Question #1: Fine Arts

10 points

This composer included "Playing Hobby-Horses" in his collection of 24 basic piano pieces, *Album pour enfants* [awn-fawn]. In one work by this composer, a man is tricked into confusing Odile [oh-DEEL] for Odette by Rothbart, leading that man and Odette to jump into a lake. Another work by this composer features "The Grandfather Dance" and "Waltz of the Flowers". Because of that ballet and this composer's work with cannons celebrating Russia's defense against Napoleon, this composer's works are often performed on Christmas and the Fourth of July. Name this composer of *Swan Lake*, *The Nutcracker*, and the *1812 Overture*.	Pyotr (Ilyich) **Tchaikovsky**

Question #2: Science

10 points

The weak equivalence principle states that all objects move the same way when this force is the only force. This force was measured in the Cavendish experiment. The hierarchy problem asks why this force is less powerful than other fundamental forces. This force is able to act as a lens according to the theory of relativity, an effect verified in Arthur Eddington's observations of eclipses. The universal constant of this force is measured in units of newton meters squared per second squared. Name this force that causes weight and which occurs between objects with mass.	**gravity** or **gravitation**(al force)

Question #3: Social Studies

10 points

This person helped Princess Kököchin [KAH-kah-chin] travel to Persia so she could marry Arghun [AR-gun], but because Arghun had died, she married Arghun's son Ghazan [GAH-zahn]. On his deathbed, it is believed that this person said "I did not tell half of what I saw." This person often traveled with his uncle Maffeo [mah-FAY-oh] and father Niccoló. This person received help writing his autobiography from Rustichello [roo-stee-KEL-oh] da Pisa when they were in prison in Genoa. Depending on the language, this person's autobiography is called *Book of the Marvels of the World* or *Il Milione [eel meel-YOH-nay]*. Name this person from Venice who, during the 13th century, met Kublai Khan in China.	Marco **Polo**

Question #4: Literature

10 points

A question in this novel is answered with the statement, "You only get them in big countries, like Africa or India." That question, asked by a boy with a mulberry-colored birthmark during a meeting in this novel, is about what will be done about the snake-thing, which is also called a beastie. One chapter of this book is titled "Beast from Water", referring to an imagined creature, and another chapter is "Beast from Air", referring to a dead parachutist. When Simon tries to explain that the parachutist is not a beast, he is violently killed. Name this novel in which Ralph and Jack try to lead a bunch of boys stranded on an island, written by William Golding.	***Lord of the Flies***

Question #5: Science

10 points

This vitamin is altered to produce isotretinoin ["ice"-oh-TRET-ih-noh-in], which is an acne medication. A lack of this vitamin can lead to some dryness called xerophthalmia [zair-awff-THAL-mee-uh] and additional dryness of the mucous membranes. Winter squash is a much better source of this vitamin than summer squash, and sweet potatoes are better than potatoes. This vitamin is necessary for the body to produce rhodopsin [roh-DAHP-sin], a light-sensitive receptor protein. Name this vitamin that is found in carrots, is useful for night vision, and was the first vitamin discovered.	Vitamin **A** [or **retinol**]

Question #6: Social Studies

10 points

This term comes from a Dutch word for "looter" that became a Spanish word for Americans who incited revolution. This procedure cannot be used when Congress grants fast-track authority to the president or when budget reconciliation is invoked. According to a 1975 rule change, 40% support is required to continue this procedure. This procedure can be limited to at most 30 additional hours by a cloture [KLOH-chur] vote. This procedure consists of extending debate on a bill in order to delay a vote, and it sometimes prevents a vote from ever occurring. Name this procedure used to prevent a vote in the U.S. Senate.	**filibuster**(ing)

Question #7: Mathematics

10 points per part

	In some texts, this term refers to orderings of a set, though in most high school textbooks it refers to the orderings of a subset.	
1	Name this operation which calculates how many ways you can choose r objects from a set of n objects, if order matters and repetition is not allowed.	**permutation**s [accept **permuting**; prompt on n**P**r]
2	In how many ways can three objects be selected from a set of six objects, if the order matters and repetition is not allowed?	**120** ways
3	In how many ways can three objects be selected from six objects if it matters which one is first but does not matter which one is second? Repetition is not allowed.	**60**

Question #8: Mathematics

10 points per part

	This is the regular polyhedron [pah-lee-HEE-drun] with eight vertices [VER-tuh-seez] and six faces.	
1	Name the only Platonic solid that has square faces. It is sometimes called a hexahedron [HEK-suh-hee-drun].	**cube** [accept **cubic** polyhedron]
2	How many edges does a cube have?	**12** edges
3	The four-dimensional analogue of a cube is a tesseract. How many vertices does a tesseract have?	**16** vertices

Question #9: Literature

10 points per part

	The Spenserian [spen-SAIR-ee-un] type of this poem ends with a rhymed couplet.	
1	Name this type of 14-line poem.	**sonnet**(s)
2	The type of sonnet named for this Italian poet starts with an octave whose rhyme scheme is "A B B A, A B B A".	Francesco **Petrarch** [accept **Petrarchan** sonnet]
3	This Italian phrase describes the rhyme scheme in some sonnets and some poems by Dante [DAHN-tay]. This scheme is "A B A, B C B".	**terza rima** [TAIR-zah REE-mah]

Question #10: Literature

10 points per part

	After several rejected drawings of sheep in this book, a person draws a box with air holes in it.	
1	Name this book, originally written in French, in which a drawing of a snake eating an elephant is mistaken for a picture of a hat.	*The **Little Prince*** [or *Le **Petit Prince***]
2	The Little Prince visits six asteroids before Earth, the first of which has a man who holds this position. This man sits on a throne and considers everybody to be his subject.	**king** [accept **roi**]
3	The last of the six asteroids has a man who has this job, and who talks about how it is different than being an explorer.	**geographer** [accept **géographe**]

Question #11: Science

10 points per part

These tissues are very similar to tendons.		
1	Name this tissue that connects bones and cartilage, but does not connect to muscle.	**ligament**s
2	This often-injured ligament goes from the femur to the tibia at the middle of the knee. This ligament is nearer to the front of the body than a similar ligament.	**ACL** or **anterior cruciate** ligament
3	The zona orbicularis ["ZONE"-uh or-BIK-yoo-LAIR-iss], which is also called the annular ligament, is in this joint next to the pelvis.	**hip** [or **acetabulofemoral** joint]

Question #12: Science

10 points per part

The sepal [SEE-pul], or calyx [KAL-iks], is at the base of this part of a plant.		
1	Name this reproductive part of many plants that is easily noticed because of its colorful petals.	**flower**(s)
2	This primary part of a flower gynoecium [jin-EE-see-um] contains an ovary, style and stigma.	**pistil**
3	The stamen of a flower contains these little stalks that hold up the anthers.	**filament**s

Question #13: Social Studies

10 points per part

	This legislation prohibited slavery north of a latitude of 36 degrees, 30 minutes, except in the state it was named for.	
1	Name this "compromise" that allowed the admission of a slave state while keeping the number of slave and free states balanced by also making Maine a state.	**Missouri** Compromise
2	This person was the Speaker of the House during the Missouri Compromise and eventually became known as the Great Compromiser.	Henry **Clay** (Sr.)
3	This senator from New York, who had been the last Federalist Presidential candidate in 1816, spoke out strongly against admitting Missouri as a slave state.	Rufus **King**

Question #14: Social Studies

10 points per part

	This period lasted from 1920 to 1933.	
1	Name this time when the federal government banned alcoholic beverages.	**Prohibition**
2	This constitutional amendment prohibited "the manufacture, sale, or transportation of intoxicating liquors".	**18**th Amendment
3	Wayne Wheeler led this organization that supported Prohibition. This group first demonstrated its power by defeating Ohio Governor Myron Herrick.	**Anti-Saloon League** [or **ASL**]

Question #15: Mathematics

10 points

David Robbins gave a formula for the areas of cyclic versions of this shape; such shapes are named for Robbins if all of their side lengths are rational. The regular type of this polygon is the polygon with the most sides in which all diagonals are congruent. Hexagons and these shapes are the faces of a truncated icosahedron ["eye"-KOH-suh-HEE-drun], and every face of a dodecahedron [doh-DEK-uh-HEE-drun] is one of these shapes. In the regular type of this polygon, the length of a diagonal is the length of a side times the golden ratio. This polygon can be split into three triangles by some of its diagonals. Name this polygon that has the same number of diagonals as sides.	(regular) **pentagon**(s) [prompt on **5-gon**]

Question #16: Miscellaneous

10 points

The tool of this type designed for work on fencing can also be used as a hammer. The "slip-joint" type of this tool has two different possible fulcrums. The "diagonal" type of this tool is used to cut wire. This tool is similar to tongs, pincers, and tweezers. This tool is not as good as a wrench at gripping rotating objects, but this hand tool's jaws are often used to hold objects in place. Name this tool often classified by the shape of its nose, such as the "chain-nose", "flat-nose", and "needle-nose" types.	**plier**s

Question #17: Literature

10 points

| One poem by this writer takes place with "the sun half an hour high". In that poem, which begins "Flood-tide below me!", this writer is leaving Manhattan. In another poem, this writer states "O powerful western fallen star!" and says he "shall mourn with ever-returning spring". This writer followed that poem with a poem stating, "The ship has weather'd every rack, the prize we sought is won." Name this writer whose poems "Crossing Brooklyn Ferry", "When Lilacs Last in the Dooryard Bloom'd", and "Oh Captain! My Captain!" are all in his collection *Leaves of Grass*. | Walt(er) **Whitman** |

Question #18: Science

10 points

| Each of these orbitals has exactly one angular node, which is why it is represented using a minimum of two lobes. Two of these orbitals are combined with another orbital in the hybridization of trigonal planar molecules. There are three possible values of the magnetic quantum number for this type of orbital. This type of orbital corresponds to an azimuthal [az-ih-MUTH-ull] quantum number of 1. The first element on the periodic table to have an electron in one of these orbitals in rest state is boron. Name these orbitals that for a given principal quantum number can hold six electrons, and that can be contrasted with s, d, and f orbitals. | p orbitals |

Question #19: Social Studies

10 points

When Frank Carlucci was promoted to Secretary of Defense during the Iran-Contra scandal, this person replaced him as National Security Advisor. This person then served as Chairman of the Joint Chiefs of Staff during the George H. W. Bush presidency. In 2003, this person told the United Nations Security Council there is "no doubt in my mind" that Saddam Hussein was developing nuclear weapons. He said that while serving as George W. Bush's Secretary of State. Name this person who was the first African-American person to hold the previously mentioned positions.	Colin (Luther) **Powell**

Question #20: Literature

10 points

In Greek mythology, a person uses one of these objects to seduce the queen of Lydia and then kill her husband, which he can do because this object makes him invisible. In Norse mythology, Andvari curses one of these objects after it is stolen from him. Another one of these objects along with a belt is stolen from Brünhild [broon-HEELD] by Siegfried. That object is made by Alberich [AL-beh-rik] using gold taken from the Rhine River. Name this type of object owned by Gyges [JY-jeez] in Greek myth and by Bilbo Baggins at the beginning of a series of novels named for Sauron, who is the "Lord of" this object.	**ring**s

Question #21: Science

10 points per part

	A parsec is about 3.26 of these units, so a mega·parsec is over 3 million of these units.	
1	Name this unit of distance that is as far as an object can travel in 365.25 Earth days.	1 **light-year**
2	About a billion years ago, this galaxy was a mega·parsec from the Milky Way. It is moving towards us, which could be a problem in a few billion years.	**Andromeda** Galaxy [accept **M**essier **31**]
3	This very bright galaxy is about 10 mega·parsecs from the Milky Way. Its name is based on its unusual appearance, which is due to a dust lane around it.	**Sombrero** Galaxy [accept **M**essier **104**]

Question #22: Science

10 points per part

	Over 99% of the mass of our solar system is in this object.	
1	Name this object that is, by definition, 1 astronomical unit from Earth.	the **Sun** [accept **Sol**]
2	This thin layer at the surface of the Sun is outside the convection zone but below the chromo·sphere ["CHROME-oh-sphere"] and corona. Sunspots occur at this layer.	**photo·sphere**
3	On average, the sunspot cycle lasts this number of years.	**11** years

Question #23: Social Studies

10 points per part

	The Porcupine Mountains are in this region.	
1	Name this large part of a U.S. state that is connected by land to Wisconsin but not connected by land to the rest of its state.	**Upper Peninsula** of Michigan or **U. P.** [or **Upper Michigan**]
2	This Great Lake is north of the Upper Peninsula and Wisconsin.	Lake **Superior**
3	Northern Michigan University is in this city, the most populous city in the Upper Peninsula.	**Marquette**, Michigan

Question #24: Social Studies

10 points per part

	The source of this river is Lake Itasca ["eye-TASK-uh"] in Minnesota.	
1	Name this river that forms a border of several states, including Illinois and Iowa, before flowing into the Gulf of Mexico.	**Mississippi** River
2	A state park next to the Mississippi River in Cape Girardeau [juh-RAR-doh] County, Missouri commemorates this tragic passage that went from Cherokee Agency, Tennessee to Fort Gibson, Oklahoma.	**Trail of Tears**
3	This name is shared by a river that feeds the Mississippi from Illinois and an Illinois village that is west of the Mississippi River.	**Kaskaskia** [kass-KASS-kee-uh]

Question #25: Literature

10 points per part

	In this play, the Player says "Deaths for all ages and occasions! Deaths by suspension, convulsion, consumption, incision, execution, asphyxiation and malnutrition!".	
1	Name this play where that line is spoken before Alfred, who is one of the Tragedians [truh-JEE-dee-unz], dies.	***Rosencrantz and Guildenstern Are Dead***
2	This playwright wrote *Rosencrantz and Guildenstern Are Dead* as well as *Arcadia*.	Tom **Stoppard** [or Tomáš **Straussler**]
3	Many of the characters, including the title characters, in *Rosencrantz and Guildenstern Are Dead* are taken from this William Shakespeare play set in Denmark.	***Hamlet***

Question #26: Literature

10 points per part

	The narrator of this poem says that in every face he meets he sees "marks of weakness, marks of woe".	
1	Name this poem in *Songs of Experience* that does not correspond to any poem in *Songs of Innocence*. It begins "I wander through each chartered street."	"**London**"
2	This poet wrote "London" as well as "The Tiger".	William **Blake**
3	In the first and last stanza of "The Tiger", what word does Blake sort of rhyme with the word "eye"?	**symmetry** [SIM-uh-try, but accept the standard pronunciation]

Question #27: Fine Arts

10 points per part

	There are currently three museums named for people in this family, in New York City, Venice, and Bilbao.	
1	Identify this family. Two of the museums are named for an American miner named Solomon, and the one in Venice is named for his niece, Peggy.	**Guggenheim**
2	The Guggenheim in New York City is a cylindrical building designed by this Prairie School architect, who worked on it while at Taliesin [tal-ee-EH-sin] West.	Frank Lloyd **Wright** [or Frank Lincoln **Wright**]
3	The Guggenheim in New York City exhibits this French cubist's paintings *The Smokers* and *Nude Model in the Studio*. This painter of *Contrast of Forms* was sometimes called a tubist [TUBE-ist].	(Joseph) Fernand (Henri) **Léger** [leh-zhair]

Question #28: Fine Arts

10 points per part

	In Titian's [TEE-shun'z] painting of this subject, he showed himself holding the hand of Jesus.	
1	Give the Italian name for depictions of Mary holding the dead body of Jesus.	**Pietà**(s) [pee-ay-TAH]
2	This artist's *Pietà* is in St. Peter's Basilica in Vatican City. This artist also painted the nearby Sistine Chapel ceiling.	**Michelangelo** (di Lodovico **Buonarroti** Simoni) [accept either underlined name]
3	This painter's Pietà is in the Uffizi [oo-FEE-zee] gallery. This painter's fresco *The Delivery of the Keys* is in the Vatican.	Pietro **Perugino** [pair-oo-JEE-noh] [or Pietro **Vannucci**]

Question #29: Mathematics

10 points

The mediant inequality is about an unconventional way to combine these expressions. The "continued" version of this kind of expression is a repetitive way to express some irrational numbers. When these expressions are used in exponents, a part of them determines what type of root to take of the base. These expressions are called "improper" when the top number is greater than the bottom number. Name this way to write a ratio using a numerator and denominator.	**fraction**s [accept **fraction**al expressions; prompt on **ratio**]

Question #30: Literature

10 points

When a woman in this book tells her father whom she wants to marry, he tells her a story about a merchant who overhears his bull and donkey talking to each other. The merchant then talks to a rooster. In this book, when that woman gets married, she asks to say good bye to her younger sister, and their father eventually goes to Samarkand. That happens in this book when Shah Zaman decides to marry Dunyazad. At the beginning of this book, King Shahryar [SHAH-ree-ar] repeatedly marries women and has them beheaded. Name this book in which Scheherazade [shuh-HAIR-uh-ZAHD] stays alive by telling stories about characters such as Aladdin and Ali Baba.	*One **Thousand and One Nights*** or *The **Arabian Nights*** [or ***Alf layla wa-layla***]

Question #31: Social Studies

10 points

Near the end of this person's life, he concocted a supposed Doctors' Plot in which medical specialists were accused of murder. The plot may have been an attempt to get rid of Lavrentiy Beria [lahv-REN-tee BEAR-ee-yuh], one of this leader's close advisers. During a major war, this leader issued Order 270 saying to "fight to the last" [pause] and Order 227 saying "Not a step back!". This person demanded the creation of an Allied Reparations Commission and a European sphere of influence for his country at the Yalta Conference, where he met with Winston Churchill and Franklin Roosevelt. Name this person who, from 1922 to 1953, was the leader of the Soviet Union.	Joseph **Stalin** [or Ioseb **Jughashvili**]

Question #32: Science

10 points

Starfish have two of these organs, one of which is called the "cardiac" one and can be turned inside out. In some animals, this organ has sections such as the reticulum [ruh-TIK-yoo-lum] and omasum [oh-MAY-sum]. The inner surface of this organ is protected by foveolar [FOH-vee-OH-lur] cells, which excrete mucus. The glands lining part of this organ secrete intrinsic factor from parietal [puh-"RYE"-uh-tull] cells, which also excrete hydrochloric ["hide"-roh-KLOR-ik] acid into this organ. The bottom of this organ is the pyloric ["pie"-LOR-ik] sphincter, which leads to the duodenum [doo-AH-duh-num]. Name this organ between the esophagus and small intestine where gastric acid is used to digest food.	**stomach**

Extra Question #1: Social Studies

10 points

The first person to bring this denomination to the United States was Francis Makemie [muh-KEH-mee]. The Old Side-New Side Controversy refers to this denomination's reactions to the First Great Awakening. Modern attempts to unite this Protestant denomination led to the creation of the *Book of Confessions*; the people who accept that book also use the *Book of Order*. The name of this Protestant denomination comes from the Latin word for "elder" because this denomination is governed by assemblies of elders. This denomination uses the Church of England's *Westminster Confession of Faith.* Name this Calvinist denomination that was started by John Knox in Scotland.	**Presbyterian**ism [or **Presbytarian**s or **Presbyterian** Church USA]

Extra Question #2: Fine Arts

10 points

This painting was once vandalized with the words "Kill all lies." This painting was made for the 1937 World's Fair in Paris and was based on an article by George Steer. Nazi Germany referred to this painting as "a hodgepodge of body parts that any four-year-old could have painted". When asked to describe this painting's symbolism, the artist stated "This bull is a bull and this horse is a horse." The horse in this painting is screaming above a person on the ground holding a broken sword. Name this painting based on a Spanish Civil War bombing, made by Pablo Picasso.	*Guernica* [gair-NEE-kah]

Extra Question #3: Science

10 points

The cleaning of this substance produces pink water, and the purification of this substance produces red water, both of which are toxic. This substance is combined with ammonium nitrate to make amatol [AM-uh-tawl]. This substance is surprisingly stable unless it is impacted by a pressure wave, in which case two moles of solid become 15 moles of hot gas and powdered carbon. One ton of this substance is equivalent to 4.184 gigajoules ["GIG-uh-jewels"] according to a scale often used when something is destroyed. This substance is created by repeatedly applying a mixture of sulfuric and nitric acid to toluene [TAHL-yoo-een]. Name this explosive.	**TNT** [or 2,4,6-**Trinitrotoluene**]

Extra Question #4: Literature

10 points

In a poem by this writer about a painting, there is "a splash quite unnoticed". That poem shares its name with Pieter Bruegel the Elder's *Landscape with the Fall of Icarus.* In another poem by this writer, he "saw the figure 5 in gold on a red firetruck". Another poem by this writer is about an object that is "glazed with rain water beside the white chickens." This poet began that work with the words "so much depends upon". Another poem by this writer ends with the stanza "Forgive me, they were delicious, so sweet, and so cold." Name this poet of "The Red Wheelbarrow" who ate the plums in "This Is Just To Say".	William Carlos **Williams**

Extra Question #5: Mathematics

10 points

This property is the only field axiom that uses both operations in the same equation. This property can be used both ways with union and intersection, though its most common examples place one operation "over" another. A version of this property can be used when a product or quotient is raised to a power, though it is most commonly used when a sum or difference is multiplied by a number. Name this property whose version "for multiplication over addition" states that x times the quantity y plus z [pause] always equals xy plus xz.	**distributive** property or **distributivity**

Extra Question #6: Literature

10 points per part

	The dictionary definition of this word is "to understand thoroughly and intuitively".	
1	Give this word used by Valentine Michael Smith, who was born on Mars.	**grok** [accept **grokking** or **grokked**]
2	Valentine Michael Smith is a character in this author's *Stranger in a Strange Land.*	Robert A(nson) **Heinlein** [HYN-"line"]
3	In this novel by Robert Heinlein, Juan Rico fights in the Bug War.	***Starship Troopers***

Extra Question #7: Literature

10 points per part

	The mother of this novel's protagonist becomes a famous feminist when she writes the book *A Sexual Suspect.*	
1	Name this novel about a writer who marries Helen, the daughter of his high school wrestling coach. Their family is injured in a car accident.	*The **World According to Garp***
2	*The World According to Garp* was written by this author, as was *The Cider House Rules.*	John (Winslow) **Irving** [or John Wallace **Blunt** Jr.]
3	In this novel by John Irving, a short person dies saving Vietnamese children.	*A **Prayer for Owen Meany***

Extra Question #8: Science

10 points per part

	This phenomenon is caused by air vibrations between about 20 hertz ["hurts"] and 20 kilo·hertz.	
1	Name this phenomenon studied in acoustics.	**sound** waves [accept **noise**]
2	This effect is the change in the frequency of a sound due to the motion of the source and/or listener.	**Doppler** effect
3	This phenomenon is the prolongation of sound caused by a large number of reflections. It is a combination of echoes.	**reverb**eration

Extra Question #9: Science

10 points per part

	This quantity is usually measured in farads ["FAIR"-adz].	
1	Name this quantity that equals charge over electric potential difference.	**capacitance**
2	Unlike resistors, when capacitors are placed in this type of arrangement in a circuit, their capacitances are *added* to get the total capacitance.	in **parallel** or **parallel** circuit
3	This name is given to the unwanted capacitance caused by two circuit elements being close to each other.	**parasitic** capacitance or **stray** capacitance