

Round 5 1st Section Toss-up Questions

Question #1: Science

10 points

Microbiology in these locations has been studied by Hazel Barton, particularly in Naj Tunich [nah TOO-neech] in Guatemala. Animals that live in these locations are called troglobites [TRAHG-loh-"bites"]. These places are often caused by the dissolving of limestone or dolomite [DOH-loh-"mite"], though near Mount Sodom [SAH-dum] in Israel they can be caused by the dissolving of salt. These places are usually found in karst terrains, and the study of these places is speleology [spee-lee-AH-luh-jee]. Deposits growing from the floors of these places are called stalagmites, while deposits from the ceilings are stalactites. Name these chambers within the earth, such as the Mammoth one in Kentucky.

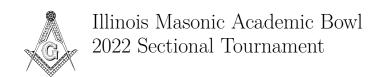
caves [or caverns or
grottos]

Question #2: Literature

10 points

This character states "Either my eyesight fails, or thou lookest pale" shortly after saying, "O God, I have an ill-divining soul." Soon after that, this character tells her mother that she is not feeling well, which causes her mother to ask "Evermore weeping for your cousin's death?". Earlier on, this character says "What's in a name? That which we call a rose by any other word would smell as sweet." She speaks those words while standing at her window during the balcony scene. Name this William Shakespeare character who asks her lover "Wherefore art thou Romeo?".

Juliet Capulet [prompt on Capulet]



Round 5 1st Section Toss-up Questions

Question #3: Fine Arts

10 points

This instrument is the lead instrument in a piece	<u>viola</u>
based on Song of Solomon whose first section is	
called Sicut Lilium inter spinas [SEE-koot	
LEE-lee-oom IN-tur SPEE-nuss]. That work is	
Ralph [rayff] Vaughan Williams, Flos Campi	
[KAM-pee]. There are several trios that combine	
this instrument with a flute and a harp, including	
Darius Milhaud's [meel-oh'z] Adieu and a sonata by	
Claude Debussy [deb-yoo-see]. In a standard	
orchestra, the people who play this instrument	
usually sit front and center or a little off to the	
right. The strings on this instrument are tuned	
exactly one octave higher than a cello. Name this	
instrument that is a little larger than a violin.	

Question #4: Social Studies

	,
The person who held this position from January	Speaker of the (United
1987 to June 1989 had a controversial meeting with	States) House of
Sandinista [san-din-EE-stuh] leader Daniel Ortega	Representatives [or House
and eventually resigned over a controversy over	Speaker
bulk purchases of his book Reflections of a Public	-
Man; that person was Jim Wright. The person who	
held this position from 1999 to 2006 was later jailed	
for using hush money to conceal sexual misconduct;	
that person was Dennis Hastert. The person with	
the longest uninterrupted time in this position was	
Tip O'Neill, and the longest overall time was Sam	
Rayburn. Name this position recently held by Paul	
Ryan and Nancy Pelosi.	
	l .



Round 5 1st Section Toss-up Questions

Question #5: Science

10 points

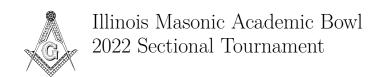
There are several ways to classify the shapes of	<u>leaf(s)</u> or <u>leaves</u>
these objects, including acicular [uh-SIK-yoo-lur]	
and subulate [SOOB-yoo-lit]. Based on their shape,	
these structures can be classified as parallel,	
pinnate ["PIN-ate"], or palmate ["PALM-ate"].	
These structures typically have a midvein running	
through them from the petiole [PET-ee-ohl] to the	
apex. The surfaces of these structures have guard	
cells that surround openings called stomata	
[stoh-MAH-tuh]. These structures, particularly in	
their mesophyll [MEZ-uh-fil], are where	
photosynthesis usually takes place. Name these	
structures that are usually green, though the ones	
on trees turn different colors in the autumn.	

Question #6: Literature

10 points

In one novel by this writer, the protagonist requests to be buried in the corner of a churchyard by two lime trees. This author had that protagonist compare his love for a woman with his love of the Gaelic poet Ossian [AH-see-un]. That protagonist is in love with a woman who is engaged to Albert. In a play by this author, the main female character goes to prison after drowning her son. That play revolves around a deal about a man's wish to stay in a moment forever. This writer begins that play with a deal between God and Mephistopheles [meff-ih-STAH-fuh-leez]. Name this German author of The Sorrows of Young Werther [VAIR-tuh] and Faust.

 ${\color{red} \textbf{Johann Wolfgang von} \\ {\color{red} \underline{\textbf{Goethe}}} \ [{\color{red} \underline{\textbf{GRR-tuh}}}]$



Question #7: Mathematics

10 points per part

This	s property is often represented by putting the	
nam	ne of a set between vertical bars.	
1	Name this property that represents the size of a	cardinality [prompt on
	set. For finite sets, it is just the number of	<u>cardinal</u> numbers]
	elements in the set.	
2	This German mathematician used the diagonal	Georg <u>Cantor</u> [GAY-ork
	argument to prove that the cardinality of the	KAHN-tor
	set of real numbers is larger than the	
	cardinality of the set of natural numbers.	
3	Find the largest possible cardinality of A	<u>5</u>
	intersection B [pause] if the cardinality of A is	
	5 and the cardinality of B is 7.	

Question #8: Mathematics

		. o pointe poi part
If two events have this type of relationship, then the probability of them both happening equals the product of the probabilities of each one happening separately.		
1	Give this adjective that describes events if one of them occurring does not affect the probability of the other occurring.	independent events or event independence [do not prompt on "dependent"]
2	Give the two-word phrase that describes events that are disjoint, meaning that if one of them happens then the other cannot.	mutually exclusive events [or mutual exclusivity]
3	If events A and B are mutually exclusive and it is also impossible for neither of them to occur, find the probability of B if the probability of A is 0.28 .	0 <u>.72</u> [or <u>18/25</u>]



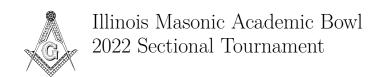
Question #9: Social Studies

10 points per part

The	FBI is part of this cabinet-level department.	
1	Name this department whose head is the Attorney General.	Department of <u>Justice</u> [or <u>Justice</u> Department; prompt on <u>DoJ</u>]
2	This division within the Department of Justice is in charge of enforcing federal statutes prohibiting discrimination.	Civil Rights Division
3	This position within the Department of Justice is responsible for supervising and conducting government litigation in the United States Supreme Court.	Solicitor General of the United States

Question #10: Social Studies

Thi	s cabinet-level department has overseen the No	
Chi	ld Left Behind Act and Race to the Top in	
rece	ent years.	
1	Name this department that works with schools.	Department of Education
		[accept Education
		Department; prompt on
		$\underline{\mathbf{DoE}}]$
2	No Child Left Behind was replaced by this 2015	Every Student
	Act of Congress that continues to require	Succeeds Act [accept
	testing each year from third grade to eighth	$\mathbf{\underline{ESS}}$ A]
	grade.	
3	This name is used for the federal program that	Title I [1]
	gives money to schools that serve students from	
	low-income families. This name is based on the	
	funding's placement within the Elementary and	
	Secondary Education Act of 1965.	



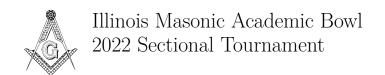
Question #11: Literature

10 points per part

In t	his novel, Tom Robinson is accused of raping	
May	vella Ewell.	
1	Name this novel in which Robinson is defended	To Kill a Mockingbird
	in court by the narrator's father.	
2	This author wrote To Kill a Mockingbird and	(Nelle) Harper <u>Lee</u>
	Go Set a Watchman.	
3	Heck Tate has this job in To Kill a Mockingbird.	sheriff of Maycomb
	Mr. Tate is a witness at the trial, and after the	County
	trial he tells Atticus Finch that Bob Ewell fell	
	on his own knife.	

Question #12: Literature

In 7	The Adventures of Tom Sawyer, this character	
is fi	rst described as a juvenile pariah and the son	
of t	he town drunkard.	
1	Name this character. In another novel, he	<u>Huckleberry</u> " <u>Huck</u> "
	travels with Jim on the Mississippi River.	Finn [accept any
		underlined name]
2	This woman, who lives with her sister Miss	the Widow Douglas
	Watson, adopts Huckleberry Finn.	[prompt on the $\underline{\mathbf{Widow}}$]
3	At the end of The Adventures of Huckleberry	a <u>bullet</u>
	Finn, Tom Sawyer wears this item around his	
	neck with a watch-guard after Jim helps out a	
	doctor.	



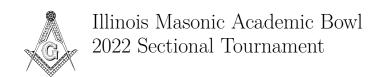
Question #13: Science

10 points per part

Ans	wer the following about the human spine:	
1	It is made up of 33 of these bones.	vertebra e [accept
		$\underline{\mathbf{vertebra}}$ s]
2	Five of the vertebrae are fused to form this	sacrum(s) [SAK-rum]
	bone that combines with the hip bones to form	[accept sacra]
	the pelvis. This bone is just above the coccyx	
	["COCK-six"].	
3	These five vertebrae are just above the sacrum.	<u>lumbar</u> vertebrae

Question #14: Science

The	se cells are controversial because they are		
som	etimes taken from embryos that were a few		
days	s old.		
1	Name these undifferentiated cells that can	stem cells	
	develop into a variety of different cells, though		
	there are some limits to that ability when these		
	cells are taken from adults.		
2	This term describes the ability of stem cells to	pluripotency	
	become several different cell types.	[PLUR-ih-"potency"] or	
		pluripotent stem cells	
3	Stem cells have been used to grow these mice	knockout mice	
	that have an inactivated gene.		



Round 5 3rd Section Toss-up Questions

Question #15: Social Studies

10 points

This king chose Maurepas [mor-pah] as his First Minister of State, who in turn chose Turgot [tur-goh] as comptroller general of finance. Turgot resigned as this king's comptroller after trying to end a system of unpaid labor called the corvée [kor-vay]. The Director of the Treasury under this king ignited an uproar by publishing the budget. That director, who inspired a mob when this king told him to leave the country, was Jacques Necker [zhahk nek-air]. This king eventually was forced to recognize the National Assembly. This king later tried to flee France but was caught. Name this husband of Marie Antoinette who was beheaded during the French Revolution.

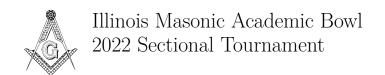
Louis XVI [16] [or Louis-Auguste, duc de Berry; prompt on Louis]

Question #16: Miscellaneous

10 points

In 2017, this company got into the sleep-tracking	Apple In
business by buying out Beddit Oy. This company	Computer
acquired Emagic in 2002, so it is now the producer	
of the music synthesis software Logic Pro. This	
company also owns the rights to Adobe Premiere's	
major competitor in video-editing, Final Cut Pro.	
For the last few years, this company has been the	
leading producer of smart watches, including the	
Series 6 that came out in 2020 and can monitor	
blood oxygen saturation. Name this company	
started by Steve Wozniak [WAHZ-nee-ak] and	
Steve Jobs that makes iPads.	

Apple Inc. [accept Apple Computer Inc.]



Round 5 3rd Section Toss-up Questions

Question #17: Mathematics

10 points

The distances from any point inside one of these	rectangles [or
shapes to its vertices [VER-tuh-sees] are related by	<u>rectangular</u> shapes]
the British flag theorem. If one of these shapes has	
side ratios equal to the golden mean, then it can be	
divided into a square and a shape with the same	
proportions as the original. This is the most	
general type of quadrilateral whose diagonals both	
are congruent and bisect each other. This shape is	
a parallelogram with four congruent angles. Name	
this quadrilateral with four right angles and	
possibly two different side lengths.	

Question #18: Social Studies

Arthur Pigou [pih-goo] wrote a book on his theory	$\underline{\mathbf{unemployment}}$
of this concept, which inspired John Maynard	
Keynes' ["canes"] to reply "We are, as I have said,	
one equation short." Okun's [OH-kun'z] law gives a	
linear relationship between the rate of this concept	
and a country's production. The concept of a	
non-accelerating inflation rate of this concept is	
now preferred by economists over the idea of it	
having a "natural" rate. The frictional form of this	
concept is often based on voluntary instability,	
while the structural form occurs when there is a	
mismatch between skills and labor market	
requirements. Name this concept in which people	
are looking for work but do not have a job.	



Round 5 3rd Section Toss-up Questions

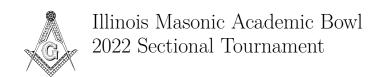
Question #19: Science

10 points

The transverse and longitudinal versions of this	mass
quantity are discussed in Albert Einstein's On the	
Electrodynamics of Moving Bodies. That paper	
divides by 1 minus speed squared divided by the	
speed of light squared to find the transverse form of	
this quantity after starting with the rest type of it.	
The period of a spring equals 2 pi times the square	
root of this quantity divided by the spring constant.	
The weight of an object equals this quantity times	
the gravitational field strength. Momentum is	
calculated by multiplying this quantity times	
velocity. Name this quantity that is measured in	
kilograms.	

Question #20: Literature

A short story by this writer begins with two waiters	Ernest (Miller)
discussing their only customer's past suicide	<u>Hemingway</u>
attempt. That story, which is set at a cafe between	
2 and 3 a.m., is "A Clean, Well-Lighted Place". In a	
novel by this author, Rinaldi introduces an	
American paramedic to an English nurse. This	
author set much of that novel in Milan during	
World War I. In another novel by this author,	
Manolin is the apprentice to a very unlucky	
fisherman. That unlucky fisherman catches a	
marlin, but it is devoured by sharks. Name this	
author of A Farewell to Arms and The Old Man	
and the Sea.	



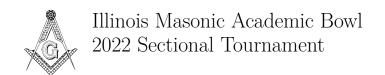
Question #21: Science

10 points per part

The	curve named for this procedure is very steep	
at the	he equivalence point.	
1	Name this procedure that finds the	<u>titration</u>
	concentration of one solution by slowly	[<u>"tie-TRAY-shun"</u>] [or
	combining it with another solution of known	titrating or titrimetry;
	concentration.	accept volumetric
		$\overline{ ext{analysis}}$
2	This mixture of dyes turns red for acids and	<u>litmus</u> [or <u>azolitmin</u>]
	blue for bases [pause] and is often used as an	
	indicator in titrations.	
3	Instead of an indicator, some titrations measure	zeta potential
	this electrical potential difference between the	
	surface of a solid particle in a liquid and the	
	bulk of the liquid.	

Question #22: Science

The	e mineral halite [HA-"light"] consists of this	
com	pound.	
1	Name this compound that makes salt water	sodium chloride or
	salty and is the main component of table salt.	<u>NaCl</u>
2	This term is given to solutions of sodium	saline solutions
	chloride in water that are used as medicine,	
	including eye drops.	
3	This other compound is hydrated to form	magnesium sulfate [or
	Epsom salt.	$MgSO_4$; do not accept
		"magnesium sulfite"]



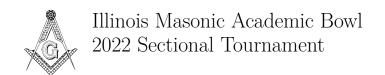
Question #23: Fine Arts

10 points per part

$Th\epsilon$	e left half of this picture shows a cypress tree,	
and	the upper right corner shows a crescent moon.	
1	Name this 1889 painting with a swirling sky.	The Starry Night [or De
		$\underline{\mathbf{Sterrennacht}}]$
2	This Dutch post-impressionist artist painted	Vincent (Willem) <u>van</u>
	The Starry Night.	$\underline{\mathbf{Gogh}}$
3	The Starry Night is set in this small town in the	Saint-Rémy-de-Provence
	south of France, where van Gogh spent time in	[sen reh-mee deh
	an asylum.	praw-vanss]

Question #24: Fine Arts

This	s painter often made paintings in series,	
incl	uding one series of Charing Cross Bridge and	
ano	ther on Rouen [roo-en] Cathedral.	
1	Name this painter of <i>Impression: Sunrise</i> who	(Oscar-)Claude <u>Monet</u>
	also made a series of paintings showing	
	haystacks.	
2	Many Monet paintings are set in his garden in	Giverny [zhee-vair-nee],
	this village about 50 miles northwest of Paris.	France
3	Monet painted a series showing this type of tree	poplar trees or poplar s
	near the Epte [ep-tuh] River. Just after he	
	finished, the trees became lumber.	



Question #25: Literature

10 points per part

This	s novel begins with letters written by Captain	
Rob	pert Walton.	
1	Name this novel written by Mary Shelley that	Frankenstein(: The
	is subtitled The Modern Prometheus.	Modern Prometheus)
2	The monster in <i>Frankenstein</i> reads this poem	Paradise Lost
	by John Milton and is able to relate to both	
	Adam and Satan.	
3	This is the name of Victor Frankenstein's	William Frankenstein [do
	younger brother, who is strangled by the	not accept or prompt on
	monster.	"Will" or "Bill" or "Billy"]

Question #26: Literature

This	s play opens with a discussion between the	
sent	sinels Bernardo and Francisco, who welcome	
Hor	atio and Marcellus.	
1	Name this play by Shakespeare that is set in	Hamlet
	Denmark and includes the line "to be or not to	
	be."	
2	In <i>Hamlet</i> , this counselor of Claudius is the	Polonius
	father of Laertes ["lay-AIR-tees"] and Ophelia.	[poh-LOH-nee-uss]
	He gives a lot of advice, including "To thine	
	own self be true."	
3	Hamlet argues with Ophelia after the "to be or	"Get thee to a
	not to be" soliloquy. What are the first five	nunnery!"
	words that Hamlet says in response to Ophelia	
	stating "I was the more deceived"?	



Question #27: Social Studies

10 points per part

Wil	liam Pitt the Elder and Lord North served as	
prin	ne minister under this king.	
1	Name this king of Great Britain during the	George III [prompt on
	American Revolutionary War.	$\underline{\mathbf{George}}$
2	George III allied Britain with Prussia to win	Seven Years' War
	this war that was fought at the same time as	
	the French and Indian War, Third Silesian War,	
	and Third Carnatic War.	
3	This Irish member of parliament was very	Edmund Burke
	critical of George III's treatment of the	
	American colonies in his "American Taxation"	
	and "Conciliation with America" speeches.	

Question #28: Social Studies

This	s country's first supreme leader was Kim	
Il-sı	ing.	
1	Name this communist country that is between	North Korea [or
	China and the Demilitarized Zone.	Democratic People's
		Republic of Korea or
		DPRK or Choson ;
		prompt on Korea; do not
		accept "Republic of Korea"
		or "South Korea"]
2	In 1968, North Korea captured this U.S. ship	USS <u>Pueblo</u>
	and held the crew hostage for 11 months.	
3	In 1985, North Korea announced that it would	Non Proliferation of
	join this treaty, though it was not in compliance	Nuclear Weapons [or
	and withdrew in 2003. There are 190 other	Nuclear <u>Non</u>
	countries that have joined this treaty.	Proliferation or NPT



Round 5 5th Section Toss-up Questions

Question #29: Science

10 points

A thin layer of this element is used to coat astronauts' helmet visors to protect them from solar radiation. More than any other element, this one can be hammered into a flat shape without breaking, meaning that it is the most malleable [MAL-ee-uh-bull] metal. As with platinum, it is difficult to dissolve this element, but it can be dissolved with a mixture of nitric acid and hydrochloric ["hide"-roh-KLOR-ik] acid called aqua regia [REH-jee-uh]. Pyrite ["PIE-rite"] is nicknamed for its resemblance to this element, which "fools" might confuse it with. Name this element whose Latin name, aurum, inspires its symbol, Au [spell out].

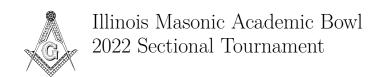
gold [accept \underline{Au} before "aurum"]

Question #30: Literature

10 points

This person was taught music by the same teacher as both Thamyris [THAN-uh-riss] and Orpheus. When that teacher, Linus, reprimanded this person, he hit Linus with his lyre, killing him. This person was born after Zeus impersonated Amphitryon [am-FIT-ree-un], and this person's birth name was Alcaeus [al-KAY-us]. This person died due to a lie that Nessus told to this person's wife, Deianira [dee-uh-NEE-ruh], who gave him a blood-soaked tunic. This person showed his strength by wearing the skin of the Nemean [nih-MEE-un] lion, which he killed before killing the Lernaean [ler-NEE-un] Hydra. Name this mythological hero who performed 12 labors.

<u>Hercules</u> or <u>Heracles</u> [accept <u>Alcaeus</u> before it is mentioned]



Round 5 5th Section Toss-up Questions

Question #31: Social Studies

10 points

With this president's support, Congress passed the	Harry S. <u>Truman</u>
American Housing Act, which cleared slums and	
allocated money to build 800,000 public housing	
units. Despite this president's veto, Congress	
reacted to a wave of millions of workers striking by	
controlling union activity through the Taft-Hartley	
Act. A famous picture of this president shows him	
holding up a mistaken <i>Chicago Tribune</i> claiming he	
had lost to Thomas Dewey. A sign on this	
president's desk said "The buck stops here" on one	
side and "I'm from Missouri" on the other. Name	
this president who decided to drop atomic bombs	
on Japan shortly after succeeding Franklin D.	
Roosevelt.	

Question #32: Mathematics

<u>area</u> [accept <u>area</u> of a
polygon or triangle]



Round 5 Extra Section Toss-up Questions

Extra Question #1: Literature

10 points

In one poem by this writer, the phrase "sweet	Matsuo Basho [prompt on
deepener of dark loneliness" is used to describe the	Basho]
sounds made at twilight by a whippoorwill. During	
the 20th century, knowledge of this poet's travels	
increased with the finding of <i>Sora's Diary</i> . This	
person's best-known travel writing begins "Days	
and months are travelers of eternity. So are the	
years that pass by." Those words open this writer's	
travel diary The Narrow Road to the Deep North.	
Another poem by this writer ends "I long for	
Kyoto." Name this poet who wrote the lines "an	
ancient pond / a frog jumps in / the splash of	
water" and many other haikus.	

Extra Question #2: Fine Arts

The tallest building in this country is a 55-story	(Republic of) South
cylindrical apartment tower with both an empty	<u>Africa</u>
space in its center nicknamed "The Core" and a	
large advertising banner at the top. That building	
is the Ponte [PON-tay] City Apartments. This	
country's president lives in a complex with two	
domes that each have a statue of Atlas; those	
buildings are the Union Buildings. This country	
has a large monument to some of its settlers, who	
were called Voortrekkers, and in the last few years	
this country has faced controversies over memorials	
to Cecil Rhodes. Name this country that uses	
segregated entrances to illustrate its history at the	
Apartheid Museum in Johannesburg.	



Round 5 Extra Section Toss-up Questions

Extra Question #3: Social Studies

10 points

To improve transportation in its western part, this country recently built the Golmud-Korla railway, which crosses the Taklamakan [tahk-luh-MAH-kun] Desert. The north end of the Karakoram [kar-uh-KOR-um] Highway is at this country's city of Kashgar [KASH-gar], which is in the western part of this country near Kyrgyzstan [KUR-gih-stan] and Tajikistan [tuh-JIK-uh-stan]. Both the third- and sixth-longest rivers in the world are entirely in this country. The south of this country borders Myanmar, Bhutan, and Laos, and its north borders Russia and Mongolia. Name this country whose capital is Beijing.

(People's Republic of) **China** or **PRC** or **Zhonghuá** (Rénmín
Gònghéguó)

Extra Question #4: Mathematics

10 points

This adjective can be used to describe the most expansive possible domain a given function can have, such as the set of real numbers except integer multiples of pi for the co-tangent function. Depending on the source, this adjective can also be synonymous with "counting" or "whole" when describing the set of numbers that consists of positive integers and possibly zero. This adjective also describes the type of logarithms whose derivative is the reciprocal function. Give this adjective that describes the logarithm function with base e.

natural [accept natural
domain or natural
numbers or naturals or
natural logarithm]



Round 5 Extra Section Toss-up Questions

Extra Question #5: Science

10 points

Foraminifera [for-a-muh-NIFF-ur-uh] are this type of protist. The largest known examples of these protists live in the Mariana Trench and are about four inches across. These organisms have much in common with Sarcodina [sar-koh-"DIE"-nuh] but do not form a clade with them. These organisms are part of the Tubulinea [toob-yoo-LIN-ee-uh] class, including the Chaos carolinense [car-oh-LIN-enss]. There is some debate as to whether or not Naegleria fowleri [nay-"GLARE"-ee-uh FOW-luh-"rye"] is this type of organism; its popular name states that it is the "brain-eating" type of this organism. Name these single-cell organisms that can change shapes using their pseudopods.

amoeba or ameba (or amoeboids or Amoebidae)



Extra Question #6: Science

10 points per part

The	principle named for this person says that all	
poir	nts of a wave front can be regarded as a wave	
sour	rce.	
1	Name this Dutch scientist who also studied	Christiaan <mark>Huygens</mark>
	Saturn's rings.	["HI"- $gunz$ $]$
2	The parallel axis theorem, which is sometimes	(first mass) moment of
	named for Huygens and Jakob Steiner, is used	inertia [do not prompt on
	to calculate this property with respect to axes	partial answers]
	that don't go through an object's center of	
	mass.	
3	Huygens claimed that he built an engine that	gunpowder or
	used this substance as fuel, but there is	<u>blackpowder</u>
	historical debate as to whether he succeeded.	
	This substance is a combination of saltpeter,	
	sulfur, and charcoal.	

Extra Question #7: Science

The	experiment named for this scientist supported	
the	wave theory of light.	
1	Name this English scientist who found an	Thomas Young
	interference pattern when he performed a	
	double-slit experiment in 1801.	
2	Young's theory about vision was later improved	Hermann von <u>Helmholtz</u>
	by this German scientist. The form of free	
	energy named for this scientist equals internal	
	energy minus temperature times entropy.	
3	Carl Gauss unified the work by Young and this	Pierre-Simon Laplace
	French scientist on capillary pressure. The	[pyair see-mohn
	operator named for this scientist is the	lah-plahss [prompt on
	divergence of the gradient.	<u>Laplacian</u>]



Extra Question #8: Literature

10 points per part

This	s poet's sonnets usually had an octave with the	
rhyı	me scheme "A B B A A B B A", followed by a	
sest	et with the rhyme scheme "C D E C D E".	
1	Name this 14th-century Italian poet.	Petrarch [or Francesco
		Petrarca]
2	Many of Petrarch's poems were written to this	<u>Laura</u>
	woman, whom he did not know well.	
3	Petrarch wrote this epic poem about the	Africa
	Second Punic War.	

Extra Question #9: Literature

Mu	ch of this novel is about the twins Estha and	
Rah	el.	
1	Name this novel in which an untouchable	The God of Small
	named Velutha [veh-LOO-thuh] is killed after	\underline{Things}
	having an affair with Ammu.	
2	This author wrote The God of Small Things	Arundhati
	and The Ministry of Utmost Happiness.	[uh-ROON-duh-tee] Roy
3	The God of Small Things shows the negative	(Republic of) India [or
	consequences of the caste system in this	Bharat Ganarajya]
	country where Arundhati Roy lives.	