "**Waltzing Matilda**"