1. In one scene, this character is recognized by a scar on his thigh that he received during a boar hunt. While disguised, he is shown hospitality by the loyal swineherd Eumaeus (yoo-MAY-us). He uses the herb moly to subdue one opponent, and he is forced to live on Ogygia (oh-GIH-jee-uh) for several years with the nymph Calypso. Earlier, this character blinds the Cyclops Polyphemus (pahl-ee-FEE-mus), instigating Poseidon to attempt to stop him from returning home to Ithaca. For 10 points, name this title character of an epic poem by Homer.
ANSWER: **Odysseus**

014-12-70-04101

2. Like the lung, this organ is destroyed in patients with alpha-one-anti-trypsin deficiency, and backup of blood flow through this organ can cause esophageal varices and caput medusa. This organ has a lot of smooth endoplasmic reticulum and half its blood comes from the portal vein. This organ, which has four lobes, is triangular and serves to detoxify blood. For 10 points, name this abdominal organ which is damaged in people with alcoholic cirrhosis.
ANSWER: **liver**

048-12-70-04102

3. In Norse mythology, Loki prevented one of these structures from being built by turning himself into a mare and distracting Svadilfari (svah-deel-FAH-ree). In Greek myth, Laomedon (lay-OH-med-on) angered Poseidon and Apollo by refusing to pay them for building one of these. Roman legend holds that Remus was killed after jumping over one of these structures built by Romulus. For 10 points, name these defensive structures which the Greeks circumvented at Troy by using a wooden horse.
ANSWER: **wall**s

015-12-70-04103

4. This city contains the 88-story Jin Mao Tower, the Yuyuan Garden, and the City God Temple. This city's hosting of the 2010 World Expo led to the reopening of its waterfront, the Bund. Its Pudong district is a Special Economic Zone. The Huangpu (WONG-poo) River flows through this city, which is a province-level municipality bounded by Zhejiang (JEH-jang) Province, Jiangsu (JANG-soo) Province, and the East China Sea. For 10 points, name this city whose population of 23,000,000 makes it the largest in China.
ANSWER: **Shanghai**, China

080-12-70-04104

5. This general was fooled by campfires and the sounds of digging into letting his opponent escape at Assunpink Creek. This man commanded light infantry under Howe during the Philadelphia campaign. He appointed Charles O'Hara as his representative, causing Washington to appoint Benjamin Lincoln as his representative. This man's victories at Camden and Guilford Courthouse could not save him from being trapped at Yorktown. For 10 points, name this British general who surrendered to George Washington.
ANSWER: Charles **Cornwallis**

015-12-70-04105

6. SixTrack and Test4Theory are components of a distributed computing application put out by this facility. One experiment conducted here is headed by Pinfold and is called MoEDAL. ATLAS and CMS are among the detectors located here. Part of the purpose of this facility is to investigate supersymmetry, and an event of five-sigma significance at 126 giga-electron-volts in this facility is thought to be confirmation of the existence of the final object predicted by the standard model. For 10 points, name this facility at which the Higgs Boson was discovered in July 2012.
ANSWER: **Large Hadron Collider** [or **LHC**; prompt on **CERN** or **European Organization for Nuclear Research**]

7. This character prefers the companionship of his dog Wolf to that of his nagging wife. He encounters a group of men in old-fashioned clothing playing nine-pins while walking in the Catskill Mountains. This character is reproached for declaring his loyalty to King George, not realizing the American Revolution has taken place. Earlier, he nods off after drinking some mysterious purple liquor. For 10 points, name this character from a Washington Irving story who wakes up after being asleep for twenty years.
ANSWER: **Rip** Van Winkle [or Rip **Van Winkle**]

8. This number is the quotient of the gas constant and Boltzmann's constant, as well as Faraday's constant divided by elementary charge. It is formally defined as the number of constituents in twelve grams of carbon-12. This number's namesake discovered that equal volumes of gases at the same temperature contain the same number of particles. For 10 points, name this constant equal to the number of particles in a mole, or about 6.02 times ten to the twenty-third power.
ANSWER: **Avogadro**'s number

9. This man was forced to flee his homeland because of a conflict with Pasquale Paoli. This man signed the Treaty of Tilsit with Alexander I, who later joined with Austria and Sweden to defeat this man at the Battle of Leipzig. After being exiled to the island of Elba, this man returned in a period known as the Hundred Days. He was defeated by Wellington and Bluecher at a battle in Belgium. For 10 points, name this French general and emperor who was exiled to Helena after losing at Waterloo.
ANSWER: **Napoleon** Bonaparte [or Napoleon **Bonaparte**; or **Napoleon** I]

10. In this opera, the female lead sings "Una voce (VO-chay) poco fa" in her first appearance, and the title character boasts of his importance in his introductory aria, "Largo al factotum." In this opera, a bribe is offered to the music teacher Basilio by Count Almaviva, who recruits the title character to help him woo and marry Rosina, the beautiful ward of Dr. Bartolo. For 10 points, name this Gioachino (JOE-ah-KEE-no) Rossini opera featuring Figaro, whose occupation involves shaving his customers.
ANSWER: *The **Barber of Seville*** [or Il ***Barbiere di Siviglia***]

11. This process can result in an uneven distribution of cytoplasm between one large cell and several smaller polar bodies. "Crossing over" occurs between nonsister chromatids during this process, which also sees homologous chromosomes zipped up through synapsis. This process begins with one diploid cell and, through a pathway including two rounds of cytokinesis, results in four haploid cells. For 10 points, name this form of cell division that produces gametes and is contrasted with mitosis.
ANSWER: **meiosis** [or **oogenesis**; or **spermatogenesis**; prompt on **prophase I**]

12. While in high school, this player was named the Co-MVP of the 2006 All-American Game with Chase Budinger. This player wears the number 35 in honor of his murdered coach Charles Craig. This man won the Rookie of the Year award with the Supersonics in 2008. This three-time scoring champion hit the game-winning shot in game 1 of the 2012 Western Conference quarterfinals against the Mavericks. For 10 points, name this small forward for the Oklahoma City Thunder.
ANSWER: Kevin **Durant**

13. Top-level categories of this type of rock includes rudites, arenites and lutites. This type of rock includes conglomerates and breccia. The last stage in the formation of this type of rock is cementation, the opposite of which is dissolution, which can lead to the formation of stalagmites and stalactites. They contain the fossil record and are formed after the weathering of pre-existing rock. For 10 points, identify this type of rock paired with igneous and metamorphic.
ANSWER: **sedimentary** rock [prompt on **limestone**]

14. The author of this poem appended a series of intentionally ridiculous explanatory notes in response to criticism that it was obscure. One character in this poem rises "a sadder and a wiser man" on the following day after listening to another character's tale. That character describes, "water, water, everywhere, nor any drop to drink" after recalling how he used his crossbow to kill an albatross. For 10 points, name this ballad by Samuel Taylor Coleridge about an old sailor.
ANSWER: "The **Rime of the Ancient Mariner**"

15. Canada cut diplomatic ties with this country in September 2012. After an hour-long telephone call, Barack Obama rejected a "clear red line" policy proposed by Benjamin Netanyahu that dealt with one of this country's energy initiatives. The Principalists won the March 2012 legislative elections in this country seen as the target of proposed Israeli attacks on its nuclear program. For 10 points, name this country led by Ayatollah Khamenei and President Mahmoud Ahmadinejad.
ANSWER: Islamic Republic of **Iran** [or *Jomhuri-ye Eslami-ye **Iran***]

1A. What actor delivered the line, "When Gotham is ashes, you have my permission to die" as Bane in *The Dark Knight Rises*?
ANSWER: Edward Thomas **Hardy** [or Tom **Hardy**]

1B. What Tennessee city hosted the 1982 World's Fair and is the site of the main campus of the University of Tennessee?
ANSWER: **Knoxville**

2A. What Serbian-American physicist invented the radio and names the SI unit of magnetic flux density?
ANSWER: Nikola **Tesla**

2B. This is a 20-second calculation question. What is the period of the function $y = \sin(x/2)$?
ANSWER: **4 pi**

3A. This is a 20-second calculation question. If x is equal to the natural logarithm of 4, what is e raised to x over 2?
ANSWER: **2**

3B. James George Frazer wrote what initially controversial work of comparative mythology and religion, which was titled for an object used by Aeneas to enter the underworld?
ANSWER: *The **Golden Bough**: A Study in Magic and Religion*

4A. What country experienced a literary Golden Age in which the plays of Lope de Vega and Calderon de la Barca were written?
ANSWER: Kingdom of **Spain** [or Reino de **España**]

4B. Identify the novel by Arundhati Roy about the childhood of the twins Estha and Rahel, whose mother has a forbidden affair with the untouchable Velutha.
ANSWER: *The **God of Small Things***

5A. What American author wrote about California pioneer life in "The Luck of Roaring Camp" and "The Outcasts of Poker Flat"?
ANSWER: Bret **Harte**

5B. An important eyewitness account of the Great Fire of London is provided by what English government official's famous diary from the 1660s?
ANSWER: Samuel **Pepys**

6A. What system of electricity championed by Tesla in the current wars is contrasted with Edison's DC?
ANSWER: **alternating current** [or **AC**]

6B. This is a 30-second calculation question. What is the inverse of the function $f(x) = 3x^3 - 4$?
ANSWER: $f^{-1}(x) = $ **$((x + 4)/3)^{1/3}$** (f inverse of x = quantity x + 4 divided by 3, all raised to the one third power) [or $f^{-1}(x) = $ **cube root** of quantity **$(x + 4)/3$**]

7A. This is a 30-second calculation question. What is the volume, in terms of pi, of a cylinder with base diameter and height each equal to six inches?
ANSWER: **54 pi cubic inches**

7B. The failed British bombardment of what Baltimore fort during the War of 1812 inspired Francis Scott Key to write the "Star-Spangled Banner?"
ANSWER: Fort **McHenry**

8A. Johann Strauss II was known as the "king" of what type of 3/4 dance popular in 19th-century Vienna?
ANSWER: **waltz**

8B. Dhofari, Saidi, and Juba are all forms of what language, which is usually taught in the "Modern Standard" version and is the majority tongue in over twenty-five countries?
ANSWER: **Arabic**

9A. What Austrian member of the Vienna Secession used gold leaf in works like *The Kiss* and *Portrait of Adele Bloch Bauer*?
ANSWER: Gustave **Klimt**

9B. What conic section is the set of points such that the difference between their distances from two fixed points is constant?
ANSWER: a **hyperbola**

10A. Name the queen whose navy lost at the Battle of Actium and who was a lover of both Julius Caesar and Mark Antony.
ANSWER: **Cleopatra** VII Thea Philopater

10B. What geneticist developed the use of namesake "squares" to describe test crosses?
ANSWER: Reginald **Punnett**

1. In one system, these files contain an ImageBase field along with a Sections Table. On a different platform, these files contain dot data and dot text sections. Types of these files include Mach-O and ELF. Dynamic linking allows these files to use shared libraries, such as a DLL. These files are created by a compiler. The headers of these files usually indicate the architecture platform on which they can be used. For 10 points, name these files containing instructions that can be run on a computer.
ANSWER: **executable**s [or **exe**; or **program**s]

001-12-70-04117

2. Ramsey Clark brought a lawsuit alleging members of Skull and Bones had stolen this man's remains from Fort Sill. This man fought with Mangas Coloradas and Cochise (CO-cheese). This man's name was the codename for the raid on Abbottabad that took down Osama bin Laden. This man led a guerilla campaign against the Mexicans and Americans until he was forced to surrender to Nelson Miles in 1886. For 10 points, name this Apache warrior whose name was popular with US paratroopers in World War II.
ANSWER: **Geronimo** [or **Goyathlay**]

015-12-70-04118

3. Examples of this literary form include a work following the family of Jia Baoyu (ZHAH bow-YOO), who is born with a piece of jade in his mouth. That work, *The Dream of the Red Chamber,* is one of the "Four Great Classical" ones written in Chinese. Candidates for the first work of this form written in English include Thomas Nashe's *The Unfortunate Traveller* and Daniel Defoe's *Robinson Crusoe.* For 10 points, name this type of long prose narrative, examples of which include *Great Expectations.*
ANSWER: **novel**s

014-12-70-04119

4. Small-angle scattering of this kind of radiation is used to find the conformation and shape of some proteins. The broad iron K line is this type of radiation, whose emission is governed by the empirical Moseley's Law. It was originally discovered being emitted from a Crookes tube by William Roentgen (RENT-ghen), who used them to image his wife's hand. For 10 points, name this type of electromagnetic radiation with wavelength between ultraviolet and gamma radiation.
ANSWER: **X-ray** radiation

048-12-70-04120

5. This leader ordered the withdrawal of Soviet forces from Afghanistan. He instituted economic reforms known as perestroika and a policy of transparency known as glasnost. This man's resignation allowed the popularly elected-president Boris Yeltsin to assume power. Ronald Reagan addressed this leader in a Berlin speech, telling him to "tear down this wall!" For 10 points, name this leader of the Soviet Union who held power during its dissolution at the end of the Cold War.
ANSWER: Mikhail Sergeyevich **Gorbachev**

015-12-70-04121

6. This holiday occurs on the first and second days of Tishri. One common practice on this holiday is eating apples dipped in honey. Celebrants of this holiday also practice *tashlikh*, in which they symbolically cast their sins into a body of water. Unless this holiday falls on the Sabbath, an instrument called the shofar is often blown one hundred times a day during it. The first of the High Holy Days, it occurs ten days before Yom Kippur. For 10 points, name this Jewish New Year.
ANSWER: **Rosh Hashanah**

7. In one film by this director, the sight of a necklace belonging to Carlotta Valdes leads the protagonist to confront Judy, who falls from the bell tower of the Mission San Juan Bautista. That film by this director made innovative use of the dolly zoom to represent the disorienting title phenomenon experienced by Scottie Ferguson. In another of his films, motel owner Norman Bates stabs to death Marion Crane in an iconic shower scene. For 10 points, name this British director of *Vertigo* and *Psycho.*
ANSWER: Alfred **Hitchcock**

8. One of these compounds synthesized from phenol and phthalic anhydride was once used as a laxative, but is now known to be a carcinogen. Cresol Red and bromythol blue are examples of these compounds, which demonstrate the endpoint of a titration. Better-known ones include red cabbage and a substance which turns pink in basic solution, phenolphthalein. For 10 points, name these compounds which distinguish between acids and bases.
ANSWER: pH **indicator**s

9. This character investigates a distress call from a Bottle Ship with members of the Galactic Federation's Seventh Platoon, including Anthony Higgs and Commander Adam Malkovich. This character, who is aided by Chozo DNA, escapes the destruction of an abandoned freighter orbiting Tallon IV in another game. This character receives energy and special powers from the death of a title creature in one game, enabling her to defeat Mother Brain on the planet Zebes. For 10 points, name this armored bounty hunter, the heroine of Nintendo's Metroid games.
ANSWER: Samus **Aran** [or **Samus** Aran]

10. This novel ends with a bird saying "poo-tee-weet." The refrain "So it goes" is invoked in this novel whenever death is mentioned. Its protagonist is married to the obese Valencia Merble and works as an optometrist in Ilium, New York. That protagonist is kidnapped by the alien Tralfamadorians and placed in a zoo with Montana Wildhack. In this novel, Billy Pilgrim meets Kilgore Trout and becomes "unstuck in time." For 10 points, name this novel by Kurt Vonnegut.
ANSWER: *Slaughterhouse-Five*

11. One work by this philosopher analyzes several operas by Mozart in outlining a conception of the "musical erotic." In that work, Judge Vilhelm argues for the ethical way of life over the aesthetic way of life embodied by Johannes the Seducer. In another work, this philosopher discoursed on the paradoxical nature of the "knight of faith" after presenting four versions of the story of Abraham's sacrifice of Isaac. For 10 points, name this Danish proto-existentialist who wrote *Either/Or* and *Fear and Trembling.*
ANSWER: Soren **Kierkegaard**

12. In one of this man's poems, he exclaims "What fond and wayward thoughts will slide into a lover's head!" upon imagining the death of his beloved, a girl named Lucy. He wrote, "I have learned to look on nature, not as in the hour of thoughtless youth," in another poem about revisiting the title location on the banks of the Wye after five years. For 10 points, name this Romantic poet of "Tintern Abbey" who collaborated with Samuel Taylor Coleridge on the collection *Lyrical Ballads.*
ANSWER: William **Wordsworth**

13. In 2011, Rick Perry stated that Texas would treat this man "pretty ugly" and called his actions "almost treasonous." He received the derogatory nickname "Helicopter" for referencing the idea of a "helicopter drop" of money in a speech. This man defied Republicans in Congress by launching "Operation Twist," and he coined the term "fiscal cliff." In September 2012, he announced QE3, a third round of "quantitative easing." For 10 points, name this successor of Alan Greenspan as chairman of the Federal Reserve.
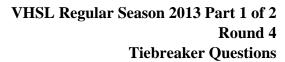ANSWER: Ben Shalom **Bernanke**

14. One leader of this country organized the Sergeants' Revolt, overthrowing the government of Carlos Manuel de Cespedes. Another leader of this country organized the 26th of July Movement and gave the "History Will Absolve Me" speech after being arrested for assaulting the Moncada Barracks. That leader of this country overthrew Fulgencio Batista with the help of Che Guevara and crushed the Bay of Pigs Invasion. For 10 points, name this Caribbean nation formerly led by Fidel Castro.
ANSWER: Republic of **Cuba** [or Republica de **Cuba**]

15. This people's music is collected in a canon called the Twelve Muqam. Despite speaking a Turkic language, they use the Arabic alphabet. After two members of this group were killed a a toy factory, they began a riot targeting the Han in their city of Urumqi (oo-ROOM-chee). This people follows Islam and populates a region they call East Turkestan. For 10 points, name this Turkic ethnic group that populates China's Xinjiang (SHIN-jang) region.
ANSWER: **Uyghur** people

1. This compound is the simplest carbamide. In the body, it is produced in a cycle which uses three ATP molecules and produces the intermediate citrulline. Friedrich Wohler's synthesis of this compound disproved vitalism. This compound's structural formula is NH2CONH2. It is produced principally in the liver to allow for a safe way to excrete nitrogenous waste. For 10 points, name this solid nitrogen-containing component of urine.
ANSWER: **urea**

190-12-70-04132

2. An annual lookalike contest for this author is held in Sloppy Joe's Bar in Key West. This author of "Indian Camp" wrote a novel in which Robert Cohn, Brett Ashley, and Jake Barnes experience the fiesta in Pamplona. He wrote of Robert Jordan's quest to blow up a bridge during the Spanish Civil War in another novel. For 10 points, *The Sun Also Rises* and *For Whom the Bell Tolls* were written by which man, who wrote about Santiago and a marlin in *The Old Man and the Sea*?
ANSWER: Ernest Miller **Hemingway**

015-12-70-04133

3. The highest known naturally occurring concentration of this substance is in the Kakadu plum. One enzyme needed to synthesize this compound, L-GULO, is a pseudogene in humans but still active in bats. This substance is an electron donor for the enzyme dopamine beta hydroxylase. This compound is necessary for the hydroxylation of proline residues in collagen, and deficiency in this vitamin causes a disease in which ones gums bleed, called scurvy. For 10 points, name this vitamin present in citrus fruits.
ANSWER: Vitamin **C** [or **ascorbate** or **ascorbic acid** before mention]

048-12-70-04134

4. This man's command was taken over by Daniel Morgan when this man was wounded in the leg during the Battle of Quebec. This husband of Peggy Shippen was found to have collaborated with Major John Andre. He joined Ethan Allen and the Green Mountain Boys for the successful storming of Fort Ticonderoga. This man was given command of West Point in 1780, and he planned to use his position to turn the fort over to the British. For 10 points, name this infamous traitor of the American Revolution.
ANSWER: Benedict **Arnold**

015-12-70-04135

5. The "a prime" term is added to this quantity in the van der Waals equation. The solubility of a gas in liquid is proportional to this quantity for the gas according to Henry's Law. The triple point is usually shown on a diagram plotting temperature against this quantity for a substance. For 10 points, name this physical quantity which is measured by a barometer in millimeters of mercury or Pascals.
ANSWER: **pressure** [accept more specific answers]

190-12-70-04136

This is a calculation question. What is the dot product of the vectors <1, 2, 3> and <-1, 4, 5>?
ANSWER: **22**

What American photographer wrote *Making a Photograph* and is known for his photographs of the American West such as *Moonrise, Hernandez, New Mexico*?
ANSWER: Ansel **Adams**