1. **While verbally "making love" to this character, a man snuggles next to her and entices her to fantasize that they are "the babes in the wood," although she later disgustedly rejects that fantasy at the end of Act 3. At the climax of Act 4, she completes a prospectus by writing "two infamous words" because she is too ashamed to speak them out loud. At the beginning of Act 1, we learn that this character has just graduated tied for third wrangler in the mathematics tripos at Cambridge. She moves to London in Act 4 to join Honoria Fraser after learning that she is the illegitimate daughter of Reverend Samuel** (*) Gardner. In Act 3, this unsentimental character rejects the marriage proposal of Sir George Crofts, who shocks her by revealing that houses he owns in Brussels are still operating. For 10 points, name this young woman, the protagonist of a play by George Bernard Shaw in which she discovers that managing brothels is her mother's profession.
ANSWER: **Vivie** Warren [or **Vivvums**; or **Miss Warren**; prompt on "Warren"; prompt on "the daughter of Mrs. Warren"; do not accept "Mrs. Warren"]

2. **A binding partner of this protein is targeted by autoantibodies in a paraneoplastic form of stiff person syndrome found in breast cancer patients. This protein is inhibited by Pitstop1 and Pitstop2. This protein was originally isolated from pig and bollock brains by Barbara Pearse. This protein forms a complex with TACC and ch-TOG to stabilize the mitotic spindle apparatus. LDL receptor complexes localize to regions of the membrane containing this protein, which are PIP2-dependent structures called** (*) coated pits. Amphiphysin, epsin and AP180 are binding partners of this protein, which can also bind to the AP2 adaptor complex. Three heavy chains and three light chains of this protein are used to form a particular repeating structure. Dynamin is used to pinch off structures coated with this protein, which move from the cell membrane to the endosome in endocytosis. For 10 points, name this protein that forms a triskelion structure on the external surface of endocytic vesicles.
ANSWER: **clathrin**

3. **This period was initiated by the publication of a proclamation in a newspaper whose name translates as "The Calendar of Events," and that proclamation was considered by Lord Kinross to be its nation's Magna Carta. This period was followed by a two-year-long period usually known as the "First Constitutional Era." During this period, the Council of Justice rose to national prominence, while the ambassador Stratford Canning** (*) emerged as an important protector of religious minorities in the nation in which this period occurred. The focus of the two major documents issued during this period was conscription, tax collection, and legal equality, and the developments of this period were largely administered by Mustafa Reshid, who is generally considered its "father." This period was initiated in 1839 with the Imperial Rescript of Gulhane issued by Abdulmecit I, and continued in the 1856 Hatt-i Humayun decree. For 10 points, identify this reformist period of Ottoman history which takes its name from the Turkish word for "reorganization."
ANSWER: **Tanzimat** Period or Reforms

4. **Empirical studies of Latin America have found that this policy induces a "lighthouse effect" in the informal sector. James Buchanan called economists who argued this policy isn't harmful "a bevy of camp-following whores." David Neumark and William Wascher are prominent opponents of this policy, although their research has been criticized by Arin Dube [DU-bay], who found that this policy's adverse effects are minor at best and that it reduces turnover costs. The neoclassical criticism of this policy was challenged in the book** *Myth and Measurement*, **which argued in favor of this policy by citing a "natural experiment" comparing** (*) workers in New Jersey and Pennsylvania. That case study was conducted by David Card and Alan Krueger and contradicts traditional economic theory, which holds that this policy fixes prices above the market-clearing level, reducing employment. Often studied in the context of the fast food industry, for 10 points, name this policy which creates a price floor for labor.
ANSWER: instituting a **minimum wage** [or **raising** the **minimum wage**]

5. **In the aftermath of this event, the ACCOLOC protocol to restrict communications traffic was implemented. A speech by the mayor after this event stated "Whatever you do, however many you kill, you**

will fail". One perpetrator of these events was married to a woman nicknamed the "White Widow", who escaped to Kenya; that woman is Samantha Letwthwaite. An amendment to an act passed in the wake of this event that allowed a 90-day detention without charge was defeated. Two weeks after this event, Jean Charles de Menzies was (*) shot by police. Germaine Lindsay, Muhammad Siddique Khan, Shezhad Tanweer, and Halib Hussein perpetrated this attack, during which a bus in Tavistock square was destroyed using organic peroxide-based weapons stashed in a backpack. For 10 points, name this 2005 terrorist attack in which bombs were detonated in major public transportation line in the capital of Britain.
ANSWER: **7/7** [or **2005 London underground** bombings]

6. **This painting, which depicts a sky covered in large part by smoke, was commissioned to quell rumors that certain persons were purposely given heavy doses of laudanum and poisoned. In the left middle ground of the canvas a man in a turban is doling out bread, while on the far right a blind man steadies himself by grasping one of many pillars. A minaret can be seen through the series of arcades that frames the central image, which is illuminated by the light of the sun, and was likely inspired by (*)** *The Oath of the Horatii*. Its artist, who first met this painting's subject in Genoa, had earlier depicted him holding a flagstaff at Arcole. In this 1804 work, the central character is shown next to his officer, who has covered his face with a handkerchief, gamely touching the open sore of one of his soldiers at a makeshift hospital in what is now Tel Aviv. For 10 points, name this painting depicting a French military commander's bravery and compassion, a work by Jean Antoine Gros.
ANSWER: ***Napoleon Visiting the Plague Victims at Jaffa*** [or ***Napoleon Visiting the Plague Stricken at Jaffa*** or ***Napoleon visiting the Pest House at Jaffa*** or ***Napoleon in the Pest House at Jaffa*** or ***Napoleon in the Plague House at Jaffa*** or ***The Plague Stricken of Jaffa*** or equivalents]

7. **In one paper, this philosopher defended epistemological relativism from the attack of Hilary Putnam in a paper titled "Realism and Relativism," and answered in the negative the question posed by the title of another paper, "Is Mathematical Knowledge Just Logical Knowledge?" In an important 1972 paper, this thinker argued that the title philosopher's project was to reduce the title concept to "other semantic notions"; that paper is titled "Tarski's Theory of Truth," and along with Paul Horwich**, (*) this philosopher has been the foremost proponent of the idea that asserting the truth of a statement is identical to asserting the statement itself. This philosopher's most famous work contains a section that outlines a nominalistic theory of Newtonian gravity, and argues against the Quine-Putnam thesis of the indispensability of mathematics. For 10 points, identify this NYU philosopher who is one of the foremost proponents of the deflationary theory of truth and who wrote *Realism, Mathematics, and Modality* and *Science Without Numbers*.
ANSWER: Hartry **Field**

8. **In this author's most recent novel, the Monster of Le Sentier is blown up in a terrorist attack, and ends up in a virtual afterlife where he receives emails from a Rastafarian rabbi and a radical imam named Alice. This author wrote a novel about an androgynous angel exiled from heaven who travels to the Pittsburgh sewers to have sex with an Arab; that novel's title is Arabic for "cemetery." In another of his novels, a character visits a library and releases poisoned insects in order to desecrate famous passages from his country's literature. His novels often celebrate the oral storytelling culture of North African open-air markets such as the Jemaa el Fna in Marrakesh, where he's lived in self-imposed exile since the mid-1990s. This author of (*)** *Exiled From Almost Everywhere* and *Makbara* wrote a trilogy about Alvaro Mendiola--the second novel in that trilogy is a vindication of an 8th century Christian who helped the Umayyads conquer Hispania. For 10 points, name this author who attacked the traditional culture of his home country, Spain, in his novels *Marks of Identity*, *Juan the Landless* and *Count Julian*.
ANSWER: Juan **Goytisolo**

9. **One of this composer's pieces closes each of the first seven sections with a descending F scale figure that is initially two notes long, but grows one note longer at the end of each following section until it forms a complete scale. Inspired by a young actress who died in a cycling accident, this composer wrote a piece which quotes** *Hamlet* **by calling life "a shadow and a dream." Each section of that piece begins with the word "Alleluia." At the 1989 Proms, Steven Isserlis premiered a piece by him which was described as a lyrical icon in sound rather than wood. The soloist plays almost continuously during that piece for cello and string orchestra, and each section of that piece was inspired by a feast of the (*)** Virgin Mary. He combined the mass for the dead with singing games for children in his early *Celtic Requiem*, but turned towards Byzantine sources for

inspiration following his conversion to Russian Orthodoxy. During the funeral of Princess Diana, this composer's *Song for Athene* played as the coffin exited Westminster Abbey. For 10 points, name this British composer of *The Protecting Veil*, who passed away in 2013.
ANSWER: John **Tavener**

10. **Maria Ward wrote a popular handbook which taught women how to use this invention. Late in her life, Frances Willard wrote a book enthusiastically describing how she learned to use an example of this invention that she nicknamed "Gladys." After this invention became popular, conservative critics warned that women using it in the "scorching" position were masturbating, causing most advertisements for it to portray women upright. Images satirizing the "New Woman" often depicted a woman smoking a cigarette and using this invention. It revolutionized women's (*)** clothing because using it while wearing a bustle or corset was extremely difficult, popularizing "rational dress" such as shorter skirts and bloomers. The "safety" type of this invention was massively popular in the 1890s, and allowed young women to socialize without being chaperoned. For 10 points, name this invention that liberated American women by enabling them to leave their homes under their own power.
ANSWER: safety **bicycle**s [accept **velocipede**s; do not accept "penny-farthings"]

11. **An extension of this method to ethers was used to synthesize the natural product MKC-242, and ligands named for "John" and "Dave" are used in variations of this reaction. An air-stable nickel catalyst for this reaction contains tolyl, chloryl, and dppf ligands. The product distribution in this reaction is influenced by the competition between three- and four-coordinate complex intermediates, the former of which allows undesirable beta-hydride elimination. The development of this reaction was inspired by the work of Migita et al, but added an argon purge step to remove the NEt2 side product. The o-tolyl-(*)** phosophine ligand used in the original version of this reaction is usually replaced with dpa, DPPF, or other bidentyl phosphines to increase rate. The second step of this reaction uses Lithium HMDS as a base under phenol reflux, which deprotonates metal-nitrogen complexes. A palladium dimer is an unusual intermediate in this reaction, and like the Stille reaction its original formulations required tin. For 10 points, name this palladium-catalyzed cross-coupling reaction between aryl halides and amines, named for two American chemists.
ANSWER: **Buchwald-Hartwig** reaction

12. **The "tilt" of this plot is usually indicated by a value of the primordial spectral index different from 1, and the peaks on this plot represent frozen modes. This plot is obtained by taking the Fourier transform of the two-point correlation function, and increasing the value of the "omega-sub-m" parameter depresses the peaks in this plot. Originally produced from data gathered by the FIRAS (*)** instrument, this plot's first peak at an l of about 200 indicates the flatness of the universe, while the ripples at high values of l come from baryon oscillations. The fact that this plot is scale free provides evidence for inflation. For 10 points, identify this plot which contains power in microkelvin squared on the y axis against multipole moment on the y axis, indicating how much power is contained in every angular scale of a certain "halo" remaining from the Big Bang, the most precise data for which comes from WMAP.
ANSWER: temperature [or angular] **power spectrum** of the **c**osmic **m**icrowave **b**ackground [accept any answers that mention the words "power spectrum" and "CMB"]

13. **This figure's story is interwoven with an account of Velasquez's philosophical system in Jan Potocki's novel *The Manuscript Found in Saragossa*, in which he is summoned from Africa by Pedro de Uzena. The earliest story of this figure is related by an Armenian bishop in Roger of Wendover's *Flores Historiarum*. A bestselling 1602 pamphlet described Paul von Eitzen's encounter with this figure, who in folklore was thought to shed his skin when he turned 100 and become 30 years old again. The Count of Saint (*)** Germain was rumored to be this figure, who was commonly depicted wearing a long beard and holding a purse and a staff. This figure was originally known as Cartaphilus until the Protestant Reformation, when stories began calling him Ahaseurus. The legend of this figure was popular throughout medieval Europe, and held that he was either a shoemaker or a doorman for Pontius Pilate. For 10 points, name this figure who, according to legend, mocked Jesus on the way to the Crucifixion and was cursed to walk the Earth until the Second Coming.
ANSWER: the **Wandering Jew** [or **Buttadeus**; or **Cartaphilus** or **Ahaseurus** before mentioned]

14. **The narrator of this novel tells two Spanish Dons a story about a man named Radney who goads his subordinate Steelkilt into a violent rebellion. A character in this novel howls "Ego non baptizo te in nomine**

patris, sed in nomine diaboli!" while tempering a weapon with blood instead of water. Earlier in this novel, that character compares "all visible objects" to "pasteboard masks" and declares "if man will strike, strike through the mask!" After finishing this novel, its author wrote a letter saying "I have written a wicked book, and feel spotless as the lamb." Another character in this novel muses "I know not all that may be coming, but be it what it will, I'll go to it (*) laughing." Its protagonist wonders "Is it I, God, or who, that lifts this arm?" in its chapter "The Symphony," after refusing to help the *Rachel* search for a lost child. This novel ends with three chapters called "The Chase," in which its protagonist is last seen yelling "from hell's heart I stab at thee!" For 10 points, name this novel whose title character is hunted by Captain Ahab.
ANSWER: **_Moby-Dick_**, or the Whale

15. **In the second of these poems, a man is admonished by his penis, which says that when it's erect, it doesn't care about screwing a high-status woman. The third of these poems ends by arguing against the Stoic doctrine of the sage as king by picturing a sage surrounded and harassed by mischievous boys. Several of these poems criticize Lucilius despite praising him for inventing their genre. The fifth one highlights the mundane annoyances the author encountered on a trip to Brundisium. Cervius tells the fable of the city mouse and country mouse in another of these poems, which describe their author's happiness about receiving his** (*) Sabine farm. They were probably the first published works of their author, as the two books of these poems were published in 35 and 30 BCE. Another of them makes fun of a bore who wants to be introduced to their author's patron, Maecenas. For 10 points, name these Latin poems which mildly mock folly, an approach often contrasted with the angry ones written by Juvenal.
ANSWER: **Horace**'s **_Satires_** [or Horace's **_Sermones_**; prompt on **Satires**]

16. **One character in this movie calls his wife from the shop of a blind woman who stands beside a sign reading "if you are mean enough to steal from the blind, help yourself." In this movie, Dennis Weaver plays a bizarre, nervous night manager at a small motel where thugs led by Mercedes McCambridge subject the female lead to an implied rape. A long take in this movie takes place in Marcia Linnekar's apartment, where a character knocks an empty shoebox to the ground, causing him to realize that two sticks of dynamite supposedly found in that shoebox were planted there. The antagonist's downfall occurs when he leaves his cane behind after strangling (*)** Uncle Joe Grandi, causing his partner Pete Menzies to turn against him. In this movie's long opening tracking shot, a ticking bomb is placed in the trunk of a car, which explodes after crossing the U.S.-Mexico border. It stars Charlton Heston as Mike Vargas, who takes down the corrupt police captain Hank Quinlan. For 10 points, name this 1958 film noir starring and directed by Orson Welles.
ANSWER: **_Touch of Evil_**

17. **In 1972, Klee and Minty demonstrated the existence of a problem in this field which had an exponential running time of 2 raised to the *n* for a cube in *n* dimensions. A polynomial-time algorithm in this field was developed by Khachiyan and is known as the ellipsoid method; that algorithm in this field is known as an "interior-path" algorithm. Another interior-path algorithm which finds the analytic center, a point that minimizes the potential function,(*)** was developed for solving problems in this field by Karmarkar. A common algorithm for solving problems in this field involves moving between extreme points of the objective function in such a way that the objective function either increases or stays the same; that method was developed in 1947 by George Dantzig and is known as the simplex algorithm. For 10 points, identify this field of optimization theory that is concerned with solving problems in which the unknowns as well as the constraints are all of monomial degree.
ANSWER: **l**inear **p**rogramming [prompt on "optimization"]

18. **According to Marcus Varro, this figure's tomb consisted of a square building topped by five pyramids supporting a bronze globe, which was in turn topped by a platform with four pyramids, and then by another one with five. A letter from Octavian to Maecenas mocking his heritage addresses him as the "beryl" of this figure, and the colloquial phrase "to sell the goods" of this person arose from his donation of his well stocked camp to an enemy army. This figure was saved from death when a would-be assassin mistook his scribe for him, and that assassin thrust his right hand into a fire in an act of defiance against this figure. After one conflict, this leader rewarded the bravery of (*)** maiden who escaped while being held hostage, and during another attack this leader was opposed by Spurius Lartius and Titus Herminius on the right flank, who withdrew and began to disassemble the Pons Sublicius. For 10 points, name this figure who rewarded the bravery of Mucius

Scaevola and Cloelia, a king of Clusium and Etruscan ally of Tarquinius Superbus who fought a war with Rome in 508 B.C. and whose army was held off by Horatius Cocles.
ANSWER: **Lars Porsena** [accept **Pursenas**]

19. **In his capacity as his nation's minister to Britain, this man negotiated the 1907 Integrity Treaty, which pledged his country to not surrender any territory, and pledged Britain to guarantee that country's territorial integrity. In another diplomatic exploit, this man was largely responsible for convincing Prince Carl, the son of Frederik VIII, to assume the throne of this man's newly-independent nation. One of this man's most famous humanitarian actions was the issuance of his namesake "passports,"** (*) whose purpose was to facilitate the resettlement of people impacted by the Russian Civil War. That action was taken while this man served as the High Commissioner of Refugees for the League of Nations, in which capacity he also tried to help victims of the Armenian genocide. Earlier in life, this man designed a ship named *Fram* that would drift with polar ice when frozen in it while this man's expedition got within 3 degrees latitude of the North Pole before rejoining *Fram* at Spitzbergen. For 10 points, identify this recipient of the 1922 Nobel Peace Prize, a Norwegian humanitarian and explorer.
ANSWER: Fritjof **Nannsen**

20. **One member of this sect received a nickname meaning "God's neighbor" and wrote a text which contains some of the few extant examples of the Kwaresmian language; that member is Al-Zamakhshari. One member of this sect presaged Darwinian evolution by writing that animals participate in a "struggle for existence". The leader of this sect stated that those who committed grave sin are in a state between belief and unbelief, which is his doctrine of indeterminacy. This sect, whose members include al-Jahiz and whose name means "Those who withdraw", believed the Qu'ran to be created rather than co-eternal with Allah, which put them at odds with the (*)** Ash'ari sect. Amhad bin Hanbal was flogged for refusing to follow this sect's doctrines under Caliph al-Ma'mun. This sect founded by a student of Hasan of Basra named Wasil ibn Ata believed that human reason was the final arbiter of morality and of revelation. For 10 points, name this rationalist school of Islamic theology popular in the 8th to 10th centuries in Baghdad.
ANSWER: **Mu`tazila**

1. This program's enforcement mechanisms included restricted income tax deductions and maternity leave, and it was followed a few years later by the soon-repealed Graduate Mothers Scheme. For 10 points each:
[10] Name this program which offered women without an O-level degree 10,000$ to undergo voluntary sterilization, which was advertised using posters saying things like "the more you have the less they get". A description including the nation is acceptable.
ANSWER: "**Two is Enough**" or "**Stop at Two**" [accept **Singapore's two-child** policy; accept things mentioning Singapore and two children]
[10] The "Stop at two" campaign was one of many reforms passed during the leadership of this first Prime Minister of Singapore and longtime leader of the People's Action Party, who died in 2015.
ANSWER: **Lee Kwan Yew**
[10] Lee Kwan Yew's government also launched Operation Coldstore, which targeted several members of this opposition political party.
ANSWER: **Barisan Sosialis** or **Socialist** Front or **shè huì zhǔ yì zhèn xiàn**

2. The fourth of these pieces is nicknamed "The Queen" for Marie Antoinette. For 10 points each:
[10] Name this set of six symphonies by Joseph Haydn , numbered 82 through 87 in his overall catalog.
ANSWER: **Paris** Symphonies
[10] The *Paris Symphonies* were premiered by the Concert de la Loge Olympique orchestra under the leadership of this violinist and conductor originally from Guadeloupe. The son of a slave, he became one of the first classical music stars of African descent.
ANSWER: Joseph de **Boulogne**, Chevalier de **Saint-Georges** [accept either underlined part]
[10] This earlier Haydn symphony is his only one in E minor, and one of the few to put the menuet in the second movement rather than the third.
ANSWER: *Symphony No. **44*** [or **Trauer** Symphony or **Funeral** Symphony or **Mourning** Symphony]

3. A woman is beaten to death with one of her own limbs, which is made out of gold, in this author's satire "Miss Killmansegg and Her Precious Leg." For 10 points each:
[10] Name this English poet, a frequent contributor to the *Athenaeum*, who wrote the sentimental poem "I Remember, I Remember." He exposed the poor working conditions of seamstresses in his wildly popular poem "The Song of the Shirt."
ANSWER: Thomas **Hood**
[10] After it was published in 1843, "The Song of the Shirt" briefly tripled the circulation of this popular Victorian humor magazine. It also published heaps and heaps of cartoons caricaturing the Irish as subhuman apes.
ANSWER: *Punch*
[10] Dickens based the character of Harold Skimpole in *Bleak House* on this contemporary of Thomas Hood, whose poetry includes "Abou Ben Adem" and "Jenny Kiss'd Me."
ANSWER: Leigh **Hunt**

4. This book argues that American democracy is threatened by social policies that predominantly transfer wealth to already affluent people. For 10 points each:
[10] Identify this work by Cornell political scientist Suzanne Mettler, which describes its title institution as "a conglomeration of federal policies that function by providing incentives, subsidies, or payments to private organizations or households."
ANSWER: The **Submerged State**: How Invisible Government Policies Undermine American Democracy
[10] Mettler's most recent book focuses on how these institutions perpetuate inequality; she primarily indicts for-profit examples of these institutions such as those owned by the Apollo Group, which exist primarily on revenue from the federal government.
ANSWER: **universities** or **colleges** [prompt on "higher education"]
[10] Writing with Christopher Jencks, this Harvard sociologist traced the evolution of higher education in works like *The Academic Revolution* and *On Higher Education*. He is better known for a work written in collaboration with Nathan Glazer and Reul Denny.
ANSWER: David **Riesman**

5. Chinese drama should come up more often, so you're going to answer a bonus about it. For 10 points each:
[10] This zaju play by Wang Shifu depicts the illicit love affair of Yingying and Zhang Sheng. It was frequently banned for its explicit depiction of premarital sex.
ANSWER: The *Story of the **Western Wing*** [or *Xixiang ji*; or *The **Romance of the West**ern **Chamber***; or ***Western Chamber Romance***]
[10] The four major plays of Tang Xianzu prominently feature these types of scenes, and are often named for them. One of those plays, *The Peony Pavilion*, famously includes a scene of this type in which Du Liniang falls in love with Liu Meng-mei.
ANSWER: **dream** scenes
[10] Modern Yue operas in China are performed by a cast consisting entirely of these kinds of people. During the Cultural Revolution, one of the Eight Model Operas was named for a "red detachment" of these people.
ANSWER: **women** [or **female**s, I guess, or any equivalent answers]

6. These cells undergo clonal selection as they move from double-negative to double-positive to single-positive. For 10 points each:
[10] Name these lymphocytes which come in helper, regulatory, and cytotoxic varieties. These cells mature in the thymus and can be divided into sub-populations based on CD4 and CD8 surface expression.
ANSWER: **T**-cells
[10] The first isoform of these proteins cleaves a precursor to interleukin-one-beta as a member of the inflammasome. These cysteine proteases are recruited by proteins containing CARD domains.
ANSWER: **caspases**
[10] The monoclonal antibody ipilimumab targets this receptor on T-cells, which binds to CD80 and CD86 to down-regulate responses.
ANSWER: **CTLA-4**

7. This king attacked the province of Moesia and killed its governor Oppius Sabinus in 85 C.E. before destroying the army of Cornelius Fuscus a year later. For 10 point each:
[10] Identify this ruler who committed suicide after Roman forces seized his capital Sarmizegethusa for a second time in 106 C.E.
ANSWER: **Decebalus**
[10] Decebalus was a king of this people who occupied the area roughly corresponding to present-day western Romania. Their defeat by Trajan resulted is commemorated in a giant column.
ANSWER: **Dacia**ns
[10] Dacia was divided into three provinces, Porolissensis, Apulensis, and Mlavensis by this emperor in 159 C.E. This emperor also founded the Puellae Faustinianae, a charitable institution for poor girls, in memory of his late wife.
ANSWER: Titus Aelius Hadrianus **Antoninus** Augustus **Pius** [or **Titus** Aurelius Fulvius Boionius Arrius **Antoninus**]

8. For 10 points each, name these portrait photographers.
[10] This photographer created many famous covers for *Vanity Fair*, including Whoopi Goldberg lying in a bathtub full of milk and Demi Moore holding her pregnant stomach. In 2015, she also photographed *Vanity Fair*'s cover depicting Caitlyn Jenner.
ANSWER: Annie **Leibovitz**
[10] This Armenian-Canadian photographer yanked Winston Churchill's cigar out of his mouth, resulting in his iconic portrait of a scowling Churchill for *Life* magazine. He often used separate lighting to illuminate a person's hands, such as in his portrait of a seated, introspective Albert Einstein.
ANSWER: Yousuf **Karsh**
[10] This American depicted German industrialist Alfried Krupp sinisterly leaning forward to illustrate his complicity with the Nazis. He created many "environmental portraits" of politicians and artists, including one depicting Stravinsky next to the open lid of a grand piano.
ANSWER: Arnold **Newman**

9. This result can be derived by using the Oseen formula, which gives the average of the perturbation flow on the surface of a sphere. For 10 points each:
[10] Identify this result, given by 6 pi times the viscosity times the sphere radius times the average velocity, which is equal to the resistance experienced by a sphere moving in a viscous fluid.
ANSWER: **Stokes** formula or friction
[10] A standard development of the theory of Brownian motion uses Stokes friction as the velocity-dependent force in this differential equation, which gives the force on a particle as the sum of a velocity-dependent and a stochastic component.
ANSWER: **Langevin** equation
[10] Most analyses of Brownian motion makes implicit use of the Wiener-Khinchine theorem, which holds that the spectral power density results from applying this operation to the autocorrelation. This operation is usually used in signal analysis to transform between time and frequency domains.
ANSWER: **Fourier** transform

10. This author wrote Captain Willard's voice-overs in *Apocalypse Now*, and collaborated with Stanley Kubrick on the screenplay for *Full Metal Jacket*. For 10 points each:
[10] Name this war correspondent, who described his experiences covering the Vietnam War in his 1977 book *Dispatches*.
ANSWER: Michael **Herr**
[10] This author fictionalized his tour of duty in Vietnam in the book *If I Die in a Combat Zone, Box Me Up and Ship Me Home*. Vietnam is also the setting of his short story collection *The Things They Carried*.
ANSWER: Tim **O'Brien**
[10] Kennedy's foreign policy was influenced by this 1958 novel by Eugene Burdick and William Lederer, which condemns ineffective American anti-Communist policies in the fictional Southeast Asian country of Sarkhan. Its frequently-misunderstood title refers to Homer Atkins, an engineer who works to help the native population solve practical problems.
ANSWER: *The **Ugly American***

11. This being was allegedly discovered in December of 1495 after heavy rains flooded the Tiber, eventually washing up a grotesque creature that was a combination of human and animal body parts. For 10 points each:
[10] Identify this being prominent in 16th century antichristology, as exemplified in the anonymous Hussite pamphlet *The Anatomy of the Antichrist*, which analogized the body parts of this creature to elements of the papacy.
ANSWER: the **pope-ass** or **Roman monster**
[10] The pamphlet *The Pope-Ass Explained* is one of the early propagandistic works of Lutheranism by this Protestant theologian who was primarily responsible for codifying the Lutheran faith in the 21-article Augsburg Confession.
ANSWER: Philip **Melanchthon** or **Schwartzerd**
[10] Melanchthon and his Lutheran allies were bolstered by the apparent suspension of the Edict of Worms at this 1526 meeting; a second meeting in the same city in 1529 reversed the decisions of the earlier one, demanding that all principalities of the Holy Roman Empire follow Catholicism.
ANSWER: Diet(s) of **Speyer**

12. These constructs have cells that are different by a change in one variable from cells that are adjacent to them, an ordering known as a Gray code. For 10 points each:
[10] Identify these graphical constructs helpful in logic circuit design, which are basically refinements of a traditional Boolean function truth table.
ANSWER: **Karnaugh** maps
[10] The Karnaugh map is constructed from arrangements of these results of a Boolean product operation; terms of this type are product terms in which all variables, or their complements, appear exactly once.
ANSWER: **minterm** [or **minimum term**]
[10] A canonical use of the Karnaugh map is the elimination of these situations which are indicated by transitions between disjoint regions on the map. These situations occur when the output of a circuit depends on the timing of an uncontrollable signal.
ANSWER: **race** condition or hazard

13. Urashima Taro's visit to this god's castle ended with him being given his old age in a box, which after returning to shore he opened and subsequently died. For 10 points each:
[10] Name this Shinto god of the sea.
ANSWER: **Ryujin** [or **Watatsumi**]
[10] Ryujin owned a pair of these objects that could control the tides. They were later given to his son-in-law Hoori along with a fishhook he lost.
ANSWER: **jewels** [accept more specific answers, accept **pearls**]
[10] According to the Nihon Shoki, this shamanistic empress, consort of Emperor Chuai, and mother of Ojin used the tide jewels to help conquer Korea.
ANSWER: Empress **Jingu**

14. This art exhibition includes a film festival that introduced Akira Kurosawa to the west in 1951 by awarding *Rashomon* the Golden Lion. For 10 points each:
[10] Name this major exhibition of contemporary art, in which countries from around the world host pavilions at the Giardini. It takes place every two years in an Italian city.
ANSWER: Venice **Biennale** [or **Biennale Foundation**]
[10] The 1964 Venice Biennale, which introduced Pop Art to Europe, controversially awarded this American artist the Grand Prize. Between 1962 and 1964, he created a series of silkscreen paintings incorporating images from the mass media, pictures of mundane objects, and loose brushwork.
ANSWER: Robert **Rauschenberg**
[10] The Biennale also exhibited many of these Rauschenberg works, which he created by attaching found objects to a canvas. They include *Bed*, *Canyon*, and *Monogram*.
ANSWER: **combine**s

15.Answer some questions about high throughput screening for drug discovery, for 10 points each:
[10] High-throughput screens use these large collections of molecules to find hits. These collections, which usually contain a large number of variations of a scaffold or backbone, cane be natural-product like or drug-like.
ANSWER: compound **library**
 [10] The druglikeness of a compound can be ascertained by this set of criteria, which includes having no more than 5 H-bond donors, no more than 10 H-bond acceptors, and mass less than 500 daltons.
ANSWER: **Lipinski**'s rule of five [or the **rule of five** or **Pfizer's rule** of five]
[10] The last of Lipinski's rules of five puts a limit on the partition coefficient of the compound between octanol and this solvent. Channels that allow this substance through have an aromatic-arginine filter and an NPA motif.
ANSWER: **water**

16. This work begins by introducing the concept of the "maximum," with God being the absolute maximum, is divided into four books that deal with, respectively, God, creation, Christ, and man. For 10 points each:
[10] Identify this philosophical work whose second book proposes the principle of "*quodlibet in quodlibet*" to describe how each piece of the universe is a microcosm of the universe itself.
ANSWER: **On Learned Ignorance** or **De docta ignorantia**
[10] *On Learned Ignorance* is the most famous work of this major 15th century German philosopher, who also argued that human minds are images of the divine mind in his dialogue *The Layman: About Mind*.
ANSWER: **Nicholas of Cusa**
[10] Nicholas may have been inspired to formulate his "*quodlibet in quodlibet*" principle by this pre-Socratic, who argued that the primordial mixture of stuff was separated out into the current world by Mind, or *nous*.
ANSWER: **Anaxagoras**

17. This bandit's story was popularized by Cherokee author John Rollin Ridge, who wrote a novel about his "life and adventures." For 10 points each:
[10] Name this Mexican outlaw, who terrorized California in the mid-19th century alongside his right-hand man "Three-Fingered Jack." His legend grew after he was captured and beheaded by Captain Harry Love, who preserved his severed head in a jar of whiskey.
ANSWER: Joaquin **Murieta**
[10] Joaquin Murieta's gang frequently committed this crime common to the Western range. It sometimes involved using a hot iron to alter brands, and was deterred by the invention of barbed wire fences.

ANSWER: cattle **rustling** [or **cattle raiding**; or **stealing cattle** or equivalents]
[10] In this series of conflicts in Wyoming, which took place from 1889 to 1893, wealthy cattle barons accused smaller settlers of rustling and hired gunmen to attack them. It inspired novels like *The Virginian* and *Shane*.
ANSWER: **Johnson County War** [or the **War on Powder Creek**; or the **Wyoming Range War**]

18. Tradition holds that Moses wrote the Pentateuch, or Torah, but stylistic differences reveal that it is probably a compilation of four different sources. For 10 points each:
[10] According to the Wellhausen documentary hypothesis, this was chronologically the last of the four major sources of the Pentateuch. Most scholars place it during the exile in Babylon, and it provided the creation story in Genesis chapter 1.
ANSWER: the **Priest**ly author [or **Priest**ly source, or just **P**]
[10] While the P source uses names like "El Shaddai" for God, the earlier J-source always refers to God by this set of four letters. The general name of the set is acceptable.
ANSWER: the **tetragrammaton** [or **YHVH** or **YHWH** or **JHWH** or **JHVH** or **yod hei vav hei**]
[10] Another reason for doubting Moses's authorship of the Pentateuch is the long list in Genesis of the kings of this nation who lived long after Moses's death. This nation was founded in the hill country of Seir.
ANSWER: **Edom**

19. This book often cites Stanislavski to analyze the difference between "surface acting" and "deep acting." For 10 points each:
[10] Name this book by Arlie Russell Hochschild, which uses interviews with bill collectors and flight attendants to examine the "commercialization of human feeling."
ANSWER: The **Managed Heart**:*the Commercialization of Human Feeling*
[10] *The Managed Heart* coined this two-word term for way workers are expected to regulate their feelings when dealing with customers in order to meet their employer's expectations. It is most often required by jobs in the service industry.
ANSWER: **emotional labor**
[10] *The Managed Heart* is an example of this qualitative research method, which observes the in-depth details of a particular culture's everyday life through interviews, fieldwork and participant observation. Many classics of anthropology, such as *Coming of Age in Samoa* and *Argonauts of the Western Pacific*, are these kind of texts.
ANSWER: **ethnography** [or **ethnographic** research]

20. This character travels the world using the magical Seven-League Boots, and eventually becomes a devoted botanist. For 10 points each:
[10] Name this title character of a novella by Adelbert von Chamisso, who gets in all sorts of mischief after selling his shadow to the Devil.
ANSWER: Peter **Schlemihl** [or Peter **Schlemihl**]
[10] Erasmus Spikher barters away his reflection in this fellow German Romantic author's story "A New Year's Eve Adventure," which frequently alludes to Peter Schlemihl. You may know him better for writing "The Golden Pot" and "The Sandman."
ANSWER: Ernst Theodor Amadeus (E. T. A.) **Hoffmann**
[10] This Hoffmann character forbids his daughter Antonia from singing because she risks death if she overexerts her lungs, and buys her a Cremona violin whose sound resembles her voice. The story named for him inspired the second act of *The Tales of Hoffmann*.
ANSWER: Rath **Krespel** [or Councillor **Krespel**]