



Question #1: Science – Chemistry

10 points

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| <p>When the liquid form of this substance is mixed with sodium, it turns a deep blue due to the presence of solvated electrons. Due to tunneling, this compound can undergo an inversion that is sometimes compared to an umbrella turning itself inside-out in wind. This compound reacts with oxygen at the beginning of the Ostwald process. This trigonal [TRIG-uh-nul] pyramidal compound is produced industrially using an iron catalyst and high pressures in the Haber-Bosch process. This compound, often found in fertilizer, is produced by reacting nitrogen and hydrogen. Name this weak base whose formula is NH₃ [N H three].</p> | <p>ammonia [accept NH₃ before the end]</p> |
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Question #2: Social Studies – Geography

10 points

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|---|--------------------------|
| <p>The Pinelands National Reserve in this state includes over one hundred thousand acres set aside as Wharton State Forest. The southern end of this state features Seven Mile Island on Cape May. The western boundary of this state is formed by Delaware Bay and the Delaware River, which can be crossed to reach this state from Wilmington, Delaware or from Philadelphia. Though New York controls Liberty Island, this state controls the water around it. Name this state whose most populous city is Newark [NOO-urk], and whose capital is Trenton.</p> | <p>New Jersey</p> |
|---|--------------------------|



Question #3: Fine Arts – Classical Music & Opera

10 points

This composer worked with the cellist [CHEL-ist] Wilhelm Fitzenhagen [VIL-helm FITS-in-hah-gun] on a piece whose name is misleading because he wrote the theme himself, *Variations on a Rococo Theme*. This composer made references to *God Save the Tsar* in his *Festival Coronation March* written for Alexander the Third. One work by this composer includes a *divertissement* [dee-vair-teess-mawn] that ends with the “Dance of the Reed Flutes” and “Mother Ginger” before moving on to the “Waltz of the Flowers”. In that work by this composer, Drosselmeyer is the godfather of Clara. Name this composer of *The Nutcracker*.

Pyotr Ilyich Tchaikovsky

Question #4: Mathematics – Math Concepts

10 points

The graph of a polar function has this orientation when r times sine theta equals the derivative of r with respect to theta, times cosine theta. *Asymptote* [“ASS-imp-totes”] with this orientation are not related to functions’ end behavior. This term can refer to two congruent, but non-adjacent, angles formed by the intersection of two lines. In standard two-dimensional graphs, a line with this property can be generated by setting x equal to a constant. Give this term typically used to describe objects that go straight up and down.

vertical [accept up and down before the end]



Question #5: Literature – U.S. Literature

10 points

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| <p>The narrator of this story contrasts himself with madmen who “know nothing”, and claims that he heard sounds from heaven and sounds from hell. This story ends with the narrator asking “Why does it not stop?”. The protagonist of this story described the “eye of a vulture” that spurred him to take a man’s life. Following the key act in this story, the narrator grabs chairs for the policemen who come to investigate, and he ends up sitting above the body hiding in the planks. Name this story by Edgar Allan Poe in which the title object — despite the victim’s death — is still heard beating.</p> | <p>“The <u>Tell-Tale Heart</u>”</p> |
|---|-------------------------------------|

Question #6: Social Studies – World History

10 points

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| <p>One of the people who held this position banished the Pure Land School due to that group’s respectful treatment of women. National Foundation Day celebrates the first person to gain this position; the first 14 people to hold this position did so during the Legendary Period. After World War II, the holder of this position signed the Humanity Declaration, which Americans believed ended claims that these people were descendants of a goddess. That person with this position was Hirohito, while the first one was Jimmu. Name this position at the head of the monarchy of an Asian island country.</p> | <p><u>Emperor of Japan</u> [or <u>Japanese Emperor</u>; prompt on <u>emperor</u> or on descriptive answers indicating the leader of <u>Japan</u>]</p> |
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Question #7: Science – Biology

10 points per part

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| The first cranial nerve is named for, and carries, this sense. | | |
| 1 | Name this sense dependent on cells along the nasal cavity. | sense of smell (ing) [or olfaction or olfactics] |
| 2 | This structure — which contains the vomer bone — separates the nostrils. | nasal septum |
| 3 | Senses are processed in the brain by the olfactory bulbs, which are part of this system. It is responsible for emotions, long-term memory, and behavior. | limbic system |

Question #8: Science – Biology

10 points per part

| | | |
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| The organisms in the domains Archaea [ar-KEE-uh] and Bacteria consist of this type of cell. | | |
| 1 | What term describes a cell that has no membrane-bound organelles, and in particular, no nucleus? | prokaryotic [PRO-kair-ee-AH-tik] cells or prokaryotes [pro-KAIR-ee-“oats”] |
| 2 | Many prokaryotes contain this kind of circular DNA. When bacteria exchange DNA by conjugation, it’s usually this kind of DNA that they exchange. | plasmids |
| 3 | This theory suggests that organelles like mitochondria [“might-oh-CON”-dree-uh] and chloroplasts [KLOR-oh-plasts] arose from one prokaryote essentially “eating,” and incorporating, a smaller prokaryote. | endosymbiotic theory or endosymbiosis or symbiogenesis |



Question #9: Literature – U.S. Literature

10 points per part

| | | |
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| This play begins in the bedroom of Reverend Samuel Parris’s daughter, Betty. | | |
| 1 | Name this drama in which Thomas Putnam uses a local hysteria to obtain more property, despite the attempts of Mary Warren to expose the hoax. | <i>The <u>Crucible</u></i> |
| 2 | This author satirized McCarthyism in <i>The Crucible</i> . | Arthur (Asher) <u>Miller</u> |
| 3 | To ensure that his property would pass to his sons, Giles Corey accepted his charge of contempt of court and was executed via this method. | pressing with stones [accept crushing to death or equivalents] |

Question #10: Literature – U.S. Literature

10 points per part

| | | |
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| In this poem, the speaker describes a man called “the mightiest of magicians” who is guarded by “black pitch-water” and “fiery serpents”. | | |
| 1 | Name this poem set “On the shores of Gitche Gumee [GIT-chuh GOO-mee].” | “The Song of <u>Hiawatha</u> ” |
| 2 | “The Song of Hiawatha” is by this author, who wrote about an Acadian’s search for Gabriel Lajeunesse [lah-zhoo-ness] in “Evangeline”. | Henry Wadsworth <u>Longfellow</u> |
| 3 | This grandmother of Hiawatha warned her daughter Wenonah [weh-NOH-nuh] about the West Wind, but her words were not heeded. | <u>Nokomis</u> [nuh-KOH-miss] |



Question #11: Social Studies – Religion

10 points per part

| | | |
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| Sigmund Freud [froyd] wrote a book titled <i>Moses and this concept</i> , which claimed that Moses was a follower of Akhenaten [AHK-ih-NAH-tin]. It is possible that Akhenaten originated this concept by banning the worship of any gods except Aten. | | |
| 1 | What term refers to believing in only one god? | <u>monotheism</u> or <u>monotheistic</u> |
| 2 | This monotheistic religion believes in the god Ahura Mazda, and collects texts in The Avesta. | <u>Zoroastrianism</u> |
| 3 | During the 20th century in Vietnam, Ngo Minh Chieu [goh min chee-yoo] became the first person to worship this god. Depictions of this god often include only his left eye. | <u>Cao Dai</u> |

Question #12: Social Studies – Religion

10 points per part

| | | |
|--|---|---|
| This concept's <i>sanchita</i> type is represented by arrows in a quiver, and its <i>prarabdha</i> [prah-RAHB-dah] type by an arrow in flight. | | |
| 1 | Name this idea in eastern religions, which essentially means that good acts have good consequences, and bad acts have bad consequences, for the actor. | <u>karma</u> |
| 2 | Some of the earliest writings on karma are sayings such as “The doer of good becomes good” in these texts associated with Vedas. The name of these texts means “sitting at the foot”. | <u>Upanishads</u> [oo-PAH-nee-shahdz] [or <u>Brihadaranyaka</u>] |
| 3 | In this religion, karma is an impurity of the soul. According to this religion, Mahavira was the 24th <i>tirthankara</i> [teer-tahn-KAH-rah]. | <u>Jainism</u> |



Question #13: Mathematics – Statistics

10 points per part

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| One measure of this property, named for Karl Pearson, is represented by a lowercase r . | | |
| 1 | Name this property of two variables, a measurement of how closely they are associated. | <u>correlation</u> coefficient [accept product-moment <u>correlation</u> coefficient] |
| 2 | If there are two data points on a graph, with one of them on the lower left and the other one on the upper right of the graph, find the correlation coefficient between their x and y coordinates. | <u>1</u> |
| 3 | The Pearson product-moment correlation coefficient measures how well data fits this type of function. | <u>linear</u> (polynomial) [accept <u>first-degree polynomial</u> or <u>degree-1 polynomial</u> , possibly with <u>order</u> in place of <u>degree</u> ; prompt on <u>polynomial</u>] |

Question #14: Mathematics – Statistics

10 points per part

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| The median of a set of numbers is also the second of these numbers. | | |
| 1 | Name these numbers that divide a set into four groups of about equal size. | <u>quartiles</u> |
| 2 | The quartiles, along with the minimum and maximum, form the five-number summary that is displayed in this graphical depiction of a set. | <u>box</u> (-and-whisker) plot [accept “diagram” in place of “plot”] |
| 3 | Find the first quartile for the following list of seven numbers: 5, 6, 7, 8, 9, 10, 11. | <u>6</u> |



Question #15: Literature – World Literature

10 points

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| <p>One novel by this author is set in a parallel universe where the rock band The Who is called The High Numbers, and Elvis Presley is named Jesse Garon Parker. That novel featuring the rock band VTO is <i>The Ground Beneath Her Feet</i>. In another of this author's novels, the narrator describes his birth on August 15, 1947. In another novel by this author, Allie Cone is killed by Gibreel Farishta, who had somehow survived an airplane explosion. Name this author who is still the target of a <i>fatwa</i> issued by Ayatollah Khomeini, and who wrote <i>Midnight's Children</i> and <i>The Satanic Verses</i>.</p> | <p>(Ahmed) Salman Rushdie</p> |
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Question #16: Miscellaneous – Consumer Education

10 points

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| <p>In the 1970s, the federal government set up Sallie Mae to service these instruments, which can be forgiven via the PSLF program by working in public service for ten years. Stafford ones may or may not be subsidized. The Perkins program offers them at a fixed rate, and they are allocated based on need. These items are offered through the PLUS program, which requires a parent to take on the debt. Name this form of debt incurred in order to cover tuition costs after high school.</p> | <p>student loans [or college loans; prompt on loans]</p> |
|---|---|



Question #17: Science – Earth Science

10 points

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| <p>The bore type of this phenomenon causes whelps and turbulence. The rule of twelfths is used to approximate the level of this phenomenon. This phenomenon is nearly nonexistent at amphidromic [am-fih-DROH-mik] points. The so-called brown type of this phenomenon is caused by phytoplankton [“FIGHT”-oh-“plankton”]. In some places slack water is maximized when this phenomenon is either at its high or low end. This phenomenon is low when the Sun and moon are at 90-degree angles when viewed from Earth, which is called neap. This phenomenon is particularly extreme at the Bay of Fundy. Name this rise and fall of sea levels.</p> | <p><u>tides</u></p> |
|--|---------------------|

Question #18: Social Studies – U.S. History

10 points

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| <p>John Crittenden resigned from this position after President John Tyler vetoed bank bills. Shortly after losing a Senate race against a dead person, John Ashcroft was appointed to this position. Robert Bork held this position temporarily after Elliot Richardson and his deputy William Ruckelshaus resigned rather than fire Archibald Cox. President Kennedy appointed his brother Robert to this position. Before becoming secretary of state, Edmund Randolph was the first person to hold this position in George Washington’s cabinet. Name this position held by the leader of the Department of Justice.</p> | <p>United States <u>Attorney General</u></p> |
|---|--|



Question #19: Literature – British Literature

10 points

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| <p>This character was described as “courteous to all” in a book about her “on the Stage”. One character tells this girl that the meaning of one word is something like badgers, lizards, and corkscrews. This character recites the poem “’Tis the Voice of the Lobster” before the Mock Turtle sings “Beautiful Soup”. This character owns the cat Dinah, and erroneously cut a cake before distributing it. At other times, she changes size by eating cake. Name this fictional girl whose adventures, including her travel through the looking-glass, were written by Lewis Carroll.</p> | <p><u>Alice</u> [accept Alice <u>Liddell</u>]</p> |
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Question #20: Science – Biology

10 points

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| <p>A form of this substance is processed into 5.8S [“5 point 8 S”], 18S, and 28S units for processing to form ribosomes [“RYE”-boh-sohmz]. Another form of this substance contains an invariant T-psi-C [“T sigh C”] arm, which contains a pseudouridine [“pseudo”-YUR-ih-deen] residue. The secondary structure of this substance can include stem loops and pseudoknots. One form of this substance has a cloverleaf-shaped structure, contains anticodons [“anti”-koh-dahnz], and carries amino acids for translation. A DNA template is used in transcription to create the messenger form of this substance. Name this single-stranded molecule that carries genetic information.</p> | <p><u>RNA</u> or <u>ribonucleic acid</u> [accept more specific answers; do not accept “DNA” or “deoxyribonucleic acid”]</p> |
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Question #21: Mathematics – Geometry

10 points per part

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| Suppose a triangle's sides measure 4, 6, and 8 units. | | |
| 1 | Find the semi-perimeter of the triangle. | 9 units |
| 2 | Find the area of the triangle. Give your answer in simple radical form. | $3\sqrt{15}$ [“3 times the square root of 15” or “3 times radical 15”] units |
| 3 | What ancient mathematician is the namesake of the formula that gives the area of a triangle based on the semiperimeter and three side lengths? | Heron of Alexandria |

Question #22: Mathematics – Geometry

10 points per part

| | | |
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| This is the most general type of quadrilateral in which the diagonals must be the same length. | | |
| 1 | Name this shape whose angles are all congruent, but whose sides might not all be. | rectangle(s) |
| 2 | Find the area of a rectangle whose base measures 4 units and the <i>diagonal</i> measures 5 units. | 12 square units |
| 3 | Find the area of a circle circumscribed around a rectangle whose diagonals measure 8 units. | 16π [“16 (times) pi”] square units |



Question #23: Social Studies – U.S. History

10 points per part

| | | |
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| This issue was studied by the Dillingham Commission during the early 20 th century; their work was used to support the Emergency Quota Act of 1921. | | |
| 1 | Name this process that during the late 19th and early 20th centuries often involved people being “processed” at Ellis Island. | <u>immigration</u> or <u>immigrating</u> [accept answers indicating people <u>moving to the USA</u>] |
| 2 | This 1882 law signed by Chester Arthur prohibited all immigration of laborers from a specific Asian country. | <u>Chinese Exclusion Act</u> |
| 3 | The first sentence of this amendment states that all people born in the United States, including children of immigrants, are U.S. citizens. | <u>14th Amendment</u> |

Question #24: Social Studies – U.S. History

10 points per part

| | | |
|---|--|-----------------------------------|
| Newspaper editor John O’Sullivan coined and popularized this two-word phrase. | | |
| 1 | Name this belief, popular in the 19th century, that the United States was ordained to expand across North America. | <u>manifest destiny</u> |
| 2 | The concept of manifest destiny was criticized by this political party. It won the presidential elections of 1840 and 1848. | <u>Whig Party</u> or <u>Whigs</u> |
| 3 | Manifest destiny was encouraged by this editor of the <i>New York Tribune</i> . There is some controversy over whether or not this person actually originated the phrase “Go West, young man, and grow up with the country.” | Horace <u>Greeley</u> |



Question #25: Science – Chemistry

10 points per part

| | | |
|---|---|---|
| Lithium aluminum hydride [“hide-ride”] is often used to promote this chemical process. | | |
| 1 | Name this process of gaining electrons. When it occurs, another substance must be oxidized. | reduction [accept reducing or reduced ; prompt on redox reaction] |
| 2 | This type of oxidation-reduction reaction produces water and either carbon monoxide or carbon dioxide, depending on whether it is incomplete or complete. | combustion reaction [prompt on burning] |
| 3 | This process is a type of corrosion in which silver is oxidized, often by sulfur. | tarnishing |

Question #26: Science – Chemistry

10 points per part

| | | |
|--|---|---|
| In this type of electron orbital, the azimuthal [az-ih-MOOTH-ul] quantum number — also known as the orbital angular momentum — equals zero. | | |
| 1 | Name this type of orbital, the only type that exists when the principal quantum number is 1. | s orbital |
| 2 | s orbitals usually contain two electrons. This is the common name of the group of elements that has one electron in its outermost s orbital. | alkali metals [prompt on Group One or 1A or lithium group; do not accept answers containing “alkaline”] |
| 3 | For s orbitals, the azimuthal quantum number is not the only one to equal zero. Name the other quantum number that always equals zero for s orbitals. | magnetic quantum number [or m_l] |



Question #27: Fine Arts – Art History

10 points per part

| | | |
|--|---|---|
| The painting of the ceiling of this chapel was commissioned by Pope Julius II. | | |
| 1 | Name this chapel painted by Michelangelo. Its altar wall includes his <i>The Last Judgment</i> . | Sistine Chapel [or Cappella Sistina or Sacellum Sixtinum] |
| 2 | This painting on the Sistine Chapel ceiling shows God’s finger near the finger of a man. | <i>The <u>Creation of Adam</u></i> [or <i><u>Creazione di Adamo</u></i>] |
| 3 | Surrounding nine scenes from the Book of Genesis, Michelangelo painted twelve people. The seven men are prophets, and the five women are this type of oracle. | sibyls |

Question #28: Fine Arts – Art History

10 points per part

| | | |
|---|---|--|
| Louis Leroy criticized this painting by writing “Wallpaper in its embryonic state is more finished than that seascape.” | | |
| 1 | Name this painting that shows two small boats in the port of Le Havre [luh hahv-ruh], and a small red sun in the center. | <i>Impression, Sunrise</i> or <i>Impression, soleil levant</i> |
| 2 | <i>Impression, Sunrise</i> was painted by this artist. He is known for several series of paintings, including one of Rouen [roo-en] <i>Cathedral</i> and one of <i>Haystacks</i> . | (Oscar-)Claude Monet [moh-nay] |
| 3 | Several of Monet’s paintings, including Gare Saint-Lazare [gahr sawn lah-zar], are on display in this museum, which had been a train station. | Musée d’ Orsay |



Question #29: Literature – U.S. Literature

10 points

In this novel, a once-occupied piano seat is referred to as “God’s empty chair” following a performance at Birdland by George Shearing. A bout of **dysentery** [DISS-in-“Terry”] leads to one of the main characters of this novel being abandoned in Mexico City. In this novel, a character who is based on Neal Cassady leaves his wife Camille for Marylou, and then leaves Marylou for Inez. The characters Old Bull Lee and Carlo Marx in this novel are based on the real-life writers William Burroughs and Allen Ginsberg, who were friends of the author. Name this fictional travelogue that is narrated by Sal Paradise and was written by the Beat author Jack **Kerouac** [“CARE”-oh-ak].

On The Road

Question #30: Mathematics – Math Concepts

10 points

On a **hyperboloid** [“hi”-PUR-buh-loyd], Gaussian curvature will be this kind of number. This adjective describes a variation on the binomial distribution in which the number of successes is chosen ahead of time instead of the number of trials. At points where a function’s derivative is this kind of number, the function is decreasing. If a quadratic equation’s discriminant is this kind of number, the equation has two complex solutions. This kind of number is less than its additive inverse. Name these numbers that are less than zero.

negative numbers or
negatives



Question #31: Social Studies – World History

10 points

In 2006, the prime minister of this country did not run for re-election because he suffered a massive stroke and entered a permanent vegetative state. In 1995, this country's prime minister was assassinated by **Yigal Amir** [yee-GAHL ah-MEER] following a rally in favor of the Oslo Accords. Bill Clinton helped this country negotiate the Wye River Memorandum, and Jimmy Carter encouraged this country's **Menachem Begin** [muh-NAH-kum BAY-gin] to sign the Camp David Accords with Egypt. Name this country that fought several of its neighbors in the Six-Day War and Yom Kippur War, and which has also had several conflicts with Palestinians.

(State of) **Israel** [or
(Medinat) **Yisra'el**]

Question #32: Science – Physics

10 points

The divergence of the quantity density times this property of a flow is used to find the derivative of density with respect to time in the continuity equation that is used with the **Navier** [nahv-yay]-Stokes equations to explain fluid motion. A **Wien** [veen] filter is used to select particles in which this vector quantity equals electric field strength divided by magnetic field strength. Electron mobility times electric field gives this vector quantity for drifting electrons. The *magnitude* of this quantity squared divided by radius equals **centripetal** [sen-TRI-puh-tul] acceleration. This quantity is multiplied by mass to find momentum. Name this vector quantity whose magnitude can be measured in meters per second.

velocity [do not accept
"speed"]



Extra Question #1: Social Studies – U.S. History

10 points

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| <p>Justice Tom Clark wrote that the decision in this case “goes too far on too little”, while the dissents “do not go quite far enough.” Those dissents were written by Byron White and John Harlan. This case was found to not apply to prisoners in <i>Howes v. Fields</i>, and it was also weakened by <i>Berghuis v. Thompkins</i>. This case eliminated a person’s admission of rape, though the person was later convicted anyways. Name this 1966 case that started in Phoenix and is the reason people accused of crimes are told “You have the right to remain silent.”</p> | <p><u><i>Miranda v. Arizona</i></u></p> |
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Extra Question #2: Mathematics – Math Concepts

10 points

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|--|--------------------|
| <p>The solution to a homogeneous system can only include this number if the equations are independent. A system of equations is called homogeneous if one side of each equation equals this number. A matrix is <i>not</i> invertible if its determinant equals this number. An input to a function whose output is this number is called a root of the function, and this word is sometimes used as a synonym for “root”. This is the largest number for which logarithmic functions do not give real outputs, and it’s also the least number for which the square root function does give a real output. Name this number that cannot be divided by, and which is neither positive nor negative.</p> | <p><u>zero</u></p> |
|--|--------------------|



Extra Question #3: Fine Arts – Art History

10 points

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|--|---|
| <p>Several museums are in this city’s Barnsdall Art Park. A band shell in this city had arches that were concentric semicircles until it was renovated in 2004. This city’s airport includes a building that looks like a round spaceship with four legs, the Theme Building. This city’s philharmonic orchestra performs in a building covered with curved stainless steel panels that was designed by Frank Gehry [“Gary”], the Walt Disney Concert Hall. This city has a Walk of Fame honoring people and acts from the entertainment industry. Name this California city that contains the Hollywood Bowl.</p> | <p><u>Los Angeles</u>, California [or <u>L.A.</u>; prompt on “Hollywood”]</p> |
|--|---|

Extra Question #4: Literature – British Literature

10 points

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|--|---|
| <p>This author wrote about a judge who “trades in Justice and the Souls of Men”, Salathiel Lovell, who later sentenced this author to the pillory for writing <i>The Shortest Way with the Dissenters</i>. This author wrote about a woman who moved to Virginia after marrying her half-brother, and who is later imprisoned in Newgate. In another novel, this author described the rescue of a man who was held prisoner by cannibals and was renamed “Friday”, though that novel is mainly about an Englishman stranded on an island. Name this author of <i>Moll Flanders</i> and <i>Robinson Crusoe</i>.</p> | <p>Daniel <u>Defoe</u> [accept Daniel <u>Foe</u>]</p> |
|--|---|



Extra Question #5: Science – Astronomy

10 points

This adjective describes the blue bump in the spectral energy distributions of active galactic nuclei. This adjective also describes a “rip” that the universe has been hypothesized to undergo eventually, making it infinite in size. Alternatively, this adjective also describes the “crunch” that the universe may eventually undergo if it eventually contracts. This adjective is used in the name of the asterism in Ursa Major that includes Merak and Dubhe, which are used to find the North Star. That asterism is shaped like a ladle. Give this adjective that also describes the “bang” believed to have started the universe.

big



Extra Question #6: Literature – British Literature

10 points per part

| | | |
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| The speaker of this poem claims that “every man kills the thing he loves”. | | |
| 1 | Name this poem inspired by the hanging of Charles Thomas Wooldridge that was written after its author spent two years in prison for homosexual acts. | “The Ballad of Reading Gaol [RED-ing jail]” |
| 2 | This Irish author wrote “The Ballad of Reading Gaol”, as well as <i>The Picture of Dorian Gray</i> . | Oscar (Fingal O’Flahertie Wills) Wilde |
| 3 | While in prison, Wilde was only allowed to read the Bible and this 17th-century allegory, written by a man who was imprisoned for holding a church service without the support of the Church of England. | <i>The Pilgrim’s Progress</i> (from <i>This World to That Which Is to Come; Delivered under the Similitude of a Dream</i>) |

Extra Question #7: Literature – British Literature

10 points per part

| | | |
|--|---|--------------------------------------|
| This speech describes the end of life as “sans teeth, sans eyes, sans taste, sans everything”. | | |
| 1 | Name this speech that describes a boy with a satchel “creeping like a snail unwillingly to school.” Its first five words are “All the world’s a stage.” | Seven Ages of Man speech |
| 2 | The “Seven Ages of Man” speech is given by Jaques [JAY-kez] in this Shakespeare play. This play also features the cross-dressing Rosalind. | <i>As You Like It</i> |
| 3 | This play contains a speech that begins similarly to the Seven Ages of Man speech, in which Antonio — the title character — says the world is “A stage where every man must play a part”. | <i>The Merchant of Venice</i> |



Extra Question #8: Mathematics – Algebra

10 points per part

| | | |
|---|--|---|
| In the expression $5x^3$ ["5 x cubed"], the number 5 is referred to by this term. | | |
| 1 | Give the term for a number that is multiplied by one or more variables. | <u>coefficient</u> |
| 2 | Use the coefficients to find the limit, as x approaches infinity, of the quantity $2x^2 - 5x + 7$ ["2 x squared, minus 5 x, plus 7"], end quantity, divided by the quantity $6x^2 + 3x + 9$ ["6 x squared, plus 3 x, plus 9"]. | $\frac{1}{3}$ [accept 0.3 repeating , with the "3" repeated any positive number of times, but do not prompt if "repeating" is missing] |
| 3 | Give the term used for the coefficient of the highest-degree term in a polynomial, which is used to find limits of rational functions as x approaches infinity. | <u>leading</u> coefficient |

Extra Question #9: Mathematics – Algebra

10 points per part

| | | |
|---|--|---|
| A sequence is an ordered list of numbers. | | |
| 1 | What term refers to the sum of a sequence? | <u>series</u> |
| 2 | What term describes a series that has a finite limit, even as the number of terms approaches infinity? | <u>convergent</u> [or <u>converging</u> ; do not accept "divergent" or "diverging"] |
| 3 | Find the sum of the geometric series based on the sequence whose first two terms are 30 and 20. | <u>90</u> |