

Round # 1 1st Section Toss-up Questions

Question #1: Science – Biology

10 points

These organs can grow a calcified lesion called a Ghon's	<u>lung</u> s
[gons] complex, and the presence of several cysts [sists] on	
these organs is called honeycombing. One of these has a	
lingula, and these organs contain Clara cells and a cardiac	
notch. In humans, these organs consist of three right lobes	
and two left lobes, and these are surrounded by pleura	
[PLOO-ruh]. Name these organs just below the trachea	
[TRAY-kee-uh] which contain alveoli [al-vee-OH-lie] that	
exchange carbon dioxide and oxygen during respiration.	

Question #2: Literature – British Literature

After this person gave a lecture following a massacre, he	Robinson Crusoe (accept either)
was moored in China by his nephew. After his ship was	
captured by Turkish pirates, this character ended up a slave	
in Sallee [sah-LAY] in what is now Morocco for a time until	
he escaped with Ismael and Xury. After discovering a group	
of cannibals from their leftovers, this character shot at them	
and saved a prisoner, whom he renamed Friday. Name this	
castaway and subject of a Daniel Defoe novel.	

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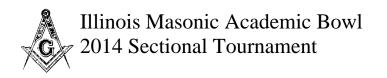
Question #3: Social Studies – U.S. History

10 points

Invoking "the considerable judgment of mankind, and the	The Emancipation Proclamation
gracious favor of Almighty God," this document included a	
clause allowing those affected and "of suitable condition" to	
join the armed forces. This document included exceptions	
for the city of New Orleans and all of West Virginia. News	
reaching Galveston, Texas that this document was going to	
be enforced became the inspiration for the Juneteenth	
holiday. Name this decree issued on January 1 st , 1863,	
which freed all slaves held in Confederate states.	

Question #4: Miscellaneous – Pop Culture

	i o ponite
On this show, one character is able to recognize a quote	The <u>Newsroom</u>
from Man of La Mancha, while two superiors both	
compared themselves to Don Quijote [kee-HOE-tay]. In the	
"Greater Fool" episode of this show, the "sorority girl" from	
the pilot returns seeking an internship. That pilot opened	
with a forum at Northwestern where the protagonist claimed	
that America was no longer the greatest country in the	
world. Name this HBO drama starring Jeff Daniels as news	
anchor Will McEvoy and written by Aaron Sorkin.	



Round # 1 1st Section Toss-up Questions

Question #5: Literature – Mythology

10 points

This god broke a goblet by throwing it at Hymir's	Thor
[HIGH-mir's] head, and he followed that act by carrying a	
cauldron that was a mile deep. This god tricked Alvis into	
being petrified so that Alvis would not marry this god's	
daughter Thrud [throod]. This son of Jord lost in combat to	
old age personified as Elli. Grid warned this god about a	
trap, and aided him in the subsequent battle with Geirrod	
[gayr-RODE]. That trap involved attacking this god when	
he did not have his magic belt Megingjoro	
[meh-geeng-YOE-roe] and his magic hammer Mjolnir	
[MOLE-nir]. Name this Norse thunder god.	
_	

Question #6: Science – Astronomy

Two of these objects, including Grigg-Skjellerup	<u>comet</u> s
[SKEL-leh-rupp], were closely approached by the Giotto	
[JOE-toe] probe. Twenty-one of these objects were	
discovered by Wilhelm Tempel. The scientific names of one	
of these bodies uses the letter P if it is periodic or D if it no	
longer exists. One series of these was named Shoemaker-	
Levy. Long-period examples are believed to originate in the	
Oort cloud. When these objects pass near the Sun, they	
often get dust or plasma tails. Name these objects, the most	
famous of which is Halley's.	

Question #7: Mathematics - Probability

10 points per part

	s arrangement shows all of the possible values of the abination operation.	
	Name this arrangement in which each number equals	Pascal's triangle
1	the sum of the number above and to the left of it with	
	the number above and to the right of it.	
	One of the rows of Pascal's triangle begins with a one	<u>6</u>
2	and a four on the left and ends with a four and a one on	
	the right. What number is in the middle of that row?	
	Possibly using that row, find the probability of getting	<u>3/8</u> (or 0 <u>.375</u>)
3	exactly two heads if you toss a fair coin four times.	
	Simplify your answer.	

Question #8: Mathematics – Probability

	s operation is used if you are selecting objects from a up, and the order of selection matters.	, , ,
1	Name this operation often contrasted with combination.	permutation s
2	This function gives the same result as taking the permutation of a number with itself.	<u>factorial</u>
3	If three digits are selected at random without repeats allowed, what is the probability that the first digit is a seven, the second digit is a nine, and the third digit is a two?	1/720

Question #9: Social Studies – Psychology

10 points per part

	start in psychology came as a designer of French sions of Binet [bih-NAY] intelligence tests.	
	Name this Swiss developmental psychologist whose	Jean <u>Piaget</u>
1	system used four discrete stages of development in children.	
	During this first of Piaget's [pee-ah-jays] stages of	sensorimotor
2	development, which lasts from birth until around two	
	years, a child learns object permanence while	
	maintaining an egocentric view of its environment.	
	Piaget's theories have been used in this field,	Artificial Intelligence
3	abbreviated A.I., which has the goal of designing	
3	machines that can reason, learn, and use human	
	languages.	

Question #10: Social Studies – Psychology

	er Number 819 was released, a group of this eriment's participants chanted that he caused their cells	
to b	e messes.	
1	Name this experiment in which a group of men were emasculated and given little sensory stimulation. It was conducted by Philip Zimbardo.	Stanford prison experiment
2	During the experiment, one particularly sadistic guard on the night shift was nicknamed after this movie star.	John <u>Wayne</u> (prompt on "Marion Morrison" due to context)
3	The experiment was conducted at Stanford University in this U.S. state.	<u>California</u>

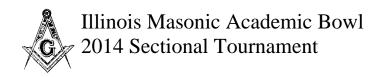
Question #11: Literature – World Literature

10 points per part

	gypsy Melquiades [mehl-KEE-ah-dehs] makes annual ts to this fictional town.	
1	Melquiades wrote a Sanskrit manuscript of this town's past and future. Its founder was Jose Arcadio Buendia.	Macondo
2	Macondo is the setting of this author's novel <i>One Hundred Years of Solitude</i> , as well as <i>Leaf Storm</i> .	Gabriel Garcia-Marquez
3	The town of Macondo is found within this nation. <i>No One Writes to the Colonel</i> was based on the history of this nation, the home of Gabriel Garcia-Marquez.	<u>Colombia</u>

Question #12: Literature – World Literature

		i o pointe poi part
In t	his novel, Pangloss is a teacher of metaphysico-	
the	ologo-cosmolonigology [meh-tah-FIH-sih-koe	
thee	e-uh-LOE-goe kos-moe-lah-nih-GAH-lah-jee] and a	
dev	otee of Leibniz [LIBE-niz].	
	Name this novel in which the protagonist declares that	<u>Candide</u>
1	each individual must cultivate one's own garden.	
	· ·	
	Candide [kan-deed] was written by this author, who	Voltaire (accept Francois-Marie
2	frequently used the turn of phrase "crush the infamous	Arouet)
2	thing." He was imprisoned for almost a year for	
	satirizing King Louis the Fourteenth.	
	While fleeing from Jesuit missionaries, Candide and	El Dorado
	Cacambo discover this utopia, where gold is referred to	
3	as "yellow mud." Candide utilizes precious stones and	
	gold gathered here to pay Cunegonde's	
	[koon-uh-gond's] ransom.	



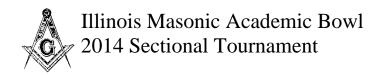
Question #13: Science – Physics

10 points per part

	s force is caused by the motion or spin of charged ticles, usually electrons.	
	Name this force that is paired with electricity to make	(electro)magnetism (accept word
1	one of the four fundamental forces.	forms)
	This S.Iderived unit of magnetic flux density is used	<u>tesla</u> s
2	to measure the strength of magnetic fields. It is	
	equivalent to a weber per square meter.	
	This constant equal to four pi times ten to the negative	permeability of free space (accept
3	seven henries per meter for a vacuum measures the	<u>mu</u> naught)
	ability of a material to support a magnetic field.	

Question #14: Science – Physics

	Yee of these particles combine to form a hadron AY-dron.	
1	Name these fundamental particles that come in six flavors.	<u>Quark</u> s
2	The first generation quarks are up and down. The second generation quarks are charm and strange. This is the name of the two third generation quarks.	top and bottom (either order without prompting)
3	For all six quarks, this value equals one-third. This value equals negative one-third for all anti-quarks, and this number is always conserved or converted to lepton numbers.	baryon number(s)



Round # 1 3rd Section Toss-up Questions

Question #15: Fine Arts – Art History

10 points

One work by this painter shows Jesus holding a crystal sphere in his left hand with his fingers crossed in his right hand. That work, which was rediscovered in 2011, is known as *Savior of the World*, or *Salvator Mundi* [MOON-dee]. Another work by this artist, showing Cecilia Gallerani holding a white animal, is known as *Lady with an Ermine* [ER-min]. Another work by this artist was inspired by a first century BC architect and shows a man inside a square and a circle. Name this painter who portrayed the wife of Francesco [frahn-CHES-koe] del Giocondo [joe-KON-doe] in his *Mona Lisa*.

<u>Leonardo</u> <u>da Vinci</u> (accept either underlined part)

Question #16: Social Studies – World History

10 points

This political group was responsible for the 2001 destruction of a large Buddha statue at Bamiyan [bahm-yahm]. At this group's height of power, its leader took a title meaning "commander of the faithful" and subsequently donned a cloak said to have belonged to Muhammad. That leader, Mullah Omar, lost an eye fighting against the Soviets. Name this group of militant Pashtuns [pahsh-toons] fighting to regain control of Afghanistan.

<u>Talib</u>an (accept <u>Taleb</u>an, prompt on "Students")

Round # 1 3rd Section Toss-up Questions

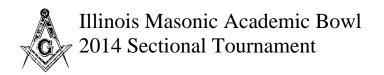
Question #17: Mathematics – Math Concepts

10 points

The midpoints of the sides of any quadrilateral can be	parallelogram s	
connected to form this type of quadrilateral. This is the least		
restrictive designation for which either diagonal of a		
quadrilateral splits it into two congruent triangles and for		
which the diagonals bisect each other. Its area can be found		
from a cross product. This shape's opposite angles are		
congruent, and its adjacent angles are supplementary. Name		
this quadrilateral, special cases of which include a rectangle		
or a rhombus.		

Question #18: Literature – U.S. Literature

One character in this novel becomes the vice shah of Oran	Catch-22	
and caliph of Baghdad. In this novel, Generals Peckem and		
Dreedle differ on what formations should be employed. Set		
primarily on the island of Pianosa [pee-ah-NOE-sah], this		
focuses on the 256 th squadron, which includes petty officer		
Milo Minderbinder and pilot John Yossarian. Name this		
novel by Joseph Heller whose name is synonymous with an		
impossible situation.		



Round # 1 3rd Section Toss-up Questions

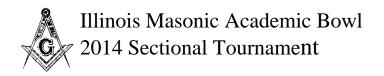
Question #19: Science – Chemistry

10 points

The discovery of oxygen by Carl Scheele [SHAY-luh] and	mercury (prompt on "Hg")
Joseph Priestley was accomplished by heating the oxide of	
this element. This compound was used with salt and copper	
sulfate to extract silver in the patio process. This is	
combined with silver, tin, and copper to make dental fillings	
known as amalgams, though its use is controversial because	
of its high toxicity. Similar concerns have decreased its use	
in vaccines and thermometers. Name this element formerly	
known as quicksilver, a metal that is liquid at room	
temperature.	

Question #20: Social Studies – Economics

For durable goods, the long-run price elasticity of this	aggregate supply
quantity's secondary form is smaller compared to its short-	
run elasticity, which is always positive. When this	
quantity's curve shifts to the right, the market-clearing price	
drops. When input costs drop, a rightward shift is seen in	
this quantity's upward-sloping curve. Name this economic	
concept describing the amount of a good available in a	
market, often contrasted with demand.	



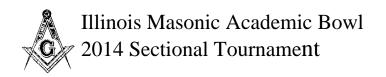
Question #21: Mathematics – Algebra

10 points per part

Thi a li	s form uses three fixed quantities to give the equation of ne.	
1	Name this form that is typically written as y minus y sub one equals m times the quantity x minus x sub one. $[y-y_1=m(x-x_1)]$	point-slope form
2	Find the y-intercept of the line with equation y minus three equals two times the quantity x plus four.	$\underline{11}$ (or ($\underline{0}$, $\underline{11}$) in order)
3	Find the x-intercept of the same line, which once again has the equation y minus three equals two times the quantity x plus four.	<u>-5.5</u> (or (<u>-5.5,0</u>) or <u>-11/2</u> or <u>-5 ½</u> or (<u>-11/2,0</u>) or (<u>-5 ½,0</u>) in order)

Question #22: Mathematics – Algebra

	of the derivatives of the smooth examples of these are tinuous.	
1	Name these relations with the property that each input produces exactly one output.	<u>function</u> s
2	A function is classified as continuous at a given point if at that point its output is equal to this value.	<u>limit</u> (accept longer answers as long as the key word is limit)
3	If the function given by the fraction quantity x^2+5x+6 divided by the quantity $x+3$ is to be made continuous, then it must be assigned this output when x equals negative 3.	<u>-1</u>



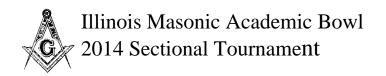
Question #23: Literature – British Literature

10 points per part

	s essay decries those who grow up to become thieves, to fight in Spain, or end up in Barbados.	
1	Name this work in which it is suggested that a group of people consume their own children to ease the burden on the country.	[Note to moderator: Do not read the full name, but accept the additional information.] A Modest Proposal (for Preventing the Children of Poor People in Ireland From Being A Burden to Their Parents or Country, and For Making Them Beneficial to The Public)
2	A Modest Proposal was penned by this satirist and author of Battle of the Books. In one novel, he wrote about a doctor who travelled to Laputa and Lilliput.	Jonathan <u>Swift</u>
3	A Modest Proposal was written to address the problem of overcrowding in this predominantly Catholic nation.	<u>Ireland</u>

Question #24: Literature – British Literature

	s brother of Valentine advises his cousin to "borrow bid's wings, and soar with them above a common bound."	
1	Name this man who described himself as worms' meat after being stabbed in a duel and shouting, "A plague o' both your houses!"	Mercutio
2	Mercutio was stabbed by this member of the Capulet family.	<u>Tybalt</u>
3	The Capulet family feuded with the Montagues in this Shakespearean tragedy.	Romeo and Juliet



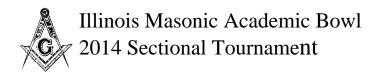
Question #25: Fine Arts - Classical/Opera

10 points per part

	s composer spent the first half of his life in Poland and	
the	second half in France.	
	,	
	Name this 19 th century composer who wrote almost all	Frederic Chopin
1	of his works for solo piano, including many etudes [ay-	
1	toods], mazurkas, and nocturnes. His etudes have been	
	given nicknames such as Black Keys and Winter Wind.	
	Chopin [schoe-pan] also wrote several of these pieces	<u>Waltz</u> es
	that are in three four time, including the "Minute".	
2	Though these pieces were traditionally used for	
	Austrian dances, Chopin's were meant for concert	
	performances.	
	Chopin also wrote several of these pieces in three four	polonaises
3	time, including the "Military". These pieces were	
	traditionally used for Polish dances.	

Question #26: Fine Arts – Classical/Opera

	s composer's collection titled <i>Images</i> includes <i>lections in the Water</i> and <i>Homage to Rameau</i> .	
1	Name this composer of <i>La Mer</i> .	(Claude) <u>Debussy</u>
2	This section of Debussy's [day-byoo-sees] <i>Suite bergamasque</i> [sweet ber-gah-mahsk] has a title that means moonlight.	"Clair de lune"
3	Debussy also wrote this opera based on a Maeterlinck [MEH-ter-leenk] play involving Prince Golaud.	<u>Pelleas et Melisande</u>



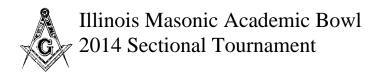
Question #27: Social Studies – World History

10 points per part

The	e forces that attacked this fortress only had to fight	
Sw	iss mercenaries and wounded veterans.	
	Name this fortress used as a prison whose storming	the Bastille
1	resulted in the summary execution of Bernard-Rene de	
	Launay on July 14, 1789.	
	The storming of the Bastille was an early engagement	French Revolution (or Révolution
2	in this overthrow of Louis the Sixteenth and Marie	française do not accept the "Reign
	Antoinette.	of Terror")
	Early during the French Revolution, the National	Declaration of the Rights of Man
2	Assembly approved this statement, which claimed that	and of the Citizen (or <i>Déclaration</i>
3	the aim of political association was to preserve the	des droits de l'homme et du
	concepts of liberty, property, and security.	citoyen)

Question #28: Social Studies – World History

Wh	ile serving as governor of Gaul, he added modern-day	
Bel	gium to the Roman Empire. As proconsul, he allegedly	
use	d strong-arm tactics to cow Bibulus [bi-buh-lus].	
	Name this leader who fell out with Pompey following	Gaius Julius Caesar (prompt on
1	the death of Crassus at the hands of the Parthians.	"Caesar")
	Suetonius [swee-TOE-nee-us] wrote that Julius Caesar	Rubicon
2	saw an apparition that convinced him to cross this river.	
Z	Doing so sparked a civil war with Pompey, which Julius	
	Caesar won.	
	Pompey subsequently fled to Egypt to evade capture,	<u>Alexandria</u>
3	but Julius Caesar was presented with Pompey's head	
	upon arriving in this Egyptian city.	



Round # 1 5th Section Toss-up Questions

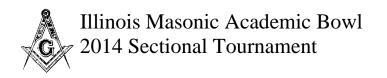
Question #29: Science – Physics

10 points

Spin is projected onto this vector to find helicity [heh-LIH-	(linear) momentum	
sih-tee]. This quantity is equal to the derivative of a		
Lagrangian [luh-GRAHN-jee-un] with respect to velocity.		
Squaring this quantity and dividing by twice the mass gives		
kinetic energy. Newton's 2 nd Law can be expressed by		
setting the derivative of this quantity with respect to time for		
constant mass systems equal to net force. The change in this		
quantity is equal to the impulse, and this quantity is		
conserved even in inelastic collisions. Name this quantity		
equal to mass times velocity.		

Question #30: Literature – World Literature

In a story by Poe, this character encounters a creature with	Sindbad the Sailor (accept
eighty eyes that must have moved via necromancy. This	Sinbad)
character received a wife in exchange for a saddle, but he	
was buried alive after she died. Nearly killed by the Old	
Man of the Sea, he found a large source of ivory thanks to	
an elephant. This character discovered diamonds of great	
size in a valley inhabited by large serpents on one of his	
trips, and this character encountered large birds called	
rocs. Name this character described by Scheherezade	
[sheh-HERE-uh-zahd], a sailor who went on seven	
voyages.	



Round # 1 5th Section Toss-up Questions

Question #31: Mathematics – Math Concepts

10 points

In set theory, this number can be defined using the set that	<u>one</u>
contains only zero. If a function approaches this positive	
value raised to infinity, then it is indeterminate. This number	
equals the length of each vector in an orthonormal basis.	
This is the only positive number that cannot be used as the	
base of a logarithm, and this is the only positive number	
equal to its own reciprocal. Name this number that is the	
multiplicative identity.	
-	

Question #32: Social Studies – U.S. History

This person chartered the Oskar II and sailed to a	Henry Ford	
conference in Stockholm in an attempt to bring an end to		
World War One. He bankrolled the purchase of many		
historic buildings that ended up in Greenfield Village. He		
blamed war on the financial schemes of the "International		
Jew," and he bought the <i>Dearborn Independent</i> in order to		
publish such opinions. Name this automobile tycoon who		
utilized the assembly line in the manufacture of the Model		
T.		

Round # 1 Extra Section Toss-up Questions

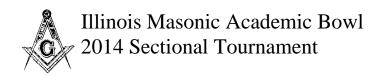
Extra Question #1: Literature - U.S. Literature

10 points

Upon returning home, this character is recognized by Peter	Rip van Winkle
Vanderdonk. His wife died while berating a New England	
peddler, according to his daughter Judith. After growing a	
beard, this character regaled children with tales of playing	
ninepins with the spirits of Hendrick Hudson. Name this	
Washington Irving character who missed the American	
Revolution because he fell asleep for 20 years.	

Extra Question #2: Fine Arts – Classical/Opera

This composer often wrote introductory solo voice works to be played before his choral works, including <i>Canta in Prato</i> to precede his <i>Dixit Dominus</i> , and <i>Ostro Picta</i> to precede his	Antonio <u>Vivaldi</u>	
Gloria. One of his operas, written a few years before a similar work by Handel, is Orlando furioso. He wrote a set		
of twelve concertos [kon-CHER-toes] which includes "La tempest di mare." Name this composer from Venice nicknamed "The Red Priest" whose <i>The Contest Between</i>		
Harmony and Invention includes The Four Seasons.		



Round # 1 Extra Section Toss-up Questions

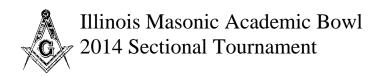
Extra Question #3: Science – Biology

10 points

Though this group is a genus, it is within a phylum named	amoeba (or ameba)
for it that includes lobosa and conosa. The lobosa includes	
the tubulinea class and this genus, while the conosa includes	
many slime molds. The main species of this genus is the	
proteus, which has exactly one contractile vacuole. Name	
these unicellular protists that move using pseudopods, or	
false feet, and which often change their shape.	

Extra Question #4: Social Studies – World History

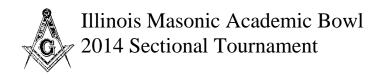
Per the Act of Montevideo [mon-tay-vee-DAY-oh], this	(Pope/Blessed) John Paul II
leader was asked to mediate a conflict between Chile and	(accept Karol Józef Wojtyła)
Argentina. Upon reaching his highest post, this leader	
declared his goal of reuniting Europe "from the Atlantic to	
the Ural Mountains." The target of an assassination	
attempt by Mehmet Ali Agca, he criticized the West for	
moving towards a "culture of death," predicated by	
acceptance of euthanasia and abortion. Name this Polish	
Catholic who was elected Pope in 1978.	



Round # 1 Extra Section Toss-up Questions

Extra Question #5: Mathematics – Math Concepts

The tangent of the quantity pi over this number equals two	12
minus the square root of three. The Platonic solid with this	
number of faces has twenty vertices, and of all the Platonic	
solids, the one with this number of faces has the faces which	
each have the most sides. This is the number of edges on a	
cube, and this is the smallest whole number that is evenly	
divisible by all of the numbers one through four. Identify	
this number equal to the number of sides of a dodecagon.	



Round # 1 Extra Section Teamwork Questions

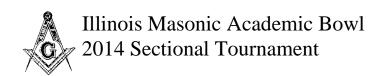
Extra Question #6: Science – Chemistry

10 points per part

The tabl	e alkaline earth metals form a column in the periodic e.	
1	This is the IUPAC group number of the alkaline earth metals.	2
2	This is the heaviest alkaline earth metal. This element and polonium were the two elements found by Pierre and Marie Curie.	radium (prompt on "Ra")
3	This person bombarded the lightest alkaline earth metal, beryllium [buh-RIL-lee-um], with radiation to discover the neutron in 1932.	(James) Chadwick

Extra Question #7: Science - Chemistry

Sub	estances often change phases.	
1	Name the phase change from solid to liquid.	melting (prompt on "fusion")
2	Also known as desublimation [dee-SUB-lih-may-shun], name the phase change directly from gas to solid.	deposition (accept word forms)
3	Name the heat added or released without any change in temperature, which often is used in phase changes.	latent heat



Round # 1 Extra Section Teamwork Questions

Extra Question #8: Social Studies – U.S. History

10 points per part

	s is the only amendment ratified by the states via stitutional conventions.	
1	Name this amendment that granted states greater autonomy in regulating alcohol sales.	Twenty-First Amendment to the United States Constitution (or <u>21</u>)
2	The 21 st Amendment was a direct repeal of this amendment, which banned the manufacture, sale, consumption, and distribution of alcohol.	Eighteenth Amendment to the United States Constitution (or <u>18</u>)
3	The enforcement for the 18 th Amendment came from an act championed by this Minnesotan and chair of the House Judiciary Committee.	Andrew Volstead

Extra Question #9: Social Studies – U.S. History

	the terms of this treaty, the United States renounced ms to Texas.	
1	Name this treaty in which Spain also agreed to relinquish claims to Oregon Country.	Transcontiental Treaty (accept Adams-Onis, prompt on "Purchase of Florida")
2	Spain also ceded the territory that would become this state. The US had already established a significant military presence here on account of the First Seminole War.	<u>Florida</u>
3	The build-up to the Adams-Onis Treaty included controversy over ownership of West Florida. Spain claimed ownership via the terms of this 1783 treaty.	1783 Treaty of Paris

Round # 2 1st Section Toss-up Questions

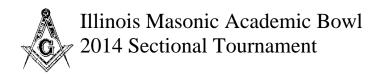
Question #1: Mathematics – Math Concepts

10 points

Two similar triangles are drawn inside one of these shapes in	<u>circle</u>
the Butterfly Theorem. An angle whose rays both intersect	
this shape twice is subject to the Secant-Secant Theorem,	
and the power of a point depends on its location relative to	
the center of one of these shapes. This shape is generated in	
polar coordinates by setting the value of r equal to a	
constant. Name this locus [LOE-kus] of all points in a plane	
a fixed distance from a fixed point, a shape whose area can	
be found by multiplying pi times radius squared.	

Question #2: Social Studies – Geography

This mountain range includes Mount Tarn on Brunswick	Andes Mountains	
Peninsula. This range includes the highest volcano in the		
world, which is near its San Francisco Pass. Active		
volcanoes in this mountain range include Mounts Hudson		
and Yate [YAH-tay]. Its eastern section juts up against the		
Altiplano [ahl-tee-PLAH-noe], and this is the longest		
continental mountain range in the world. Name this		
mountain range including Mount Aconcagua		
[ah-kone-KAH-gwah] in Argentina, a long range located in		
South America.		



Round # 2 1st Section Toss-up Questions

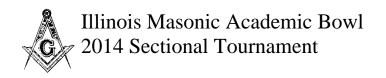
Question #3: Fine Arts – Classical/Opera

10 points

This composer wrote the aria "Einsam in truben Tagen"	(Richard) Wagner
[INE-sahm in TROO-ben TAH-gen], which is nicknamed	
"Elsa's Dream." One of his characters, Alberich	
[ahl-beh-reek], makes a curse which this composer uses as a	
leitmotif [LIGHT-moe-teef] in some of his operas. One of	
his operas about the search for the Holy Grail, which at first	
was only allowed to be performed at a theatre in Bayreuth	
[bay-rooth], is <i>Parsifal</i> [PAHR-see-fahl]. Name this	
composer of Lohengrin whose works Das Rheingold, Die	
Walkure [dee VAHL-kyoo-ree], Siegfried, and	
Gotterdammerung make up his Ring Cycle.	

Question #4: Literature – U.S. Literature

The man in charge of this event had to be sworn in by the	The <u>Lottery</u>
postmaster. The man who ran this also ran the local square	
dances, Halloween program, and teen club. In the build-up	
to this event, Bobby Martin set an example for Bobby and	
Harry Jones, who gathered large piles of stones. In years	
past, chips of wood were used for this, but Mr. Summers	
and Mr. Graves used paper slips instead. Name this title	
event in which Tessie Hutchinson got stoned by the people	
of her village in a short story written by Shirley Jackson.	



Round # 2 1st Section Toss-up Questions

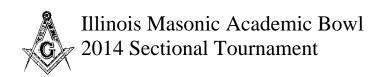
Question #5: Science – Chemistry

1<u>0 points</u>

Hünig's [HYOO-nig's] type of these substances is a poor	(strong) <u>base</u> s
nucleophile [NOO-klee-oe-file]. A Brook rearrangement	
uses these substances, such as a Grignard [grih-NARD] or	
organolithium [or-GA-noe-LIH-thee-um] reagent, as	
catalysts. These substances tend to hydrolyze triglycerides	
[trie-GLIH-suh-rides] in a process called saponification,	
which is why they often feel slippery, and these substances	
typically taste bitter. Depending on which definition is	
used, these substances donate an electron pair, accept	
protons, or yield hydroxide ions. Name these substances	
that react strongly with acids.	

Question #6: Social Studies – World History

Raised under the Kensington system by Sir John Conroy	Queen Alexandrina Victoria
and the Duchess of Kent, this monarch's reign saw Britain	
obtain control of Cyprus and obtain just under half of the	
shares of the Suez Canal. During the "bedchamber crisis",	
this leader refused to cow to the demands of Sir Robert Peel.	
This monarch ruled when Benjamin Disraeli and William	
Gladstone were prime ministers, and she was the mother of	
Edward the Seventh. Name this 19 th century ruler, also the	
Empress of India, who was the longest-ruling English	
queen.	



Question #7: Mathematics – Statistics

10 points per part

valu first	te: Please read this question slowly.] Find the following les for a distribution that has a minimum value of 10, a quartile [KWAR-tile] of 14, a median of 15, a third rtile of 20, and a maximum value of 25.	
1	Find the range. Give your answer as a single number.	<u>15</u>
2	Find the interquartile range. Once again, give your answer as a single number.	<u>6</u>
3	This adjective can be applied to the set because it has a finite range.	bound ed (above and below)

Question #8: Mathematics – Statistics

Th	ere are population and sample types of this quantity.	
	Name this quantity equal to the square root of variance	(population or sample) standard
1	that is used to measure the spread of data.	deviation
	If a set of numbers has a mean of 20 and a variance of	<u>28</u>
2	16, then this number is two standard deviations above	
	the mean.	gavana maat of 2 (on maat 2 on
2	Find the population standard deviation of the numbers	square root of 2 (or root 2 or
3	positive two, negative one, and negative one. This set	<u>radical 2</u> or equivalents)
	of numbers has a mean equal to zero.	

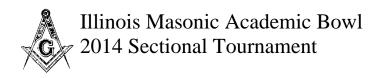
Question #9: Literature - U.S. Literature

10 points per part

		s Nantucket Whaler was the second ship that Fedallah ke of in a prophecy.	
]	1	Name this ship, made of American wood, that served as the coffin for Stubb.	<u>Pequod</u>
2	2	This captain of the <i>Pequod</i> had a fake leg. His demise came when a harpoon rope snagged him by the neck.	Captain Ahab
	3	Ahab's leg was lost in an earlier encounter with this sperm whale.	Moby Dick

Question #10: Literature – U.S. Literature

For	refusing to repeat the catechism [ka-tuh-ki-zum], this	
girl	is almost taken from her mother by Governor	
Bel	lingham.	
1	Name this "living hieroglyphic" who is warned by her mother to not speak of what happens in the forest.	<u>Pearl</u>
2	Pearl is the daughter of this adulteress, who was forced to wear an embroidered A at all times.	Hester Prynne (accept either)
3	Hester Prynne is the protagonist of this author's <i>The Scarlet Letter</i> .	Nathaniel <u>Hawthorne</u>



Question #11: Science – Biology

10 points per part

The	bottom of this organ is the pylorus [pie-LO-rus].	
1	Name this digestive organ between the esophagus and small intestine.	<u>stomach</u>
2	The digestive fluid produced in the stomach is gastric acid. This is the strong acid that is a major constituent in gastric acid.	hydrochloric acid (prompt on "HCl")
3	These animals, including cows, chew on their food again after it has been in their stomach.	ruminants (or ruminantia)

Question #12: Science – Biology

	logists have spent a lot of time over many years on one one one, or organism classification.	
	Name the 18 th century Swedish botanist who	(Carl) Linnaeus (or (Carl von)
1	popularized binomial nomenclature.	Linne or (Carolus) Linnaeus or
		(Carolus a) Linne)
	This classification level is more specific than class but	<u>order</u>
2	less specific than family. This level includes	
	lagomorphs, rodents, and primates.	
	In 1977, Carl Woese [woze] devised a three-domain	<u>Archaea</u>
3	system. This is the domain he used for prokaryotes	
	[proe-KA-ree-otes] that are not bacteria.	

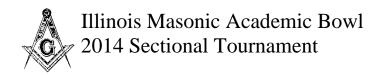
Question #13: Social Studies - Religion

10 points per part

Thi	s series of blessings were in the Sermon on the Mount.	
1	Name this collection of statements which claims that the kingdom of heaven awaits those poor in spirit and	Beatitude s
	those who are persecuted for the sake of righteousness.	
	The Sermon on the Mount is contained within Chapter	The Gospel According to St.
2	5 of this first book of the New Testament.	Matthew (accept Book of
		<u>Matthew</u>)
	Later in the chapter, Jesus suggests that one should	right <u>eve</u> s
3	pluck out sinful body parts rather than be sent to hell,	
	using this body part as an example.	

Question #14: Social Studies - Religion

The	day immediately preceding this day is the "day of	
pre	paration." The hymn "Lecha Dodi Likrat Kallah	
[leh	-KAH DOE-dee lih-KRAT kah-lah]" greets this day as	
a bı	ride.	
	Name this day on which work was forbidden. In some	Sabbath (accept Shabbath,
1	traditions, travel outside the city walls was restricted to	Sabbatum, or Sabbaton)
	2000 cubits, which is about half a mile.	
	Keeping the Sabbath day holy is required by the fourth	Ten Commandments
2	of these laws. These also forbid killing and taking the	
	Lord's name in vain.	
	In Matthew 12, Jesus claimed that it was lawful to heal	sheep
3	on the Sabbath by comparing the act to lifting one of	
	these animals out of a pit.	



Round # 2 3rd Section Toss-up Questions

Question #15: Literature – British Literature

10 points

This poem asks, "Was there a man dismayed?" In the last	"Charge of the Light Brigade"
stanza of this poem, the speaker asks, "when can their glory	
fade" before asking the reader to honor the title action. The	
title group, or "all that was left of them," had "came through	
the jaws of Death." In this poem, the title group knew that	
"theirs not to reason why, theirs but to do and die." Name	
this poem in which the six hundred rode into the valley of	
death, written by Alfred, Lord Tennyson.	
•	

Question #16: Science – Earth Science

The inside of these objects is where the Bergeron	<u>cloud</u> s	
[BER-guh-ron] process takes place, and the artificial		
creation of conditions similar to the ones inside these was		
done by C.T.R. Wilson. When one of these objects forms		
below another one, it can be a mammatus [meh-MATE-us],		
while if one of these forms on top of another one, it is a		
pileus [PIE-lee-us]. The four common types of these objects		
have Latin names that translate as pile, layer, wisp, or rain.		
Name these objects made of drops of water or ice, better		
known as cumulus, stratus, cirrus, or nimbus.		

Round # 2 3rd Section Toss-up Questions

Question #17: Social Studies – U.S. History

10 points

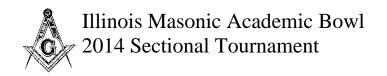
A follow-up to this agreement was issued following the	Missouri Compromise of 1820
passage of a clause excluding mulattoes [muh-LAH-toes].	
One proposed amendment to this involved the emancipation	
of slaves upon turning 25-years-old. This agreement's	
eighth and final section addressing a portion of the	
Louisiana Purchase was annulled by the Kansas-Nebraska	
Act, and this act allowed for Maine to enter the Union as a	
free state. Name this 1820 agreement that allowed a	
midwestern state to enter the Union.	

Question #18: Miscellaneous – Consumer Education

10 points

In a case involving *National Bellas Hess*, the Supreme Court ruled that a substantial nexus had to be established in order to enforce one of these. The Illinois Supreme Court found that the Main Street Fairness Act implemented this in an unconstitutional manner. Delaware is the only US state that does not use this, while the proposed Marketplace Fairness Act would force online retailers to remit it. Name this surcharge applied on the purchase of certain goods and services.

(internet) <u>sales</u> tax (accept <u>use</u> tax or <u>excise</u> tax, prompt on "tax")



Round # 2 3rd Section Toss-up Questions

Question #19: Literature – World Literature

10 points

This novel inspired a nonfiction book written by Elizabeth Jane Cochrane under the pseudonym Nellie Bly. In this novel, the protagonist is suspected to be a bank robber, so he is followed by Inspector Fix. The search for a minister near the end of this novel so that the protagonist can marry Aouda [ah-OO-dah] revealed that the protagonist had forgotten about the International Date Line, which lets him arrive back at the Reform Club in time to win a bet he made. Name this novel concerning Phileas [FIH-lee-us] Fogg's journey, written by Jules Verne.

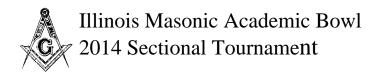
Around the World in Eighty Days (accept Le Tour du monde en quatre-vingts jours)

Question #20: Science – Biology

10 points

A hole in a part of this organ can cause an infection to be classified as chronic suppurative [SUH-puh-rah-tiv]. The front of this organ has a bump called a tragus [TRAY-gus], while the back of its pinna is called its helix. The inside of this organ has three semicircular canals, which are near its organ of Corti [KOR-tee] inside of its cochlea [KOE-klee-uh]. Its bones, called ossicles [AH-sih-kuls], are the smallest bones in the human body. They are the malleus, incus, and stapes [STAY-pees], which are commonly called the hammer, stirrup, and anvil. Name these sensory organs used for hearing.

<u>ear</u>s (accept cochlea during the first sentence)



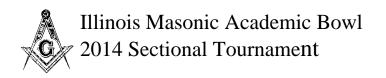
Question #21: Mathematics – Geometry

10 points per part

	s term is sometimes used to describe any three- ensional shape that can be expressed with one parameter.	
1	Name this term that typically describes a three-dimensional shape that has two circles at opposite ends.	<u>cylinder</u> s
2	Find the volume of a right circular cylinder with a height of 5 and a radius of 3. Do not worry about units.	45 pi (do not accept "45")
3	That cylinder has a lateral surface area of 30 pi. Find the total surface area of that cylinder with a height of 5 and a radius of 3.	48 pi (do not accept "48")

Question #22: Mathematics – Geometry

	name of this theorem is used for a type of tessellation ag squares of different sizes.	
1	Name this theorem relating the lengths of the sides of a right triangle.	Pythagorean theorem (or Pythagoras theorem)
2	The Pythagorean theorem is a special case of this law relating the three sides of any triangle and a function of one of the angles.	law of <u>cosine</u> s
3	There are two right triangles for which the sides are all whole numbers and one of the legs has a length equal to eight. Give the lengths of the hypotenuses of those two right triangles. Both answers required.	10 and 17 (both answers in either order, accept the word or between them or no word between them)



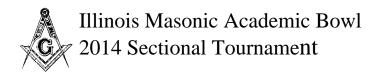
Question #23: Social Studies – U.S. History

10 points per part

The	ese essays were written with the goal of influencing	
Nev	w York voters.	
	In Essay 10 of this collection, one author rejects the	The Federalist (accept Federalist
1	idea that republican government is possible only in	papers)
1	small states. All of them were signed "Publius	
	[POO-blee-us]."	
	Most historians agree that this collaborator wrote essays	John <u>Jay</u>
	two through five and sixty-four. With Lord Grenville,	
2	this person negotiated a treaty that opened up British	
	markets to American commerce.	
	John Jay was the first appointee to this high-ranking	<u>Chief Justice</u> of the United States
	position. He retired from this position to become	Supreme Court (prompt on
3	Governor of New York, and he turned down a second	"Justice")
	term offered by John Adams.	

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

	complete autonomy for Belgium.	
1	Name this framework for a potential peace settlement following World War One.	Fourteen Points
2	The Fourteen Points were formulated by this President, who "kept us out of war" until getting American troops knee-deep in Europe.	Thomas Woodrow Wilson
3	Wilson was instrumental in the formation of this organization, which distributed colonies in Asia and Africa as "mandates" assigned to the Allied Powers.	League of Nations



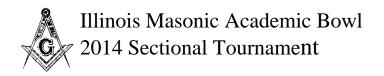
Question #25: Fine Arts – Art History

10 points per part

Ide	ntify these Dutch painters.	
	This 17 th century painter completed <i>The Anatomy</i>	Rembrandt Harmenszoon van
1	Lesson of Dr. Nicolaes Tulp and The Night Watch.	Rijn (accept either underlined
		part)
	This 15 th and 16 th century painter completed <i>The</i>	Hieronymus Bosch
2	Temptation of St. Anthony and The Garden of Earthly	
	Delights.	
	This 20 th century painter and sculptor completed	Willem de Kooning
3	Excavation, Pink Angels, and his Woman series.	

Question #26: Fine Arts – Art History

	term mausoleum comes from the name of Mausolus, o was a Persian leader.	
1	Name the city that holds the tomb of Mausolus.	<u>Halicarnassus</u>
2	This white marble mausoleum built for the Mumtaz Mahal by order of her husband Shah Jahan is located in Agra, India.	Taj Mahal
3	Castel Sant'Angelo in Rome was built for this emperor.	Publius Aelius Traianus <u>Hadrian</u> us Augustus



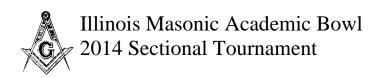
Question #27: Science – Chemistry

10 points per part

Thi	s is the most abundant element in the Earth's crust.	
1	Name this element that binds to hemoglobin and that is much more concentrated in arterial blood than in venous blood.	oxvgen (prompt on "O")
2	This allotrope of oxygen, also called trioxygen, has three oxygen atoms in each molecule.	<u>ozone</u>
3	The ozone layer is mostly found in the lower part of this layer of the Earth's atmosphere.	<u>stratosphere</u>

Question #28: Science – Chemistry

Thi	s element produces a blue-green color in a flame test.	
1	Name this element that combines with tin to create bronze.	copper (prompt on "Cu")
2	Copper exhibits this form of magnetism that weakens fields and is contrasted with paramagnetism and ferromagnetism.	<u>dia</u> magnetism (accept word forms)
3	Like many metals, copper is often attained from its ore by this process involving lots of heat and the use of oxidizing or reducing agents.	smelting (accept word forms)



Round # 2 5th Section Toss-up Questions

Question #29: Social Studies – World History

10 points

Prior to this nation's independence, which was gained in 1956, the Graduates' General Congress was established to push for social reforms. Ismail al-Azhari [is-male ahl ah-JAH-ree], who wanted this country to unite with Egypt, was overthrown in separate coups by Ibrahim Abboud [eebrah-heem ah-BOOD] and Gaafar Nimeiry [GAH-ah-fahr nuh-MEH-ree]. A 2005 Comprehensive Peace Agreement, also known as the Naivasha [nie-VAH-shah] Agreement, provided for a referendum regarding the independence of one region of this country. President Omar al-Bashir has been criticized for fighting involving the Janjaweed [JAHN-jah-weed] militia in Darfur. Name this east African nation with capital Khartoum [kar-TOOM].

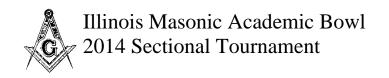
The <u>Sudan</u> (do not accept "South Sudan")

Question #30: Mathematics – Math Concepts

10 points

Jacques Hadamard designed a type of these structures used to create error-correcting code. Some of these are classified as upper or lower triangular, and these are skew-symmetric if their opposite equals their transpose. These structures are used to represent graphs using degrees or adjacency. Putting an augmented one of these into reduced row echelon [eh-cheh-lon] form can be used to solve a system of equations. Name these rectangular arrangements of numbers, the square examples of which have determinants.

matrix (or matrices)



Round # 2 5th Section Toss-up Questions

Question #31: Literature – U.S. Literature

10 points

One character in this play danced to the Varsouviana	A Streetcar Named Desire
[var-SOE-vee-a-nah] before confronting her husband about	
an affair. That woman later escaped an attack by falsely	
claiming the building was on fire. A later assault in this play	
was set against jazz music from a neighboring bar. The	
victim was an alcoholic from Laurel, Mississippi who came	
to visit her sister Stella in New Orleans. Name this drama	
featuring Stanley Kowalski and Blanche DuBois, written by	
Tennessee Williams.	

Question #32: Science – Physics

10 points

Attempts to understand this force have included Regge [REG-gee] theory, dual resonance, and string theory. The existence of this force caused Hideki Yukawa to predict the existence of mesons, and his predictions matched the measurements of pions [PIE-ons]. This force is currently explained by quantum chromodynamics, which describes the interactions of gluons and quarks. Name this interaction with a very small range that is used to explain the attractions of particles in an atomic nucleus.

strong nuclear force (or strong
interaction, accept color force
before "chromodynamics", prompt
color force after
"chromodynamics")

Round # 2 Extra Section Toss-up Questions

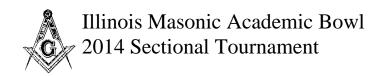
Extra Question #1: Social Studies – U.S. History

10 points

The illegal transfer of land in this state sparked the	Alaska	
Ballinger-Pinchot affair. Two Organic Acts helped move		
this territory towards home rule, with the second being		
heavily pushed by James Wickersham. During World War		
Two, its islands of Attu and Kiska were invaded by the		
Japanese. In 2008, Mark Begich [BEH-gich] was elected to		
represent this state in the Senate, defeating long-time		
incumbent Ted Stevens. Name this state which used to be		
governed by Sarah Palin.		

Extra Question #2: Mathematics – Math Concepts

If segments are added connecting consecutive midpoints of	(regular) <u>hexagon</u>
the sides of one of these regular polygons, the new similar	(prompt on "6-gon")
polygon has three-fourths the area of the original. These	
shapes together with pentagons make up the sides of a	
truncated icosahedron [ie-KOE-suh-hee-dron], and this	
shape, triangles, and squares are the only regular figures that	
can tessellate a plane. The length of this shape's apothem	
[ah-POTH-um] equals its side length times one-half times	
the square root of three. Name these polygons with six sides.	



Round # 2 Extra Section Toss-up Questions

Extra Question #3: Literature – British Literature

10 points

In this work, Pluto restores the sight of a blind man, while Proserpina [PROW-sur-pee-nah] gives that man's unfaithful wife a good excuse. One story in this collection describes two mothers-in-law laying accusations of treachery against the daughter of a Roman emperor. In another, Absalom takes a hot iron to the buttocks of Nicholas, and in another a knight learns what women want. The storytellers in this work are journeying to the shrine of St. Thomas a Becket. Name this collection of stories penned by Geoffrey Chaucer.

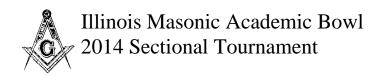
The <u>Canterbury Tales</u> (accept "The <u>Merchant's Tale</u>" until "collection")

Extra Question #4: Fine Arts – Art History

10 points

A painting by this artist of the Holy Family was commissioned by Agnolo Doni. Another work by this artist includes Baigio da Cesena in its bottom right corner being attacked by a snake, which is supposed to represent Minos. This artist also created three panels showing Noah, three panels showing Adam and Eve, and three panels showing the Creation, all of which were surrounded by prophets and sibyls [SIH-buls]. Name this early 16th century artist who painted *The Last Judgment* and the Sistine Chapel ceiling.

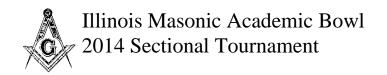
Michelangelo di Lodovico Buonarroti Simoni (accept either underlined part)



Round # 2 Extra Section Toss-up Questions

Extra Question #5: Science – Astronomy

In recent years, scientists observing this planet have	Venus
measured an increase in wind speed, which is now around	
250 miles per hour, and its atmosphere moves around the	
planet in four Earth days. Its atmosphere, like that of Mars,	
is high in carbon dioxide. The length of a day on this planet	
is an unusually long 243 Earth days. Name this only planet	
in our solar system other than Mercury to not have a moon,	
the second planet from the Sun.	



Round # 2 Extra Section Teamwork Questions

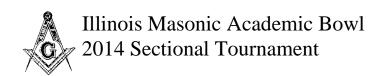
Extra Question #6: Literature – British Literature

10 points per part

	e car at the center of this story can fly, and it also floats	
on	water.	
	Name this novel in which the car is repaired by	Chitty Chitty Bang Bang: The
1	Commander Pott and experiences many adventures with	
	the Commander's family.	
	Chitty Chitty Bang Bang was written by this British	Ian Fleming
2	novelist while recovering from a heart attack. He	
	created the literary villains Le Chiffre and Hugo Drax.	
	Ian Fleming wrote several novels centering on this	James Bond
3	fictional spy, code named 007.	

Extra Question #7: Literature - British Literature

	speaker in this poem describes light gleaming from the nch coast, and "the cliffs of Englandout in the tranquil."	
1	Name this poem that describes a "darkling plain" where "ignorant armies clash by night."	" <u>Dover Beach</u> "
2	This author of "Empedocles [em-peh-doe-klees] on Etna" and <i>Culture and Anarchy</i> wrote "Dover Beach."	Matthew <u>Arnold</u>
3	In "Dover Beach," this ancient Greek playwright of the <i>Oedipus</i> [EH-dih-pus] trilogy "long ago / heard it on the Aegean."	Sophocles



Round # 2 Extra Section Teamwork Questions

Extra Question #8: Mathematics – Algebra

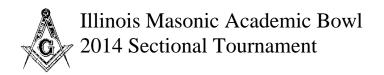
10 points per part

	ne calculators and computers put the letter E inside of the show that they are using this notation.	
1	Name this notation in which each number is expressed as a number between one and ten multiplied by a power of ten.	scientific notation
2	This name has been given to the number one times ten to the hundredth power.	googol
3	Express the number 0.035 in scientific notation.	3.5 times 10 ⁻²

Extra Question #9: Mathematics – Algebra

A paper published in 2004 by Banks, Hart, and Sakata

	nonstrated that almost all of these numbers are apposite, though exceptions include eleven and one	
hun	dred one.	
1	Name these numbers, such as 77 or 949, that read the same forwards and backwards.	<pre>palindromes (or palindromic number(s))</pre>
2	How many palindromes are there among the integers between ten and one hundred?	2
3	How many palindromes are there among the integers between one hundred and one thousand?	90



Round # 3 1st Section Toss-up Questions

Question #1: Science – Health

10 points

One type of this symptom that can be treated with ethosuximide [eh-thoe-SUK-sih-mide] is classified as the absence type. Another type of this event, which usually occurs in young children with high fevers, is the febrile [FEH-brile] type. Sometimes treated with carbamazepine [kar-bah-MA-zeh-peen], or tegretol, these can also be classified as myoclonic [MIGH-oh-klah-nik] or as tonic-clonic. These occur when there is a breakdown in communications between neurons. Name these episodes often involving convulsions that are experienced by people with epilepsy.

Question #2: Literature – World Literature

In one novel, this author wrote of a poet who was to be	Victor Hugo
hanged if he could not find a wife in a thieves' den. He also	
wrote of a goat that learned to use alphabet blocks to spell	
Phoebus. This author also wrote of a man who rose from	
working in a glass factory to becoming mayor of a town	
under the name Father Madeleine, a name he took after	
leaving prison as Jean Valjean [jahn vahl-jahn]. Name this	
author of The Hunchback of Notre Dame and Les	
Miserables.	

Round # 3 1st Section Toss-up Questions

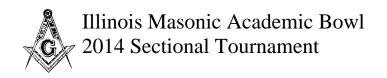
Question #3: Fine Arts - Composers of the Modern Era

10 points

In 1958, this composer completed his twelve-tone work	Igor <u>Stravinsky</u>
using verses from the Book of Lamentations, <i>Threni</i>	
[THREH-nee]. One of this composer's operas, centering	
around a relationship between Anne Trulove and Tom	
Rakewell, is based on a series of pictures by William	
Hogarth. One of his ballets, which created a strong reaction	
at its 1913 premier, is <i>The Rite of Spring</i> . Name this	
composer who used Russian folklore in his ballets <i>The</i>	
Firebird and Petrushka [peh-TROOSH-kah].	

Question #4: Social Studies – U.S. History

		i o ponito
In one election, this man had to reveal his relationship with	Grover Cleveland	
Maria Halpin after opponents used the phrase, "Ma, ma,		
where's my pa?" In that election, this person defeated a		
politician nicknamed the "continental liar from the state of		
Maine." During his second term, this president refused to		
annex Hawaii, and he lost union support after sending		
federal troops to break the Pullman strike in 1894. Name		
this President who defeated James Blaine and Benjamin		
Harrison in nonconsecutive elections.		



Round # 3 1st Section Toss-up Questions

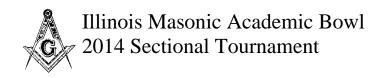
Question #5: Literature – Mythology

10 points

This god was put on trial and acquitted of murdering	Ares (accept Mars until "Greek")
Halirrhotius [ha-lee-ROE-tee-us]. This god was trapped in a	
jar for over a year by the Aloadae [a-loe-a-day]. Through	
Otrera, this god was the father of Penthesilea	
[pen-theh-SIH-lay-uh]. After slaying this god's son Dracon,	
Cadmus served him for eight years before marrying	
Harmonia, this god's daughter through Aphrodite	
[a-froe-DIE-tee]. Name this Greek war god.	

Question #6: Science – Physics

Cap sealing takes advantage of this phenomenon, since this	(electromagnetic) induction
can be used to temporarily heat aluminum foil. Explained	
soon after a related discovery by Hans Christian Oersted, its	
direction is given by Lenz's Law. This is used in a squirrel-	
cage or asynchronous motor. Name this phenomenon whose	
explanation is often credited to Michael Faraday and which	
involves the creation of an electric potential difference by a	
change in a magnetic field.	



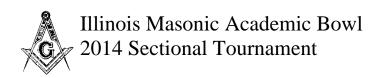
Question #7: Fine Arts – Art History

10 points per part

Ide	ntify these ancient sculptures.	
	This work portraying Aphrodite was found on a Greek	Venus de Milo (or Aphrodite of
1	island and is portrayed prominently in the Louvre. It is	<u>Milos</u>)
	missing its arms.	
	This sculpture, also prominently displayed at the	Winged Victory of Samothrace (or
2	Louvre, is missing its arms and head. It was found by	<i>Nike of Samothrace</i>) (prompt
	Charles Champoiseau in 1863.	partial answers)
	Praxiteles [prak-si-TEH-lees] made a sculpture of	Dionysus
2	Hermes [HER-mees] holding this goddess on his left	
3	arm when the goddess was an infant. Hermes is	
	missing most of his right arm.	

Question #8: Fine Arts – Art History

	s style of art went through two periods of iconoclasm,	
wh	en religious authorities did not approve of religious	
ima	ages in art.	
	Name this style of works created in the Eastern Roman	Byzantine Art
1	Empire before 1453.	
	1	
	This Byzantine cathedral in what is now Istanbul was	Hagia Sophia
1	built under orders from Justinian and completed in 537.	
2	After spending several hundred years each as a	
	cathedral and a mosque, it is now a museum.	
	When the Umayyad [oo-MY-yad] Caliphs controlled	The Dome of the Rock (or
2	the Temple Mount in Jerusalem, they built the Al Aqsa	Masjid Qubbat As-Sakhrah or
3	Mosque and this building that shows Byzantine	Kipat Hasela)
	influences.	



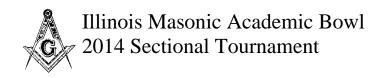
Question #9: Social Studies – World History

10 points per part

Thi	s kingdom was formed through the combining of the	
Kin	gdoms of Nejd and Hejaz.	
	Before embarking on the unification of the areas that	Kingdom of Saudi Arabia (accept
1	would become this nation, Abdul Aziz [ah-ZEEZ]	al-Mamlakah al-'Arabiyyah as-
	captured the Masmak fortress in Riyadh [ree-YAHD].	Su'ūdiyyah)
	Saudi Arabia has historically been influenced by this	Wahhabi(sm)
2	branch of Islam started in the 18 th century and generally	
	considered part of Sunni [SOO-nee] Islam.	
	In the Great Arab Revolt against the Ottomans, this	Thomas Edward <u>Lawrence</u> (accept
2	Welshman secured Allied aid for the Arabs. Winston	Lawrence of Arabia, do not
3	Churchill tapped him to develop pro-Arab settlements	accept "John Hume Ross" or
	among Britain's colonies in the Middle East.	"Thomas Edward Shaw")

Question #10: Social Studies – World History

	Dur	ing this move, Zhang Guotao lost a power struggle,	
	and	his forces broke off from this at Mao'ergai	
	[mo	w-er-guy].	
		Name this journey that ended in Shaanxi [shahn-see]	Long March (or Chang Zheng)
	1	province, where its undertakers remained throughout	
		the Sino-Japanese War.	
		The Chinese Communists undertook the Long March in	Chiang Kai-Shek (accept Jiang
	•	order to escape the forces of this Nationalist leader, who	Jiexi, Chiang Chieh-Shih, or
2	L	led China's government from 1928 to 1949.	Chiang Chung-Cheng, prompt on
			Kai-"Shek")
		Following World War Two, Chiang Kai-shek's forces	Formosa (accept Taiwan)
		were routed. The Nationalist forces eventually ruled	
	3	from exile on this island, where the Nationalist	
		government was recognized by the United Nations	
		until Chiang's death.	



Question #11: Science – Biology

10 points per part

	s term can be preceded by prefixes such as chemo- or mo	
1	Identify this term referring to a plant responding to a stimulus.	<u>tropism</u> (accept word forms such as <u>tropic</u>)
2	While heliotropism [hee-lee-oe-TROE-pih-sum] is a plant response to sunlight, this tropism is a plant response to any type of light.	<u>Phototropism</u>
3	Recent research in phototropism has often been conducted on this genus, including the thaliana or thale cress, which has had its entire genome sequenced.	Arabidopsis (prompt on "rockcress")

Question #12: Science – Biology

	se two people shared a Nobel Prize with Maurice kins.	
1	Name these two scientists credited for discovering the structure of DNA.	Francis <u>Crick</u> & James <u>Watson</u> (either order, must have both names without prompting)
2	Watson and Crick used X-ray diffraction images created by this scientist.	Rosalind <u>Franklin</u>
3	One of the first people shown Watson and Crick's discovery was this crystallographer who confirmed the structure of penicillin and found the structure of Vitamin B-12.	Dorothy <u>Crowfoot Hodgkin</u> (accept either underlined part)

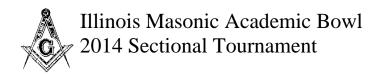
Question #13: Literature - U.S. Literature

10 points per part

Thi pris	s novel begins with Tom Joad being released from on.	
1	Name this novel in which families travel from Oklahoma to California to escape the Dust Bowl.	The Grapes of Wrath
2	This author of <i>The Grapes of Wrath</i> wrote about a road trip with his poodle in <i>Travels with Charley</i> .	John Ernst <u>Steinbeck</u>
3	This older brother of Tom Joad suffers from a birth defect.	Noah Joad

Question #14: Literature – U.S. Literature

	s town is home to Bridewell Jail, where the reader first ounters safecracker Jack Duane.	
1	Name this city, home to Marija Berczynskas [mah-REE-ah ber-ZINS-kus], who convinces her cousin Ona Rudkus to join her in working at a bordello.	Packingtown (accept Chicago, Illinois)
2	Packingtown is the primary setting of this muckraking novel by Upton Sincair.	The <u>Jungle</u>
3	Jurgis Rudkus, the protagonist of <i>The Jungle</i> , immigrated with his family from this Eastern European nation.	<u>Lithuania</u>



Round # 3 3rd Section Toss-up Questions

Question #15: Miscellaneous – Journalism

10 points

Guy Raz ran this organization's "Three-Minute Fiction"	National Public Radio (or NPR)
contest before becoming the host of a program involving	
TED talks. This programming network included a show	
hosted by Tom and Ray Magliozzi, nicknamed Click and	
Clack. In addition to <i>Car Talk</i> , this station hosts the	
interactive quiz show Wait Wait Don't Tell Me. This is the	
media organization behind Morning Edition and All Things	
Considered. Name this non-profit radio organization.	

Question #16: Mathematics – Math Concepts

10 points

This number used as x gives the largest output of the function x raised to the reciprocal of x power. In the standard normal density function, this number is raised to the minus x squared over two power. This number equals the limit of the sum of the reciprocals of the factorials of all whole numbers, and this is the limiting value of the quantity one plus the reciprocal of x, end quantity, raised to the x power. Name this transcendental number equal to about 2.718.

e (accept <u>Euler</u>'s <u>number</u> or <u>Napier</u>'s <u>constant</u>, do not accept "Euler's constant")

Round # 3 3rd Section Toss-up Questions

Question #17: Social Studies – Religion

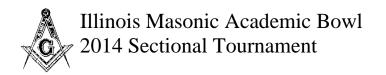
10 points

Yezidis [YEH-zih-dees] worship this figure under the name Iblis, while he was also described as the prosecutor at the court of Yahweh [YAH-way]. In the Intertestamental period, this figure was referred to as Sammael. This character is the subject of Isaiah 14:12, where he was described as "the morning star." In Luke 10:18, this character "fell like lightning from heaven." One of his names means 'lord of the flies.' Name this character commonly portrayed as a fallen angel, the archenemy of God and ruler of Hell.

Satan (accept Lucifer, the Devil, Diabolus, Beelzebub, Belial, Beliar, or equivalents)

Question #18: Language Arts – Grammar/Usage

	10 points
In "Through the Looking Glass," according to Tweedledee,	ain't
"but as it isn't, it's" this. Despite filling an accidental lexical	
gap in inverted verb construction, this contraction was used	
by Dickens to indicate the use of cockney slang. Used in	
phrases involving the fat lady singing and "seen nothing	
yet," name this contraction, usually the shortened form of	
"am not."	



Round # 3 3rd Section Toss-up Questions

Question #19: Social Studies – U.S. History

10 points

This person described the President Kennedy assassination as "chickens coming home to roost," and this leader called for political maturity in his speech "The Ballot or the Bullet." When this person was a street hustler, his hair color led to his moniker "Detroit Red." This founder of the newspaper *Muhammad Speaks* was shot while giving a speech at the Audubon Ballroom after a rift developed between this person and Elijah Muhammad. Name this black nationalist leader of the Nation of Islam.

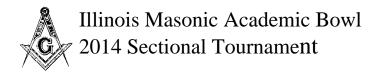
<u>Malcolm X</u> (accept Malcolm <u>Little</u> or el-Hajj Malik el-<u>Shabazz</u>)

Question #20: Science – Chemistry

10 points

The law named for this scientist was popularized by Stanislao Cannizzaro. His law was proposed soon after Gay-Lussac's Law, allowing scientists to use volume measurements to find chemical formulas. This person's law was an early step towards the Ideal Gas Law, but it assumed constant pressure and volume. Because of the importance of his law, this scientist's name is used for the number of particles in a mole of substance. Name this early 19th century Italian scientist.

Amedeo Avogadro



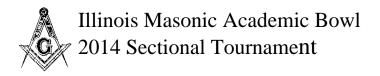
Question #21: Mathematics – Algebra

10 points per part

	ery point on one of these shapes is the same distance in a fixed point and a fixed line.	
1	Name these shapes generated by quadratic functions such as y equals x squared.	parabola s
2	The fixed point used to generate a parabola is called a focus. What is the name of the fixed line?	<u>directrix</u>
3	Give the coordinates of the focus of a parabola if its directrix is the line x equals three and the vertex is located at the point (-1,2).	(<u>-5,2</u>) (order matters, accept x=-5 and y=2 or equivalents)

Question #22: Mathematics – Algebra

Coı	nsider the system of equations $x-y=8$ and $x+y=16$.	
1	Because this linear system of equations has exactly one solution, it can be described as both consistent and as this term, meaning that the two equations are not equivalent to each other.	Independent (accept word forms, do not accept dependent)
2	Find the value of x where the two lines generated by those equations intersect.	<u>12</u>
3	Find the degree measure of any of the angles formed where the two lines intersect.	<u>90</u> (degrees)



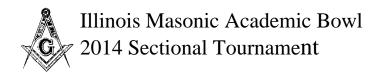
Question #23: Literature – Mythology

10 points per part

	ile sitting on Hlidskjalf [HLID-skalf], this god is able ee everything that happens in the realms.	
1	Name this chief deity of Norse myth, who gave up an eye to drink from the well of Mimir [MIH-mir].	Odin (accept Woden, Wotan, or Wodan)
2	To gain the power of the runes, Odin used a spear to hang himself from this ash tree for nine days.	Yggdrasil (prompt on "World Ash," "World Tree" or "Terrible Horse")
3	Odin used trickery to obtain the mead of poetry, which was made from the blood of Kvasir. Kvasir himself was created from this substance gathered from the Aesir and Vanir.	<u>spit</u> (accept <u>saliva</u> or equivalents)

Question #24: Literature – Mythology

	a young child, Palamedes [pa-la-MEE-dees] threw this son in front of his father's plow.	
1	Name this youth, who was advised by Athena to take a different route home after visiting Nestor and Menelaus [meh-neh-LAY-us].	<u>Telemachus</u>
2	The ambush that awaited Telemachus [teh-leh-MAH-kus] was planned by suitors pursuing this queen, whose husband was absent for twenty years.	Penelope
3	Penelope was queen of this city-state. Penelope patiently waited for her husband Odysseus to return to his rightful place as king of this locale.	<u>Ithaca</u>



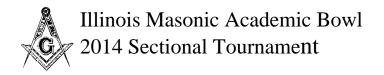
Question #25: Social Studies – U.S. Government

10 points per part

In I	Francis v Resweber, the State of Louisiana was accused	
of v	violating this amendment four times on account of	
med	chanical failure.	
	Name this Constitutional amendment that bans	Eighth Amendment (or 8)
1	excessive bails and fines.	
	The Eighth Amendment explicitly bans punishment	cruel and unusual punishment
2	described by this phrase. In <i>Francis</i> , it involved a man	
	who was electrocuted five times.	
	In the 2005 case of <i>Roper v Simmons</i> , the Supreme	minors (accept those under 18
2	Court reversed the precedent set by Sanford v Kentucky	years of age or equivalents like 17
3	in proclaiming the death penalty "cruel and unusual	or under, prompt on "child"ren)
	punishment" against this class of people.	

Question #26: Social Studies - U.S. Government

	o of these have been directed against presidents in US tory, one in 1868 and the other in 1998.	
1	Name this process by which members of the legislature vote on whether to throw the President of the United States out of office.	impeachment (accept word forms)
2	Andrew Johnson was impeached for firing Edwin Stanton, who held this now-defunct cabinet post. The firing violated the Tenure of Office Act, later found to be unconstitutional.	Secretary of War
3	Bill Clinton was impeached after a lengthy investigation by this independent counsel.	Kenneth Starr



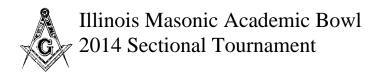
Question #27: Science – Physics

10 points per part

Thi	s can be seen in a rainbow or by using a glass prism.	
1	Name this continuum of light with a range of wavelengths.	spectrum (or spectra, accept longer answers)
2	When a prism is used to separate light colors, violet bends the most. This is the color that bends the least.	red
3	Though the light of the Sun fills a large part of the visible spectrum, the spectrum of the Sun has several dark lines named for this German scientist.	Joseph von <u>Fraunhofer</u>

Question #28: Science – Physics

Th	is quantity equals net force divided by mass.	
1	Name this rate of change of velocity.	acceleration
2	This is the inward acceleration of an object in uniform circular motion.	centripetal acceleration (do not accept "centrifugal")
3	Albert Einstein added this constant to his general relativity theory but then rejected it. Interest in this value has returned in the last fifteen years because it can be used to explain why the size of the universe is accelerating.	<u>cosmological</u> constant



Round # 3 5th Section Toss-up Questions

Question #29: Social Studies – World History

10 points

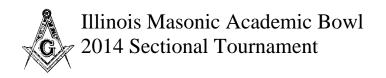
One opposition party in this country, the PDIP, protested the	<u>Indonesia</u>
election of Abdurrahman Wahid [wah-HEED] as president	
over Megawati Sukarnoputri [soo-KAHR-noe-poo-tree].	
This country was for many years headed by Sukarno	
[soo-KAHR-noe] and then Suharto [soo-HAHR-toe]. This	
country's special forces formed the counter-terrorist force	
Detachment 88 in response to the 2002 bombing of a	
nightclub in Bali. Following a referendum, East Timor	
[tee-mor] voters chose independence from this nation. Name	
this Southeast Asian nation, the world's largest archipelago.	

Question #30: Mathematics – Math Concepts

10 points

This shape consists of all the points in spherical coordinates	cones (accept de
for which rho goes from zero to a constant times cosine phi,	<u>conic</u>)
and phi goes from zero to a constant less than pi over two.	
Spheres tangent to one of these and a plane are called	
Dandelin spheres. In cylindrical coordinates, the equation z	
equals r gives one of these shapes. Name this shape whose	
slices are used to generate ellipses, parabolas, and	
hyperbolas, and which has a volume equal to one-third pi	
times r squared times h.	
-	

cones (accept double cone or conic)



Round # 3 5th Section Toss-up Questions

Question #31: Science – Biology

10 points

The wall surrounding this substance has an intine [IN-teen] layer and a sculptured exine [EK-seen] layer. This substance is not used by ferns, and this is produced in structures called microsporangia [my-kroe-spoe-RAN-jee-uh]. Brownian motion was discovered by observing these grains in water. These cells often start on an anther at the end of a stamen [STAY-men] and are transported to a pistil. Name these grains containing microspores that are transported by wind or bees to fertilize many plants.

Question #32: Literature – U.S. Literature

10 points

This poet wrote of a rock that "cries out to us, clearly, forcefully" as well as "the Swede, the German, the Scot...praying for a dream." In one memoir, she wrote of performing in a German production of *The Blacks: A Clown Show*. She also wrote of participating in a Ghanaian march coinciding with the March on Washington in *All God's Children Need Traveling Shoes*. Name this African-American woman from Stamps, Arkansas who wrote the poem "On the Pulse of Morning" and the autobiography *I Know Why the Caged Bird Sings*.

Round # 3 Extra Section Toss-up Questions

Extra Question #1: Mathematics – Math Concepts

10 points

Euler's [OY-ler's] method uses these figures to approximate solutions to differential equations, and Newton's method approximates graphs as these figures to find roots. One of these figures is generated by the polar graph of the secant function. For any two points there is exactly one of these that goes through them, and these figures can be generated by extending a segment forever in both directions. Name these figures whose graph equations can be put into slope-intercept form.

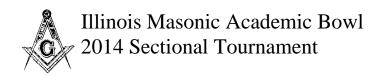
<u>line</u> (prompt on "segment" or "ray" until the end of the 2nd sentence; segment or ray is incorrect after that)

Extra Question #2: Social Studies – World History

10 points

One foreign party to this conflict lent the Condor Legion,
which saw action at Brunete [broo-NEH-tay] and Teruel
[tay-rwel]. To solidify support for the losing side, the
NKVD organized the dismantling of the leadership of the
Workers' Party of Marxist Unification. The Connolly
Column and Dimitrov Battalion were among the
International Brigades that fought in this war. The
Republicans, led by the Popular Front, were defeated by the
Nationalists, led by the Carlists and Falange
[fah-LAHN-hay]. Name this conflict in which General
Francisco Franco rose to power, fought on the Iberian
Peninsula.

Spanish Civil War



Round # 3 Extra Section Toss-up Questions

Extra Question #3: Literature – British Literature

10 points

This character was granted knighthood in an enchanted place before saying goodbye to his best friend. A creature "of no brain," he gave a companion a special pencil case to facilitate a friend's writing. This resident of the Hundred Acre Wood got stuck at Rabbit's house after eating too much honey. Name this best friend of Christopher Robin, a fictional bear created by A.A. Milne.

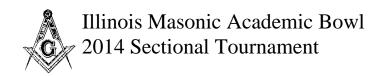
<u>Winnie</u> the <u>Pooh</u> (accept either underlined answer, accept <u>Edward</u> Bear)

Extra Question #4: Science – Chemistry

10 points

This element is separated from sulfur in the Claus process.
The molecular form of this element is added to pyridine
[PEH-rih-deen] to cause several reactions leading to the
formation of pentane, and the addition of this element
changes an alkene into an alkane. Just outside the cores of
Jupiter and Saturn, astronomers have found the metallic
form of this element. The isotopes of this element are
protium, deuterium, and tritium. Name this element, the first
in the periodic table.

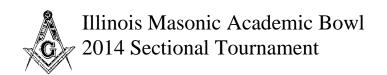
<u>hydrogen</u> (prompt on "H")



Round # 3 Extra Section Toss-up Questions

Extra Question #5: Fine Arts – Classical/Opera

This composer worked on a set of eighteen choral preludes	Johann Sebastian Bach	
late in life, and his earlier similar collections are called the		
Schübler Chorales and the Orgelbüchlein		
[or-gel-BOO-kline]. Another work by this composer,		
containing an aria [AHR-ee-ah] and 30 variations, was		
published in 1741 and named for the student who first		
performed it. In another of his works, each major and minor		
key has a prelude and fugue [fyoog]. Name this composer of		
the Goldberg Variations and The Well-Tempered Clavier		
who also wrote the <i>Brandenburg Concertos</i> .		



Round # 3 Extra Section Teamwork Questions

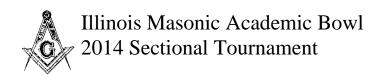
Extra Question #6: Literature – World Literature

10 points per part

	s character resented his sister's marriage to Luzhin o-zeen], who attempted to frame Little Mother Sonia.	
1	Name this character who was mentally tortured by Porfiry [POR-fih-ree], who promised a plea of temporary insanity if this character confessed.	Rodion Romanovitch Raskolnikov (accept either underlined part)
2	In this Fyodor Dostoyevsky [FYOE-dor DOE-stoy-yev-skee] novel, Raskolnikov [ras-KOLE-nee-kof] confessed to the murder of a pawnbroker and her sister.	<u>Crime and Punishment</u> (accept <u>Prestupleniye i nakazaniye</u>)
3	Raskolnikov attempted to justify his actions through comparisons to this military leader, describing "wanting to become one" by killing Alyona [ahl-YOE-nah] and Lizaveta [lee-zah-VEH-tah].	Napoleon Bonaparte

Extra Question #7: Literature – World Literature

Thi	s daughter of Monsieur Rouault [roo-awl] was broken-	
hea	rted when Leon Dupuis [doo-pwee] went to study in	
Par	is.	
	Name this character whose husband's reputation	Madame Emma Bovary (accept
1	suffered after failing to cure a boy with clubfoot. She	either underlined name)
	also took Rodolphe Boulanger as a lover.	
	Emma Bovary was created by this author. He wrote	Gustave Flaubert
2	about the love life of Frederic Moreau [mor-oe] in A	
	Sentimental Education.	
	After running up debts and building a web of deceit,	arsenic
3	Emma Bovary bought enough of this poison from	
	Homais to kill herself.	



Round # 3 Extra Section Teamwork Questions

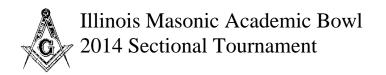
Extra Question #8: Science - Chemistry

10 points per part

One	e type of these devices is the differential scanning type.	
1	Name these objects used to measure the amount of heat during a reaction.	<u>calorimeter</u> s
2	This type of calorimeter, named because it withstands a pressure build-up, works by measuring the change in temperature of a fluid, usually water.	<u>bomb</u> calorimeter
3	Some calorimeters measure temperature by taking advantage of this effect, in which a loop of wire made of two conductors gains electromotive force when its two junctions are at different temperatures.	Seebeck effect

Extra Question #9: Science – Chemistry

Thi	s substance is sometimes called dihydrogen monoxide.	
1	Name this common solvent that at standard pressure boils at 100 degrees Celsius and freezes at 0 degrees Celsius.	<u>water</u>
2	This name is given to water that contains a lot of mineral salts. One way to determine whether water should be classified as this is to check for magnesium and calcium.	hard water
3	One way to soften water is to use this process in which a molecular ring is formed combining a metal with at least two nonmetals. EDTA is often used in this process.	chelation (accept other word forms)



Round # 4 1st Section Toss-up Questions

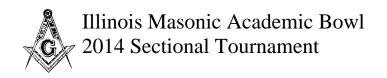
Question #1: Miscellaneous – Agriculture

10 points

In the first part of this process, the "cutter" cuts the top part	<u>detassel</u> ing
of the plants, then the sets of rollers are used. Done to	
facilitate cross-pollination and create hybrid seeds, this	
process is usually done in a four-to-one pattern on the	
female rows. Name this process of removing the pollen-	
producing parts from corn stalks.	

Question #2: Social Studies – World History

At this battle, the arrival of forces led by H.E.K von Zieten	Battle of Waterloo
[ZEE-ten] neutralized the transfer of Imperial Guard forces	
following the capture of La Haye Sainte. The transfer was	
impeded by a secondary battle involving Prussian forces led	
by Karl von Bulow [BYOO-loe], which had not engaged at	
Ligny [lih-nyee]. The winning side also managed to rebound	
from a loss at Quatre-Bras [kah-truh brah] to Marshal Ney.	
This battle took place in 1815 in the Netherlands, though the	
land is now in Belgium. Name this battle in which Gebhard	
von Blücher [BLOO-ker] and the Duke of Wellington	
delivered the final blow to the plans of Napoleon Bonaparte.	



Round # 4 1st Section Toss-up Questions

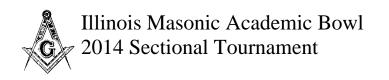
Question #3: Science – Astronomy

10 points

Events that can be referred to as secondary types of these	eclipse (accept lunar eclipse or
are often called occultations. An Inex cycle, which is	solar eclipse)
slightly less than 29 years, gives the period of time between	
Saros series, which are slightly more than 18 years, and a	
combination of those two systems allows for the predictions	
of these events. Some types of these cause the appearance of	
Baily's beads. This type of syzygy [SIH-zih-jee] generally	
occurs when the Earth enters the penumbra	
[peh-NUM-brah] of the Moon. Name this blockage of	
sunlight.	

Question #4: Literature - U.S. Literature

This author wrote of an apparition of a man in a brown suit	Francis Scott Key Fitzgerald
wearing slippers that curl up; the observer became	
convinced it was the Devil. In one novel, this author wrote	
of the star of <i>Daddy's Girl</i> becoming romantically involved	
with a clinical psychologist who married Nicole Warren.	
This author of <i>Tender is the Night</i> and <i>This Side of Paradise</i>	
also wrote a novel narrated by Nick Carraway. Name this	
author of <i>The Great Gatsby</i> .	



Round # 4 1st Section Toss-up Questions

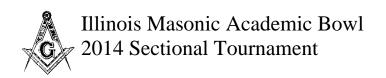
Question #5: Social Studies – U.S. Government

10 points

Along with the Chief Justice, the holder of this post is an	Vice President of the United
ex oficio Regent of the Smithsonian. Following	States of America
presidential elections, this officeholder is officially	
responsible for presiding over the counting of votes in	
front of Congress, though the President Pro Tempore	
[TEM-poh-ree] sometimes carries out that function. The	
holder of this post breaks ties in the Senate, as he is the	
acting President of that chamber. Until the 12 th	
Amendment was passed, this position went to the runner-	
up in an election. Name this post, whose holder is "a	
heartbeat away from" becoming commander-in-chief.	

Question #6: Science – Chemistry

In an isothermal process, the change in entropy is	<u>volume</u>
proportional to the natural log of the ratio of the final and	
initial value of this quantity. This is constant in isochoric	
[eye-suh-KAWR-ik] processes. In isobaric processes, the	
amount of work is the integral of pressure with respect to	
this quantity. Enthalpy equals internal energy plus pressure	
times this quantity. Name this quantity that varies inversely	
with pressure in Boyle's Law and is multiplied by pressure	
in the Ideal Gas Law, often measured in liters, gallons, or	
cubic length units.	



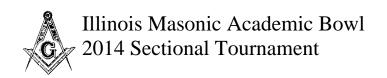
Question #7: Literature – Mythology

10 points per part

Nes	ssus [NEH-sus] got the last laugh over this demigod	
afte	r Deianeira [day-AN-rah] gave him a tunic covered in	
poi	soned blood.	
	Name this hero who was undone by the poison of the	<u>Heracles</u> (accept <u>Hercules</u>)
1	Lernaean [LER-nay-un] hydra, which he killed as one	
1	of twelve labors ordered by his cousin Eurystheus [yoo-	
	RIS-thee-us].	
	Zeus fathered Heracles by disguising himself as this	Amphitryon
2	king and sleeping with Alcmene [alk-MEE-nee] for	
	three days and nights.	
	While travelling with this group, Heracles was left on	Jason and the Argonauts
2	Chios [KIE-ose] while searching for Hylas, who had	
3	been kidnapped by a nymph. Orpheus protected this	
	group from the Sirens [SIE-rens].	

Question #8: Literature – Mythology

	s friend of Pirithous [pih-REE-thous] was killed when comedes [luh-koe-MEE-dees] kicked him off a cliff.	
1	Name this Athenian king and husband of Hippolyta [hih-poe-LIE-tah]. After this person forgot to change the flags following his conquering of the Labyrinth, his father Aegeas [ay-JEE-us] jumped into the sea.	<u>Theseus</u>
2	After arriving in Athens to claim his rightful place, this wife of Aegeas and ex-wife of Jason convinced the king to try to poison Theseus. She also killed her sons Alcimenes [al-ki-MEE-nees] and Tisander.	<u>Medea</u>
3	Theseus came of age on his journey to Athens. During that journey, he killed this "stretcher" who would stretch the limbs of shorter travelers and maim taller ones to fit different beds.	Procrustes (accept Damastus or Polypemon)



Question #9: Science – Biology

10 points per part

Hi	s famous work was done at the Augustinian Abbey of St.	
Thomas in Brno [bir-noe] in what is now the Czech		
Republic.		
	Name this 19 th century monk who performed genetics	Gregor Johann Mendel
1	experiments on pea plants.	
	Mendel focused on characteristics that had one of two	recessive
	phenotypes, one that was dominant and the other of	
2	which could be described with this adjective meaning	
	that it was not expressed in heterozygous	
	[heh-tuh-roe-ZIE-gus] plants.	
	This name was given to Mendel's Second Law, also	Law of Independent Assortment
2	known as his Inheritance Law, stating that the passing	
3	on of one gene did not impact the passing on of a	
	different gene.	

Question #10: Science - Biology

	se molecules contain twice as many hydrogen atoms as gen atoms in addition to carbon.	
1	Name these energy sources that are often contrasted with fats and proteins.	<u>carbohydrate</u> s (or <u>saccharide</u> s)
2	This kind of carbohydrate containing glucose is found in wheat, potatoes, and corn. This is sometimes called amylum [AM-uh-lum], since it is made of amylose [AM-uh-lose] and amylopectin [am-uh-loe-PEK-tin].	<u>starch</u> es
3	This element is used to test for starch because it turns dark blue when they are combined.	<u>Iodine</u> (prompt on "I")

Question #11: Fine Arts – Musical Theater

10 points per part

Thi	s Marvin Hamlisch musical takes place at an audition.	
1	Name this musical that opens with the number "I Hope I Get It".	A Chorus Line
2	A Chorus Line ends with this song, about, "A singular sensation, every little step she takes."	" <u>One</u> "
3	Hamlisch also wrote the music for <i>The Spy Who Loved Me</i> , the tenth movie featuring this protagonist.	James Bond 007

Question #12: Fine Arts – Musical Theater

	s Rodgers and Hammerstein musical is about Curly Lain and Laurey Williams.	
1	Identify this musical named for the territory it is set in. That territory is now a state.	Oklahoma!
2	Name this song from <i>Oklahoma!</i> sung by Curly, who has, "A wonderful feeling everything's going," his way.	"Oh, What a Beautiful Morning"
3	Another Rodgers and Hammerstein musical that starts with an upbeat song is this one set in Siam that opens	The King and I

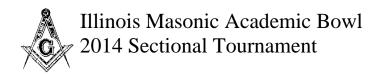
Question #13: Mathematics – Geometry

10 points per part

It is	also known as a regular hexahedron.	
1	Name the Platonic solid in which all of the angles are right angles.	<u>cube</u>
2	This is the number of edges, or line segments, of a cube.	12
3	If a cube has a volume of 32, then what is the length of each side? Put your answer in simple radical form.	2 times the <u>cube</u> d <u>root</u> of 4 (accept equivalents)

Question #14: Mathematics – Geometry

Thi	s shape is an ellipsoid for which all of the radii are equal.	
1	Name this shape that can be represented by the equation $x^2+y^2+z^2=r^2$.	<u>sphere</u> s
2	This is the common name given to the problem of fitting spheres into as tight a space as possible. Its Kepler conjecture was proven by Thomas Hales in 1998.	sphere <u>pack</u> ing
3	This is the volume of a sphere with a radius of 1. Ignore units.	4/3 pi (or 4 pi/3) (accept equivalents)



Round # 4 3rd Section Toss-up Questions

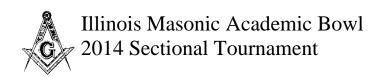
Question #15: Literature – British Literature

10 points

In one novel by this author, the protagonist stole dark	Herbert George Wells
glasses, sideburns, and clothes from a theatrical shop in	
Iping. In another novel, this author wrote of a group of	
cannibals that tried to trap the protagonist inside the pedestal	
of a white sphinx. He wrote of Griffin experimenting with	
making his cells transparent. He also wrote of a man who	
encountered the Morlocks and Eloi and travelled to 802,701	
AD. Name this author of <i>The Invisible Man</i> and <i>The Time</i>	
Machine.	

Question #16: Mathematics – Math Concepts

The method of these things accomplishes subtraction using	Complement ary	
addition. This term refers to a set that contains all of the		
elements not in a given set, or to the event that a given event		
does not happen. If two angles have this relationship, then		
their tangents are reciprocals. The sine of an angle equals		
the cosine of the angle with this relationship to the first		
angle. Name this term that also refers to angles that add to		
ninety degrees.		



Round # 4 3rd Section Toss-up Questions

Question #17: Social Studies – U.S. History

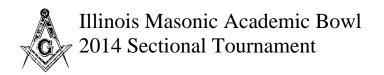
10 points

This politician used the voting record of Vito Marcantonio	Richard Milhous Nixon
to smear Helen Douglas via "pink sheets." In one speech,	
this politician claimed that his wife owned a "respectable	
Republican cloth coat." In response to accusations	
concerning an \$18,000 slush fund, this person claimed he	
had been given a dog. This leader forced the resignation of	
Elliot Richardson and fired William Ruckelshaus during the	
Saturday Night Massacre. Name this president who defeated	
Hubert Humphrey and George McGovern and who resigned	
following the Watergate scandal.	

Question #18: Science – Physics

10 points

For a particle in circular motion in a magnetic field, this quantity equals linear momentum divided by the product of radius and magnetic field strength. The force of a magnetic field on any particle equals this quantity times the cross product of velocity and magnetic field. This quantity also equals the force of an electric field divided by its field strength, and this equals work divided by electric potential difference. Name this quantity that can be measured in coulombs [koo-lomes].



Round # 4 3rd Section Toss-up Questions

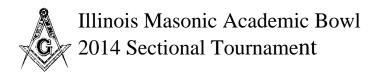
Question #19: Fine Arts – Art History

10 points

One painting by this artist shows his wife wearing a blond	Oscar-Claude Monet
wig and holding a white fan while wearing a red Japanese	
costume. He spent a lot of time from 1899 to 1905 in	
London, painting several pictures of Charing Cross Bridge	
and Westminster Palace. Many years earlier, this artist had	
painted several works set at Argenteuil [ahr-jen-TOOL].	
This painter also painted his Japanese bridge and several	
water lilies around his garden at Giverny [gi-VEHR-nee].	
Name this Frenchman who painted <i>Impression</i> , <i>Sunrise</i> .	

Question #20: Literature – World Literature

One of this writer's plays centers on maidens in Oriental	Aeschylus	
clothing and holding wands. In that play, a king warns that		
Zeus would send a man-eating monster if the maidens were		
not protected. This author of <i>The Suppliants</i> described the		
ultimate fight between Eteocles [ee-tee-OE-klees] and		
Polyneices [pol-ih-NIGH-sees] in Seven Against Thebes		
[theebs]. Name this author who wrote of Agamemnon's		
family in the <i>Oresteia</i> trilogy.		



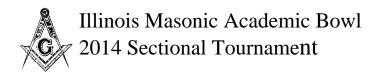
Question #21: Mathematics - Pre-Calculus

10 points per part

	s theorem is useful for taking complex numbers ressed in polar form and raising them to powers.	
1	Identify this theorem named for a French	(Abraham) de Moivre's theorem
1	mathematician that can also be used with fractional exponents.	(or formula)
2	Using de Moivre's [mauv's] theorem or any other method, find the value of the quantity 1+i raised to the 4 th power.	<u>-4</u> (or <u>4 cis 180</u> degrees or <u>4 cis pi</u> or equivalents)
3	How many solutions are there to the equation $x^5 = 4i$? You do not need to find the actual solutions.	5_

Question #22: Mathematics – Pre-Calculus

The spa	ese types of equations are often used to graph curves in ce.	
1	Name these equations that express the coordinates in terms of a variable that is not a coordinate, often using the letter t.	parametric (equations) (or parameter)
2	Give the five-letter name for the shape generated by the parametric equations $x = t$ divided by pi, $y = cosine t$, and $z = sine t$.	<u>helix</u>
3	Give the displacement for that helix as t goes from zero to pi radians. Make sure that you find the displacement rather than the arc length.	square root of 5 (accept root 5 or radical 5)



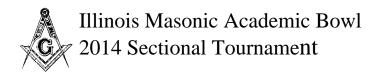
Question #23: Social Studies – U.S. History

10 points per part

	e major candidate in this election blundered when he erred to tariffs as "a local question."	
1	Name this election in which James Weaver won 3% of the popular vote for the Greenback party. Winfield Scott Hancock lost the electoral vote 214-155, but only trailed by 10,000 popular votes.	United States Presidential Election of <u>1880</u>
2	This Republican won the election, and stood up to the patronage system of Roscoe Conkling. His presidency lasted only six months.	James Abram Garfield
3	This self-proclaimed Stalwart was refused an appointment, and got his revenge by shooting President Garfield.	Charles Julius <u>Guiteau</u>

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

	cording to this program's formulator, this "rests on ndance and liberty for all."	
1	Name this program that followed the New Frontier and was announced at speeches at Ohio University and the University of Michigan in 1964.	The Great Society
2	This President set out the concept of the Great Society while running in an election against Barry Goldwater.	Lyndon Baines <u>Johnson</u> (accept <u>LBJ</u>)
3	In his 1964 State of the Union Address, Lyndon Johnson outlined his plans for this so-called conflict, which included making the Food Stamp Program permanent.	War on Poverty



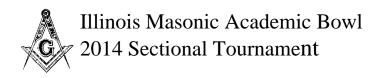
Question #25: Science – Chemistry

10 points per part

Thi	s measurement is also known as substance concentration.	
1	Name this ratio of the moles of solute and the liters of solution.	molarity (or molar concentration, do not accept "molal"ity)
2	Molarity is divided by an equivalence factor to get this measure of concentration associated with gram equivalents.	normality (or normal concentration)
3	In Raoult's law, vapor pressure is multiplied by this measure of the concentration of solute in a solvent.	mole fraction

Question #26: Science – Chemistry

	s state generally occurs when a forward reaction and a kwards reaction are going at the same rate.	
	Name this balanced situation.	chemical equilibrium (accept
1		longer answers)
	Identify the principle, also called the Equilibrium Law,	Le <u>Chatelier</u> 's principle
2	named for a Frenchman stating that certain physical	
	changes lead to a new equilibrium.	
	This scientist studied the relationship between	Jacobus Henricus van't Hoff, Jr.
3	temperature and equilibrium. The factor named for him	
	is used to calculate osmotic pressure.	



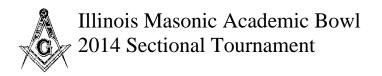
Question #27: Literature – British Literature

10 points per part

Dar	zee and Chuchundra aided this creature in a fight with	
"wr	inkle-skin," while Darzee's wife aided him in a quest to	
disp	patch a group of eggs.	
	Name this creature whose mother used to stay with the	Rikki-tikki-tavi (prompt on "red-
1	General at Segowlee. It killed Karait, and started one	eyes")
	fight that was ended by a gunshot from Teddy's father.	
	Rikki-tikki-tavi was this kind of animal. Upon meeting	mongoose
2	him, the cobra Nag knew to be afraid, which is why	
	Nagaina was signaled to take Rikki-tikki-tavi from	
	behind.	
	"Rikki-tikki-tavi" was penned by this author of "If" and	Rudyard Kipling
3	The Jungle Book.	

Question #28: Literature – British Literature

In 1	esponse to Davin claiming that Ireland should be first	
in e	verything, this character compared the nation to an old	
sov	that ate her offspring.	
	Name this son of Simon who was reminded of his youth	Stephen Dedalus
1	by a dog carcass rolling in the surf. While studying to	
I	become a priest, he drew ire for not signing a petition	
	for world peace.	
	Stephen Dedalus was created by this author of	James Augustine Aloysius Joyce
2	Finnegan's Wake and Dubliners.	
	In this novel, Stephen is a schoolteacher who pals	<u>Ulysses</u>
2	around with Buck Mulligan. At one point, he flashed	
3	back to when he refused to pray for his mother on her	
	deathbed.	



Round # 4 5th Section **Toss-up Questions**

Question #29: Mathematics – Math Concepts

10 points

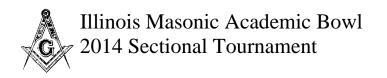
This is the value of a closed path integral of work in a zero (or equivalents) conservative vector field. The only function whose domain is the reals and that is both even and odd only gives this number as an output. This number is used in the name of a game in which the total gains equal the total losses. If the product of two numbers equals this number, then one of those numbers equals this number. This is the value of the dot product of two perpendicular vectors, and this number is the additive identity. Name this real number that is neither positive nor negative.

Question #30: Social Studies – World History

10 points

This leader failed to uphold his end of the Treaty of Tarentum despite receiving the troops requested for a fight against the Parthians [PAHR-thee-uns]. His military successes included naval victories at Cape Naulochus [NOW-loe-kus] and the Gulf of Ambracia [am-BRAY-shuh]. Marcus Agrippa led the victorious forces in both of those battles, and the latter led to a resounding victory over Marc Antony and Cleopatra at Actium [AK-tee-um]. Along with Marc Antony and Marcus Lepidus, this man formed the Second Triumvirate. Name this Roman emperor, the successor to Julius Caesar.

Caesar Augustus (accept Gaius Octavius or Gaius Julius Caesar Octavianus)



Round # 4 5th Section Toss-up Questions

Question #31: Science – Biology

10 points

These things are surrounded by spikes called peplomers	<u>virus</u> es
[PEP-luh-mers]. Positive- and negative-sense make up two	
of the seven categories developed by David Baltimore for	
these objects. When these things do not have a lipid	
[LIH-pid] membrane, they are called naked. Some of these	
replicate by reverse transcription, and these are surrounded	
by a protein shell called a capsid. Name these objects that	
can only replicate inside living cells and are responsible for	
many diseases.	

Question #32: Literature – U.S. Literature

This poet wrote of his soul standing "surrounded, in	Walter Whitman, Jr.	
measureless oceans of space" while observing a quiet		
creature. In another poem, this man wrote of "the lady of		
this teeming and turbulent city, sleepless amid her ships."		
The author of "A Noiseless Patient Spider" and "Drum-		
Taps," his poems written in honor of Abraham Lincoln		
include "O Captain! My Captain!" and "When Lilacs Last in		
the Dooryard Bloom'd." Name this author of the poetry		
collection Leaves of Grass.		

Round # 4 Extra Section Toss-up Questions

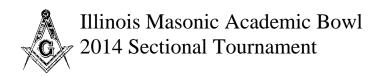
Extra Question #1: Mathematics – Math Concepts

10 points

Pairs of these things are subject to the Axiom of pairing,	<u>set</u> s	
which in turn is subject to the Axiom schema of		
replacement. A commonly used set of axioms for handling		
these was developed by Abraham Fraenkel [FRANE-kul]		
and Ernst Zermelo. The quantity commonly thought of as		
their size is called cardinality. Name this unordered		
collections of elements that can be operated on by union and		
intersection.		

Extra Question #2: Social Studies – U.S. History

Cannon from this site was transported by Henry Knox to	Fort Ticonderoga (prompt on
Dorchester Heights in Boston to scare the British. Following	"Carillon")
a failed attack on Quebec, revolutionary forces retreated to	
this site, later re-taken along with Mount Independence by	
John Burgoyne. This fort was initially called Carillon when	
built by the French during the French and Indian War. Name	
this fort taken during the American Revolution by Ethan	
Allen and the Green Mountain Boys.	



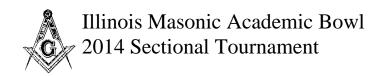
Round # 4 Extra Section Toss-up Questions

Extra Question #3: Fine Arts – Composers of the Modern Era 10 points

Sarah Vaughan won an Emmy for performing songs from	George Gershwin
this composer. One of those songs was "I've Got a Crush on	
You," which appeared in the shows <i>Treasure Girl</i> and <i>Strike</i>	
Up the Band. His song "A Woman is a Sometime Thing"	
appears in an opera set in the fictitious Charleston, South	
Carolina neighborhood called Catfish Row. Name this	
composer of the opera <i>Porgy and Bess</i> who included a	
clarinet glissando at the beginning of his piece <i>Rhapsody in</i>	
Blue.	

Extra Question #4: Science - Health

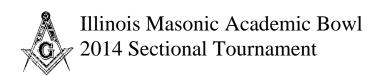
This value can be increased by taking midodrine	(arterial) blood pressure	
[MIH-doe-dreen] or by the release of aldosterones		
[al-doe-STEHR-ones], and both fluid balance and this value		
are regulated by the renin-angiotensin [reh-nin		
an-jee-oe-TEN-sin] system. If this value is low, the result is		
low perfusion, a symptom of shock. If this value is high, the		
person is at risk for a stroke. Two numbers are found when		
this is measured. This value is measured with a		
sphygmomanometer [sfig-moe-ma-NAH-mee-ter], which		
usually includes a cuff that goes around the arm. Name this		
quantity that has systolic and diastolic values.		



Round # 4 Extra Section Toss-up Questions

Extra Question #5: Literature – World Literature

On the advice of Countess Ivanova, this character's son was	Anna Karenina (accept either)
told she was dead. This mother of Seryozha moved to Italy	
after birthing a daughter. She was called upon to sort out a	
quarrel between Dolly and Stepan, her brother. Her husband	
considered a duel, separation, and divorce upon her	
revealing her true feelings for Alexei Vronski. Name this	
title character of a Leo Tolstoy novel.	
-	



Round # 4 Extra Section Teamwork Questions

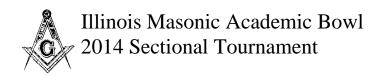
Extra Question #6: Social Studies – World History

10 points per part

The	e seeds for this event were sown at the Hampton Court	
Co	nference, when its planned target attempted to appease	
the	Puritans and re-introduced fines for recusancy	
[red	e-KYOO-sun-see].	
	Name this attempt on the life of the king organized by	Gunpowder Plot
1	Robert Catesby at the Duck and Drake. Guy Fawkes	
	was in attendance.	
	The Gunpowder Plot was an attempt to take the life of	James I (accept James VI of
2	this Scottish king, the successor to Elizabeth the First	Scotland)
	who was eventually succeeded by Charles the First.	
	This nobleman was granted an annual annuity after	Baron Monteagle (accept Wiliam
3	presenting an anonymous letter that warned him not to	<u>Parker</u>)
3	attend Parliament. He presented the letter to James the	
	First's first minister.	

Extra Question #7: Social Studies – World History

Thi	s conflict saw simultaneous battles at Rorke's Drift and	
Isar	ndlwana [eye-SAN-dul-wah-nah], and was the brain	
chil	d of Sir Bartle Frere [frehr].	
	Name this 1879 armed conflict, which was preceded by	Anglo- Zulu War
1	an ultimatum presented to Cetshwayo [ketsh-WIE-oe],	
	the half-nephew of Shaka [SHAH-kah].	
	The Zulu War was instigated in order to organize a	South Africa
2	British-held colony in this modern-day republic.	
	· -	
	The plan for organizing the South Africa colony was	<u>Canada</u>
3	based on a similar plan Lord Carnarvon used in uniting	
	this North American colony.	



Round # 4 Extra Section Teamwork Questions

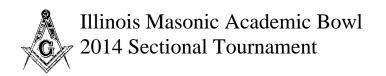
Extra Question #8: Mathematics – Trigonometry

10 points per part

Th	is name can be applied to several formulas in	
tri	gonometry, such as the double angle or half angle	
fo	rmula. It is synonymous with tautology.	
	Give this name for an equation with variables that is	<u>identity</u> (or <u>identities</u>)
1	always true no matter what values are substituted in for	
	the variables.	
	According to a trigonometric identity, what is the value	<u>1</u> (do not accept "-1")
2	of secant squared of x minus tangent squared of x?	
	According to a hyperbolic trigonometric identity, what	<u>-1</u> (do not accept "1")
3	is the value of hyperbolic sine squared of x minus	
	hyperbolic cosine squared of x?	

Extra Question #9: Mathematics – Trigonometry

One	e of these units equals approximately 57 degrees.	
1	Name this unit used to measure angles. When it is a central angle in a circle, this equals the ratio of arc length to radius.	<u>radian</u> s
2	Radians are useful in this branch of mathematics focused on derivatives and integrals because they remove the necessity of multiplying by a constant when taking the derivative of the sine or cosine function.	(integral or differential) calculus
3	Find the tangent of the quantity seven pi over six radians.	root 3 / 3 (or one-third root 3 or one-third radical 3 or equivalent)



Round # 5 1st Section Toss-up Questions

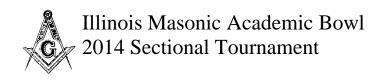
Question #1: Science – Earth Science

10 points

These objects leave chatter marks when they pluck. These	<u>glacier</u> s
grow at accumulation zones, and they shrink at ablation	
zones, with sudden shrinkage caused by calving. The debris	
left behind by these objects accumulates to form moraines.	
These can leave behind depressions called cirques [sirks],	
which are sometimes filled with tarn lakes. To be classified	
as one of these, an object has to persist over a long period of	
time, and these are generally found on mountains or in polar	
regions. Name these large bodies of ice.	

Question #2: Miscellaneous – Industrial Arts

Due to pressure from the Federal Highway Administration,	welding	
improvements were made to the electroslag version of this		
process. The V butt and the lap are two common joints		
utilized in this process. A tungsten electrode is utilized in its		
TIG [tig] form. This process commonly involves an		
oxyacetylene [ok-see-uh-SEE-tuh-leen] torch. Name this		
process sometimes contrasted with soldering [SAH-der-		
eeng] by which metals are joined together, usually involving		
heat.		



Round # 5 1st Section Toss-up Questions

Question #3: Literature – British Literature

10 points

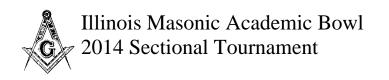
This author wrote of a Single Gentleman who sought to aid	Charles Dickens
his brother, who gambled away the income from the title	
establishment. In another novel by this author, Monsieur	
Blandois [mon-sur blan-dwah] blackmailed the title	
character's employer regarding the withholding of funds.	
This author wrote of Orlick's attack on Mrs. Joe Gargery,	
who took in her brother Pip. Name this author of <i>David</i>	
Copperfield and Great Expectations.	

Question #4: Mathematics – Math Concepts

10 points

This mathematical operation can be expressed as a linear combination using Bezout's [bay-zoo's] identity. This equals the number of lattice points crossed by a line from the origin to the coordinates of the two input values. If this value is one, then its inputs are called relatively prime. This value found by the Euclidean [yoo-KLIH-dee-un] algorithm equals the product of two numbers divided by their least common multiple. This operation can also be evaluated by multiplying the shared prime factors of a set of numbers. Name this largest value that goes into all of a set of numbers.

greatest common factor (accept gcf, greatest common divisor, or gcd; accept highest or largest in place of greatest)



Round # 5 1st Section Toss-up Questions

Question #5: Social Studies – World History

10 points

Domestically, this ruler greatly expanded the use of *missi dominici* [mis-see doe-mih-NEE-chee] as tools of governance. His reign also saw a so-called "Renaissance" which included the establishment of the Palatine school led by Alcuin [al-kwin]. During a feud with his brother, this leader married Desiderata [deh-si-duh-RAH-tah] as a show of unity with the Lombards, but he abandoned the alliance after the death of his brother Carloman. This leader was buried at Aachen [AH-ken] Cathedral when he died in 814. Name this King of the Franks and first Holy Roman Emperor.

<u>Charlemagne</u> (accept <u>Charles I</u>, <u>Charles the Great</u>, <u>Charles le</u> <u>Grand</u>, <u>Carolus Magnus</u>, <u>Karl der Grosse</u>)

Question #6: Science – Biology

A growth in these organs that can be caused by Denys-	<u>kidney</u> s
Drash [deh-nees drash] syndrome is a Wilms tumor. These	
organs secrete calcitriol [kal-sih-TRIE-ol] and EPO. Several	
nutrients are reabsorbed by these organs' proximal	
convoluted tubules, each of which is between a Bowman's	
capsule and a loop of Henle [HEN-lee] inside a nephron	
[NEH-fron]. The adrenal [uh-DREE-nul] glands are on top	
of these organs. The waste from these organs is sent through	
a ureter [YUR-eh-tur] to the bladder. Name these organs	
that filter the blood and can produce very painful stones.	

Question #7: Mathematics – Trigonometry

10 points per part

Co	nsider the graph generated by the function y equals two	
	s five times the cosine of the quantity x plus the fraction	
two	o pi over three. $ y = 2 + 5\cos\left(x + \frac{2\pi}{3}\right) $	
	Give the name of the role played by the value five in	<u>amplitude</u>
1	the equation, which gives the amount of the vertical	
	stretch of a trigonometric graph.	
	Give the maximum value of the y-coordinate on the	<u>7</u>
2	graph of the function.	
	Give the least positive value of an x-coordinate which	4 pi / 3 (or four-thirds pi or
3	causes the y-coordinate of this graph to equal 7.	equivalents)

Question #8: Mathematics – Trigonometry

this	n angle is drawn in standard position on the unit circle, function gives the distance from the origin to the expression of the terminal side of the angle with the line	
y=1		
1	Give this function equal to the ratio of the hypotenuse length to the length of the side opposite an angle.	cosecant (or csc, do not accept "secant")
2	A formula for the derivative of the cosecant function is given by multiplying the opposite of the cosecant function times this function.	<u>cot</u> angent
3	This is the cosecant of 45 degrees.	square <u>root</u> of <u>2</u> (accept <u>radical 2</u> or equivalents)

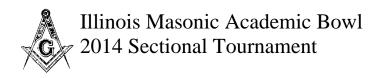
Question #9: Social Studies – Current Events

10 points per part

	September 2013, this state had two Democratic state ators recalled.	
	Senate President John Morse and representative Angela	<u>Colorado</u>
1	Giron were the targets of recall campaigns within this	
	state after voting in favor of gun control.	
	Colorado's government moved fairly quickly to enact	<u>Aurora</u>
2	tougher gun control laws in the wake of a mass shooting	
	at a movie theater in this city.	
	To fight the money contributed by the National Rifle	Michael Bloomberg
3	Association, this New York mayor contributed	
	\$350,000 to support the two incumbents.	

Question #10: Social Studies – Current Events

	der Prime Minister John Howard, this person served as dow minister for foreign affairs.	
1	Name this man, who was ousted as Prime Minister by his deputy, only to regain the post. In September 2013, he lost another election, this time to Liberal leader Tony Abbott.	Kevin Rudd
2	Kevin Rudd's time as prime minister of this country saw a formal apology issued to Aborigines [a-boe-RIH-jih-nees] who were part of the Stolen Generation.	Commonwealth of Australia
3	This woman became Australia's first female prime minister when she defeated Kevin Rudd in a leadership vote within the Labour Party in 2010.	Julia <u>Gillard</u>



Question #11: Science – Physics

10 points per part

Thi	s particle is the carrier of the electromagnetic force.	
1	Name this quantum of light.	<u>photon</u> s
2	One verification of the lack of mass of a photon is the success of this law giving an inverse square relationship between electric force and distance from a static charge.	<u>Coulomb</u> 's law
3	This effect is the increase in wavelength of a photon when it is scattered by a charged particle, usually an electron.	<u>Compton</u> effect

Question #12: Science – Physics

-	sics has several fictitious forces, which means that they are perceived in every reference frame.	
1	Fictitious forces are generally caused by this tendency, the subject of Newton's first law of motion. Give a one-word answer.	<u>inertia</u> (or <u>inertial</u>)
2	One fictitious force is this effect, caused by rotating reference frames, that causes motion on Earth's surface to be deflected based on where it is relative to the equator.	<u>Coriolis</u> (force or effect)
3	The Coriolis force can be calculated by multiplying this number times the cross product of velocity and angular velocity.	<u>2</u> (or <u>-2</u>)

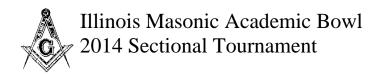
Question #13: Literature – World Literature

10 points per part

	nancieux [boe-nahn-syoo] approached this Gascon after instance was kidnapped.	
1	Name this character who foiled a plot to steal two diamonds from a set of studs given to the queen. He later pretended to be Monsieur de Wardes, and as such received a sapphire ring.	<u>D'Artagnan</u>
2	D'Artagnan [d-ahr-tah-nyan] is the young protagonist of this author's <i>The Three Musketeers</i> .	Alexander <u>Dumas</u> pere
3	This companion of D'Artagnan recognized the sapphire ring as a gift to his wife. This former count attempted to hang his wife after discovering the fleur-de-lis [flur-de-lee] branded on her shoulder.	Athos (or Comte Olivier de la Fere)

Question #14: Literature – World Literature

	his short novel, a Russian traveler reveals the grave ess of one of the main characters.	
1	Name this story in which that illness struck a man who was attempting to educate the natives while shipping back boatloads of ivory.	<u>Heart of Darkness</u>
2	Heart of Darkness was written by this Polish-born author of Nostromo and Lord Jim.	Josef Tedor <u>Konrad</u> Nalecz Korzeniowski
3	This manager of the Inner Station, in attempting to convert the natives, ended up becoming as savage as them.	<u>Kurtz</u>



Round # 5 3rd Section Toss-up Questions

Question #15: Fine Arts – Classical/Opera

10 points

This composer wrote parts for three basset horns and included Gregorian chants in his *Maurerische Trauermusik* [mor-REESCH trow-er-MYOO-sik]. One of his operas begins with three ladies killing a serpent after a prince faints. He left out the piano left hand notes in his 26th Piano Concerto, which was nicknamed "Coronation." Don Alfonso tries to show that all women are unfaithful in one of this composer's operas, *Cosi fan tutte* [KOE-see fahn TOO-tay]. Name this composer of *The Magic Flute* who also wrote the *Jupiter Symphony* and "Eine Kleine Nachtmusik."

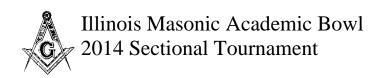
Wolfgang Amadeus Mozart

Question #16: Literature – World Literature

10 points

This work describes a prank involving a notice indicating one character's scheduled times for using the restroom. Its author had to share a room with the dentist Albert Dussel. Given to its author's father by Miep Gies [mip gis], this was written while its author resided at 263 Prinsengracht. The person who wrote this book died of typhus with her sister Margot in 1945 at Bergen-Belsen. Name this journal written by a young Dutch Jew during the Nazi occupation.

Diary of **Anne Frank** (accept **Diary of a Young Girl** or Het **Achterhuis**)



Round # 5 3rd Section Toss-up Questions

Question #17: Social Studies – Geography

10 points

One section of this river flows over the Fula [fuh-lah] rapids and through the Al Sudd swamp. That section is the Bahr al-Jabal, which joins the Sobat at Malakal. Another tributary flows through Al-Duwaym and Lake Victoria before joining the other major tributary, which begins at Lake Tana in Ethiopia. Those major tributaries are named White and Blue. Name this river that empties into the Mediterranean Sea through its delta in Egypt.

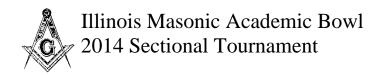
<u>Nile</u> River (accept <u>White Nile</u> until "Those tributaries")

Question #18: Science – Chemistry

10 points

This process is used with thiosulfate [thie-uh-SUL-fate] in the last step of the Winkler test to measure oxygen in water. A variation of this process used to test for the presence of water was invented by Karl Fischer. Graphs representing this process usually have a point of inflection called the equivalence point. Those graphs usually show volume on the x-axis and pH [p h] on the y-axis. Name this process of adding a reactant to determine the concentration of a solution, often using an indicator.

<u>titration</u> (accept other word forms)



Round # 5 3rd Section Toss-up Questions

Question #19: Literature – Mythology

10 points

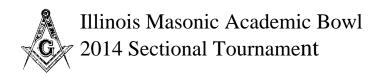
After Heracles [HEHR-uh-klees] slew one of this god's cattle, Menoetes [meh-NOE-eh-tees] wrestled Heracles. One of this god's lovers was turned into a mint plant by his jealous wife, and another lover was turned into a white poplar. Also called "the Rich One," this god owned a helmet that made its wearer invisible. Due to eating pomegranate [po-meh-GRA-net], Persephone had to spend part of her time with this god, her husband. This god combined with his brothers Zeus and Poseidon to defeat the Titans. Name this Greek lord of the underworld.

Question #20: Social Studies – U.S. History

10 points

The diplomacy of Chief Black Buffalo defused an altercation between the people following these leaders and the Lakota. Those people built Fort Mandan before being led across the Bitterroot range by Old Toby. Undertaken by the Corps of Discovery, the group led by these people eventually included Toussaint Charbonneau and his wife, the Shoshone [show-SHOW-nee] Indian Sacagawea [sa-kah-jah-WAY-uh]. Name these two leaders of a trip to the Pacific Northwest ordered by President Thomas Jefferson.

<u>Lewis & Clark</u> Expedition (accept equivalents, both names required)



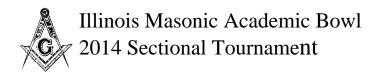
Question #21: Mathematics – Algebra

10 points per part

Cor	mplex numbers have two components, one of which is real.	
1	Give the name of the other component, which is usually represented with the letter b and multiplied by i.	<u>imaginary</u>
2	Find the imaginary component of the result when the quantity, 2+i, end quantity, is multiplied by the quantity 4-2i. Give only the imaginary component.	<u>0</u> (accept <u>0i</u>)
3	Find the value of i raised to the fourth power.	1

Question #22: Mathematics – Algebra

Ans	wer the following about polynomials.	
1	What name is given to a polynomial with two terms?	<u>binomial</u>
2	What name is given to a polynomial with degree four?	<u>quartic</u>
3	Factor the quartic binomial 9x ⁴ -25 over the integers.	$\frac{(3x^2+5)(3x^2-5)}{\text{or equivalent}}$ (or $\frac{(3x^2-5)(3x^2+5)}{(3x^2-5)(3x^2+5)}$



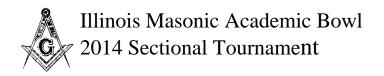
Question #23: Literature – British Literature

10 points per part

	s son of Thomakin committed suicide after being ght up in the orgyporgy [or-jee-por-jee].	
1	Name this son of Linda who was exposed to society by Bernard Marx.	John the Savage
2	John the Savage whipped Lenina Crowne in this novel set in the year 632 After Ford.	Brave New World
3	Brave New World was written by this author of Point Counterpoint and Crome Yellow.	Aldous <u>Huxley</u>

Question #24: Literature – British Literature

	le his friend pretends to be a prince.	
1	Name this courtier who repeatedly wins a bet by guessing that a coin will come up heads.	Rosencrantz
2	Rosencrantz's friend Guildenstern pretended to be this Prince of Denmark, a title Shakespeare character.	<u>Hamlet</u>
3	Rosencrantz and Guildenstern are seen flipping coins at the beginning of this author's play <i>Rosencrantz and Guildenstern are Dead</i> .	Tom <u>Stoppard</u> (accept Tomas <u>Straussler</u>)



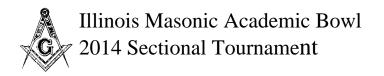
Question #25: Social Studies – U.S. History

10 points per part

Thi	s battle actually took place in Prophetstown.	
	Name this November 1811 battle after which the	Battle of Tippecanoe
1	Shawnee leader Laulewasikau [lau-leh-why-sih-kow],	
	also known as The Prophet, fled to Canada.	
	The Battle of Tippecanoe [tih-peh-kah-noo] served as a	William Henry Harrison
2	source for a campaign slogan for this winning	
	commander and victor in the 1840 Presidential election.	
	The Battle of Tippecanoe took place in this state.	<u>Indiana</u>
3		

Question #26: Social Studies – U.S. History

	s leader headed the offensive that drove the Japanese of Papua New Guinea.	
	Name this general who oversaw the creation of a liberal	Douglas MacArthur
1	constitution during the Allied occupation of Japan after	
	World War Two.	
	Despite the successful landing at Inchon, this president	Harry S <u>Truman</u>
2	relieved MacArthur of command of the UN forces	
	during the Korean War due to insubordination.	
	During his stint as Army Chief of Staff, MacArthur	Bonus Army (accept Bonus
3	organized the forces sent to disburse this protest group	Expeditionary Force)
	led by Walter Waters.	



Question #27: Fine Arts – Art History

10 points per part

Nar	me these architects.	
1	This architect designed the Walt Disney Concert Hall and the Experience Music Project.	Frank <u>Gehry</u> (or Frank Owen <u>Goldberg</u>)
2	This architect designed the glass pyramids in front of the Louvre.	Ieoh Ming <u>Pei</u>
3	This architect designed the Shard, a London skyscraper that opened in 2012.	Renzo <u>Piano</u>

Question #28: Fine Arts – Art History

His	Moon and Half Dome is set in Yosemite Park.	
1	Name this photographer who took many black-and-white landscapes set in the American Southwest.	Ansel <u>Adams</u>
2	Like Dorothea Lange, Adams took pictures of Americans at the Manzanar War Relocation Center, most of whom were natives of this country.	<u>Japan</u> ese
3	An Adams work showing a moonrise was taken on November 1, 1941 just outside of this town in New Mexico.	<u>Hernandez</u>

Round # 5 5th Section **Toss-up Questions**

Question #29: Mathematics – Math Concepts

10 points

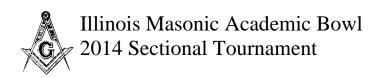
sine (accept an additional variable such as sine x or sine theta, do not accept "cosine")

Question #30: Social Studies – World History

10 points

New rulers of this empire, called "Great Speakers," were	Azt
obligated to lead "coronation wars." One such war fought	
against the Olomites doomed Tizoc to a short reign. Their	
penultimate leader died during a smallpox epidemic	
following a cannibalistic ritual, but not before driving out	
invaders during La Noche Triste [NOE-chay TREES-tay].	
Name these Nahuatl [nah-HWAH-tul] speakers who were	
conquered by forces under Hernan Cortes at Tenochtitlan	
[teh-noech-TEET-lahn].	

<u>ec</u>s



Round # 5 5th Section Toss-up Questions

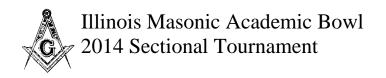
Question #31: Literature – U.S. Literature

10 points

This author wrote about a reporter from the <i>Defender</i> who	Gwendolyn Elizabeth Brooks
compared the people at Jesus' crucifixion to people in Little	
Rock. She wrote of a woman who gave up dreams of living	
in New York to marry a man who coveted entry into the	
Foxy Cats Club, Paul Phillips. One of her poems described	
seven pool players at the Golden Shovel who "sing sin" and	
"thin gin." Name this author of the poetry collection <i>Annie</i>	
Allen and the poem "We Real Cool."	
-	

Question #32: Science – Physics

Stephen Benton invented the most popular type of this	hologram (or holograph y)	
phenomenon, the rainbow. In general, these are classified as		
either thin or thick, as amplitude or phase, and as		
transmission or reflection. Those classifications depend on		
the location of the reference beam when these are created		
and the spacing of their interference pattern. Dennis Gabor		
invented this technique whose creation was made practical		
by the development of lasers. Name these images which		
appear to be three-dimensional.		



Round # 5 Extra Section Toss-up Questions

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

10 points

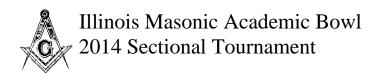
One side to the negotiations over this treaty sent admiralty	Treaty of Ghent
lawyer Williams Adams to negotiate it. Article Ten of this	
agreement dealt with the abolition of the slave trade. During	
negotiations, Lord Castlereagh was advised by the Duke of	
Wellington to "take the status quo ante bellum." Name this	
treaty that brought an end to the War of 1812.	

Extra Question #2: Science – Physics

10 points

This phenomenon explains why it is easier to hear noises across a lake at nighttime rather than during the day. This physical process is skewed in people who suffer from keratoconus [keh-rah-toe-KOE-nus] or astigmatism, and it can be impacted by direction in materials with birefringence [bie-ree-FRIN-jens]. Beyond a critical angle, total internal reflection occurs instead of this wave phenomenon. Name this phenomenon quantified by Snell's Law, the bending of light as it changes from one medium to another.

<u>refraction</u> (accept word forms such as refract or refracting, do not accept diffraction)



Round # 5 Extra Section Toss-up Questions

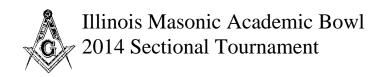
Extra Question #3: Fine Arts – Art History

10 points

Based on a misunderstanding of psychological testing, this	Andy <u>Warhol</u> a
artist made a series of works based on Rorschach	
[ROR-schock] inkblots. This artist's Detail of the Last	
Supper is also known as Christ 112 Times. He wallpapered	
at least one of his exhibitions with pink images of cow's	
heads. He also made several Brillo boxes, and he made	
images showing Liza Minelli, Elvis Presley, and Marilyn	
Monroe. Name this man nicknamed the Prince of Pop Art	
who repeatedly showed Campbell's Soup cans.	

Extra Question #4: Literature – U.S. Literature

	i o ponite
In "Liar!" one of these was given telepathy. In the story	<u>robot</u> s
"Runaround," one of these is seen circling a pool of	
Selenium. In "Reason," Powell and Donovan develop one	
that founds a religion based on its ability to convert a beam	
of energy from the sun. These are not to harm a human	
being according to their first law. Name these objects for	
which three laws were developed by Isaac Asimov.	
- ,	



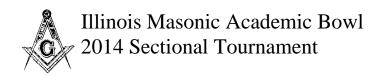
Round # 5 Extra Section Toss-up Questions

Extra Question #5: Mathematics – Math Concepts

10 points

When this operation is applied to two quaternions [kwa-TEHR-nee-ons], it is anticommutative. If this operation is applied to a function and the derivative of another function, the result can be integrated by parts. For matrices [MAY-trih-ses], this operation pairs each of the rows of the first matrix with each of the columns of the second matrix. When this is applied to two prime numbers, the result is composite. Name this operation that can be done repeatedly using exponents and which can represent repeated addition.

multiplication (accept word
forms, product, or times)



Round # 5 Extra Section Teamwork Questions

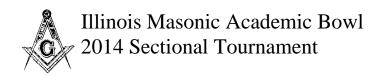
Extra Question #6: Science – Biology

10 points per part

Thi	s organ contains the right atrioventricular	
[ay-	-tree-oe-ven-TRIH-kyoo-lur] valve, which is also called	
the	tricuspid valve.	
	Name this muscular organ that pumps blood.	<u>heart</u>
1		
	The heart has four chambers, including two atria that	(left and right) ventricle s
2	take in blood, and these two chambers that push blood	
	out.	
	Because of their shape, this is the name of the two	semilunar valve(s)
3	valves blood travels through when it leaves the	
	ventricles. These are also called the pulmonary and	
	aortic valves.	

Extra Question #7: Science – Biology

	s organ includes the cerebellum [seh-reh-BEL-lum] and namesake stem.	
1	Name this large organ inside your skull.	<u>brain</u>
2	This is the name given to the four divisions of the brain's cerebral cortex. These divisions are named frontal, parietal [puh-RIE-uh-tul], occipital [ok-SIH-pih-tul], and temporal.	lobes
3	This bundle of fibers connects the left and right halves of the brain.	corpus callosum



Round # 5 Extra Section Teamwork Questions

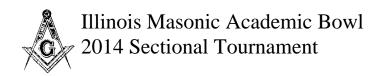
Extra Question #8: Literature - U.S. Literature

10 points per part

	lowing a break-in in this play, one of the conspirators eals his involvement by calling Williamson a liar.	
1	Name this play in which Williamson is one of four real estate salesmen trying to hawk overpriced land to	Glengarry Glen Ross
	unwitting buyers.	
1	Glengarry Glen Ross was written by this playwright.	David Alan <u>Mamet</u>
2	He wrote about events surrounding Don's Resale Shop in <i>American Buffalo</i> .	
	Glengarry Glen Ross and American Buffalo are both set	<u>Chicago</u> , Illinois
3	in this Midwestern city.	

Extra Question #9: Literature – U.S. Literature

	e opening scene of this story takes place on Helseggen untain.	
1	Name this tale in which the tour guide described a rainbow that he compared to the pathway between Time and Eternity at the vortex of the title event.	"A <u>Descent into the Maelstrom</u> "
2	In this story, William Legrand describes the title object as having three black spots on its back. The object was used in lieu of a bullet to find the hidden treasure of Captain Kidd.	"The Gold-Bug"
3	"A Descent into the Maelstrom" and "The Gold-Bug" were written by this author. He wrote of a murdering orangutan in "The Murders in the Rue Morgue."	Edgar Allan <u>Poe</u>



Round # 6 1st Section Toss-up Questions

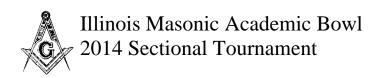
Question #1: Social Studies – Religion

10 points

Ezekiel said that Noah, Daniel, and this man could save	<u>Job</u>
only themselves. In one encounter, this person cried that	
"now my eye sees thee, therefore I despise myself and	
repent in dust and ashes." This man, called the greatest of	
the men of the East, was visited by Eliphaz, Bildad, and	
Zophar. This person was robbed of his cattle, children and	
health to determine whether he was truly pious towards	
God. Name this man who was the subject of a contest	
between God and Satan.	

Question #2: Language Arts – Grammar/Usage

These sounds are classified based on place and manner of	<u>consonant</u> s	
articulation, as well as voicing. Created using obstruction to		
the airflow in the oral cavity, these do not serve as the		
nucleus of a syllable. These sounds end with at least a		
partial closure of the vocal tract. Name these speech sounds,		
of which there are 21 in the Roman alphabet.		



Round # 6 1st Section Toss-up Questions

Question #3: Science – Health

10 points

Primates need to eat this nutrient because they are missing the GULO [goo-loe] enzyme. Because this blocks some effects of hydrogen peroxide, it reduces the risk of cancer. This nutrient is necessary in the formation of tendons because this oxidizes proline [PROE-leen] to create collagen [KAHL-luh-jen]. A lack of this nutrient causes muscle pain, gum disease, and weak scar tissue. This vitamin is also known as ascorbic [uh-SKOR-bik] acid, and a lack of this causes scurvy. Name this vitamin concentrated in berries and citrus fruit.

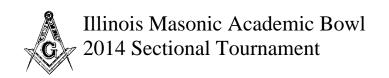
Vitamin <u>C</u> (accept (L-)ascorbic acid or ascorbate before "ascorbic acid" is mentioned, prompt on "antioxidant")

Question #4: Social Studies – U.S. History

10 points

In 2006, the Northwest Austin Municipal Utility District
unsuccessfully challenged this law's constitutionality. Its
protections were expanded in 1975 to include language
minorities. This law controversially listed several
jurisdictions that were required to get preclearance from the
Attorney General or a federal court before changing related
laws. This law banned the use of literacy tests and ordered
the Attorney General to challenge the legality of poll taxes.
Name this act meant to protect the suffrage of all
Americans.

Voting Rights Act of 1965



Round # 6 1st Section Toss-up Questions

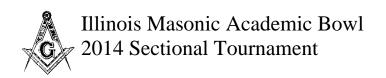
Question #5: Miscellaneous – Technology

10 points

The prototype for this service was developed for Odeo	Twitter.com
employees, but its creators later formed Obvious	
Corporation in order to acquire it. In October 2012, this	
acquired the video clip company Vine. When this website	
gets overloaded, users see the fail whale. One former mascot	
of this company was Larry, named after the former Boston	
Celtic. Name this microblogging site where messages are	
capped at 140 characters.	

Question #6: Science – Chemistry

The measurement of fluoride in water is more precise when	<u>buffer</u> (solution) (or <u>buffering</u>
a total ionic strength adjustment type of this solution is	<u>agent</u>)
used. A list of these substances that are blocked by	
membranes, do not react with most salts, are highly soluble,	
and have a pH [p h] near 7 is named for Norman Good.	
Sometimes exemplified by the combination of carbonic acid	
and bicarbonate in blood plasma, these solutions often	
contain a weak acid or base with its conjugate. Name these	
solutions that resist changes to the pH of a solution.	



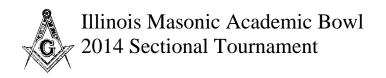
Question #7: Mathematics – Algebra

10 points per part

Ans	swer the following about symmetry.	
1	Give a single word for the type of triangle that is symmetric about a line through a vertex and the middle of the opposite side. Such a triangle might also be equilateral.	isosceles
2	This type of function has a graph that is symmetric about the y-axis.	even
3	If the derivative of an odd function at x equals 3 is equal to 5, what is the derivative of the same function at x equals negative 3?	<u>5</u> (do not accept "-5")

Question #8: Mathematics – Algebra

	h this type of function, the output gets multiplied by a fixed se every time that a fixed value is added to the input.	, , ,
1	Name this type of function that has a horizontal asymptote [A-sim-tote] on one side of its graph. Give the name rather than the formula.	exponential (accept other word forms)
2	If an exponential function goes through the points (1,1) and (2,2), then what will be the value of y when x equals 4?	8
3	Compound interest can be represented as exponential growth. Find the value of \$100 if it is invested for 2 years with 10% growth compounded annually.	\$ <u>121</u>



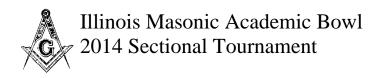
Question #9: Fine Arts – Jazz

10 points per part

Naı	ne these instruments.	
1	Though famous performers on this instrument often play similar instruments such as the flugelhorn [FLOO-gul-horn], cornet, and horn, this was the primary instrument of Woody Shaw, Miles Davis, and Wynton Marsalis.	<u>trumpet</u> (or <u>trumpeter</u>)
2	This was the primary instrument played by McCoy Tyner, Thelonius Monk, and Art Tatum.	<pre>piano (or pianist, prompt on "keyboard")</pre>
3	This was the primary instrument played by Kid Ory, Glenn Miller, and Curtis Fuller.	<u>trombone</u> (or <u>trombonist</u>)

Question #10: Fine Arts – Jazz

Thi	s saxophonist was a central figure in bebop.	
1	Name this musician whose songs include "Ko-Ko", "Scrapple from the Apple", and "Yardbird Suite".	Charlie <u>Parker</u>
2	Parker recorded a 1950 album with this trumpeter known for the song "Salt Peanuts" and for his huge cheeks and bent trumpet.	John "Dizzy" Gillespie
3	Parker often worked with this drummer, especially during the late 1940s. This drummer formed a group and recorded the album <i>We Insist!</i> , which was subtitled his <i>Freedom Now Suite</i> .	Max Roach



Question #11: Science – Chemistry

10 points per part

Thi	s red brittle substance is usually ferric oxide.	
1	Name this form of corrosion that takes place when iron is exposed to oxygen and moisture.	<u>rust</u> (accept longer answers, prompt on "oxidation")
2	This process prevents rust by coating iron or steel with a layer of zinc.	galvanization (accept word forms)
3	Stainless steel uses this element to prevent rust.	<u>Chromium</u> (prompt on "Cr")

Question #12: Science – Chemistry

	ntify these namesakes of gas laws that are not part of the al gas law.	
1	The law of partial pressures is named for this English scientist.	John <u>Dalton</u>
2	The law stating that the rate of effusion is inversely proportional to the particle masses is named for this Scottish scientist.	Thomas Graham
3	The nonrelativistic probability distribution of speeds of gas molecules is named for these two scientists.	James Clerk Maxwell and Ludwig Boltzmann (both answers in either order without prompting)

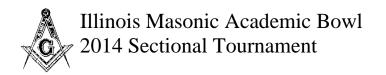
Question #13: Social Studies – World History

10 points per part

	s country elected Africa's first female head of state, en Johnson-Sirleaf.	
1	Name this nation founded by former slaves from the Americas. It descended into civil war when Sergeant Samuel Doe overthrew William Tobert.	Republic of <u>Liberia</u>
2	Doe was executed shortly after forces led by Charles Taylor overtook this national capital.	<u>Monrovia</u>
3	This founder of the Black Star Line and civil rights leader attempted to obtain land grants from Liberia.	Marcus <u>Garvev</u>

Question #14: Social Studies – World History

The	eir name translates as "one of the majority."	
1	Name this party that fractured off from a larger party after Julius Martov won a key vote. This group overthrew the Provisional Government during the October Revolution in 1917.	Bolsheviks (accept Bolsheviki or Bolshevists)
2	This leader of the Bolsheviks was inspired by his brother Alexander, who was executed for attempting to assassinate Alexander the Third. He later oversaw the pullout of Russian forces from World War One and died in 1924.	Vladimir Ilyich <u>Ulyanov</u> (accept <u>Lenin</u>)
3	Initially appointed as Minister of Justice under George Lvov [li-VOV], this man headed the Provisional Government that was overthrown by Lenin's forces.	Alexander <u>Kerensky</u>



Round # 6 3rd Section Toss-up Questions

Question #15: Literature – Mythology

10 points

Along with Cybele [SIH-beh-lee], this goddess and her	<u>Isis</u>
husband were honored by Romans during Hilaria. This	
goddess taught her worshippers to bake and brew beer. She	
was beheaded by her son when she pitied her brother. She	
used Wadjet as a wet nurse while her son was in hiding, as	
Seth laid claim to the throne. This goddess gathered the	
body parts of her husband and resurrected him after his	
murder. Name this sister of Nephthys [NEF-this] and wife	
of Osiris.	

Question #16: Science – Physics

The switched types of these devices are used as filters in	<u>capacitor</u> s
integrated circuits and behave similarly to resistors. The	
common measurement of these devices is multiplied by	
resistance to calculate the time it takes them to discharge.	
These generally include an insulator called a dielectric	
between two conductors. Their common measurement is	
charge divided by electric potential difference. Name these	
devices whose strength is measured in farads.	

Round # 6 3rd Section Toss-up Questions

Question #17: Social Studies – U.S. Government

10 points

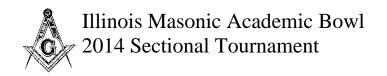
In Schillinger v US, it was held that the infringement of	patent s
these rights is a tort. Their "cooperative classification"	
includes such categories as "human necessities" and "fixed	
constructions." The Supreme Court ruling in O'Reilly v	
Morse determined that "abstract ideas" were not eligible for	
these. The office that oversees these rights in the U.S. also	
oversees trademarks, and these rights typically last twenty	
years. Name this exclusionary right granted to an inventor.	

Question #18: Fine Arts – Art History

10 points

The dark mountain at the right side of this painting has a
profile similar to a sleeping woman and is underneath its
yellow moon. The rolling hills in the center reach the same
height as the church steeple, which, according to some
interpretations points to an image of the head of the artist in
the sky. Painted in Saint-Remy-de-Provence, this work's
left foreground shows a dark cypress tree. Name this 1889
work with a swirling sky painted by Vincent van Gogh.

The <u>Starry Night</u> (or De <u>sterrennacht</u>)



Round # 6 3rd Section Toss-up Questions

Question #19: Mathematics – Math Concepts

10 points

This set of numbers is the set of all inputs that give discontinuous points on Thomae's [TOE-may's] function.

This set of numbers is partitioned by a Dedekind [DEH-deh-kihnd] cut, and a so-called spiral is used to show that this set of numbers is countable. Euclid [YOO-klid] demonstrated that assuming that the square root of two is in this set leads to a contradiction. Name this set of numbers, each of which can be represented by repeating or terminating decimals and also can be represented as the quotient of two integers.

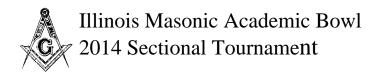
rational number (or rationals)

Question #20: Literature - U.S. Literature

10 points

One character in this novel, who invites people to visit him in Wyoming, is Wild Bob. After returning from war, this novel's protagonist finishes optometry school before having two children, one of which becomes a Green Beret [buh-RAY]. After a plane crash in Vermont, the protagonist of this novel loses his wife before having brain surgery. The protagonist of this novel describes his travels through time, including time spent in a zoo on Tralfamadore [tral-FA-muh-dor]. Name this novel set against the backdrop of the firebombing of Dresden, written by Kurt Vonnegut.

<u>Slaughterhouse-Five</u>, or, The Children's Crusade: A Duty Dance with Death



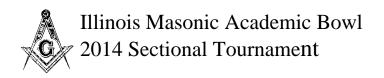
Question #21: Science – Biology

10 points per part

	s process follows interphase and is followed by okinesis [sie-toe-kih-NEE-sis].	
1	Name this process in which one cell nucleus becomes two cell nuclei.	<u>mitosis</u> (prompt on cell "division" or cell "fission")
2	This stage of mitosis just before cytokinesis involves the re-formation of the nuclear membranes.	<u>telophase</u>
3	The cyclin [SIE-klin]-dependent types of these enzymes involved in phosphorylation [fos-FOR-uh-lay-shun] regulate a cell's progression through mitosis.	<u>kinase</u> s

Question #22: Science – Biology

	pert Whittaker started recognizing these as a kingdom, arating them from the plant kingdom.	, , ,
1	Name these organisms that include mushrooms.	<u>fungi</u> (or <u>fungus</u>)
2	Along with glucans [GLOO-kans], mannans, and glycoproteins, fungi have this polymer in their cell walls, as opposed to the cellulose in plants.	chitin
3	Fungi of the genus Penicillium [peh-nih-SIL-lee-um] are used to produce not only antibiotics, but also this class of drugs used to treat high cholesterol.	(fermentation-derived) statin(s)



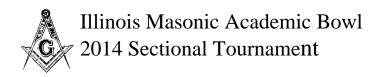
Question #23: Social Studies – Economics

10 points per part

	Herfindahl index for this kind of market is ten usand.	
1	Name this kind of market that can be created by the government through the granting of patents and copyrights. Common geographic ones include public utilities.	monopoly
2	Because the firm in a monopoly supplies fewer goods than would create equilibrium, this reduction of economic efficiency occurs as buyers who would pay more than the equilibrium price are shut out of the market.	deadweight loss (accept excess burden or allocation inefficiency)
3	Deadweight loss occurs because a monopolist, like any capitalist in a rational choice system, seeks to maximize this quantity. As a market approaches perfect competition, this value for each seller approaches zero.	profit (accept income)

Question #24: Social Studies – Economics

		10 points por part
Pro	ducers who have lower opportunity costs than other	
	ns enjoy this.	
11111	is enjoy tins.	
	Name this benefit of a firm caused by different cost	comparative advantage
1	ratios of various commodities that is often based on	
	conditions in different countries.	
	In On the Principles of Political Economy and	England and/or Portugal (do not
2	Taxation, David Ricardo described comparative	accept "Britain" or "United
 	advantage in relation to two European countries	Kingdom")
	producing wine and cloth. Name either.	
	David Ricardo formulated the "Iron Law of" these,	wages (accept pay or other
3	claiming that like any good, they will trend towards a	equivalents)
	market equilibrium.	



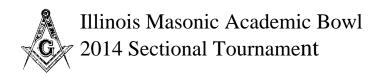
Question #25: Mathematics – Analytical Geometry

10 points per part

Cor	sider a graph of the equation x squared over four plus y	
squ	ared over sixteen equals one.	
$\left[\frac{x^2}{4}\right]$	$-+\frac{y^2}{16}=1$	
1	Name the shape of the graph generated by the equation.	<u>ellipse</u>
2	Find the length of a semi-minor axis of that ellipse. That is equivalent to finding the length from the center of the ellipse to the nearest point on the ellipse.	2
3	Find the distance from one focus of this ellipse to the other focus. Give your answer in simple radical form.	4 root 3 (or 4 times the square root of 3 or 4 radical 3 or equivalents)

Question #26: Mathematics – Analytical Geometry

	s class of figures exhibits self-similarity, meaning that a t of the figure can be equivalent to the whole figure.	
1	Name these shapes with fractional dimensions.	<u>fractals</u>
2	This fractal is generated by repeatedly removing the middle triangle from triangles. This is named for a Polish mathematician.	Sierpinski triangle (accept other second words such as gasket or sieve)
3	This is the Hausdorf dimension of a Sierpinski [sir-PIN-skee] triangle.	log ₂ 3 (log base two of three or log three over log two or equivalents)



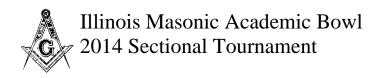
Question #27: Literature - U.S. Literature

10 points per part

	e mining settlement of Angel's Camp is found within county.	
1	Name this county, one former resident of which owned a dog named Andrew Jackson that lost a fight to an animal whose hind legs had been cut off.	<u>Calaveras</u> County
2	Calaveras County was the setting of a short story by this author about the degenerate gambler Jim Smiley.	Mark <u>Twain</u> (accept Samuel Langhorne <u>Clemens</u>)
3	Jim Smiley found a frog, gave it a good education, then named it after this famous American statesman.	Daniel "Dan'l" Webster

Question #28: Literature – U.S. Literature

Thi air.	s poem describes a ship as "the meteor of the ocean's",	
1	Name this poem whose title vessel had a deck "once red with hero's blood." At the end, that ship was given to the god of storms.	"Old Ironsides"
2	"Old Ironsides" was written by this poet, who wrote of a voice that sings "Build thee more stately mansions, O my soul" in "The Chambered Nautilus."	Oliver Wendell <u>Holmes</u> , Sr.
3	"Old Ironsides" was written to protest the destruction of this ship on the orders of the Naval Secretary.	USS <u>Constitution</u>



Round # 6 5th Section Toss-up Questions

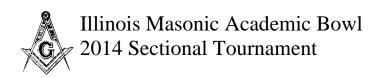
Question #29: Science – Biology

10 points

The structure of this organelle was described by Ada	<u>ribosome</u> s
Yonath. This organelle is responsible for the polymerization	
of microcins [MY-kroe-sins] and several other natural	
antibiotic polypeptides. George Emil Palade discovered that	
these organelles are often bound to the rough endoplasmic	
reticulum. These organelles have a namesake RNA. Name	
these organelles where protein molecules are assembled	
based on codons from RNA.	

Question #30: Social Studies – World History

In the build-up to this action, Thomas de Montacute, Earl of	Siege of Orleans	
Salisbury, captured a key fort on the Loire River before		
being killed by a cannonball. The Battle of the Herrings was		
the result of an offensive launched to end this attack. At the		
outset, the victorious side was led by John, Comte de		
Dunois, as the Duke was imprisoned at Agincourt		
[a-jin-kor]. This came to an end after the last of the invading		
troops were penned at the Tourelles bridge. Name this siege		
broken in 1429 by an army led by Joan of Arc, the turning		
point of the Hundred Years' War.		



Round # 6 5th Section Toss-up Questions

Question #31: Mathematics – Math Concepts

10 points

If two vertices [VER-tuh-sees] of this shape are on the	icosahedron (or icosahedra)
z-axis, the other vertices are all approximately 63.4 degrees	
from the z-axis. In Cartesian coordinates, this shape's	
vertices can be placed so each has coordinates whose	
absolute values are zero, one, and the golden ratio. This	
shape's surface area is a side length squared times five root	
three. Using the center of each face of this shape as a vertex	
creates a dodecahedron. Each vertex of this shape is the	
vertex of five triangles. Name this Platonic solid with	
twenty faces.	

Question #32: Literature – British Literature

In this play, a dustman refuses an offer of ten pounds, as it	Pygmalion Pygmalion
may lead him to save money. That character later becomes	
upset that he is lecturing for the Wannafeller Moral Reform	
World League. One scene in this play is complicated by the	
arrival of a family who believes that one person is using the	
"new small talk." That family is the Eynsford Hills. The	
protagonist in this 1912 work is a phonetician who wagers	
that in six months he can pass a cockney flower girl as a	
duchess. Name this play in which Eliza Doolittle is taught	
by Henry Higgins, penned by George Bernard Shaw.	

Round # 6 Extra Section Toss-up Questions

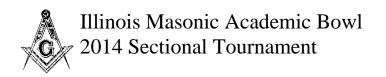
Extra Question #1: Mathematics – Math Concepts

10 points

This person used several decreasing geometric sequences	(John) <u>Napier</u>
whose first number was ten million. This person also	
designed a series of rods that made it easier for people who	
don't know multiplication tables to perform multiplication	
and division. Those rods are this person's namesake bones.	
His work with geometric sequences allowed him to compile	
tables that allowed people to use addition to multiply and	
use multiplication to evaluate exponents. Name this Scottish	
developer of logarithms.	

Extra Question #2: Fine Arts – Classical/Opera

In one opera by this composer, the title character oversees	Gioachino Rossini
the succession following the death of her husband, the	
Babylonian King Nino. In another opera by him, the title	
character kills Orbazzano after returning to Syracuse. Those	
works, both based on works by Voltaire, are Semiramide	
[seh-mee-rah-MEE-day] and Tancredi [tahn-KREH-dee]. In	
another work by this composer, a character disguised as	
Lindoro tries to impress Rosina with the help of Figaro.	
Name this composer of <i>The Barber of Seville</i> who also	
wrote William Tell.	



Round # 6 Extra Section Toss-up Questions

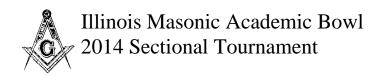
Extra Question #3: Literature - British Literature

10 points

This character lost his shadow for a short time after a	Peter Pan
window was shut behind him. Jane eventually becomes his	
mother, and Jane sends her daughter Margaret to fill that	
role. He nearly died after becoming trapped on Marooners'	
Rock. The Lost Boys ended up with a mother after this	
character taught the Darling children to fly. Accompanied	
by Tinker Bell, name this "boy who would not grow up,"	
created by Sir James Barrie.	

Extra Question #4: Social Studies – World History

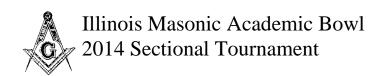
To marry the Countess von Chotek, this person renounced	Archduke Franz Ferdinand,
his children's regal claims, which led to the coronation of	Erzherzog von Osterreich-Este
his nephew Charles the First of Austria. This person's	
demise was preceded by performing army maneuvers in	
Bosnia and Herzegovina, which led to his being targeted by	
the Black Hand. Name this Austro-Hungarian leader	
assassinated by Gavrilo Princip.	



Round # 6 Extra Section Toss-up Questions

Extra Question #5: Science - Earth Science

A common defect with spin polarization in this mineral is	<u>diamond</u> s
the nitrogen-vacancy center. High quality examples of this	
are classified as first water, while low quality examples are	
crushing bort. This mineral can be confused with moissanite	
[mois-sahn-ite], a silicon carbide that, like this material has	
a very high thermal conductivity. This mineral is ranked	
above corundum on the Mohs scale, where it is rated a ten.	
Name this allotrope of carbon that is a very valuable gem.	



Round # 6 Extra Section Teamwork Questions

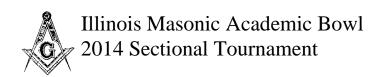
Extra Question #6: Social Studies – U.S. History

10 points per part

The	Washington Post compared this leader's A Time for	
Che	posing speech to William Jennings Bryan's Cross of	
Gol	d speech.	
	Name this person ridiculed for the film <i>Bedtime for</i>	Ronald Wilson Reagan
1	Bonzo by incumbent Pat Brown during an election	
	which he won to become governor of California.	
	This man attempted to impress Jodie Foster by shooting	John Warnock Hinckley, Jr.
2	Ronald Reagan, but he failed to kill the President. At	
	trial, he was found not guilty by reason of insanity.	
	In the immediate aftermath, Alexander Haig showed his	Secretary of State
3	lack of constitutional knowledge by asserting that he	
	was in charge, despite holding this cabinet post.	

Extra Question #7: Social Studies – U.S. History

	ngress passed the McNary-Haugen bill twice, but this sident vetoed it both times.	
1	Name this politician who, as a governor, refused to back the reinstatement of police officers who were fired for striking, reasoning that "there is no right to strike against the public safety by anybody, anywhere, any time."	John Calvin <u>Coolidge</u>
2	Coolidge's presidency began with cleaning up the administration this leader left behind. In his campaign, he promised a "return to normalcy."	Warren Gamaliel <u>Harding</u>
3	On account of his actions during the aforementioned police strike, Coolidge was punched in the eye by James Peters, the mayor of this major city.	Boston, Massachusetts



Round # 6 Extra Section Teamwork Questions

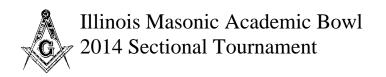
Extra Question #8: Mathematics – Probability

10 points per part

In t	he Monty Hall problem, there are three doors, one of	
whi	ch has a good prize and two of which have a bad prize.	
A c	ontestant picks one of the three doors and is then shown	
a lo	sing prize behind a different door. If the contestant	
orig	inally picked a winner, the losing prize is chosen at	
rand	dom, and if the contestant originally picked a loser, the	
othe	er losing prize is chosen.	
	What is the probability that the winning prize is behind	<u>1/3</u> (or 0 <u>.3 repeating</u>)
1	the door the contestant selected?	
	What is the probability that the winning prize is behind	<u>2/3</u> (or 0 <u>.6 repeating</u>)
2	the door that was not shown and that the contestant did	
	not select?	
	Because the solution to this problem goes against	<u>paradox</u>
	common sense intuition, it is classified by Willard	
3	Quine as a veridical [veh-RIH-dih-kul] type of this	
	statement that goes against either logic or common	
	sense.	

Extra Question #9: Mathematics – Probability

	h probability, this term can be synonymous with erimental.	
1	Give this adjective that refers to beliefs based on observations and experience rather than theory.	empirical
2	Empirical evidence can be based on the number of times something happens in a trial, which is this quantity. The relative type of this is the number of times a certain outcome occurs divided by the number of trials.	(relative) <u>frequency</u>
3	A person gets a particular outcome 12 times during 20 trials. How many times would they expect that outcome to occur if they ran a total of 50 trials?	30



Round # 7 1st Section Toss-up Questions

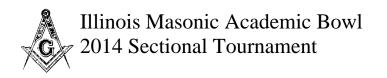
Question #1: Social Studies – World History

10 points

Before he was the target of a coup [koo] led by Lazar	Nikita Sergeyevich Khrushchev
Kaganovich and Vyacheslav [VYA-cheh-slaf] Molotov, this	
premier oversaw a period of liberalization named for a novel	
by Ilya Ehrenburg, his "thaw." That period came after he	
gave a speech "On the Personality Cult and Its	
Consequences," denouncing the policies of his predecessor,	
which included the Great Purges. This leader was succeeded	
in his highest post by Leonid Brezhnev and was himself the	
successor to Josef Stalin as Russian Premier. Name this	
leader who is believed to have banged his shoe on a desk	
during a 1960 United Nations meeting.	

Question #2: Literature – U.S. Literature

In describing spring, this poet wrote of "the wanton frisking	Anne Bradstreet	
kid, and soft fleeced lambs." In one poem, she describes		
some poems as "ill-formed offspring." She wrote of love		
worth "more than whole mines of gold" in "To My Dear and		
Loving Husband," and she also wrote verses about the		
burning of her house. Name this colonial writer whose		
poems were published in the collection <i>The Tenth Muse</i>		
Lately Sprung Up in America.		



Round # 7 1st Section Toss-up Questions

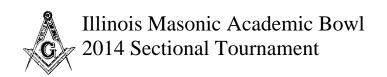
Question #3: Mathematics – Math Concepts

10 points

The example of this thing named for Erdos [ur-dosh] and	<u>inequality</u> (or <u>inequalities</u>)
Mordell applies to any point inside a triangle. One of the	
examples of this, named for Chebyshev [CHEH-bih-shef],	
limits the probability of attaining a value more than a given	
number of standard deviations from the mean. Another	
example of this type of statement, relating an inner product to	
a product of magnitudes, is named for Cauchy and Schwarz.	
One of these limits the length of the longest side of a triangle.	
Name these statements that include less than or greater than	
relationships.	

Question #4: Miscellaneous – Sports

This person hit the game-winning shot in the 1982 NCAA	Michael Jeffrey <u>Jordan</u>	
Men's Basketball Championship. In the 1989 NBA		
Playoffs, he hit "The Shot" to clinch a 3-2 series win over		
Cleveland. He was the NBA Finals MVP six times, as he		
led his team to two three-peats in the 1990s, interrupted by a		
stint as a baseball player. This person ended his career with		
the Washington Wizards, and he now owns the Charlotte		
Bobcats. Name this basketball player whose jersey number		
23 was retired by the Chicago Bulls.		



Round # 7 1st Section Toss-up Questions

Question #5: Science – Biology

10 points

Not found in monocots, this substance includes fusiform [FYOO-sih-form] initial cells that can be storied or non-storied. Other cells in this substance are ray initial, and this is created by the division of pericycle cells. One type of this substance is called phellogen [FEL-uh-jen], and this substance can also be referred to as secondary or lateral meristem. One type of this is responsible for creating cork. Name this layer of cells whose vascular type creates secondary xylem and phloem.

(vascular pro)<u>cambium</u> (accept (secondary or lateral) meristem until it is mentioned)

Question #6: Literature – British Literature

10 points

Before losing a fight, this character said he would be damned if he cried "hold, enough." His wife encouraged him to "screw his courage to the sticking-place" in order to succeed. One of this character's soliloquies [suh-LIH-luh-kwees] states, "out, out, brief candle," and, "Tomorrow, and tomorrow, and tomorrow, creeps in this petty pace from day to day." He could only be vanquished once Birnam wood came to Dunsinane [DUN-sih-nane] and by someone not born of woman. Name this killer of King Duncan, the title character of a Shakespeare play set in Scotland.

<u>MacBeth</u> (prompt on "Thane of Fife" or "Thane of Cawdor")

Question #7: Social Studies – Geography

10 points per part

	s river's major drainage basins include Yazoo and hafalaya [ah-chah-fah-LIE-uh].	
1	Name this longest river in the United States. Its major tributaries include the Ohio and Missouri.	<u>Mississippi</u> River
2	This lake in Minnesota is often cited as the source of the main length of the Mississippi River.	Lake <u>Itasca</u>
3	Near the Gulf of Mexico, the Bonnet Carré Spillway directs excess floodwater from the Mississippi towards this lake.	Lake Pontchartrain

Question #8: Social Studies – Geography

	s "Big Island" is home to Mauna Kea, Mauna Loa, and auea.	
1	Name this largest of James Cook's "Sandwich Islands."	<u>Hawaii</u> Island
2	This most populous of the Hawaiian islands is the home of Honolulu.	<u>Oahu</u>
3	This "Garden Isle" is the oldest of the Hawaiian islands. Fort Elizabeth on this island is a former Russian outpost.	<u>Kauai</u>

Question #9: Mathematics - Probability

10 points per part

	ese diagrams have some of the same properties as Euler [V-ler] diagrams.	
1	Name these diagrams used to show relationships between sets.	Venn diagram(s)
2	Including the region not in any of the sets, this is the number of regions in a Venn diagram representing three sets.	8
3	If Set A contains 10 elements, Set B contains 20 elements, and the union of Sets A and B contains 23 elements, this is the number of elements in the intersection of Sets A and B.	7

Question #10: Mathematics – Probability

Thi	s mathematical field is closely related to decision theory,	
and	some of its initial development came from a book by John	
von	Neumann and Oskar Morgenstern.	
	Name this field which studies several situations,	game theory
1	including those in which people can decide whether or	
	not to cooperate.	
	This situation studied in game theory involves two	prisoner's dilemma
2	people, each of whom would benefit by betraying the	
	other one.	
	If a character in a game is supposed to make 4	<u>81</u>
2	decisions, and each decision has three unique options,	
3	this is the total number of ways they could make those	
	decisions.	

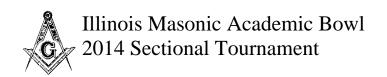
Question #11: Literature – World Literature

10 points per part

Thi	s farmer was promised the governorship of an island.	
1	Name this husband of Teresa Cascajo [kahs-KIE-yoe] who ended up getting beaten by two friars escorting a noblewoman.	Sancho Panza (accept either)
2	The light of Sancho Panza's eye was this donkey, Sancho's mount.	<u>Dapple</u>
3	Sancho Panza accompanied this knight-errant on his many misadventures, which included attacking windmills.	Don <u>Quijote</u> de la Mancha (accept either name of <u>Alonso Quijana</u>)

Question #12: Literature – World Literature

	fled from her homeland after seeing her dead husband haeus [sigh-KAY-us] in a dream.	
1	Hiarbas granted this former princess of Tyre [ter] as much land as could be covered with a bull's hide.	<u>Dido</u> (accept <u>Elissa</u>)
2	Venus infused Dido [DIE-doe] with passion for this former Trojan, who abandoned her to continue on to Italy.	<u>Aeneas</u>
3	Aeneas eventually kills this leader of the Rutuli [roo-TOO-lee] who killed Pallas.	<u>Turnus</u> (or <u>Tyrrhenus</u>)



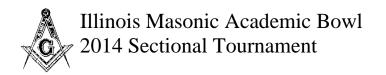
Question #13: Science – Physics

10 points per part

	s quantity is found by adding up mass times the distance ared from the axis for all points on an object.	
1	Name this rotational analogue of mass.	(first) (mass) moment of inertia (or rotational inertia or polar moment of inertia or angular mass, do not accept partial answers)
2	This quantity equals the ratio of torque to moment of inertia.	angular acceleration (do not accept partial answers)
3	This value equals the radius of a ring that has the same mass and moment of inertia of a given object.	radius of <u>gyration</u> (or <u>gyradius</u>)

Question #14: Science – Physics

	s is noticeable when you are passed by a fast object that ces noise.	
1	Name this effect that explains changes in frequency based on the motion of a source of waves relative to the observer.	<u>Doppler</u> (effect or shift)
2	This is the name of the Doppler shift often observed in astronomy because objects are generally going away from Earth. Your answer should include the name of a color.	redshift (accept word forms)
3	The transverse Doppler effect was confirmed and measured in this 1938 experiment.	<u>Ives-Stillwell</u> experiment



Round # 7 3rd Section Toss-up Questions

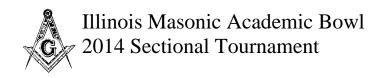
Question #15: Social Studies – U.S. History

10 points

In the build-up to this battle, James Neill was chosen as the	Battle of the Alamo	
site's garrison leader, while Green Jameson set up cannon to		
defend against artillery. Governor Henry Smith ordered		
William Travis to this site, where the lieutenant colonel		
would end up leading the regulars, with the volunteers led		
by Jim Bowie. Name this battle that took place ten years		
before the Mexican-American War, fought at a fortification		
in San Antonio, Texas.		

Question #16: Science – Astronomy

One group of objects classified for being similar to this	<u>Pluto</u>	
body includes 28978 Ixion and 38628 Huya, and another		
group of objects classified for being similar to this body		
includes Makemake [mah-kee-mah-kee] and Haumea		
[how-MAY-uh]. A flyby of the system in which this is the		
largest object will take place in 2015 by the New Horizons		
Spacecraft. This object was discovered at the Lowell		
Observatory by Clyde Tombaugh, and it was reclassified in		
2006. Name this object near Nix, Hydra, and Charon that		
used to be classified as a planet.		
-		



Round # 7 3rd Section Toss-up Questions

Question #17: Fine Arts – Classical/Opera

10 points

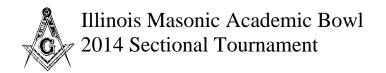
The finale of this composer's third symphony was marked	Pyotr Ilyich <u>Tchaikovsky</u>	
Tempo di polacca [poe-LAH-kah]. One opera by this		
composer is based on Pushkin's poem about the Battle of		
Poltava, and another is based on Friedrich Schiller's poem		
about Joan of Arc. In addition to Mazeppa and The Maid of		
Orleans, this composer wrote a work in which the		
protagonist confuses the daughter of the sorcerer Von		
Rothbart with the princess Odette. Name this composer of		
the ballets Sleeping Beauty, Swan Lake, and The		
Nutcracker.		

Question #18: Literature – World Literature

10 points

	In this work, the protagonist is renowned for her ability in
	dancing the Tarantella. The protagonist is called a
	"twittering lark" and a squirrel before being accused of
	wasting money again. In this work, Anne-Marie helps raise
	the children Bob, Emmy, and Ivar [ee-vahr]. At this play's
	conclusion, the main character claimed that "she could
	receive nothing from a stranger" before walking out on her
	husband, Torvald. Name this play concerning Nora
	Helmer, written by Henrik Ibsen.
ı	

A <u>Doll's House</u> (accept A <u>Doll</u> <u>House</u> or Et <u>dukkehjem</u>)



Round # 7 3rd Section Toss-up Questions

Question #19: Science – Chemistry

10 points

The Planck value of this quantity equals h-bar divided by the Planck time. The Boltzmann constant is in units of this quantity per unit of absolute temperature, and the Hamiltonian operator gives this quantity. This quantity equals enthalpy minus the quantity pressure times volume. According to the First Law of Thermodynamics, this quantity is constant when no work is done on a system. Name this quantity whose forms include heat, potential, and kinetic.

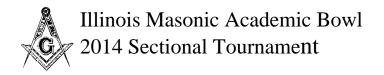
energy (accept kinetic energy, internal energy, potential energy, chemical energy, accept work before it is mentioned, prompt on "mass")

Question #20: Social Studies – Economics

10 points

John Maynard Keynes [kanes] argued in *The Economic Consequences of the Peace* that if left unchecked or controlled by force of law, this phenomenon would lead to relaxed production. Several economists incorrectly predicted that quantitative easing would cause this phenomenon to become a major problem. One theory posits that a back-and-forth between wage hikes and price increases creates a "spiral" that leads to the "cost-push" form of this. Name this trend of the supply of money, and subsequently prices, to rise over time.

(hyper)<u>inflation</u>



Question #21: Fine Arts – Art History

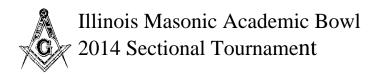
10 points per part

This	s artist painted the goddess Venus several times,	
incl	uding one work showing her with Mars completed in	
148	3.	
	Name this artist from Florence who painted <i>The Birth</i>	Sandro <u>Botticelli</u>
1	of Venus.	
	Botticelli [bo-tih-CHEH-lee] also painted this work	La Primavera
2	showing Venus in the center that is sometimes called	
	Allegory of Spring.	
	The right side of <i>Primavera</i> shows this nymph	<u>Chloris</u>
3	transforming into Flora.	

Question #22: Fine Arts – Art History

This art movement was at its height during the first decade

of t	he 20 th century, and one of its leaders was Andre Derain.	
1	Name this movement whose name is French for wild beasts.	Fauvism (or les Fauves)
2	Another leading Fauvist [FOH-vist] was this painter, some of whose pictures feature naked people dancing in a circle.	Henri Matisse
3	This French painter switched from Fauvism to Cubism [KYOOB-is-um] once he befriended Picasso. His works include <i>Man With A Guitar</i> and <i>The Billiard Table</i> .	Georges Braque



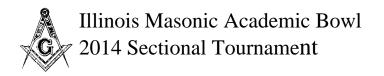
Question #23: Literature – U.S. Literature

10 points per part

	er being caught in bed with this woman, bullfighter lro Romero is badly beaten.	
1	Name this member of the "lost generation" who ultimately decided to marry the Englishman Michael Campbell.	Lady <u>Brett Ashley</u> (accept either underlined portion)
2	In this novel, Lady Brett Ashley is pursued by Romero as well as former Princeton boxing champion Robert Cohn.	The <u>Sun Also Rises</u>
3	The Sun Also Rises was written by this author. He wrote of Harry's soul flying to the House of God atop a mountain in "The Snows of Kilimanjaro."	Ernest Miller <u>Hemingway</u>

Question #24: Literature – U.S. Literature

	s poem describes colonists as "possessing what (they) re unpossessed by."	
1	Name this poem whose speaker declares that "the land was ours before we were the land's."	"The Gift Outright"
2	The speaker of this other poem owns an apple orchard, while a neighbor owns pine trees. That neighbor spoke that "good fences make good neighbors."	"Mending Wall"
3	"The Gift Outright" and "Mending Wall" were penned by this poet who described taking a path less travelled in "The Road Not Taken."	Robert Lee <u>Frost</u>



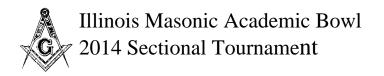
Question #25: Science – Chemistry

10 points per part

The	se materials are found in transistors and most diodes.	
1	Name these substances that include many Group Four elements such as silicon and germanium.	<u>semiconductor</u> s
2	The usefulness of semiconductors can often be improved through this process of adding impurities.	doping (accept other word forms)
3	Using a dopant with this number of valence electrons is the most common way to make an n-type semiconductor.	5

Question #26: Science – Chemistry

		. o pointe per part
The	ese elements form a diagonal line on the periodic table.	
1	Name these elements whose properties generally fall between those of metals and nonmetals. Some of them are sometimes classified as semiconductors or semimetals.	metalloids
2	This quantity, defined as the amount of energy necessary to remove an electron from an atom, is one of the quantities in which metalloids fall between metals and nonmetals.	(first) ionization energy
3	This metalloid often poisons groundwater. It causes changes in fingernail coloring and several more serious symptoms.	Arsenic (prompt on "As")



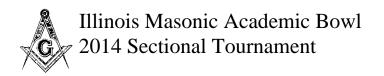
Question #27: Social Studies – U.S. History

10 points per part

Thi	s project was completed at Promontory Summit, Utah.	
1	Name this project, constructed by the Union Pacific east	Transcontinental Railroad
I	of the Great Salt Lake, while the Central Pacific built the other side.	
	The Union Pacific Railroad was the target of this	Credit Mobilier
2	corporation, which attempted to take advantage of the generous land grants offered by the government.	
	This President laid the ceremonial golden spike at	Hiram Ulysses (S) Grant
3	Promontory Point to complete the Transcontinental	
3	Railroad. His Vice President Schuyler Colfax was	
	implicated in the Credit Mobilier scandal.	

Question #28: Social Studies – U.S. History

	the losing side at this battle, General Alfred Terry took forces up the Yellowstone River.	
1	Name this 1876 battle, where the strategic retreat of Major Marcus Reno proved to be the downfall for US troops.	Battle of <u>Little Bighorn</u> (accept <u>Custer's Last Stand</u> , but do not mention it)
2	The Battle of Little Bighorn is also known as this Lieutenant Colonel's "Last Stand." He died along with his entire 200-man troop; only one horse, Comanche, survived.	George Armstrong Custer
3	The victorious forces at Little Bighorn were a combination of Northern Cheyenne [shy-ann] and this tribe.	Eastern Sioux (accept Santee or Nadouessioux)



Round # 7 5th Section Toss-up Questions

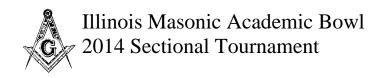
Question #29: Mathematics – Math Concepts

10 points

Proving that a space is a vector subspace requires proving	<u>close</u> d (or (topological) <u>closure</u>)
that it has this property. The transitive type of this property	
determines whether any path exists between graph vertices.	
An interval with this property contains its limit points,	
which means that it includes both of its endpoints. This	
property refers to an operation on a set if every result of the	
operation is in the set. Name this property that does not hold	
for subtraction of positive numbers because the difference	
of two positive numbers can be negative.	
·	

Question #30: Literature – British Literature

This poet wrote that "The things which I have seen I now	William Wordsworth
can see no more" in a poem in which the speaker asks	
"Where is it now, the glory and the dream?" This poet wrote	
of a Hermit sitting alone in his cave in a poem that describes	
the mind as "a mansion for all lovely forms." The speaker of	
that poem described sitting under a dark sycamore near the	
river Wye [why]. Name this author of "Ode: Intimations of	
Immortality" and "Tintern Abbey" who collaborated on	
Lyrical Ballads with Samuel Coleridge.	



Round # 7 5th Section Toss-up Questions

Question #31: Science – Physics

10 points

This principle, which can be derived from Euler's [OY-ler's] continuity and momentum equations, is used to explain the Venturi effect. This applies to inviscid [in-VIH-sid] situations, meaning a lack of viscosity, and can be derived from the Navier-Stokes equation. This principle is based on the conservation of energy along a streamline, including the energy attributable to pressure. Identify this equation named for a Swiss scientist showing that a decrease in pressure leads to an increase in speed for fluid flow.

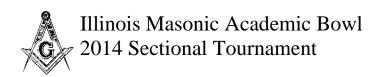
Bernoulli 's Principle (accept **Bernoulli Equation** or similar answers)

Question #32: Social Studies – World History

10 points

Resistance to Italian rule in this nation was halted upon the appointment of Giuseppe Volpi [juh-SEH-pay VOLE-pee] as governor, but was followed by a revolt led by Umar al-Mukhtar. Prior to its overthrow, the head of the Sanusi movement held the title of "King of" this nation. After this was declared independent by King Idris [ID-ris] the First, a military coup [koo] was led in this country by the author of *The Green Book*. This country has been headed recently by Ali Zeidan [zee-DAN]. This country's leader of 42 years was killed by rebels in 2011. Name this nation led until 2011 by Muamar Gaddafi, with capital Tripoli.

<u>Libya</u> (accept The <u>Libyan</u> <u>Republic</u> or Al-<u>Jumhuriyyah al-</u> <u>Libiyyah</u>)



Round # 7 Extra Section Toss-up Questions

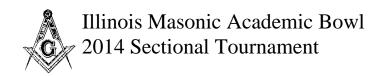
Extra Question #1: Science - Physics

10 points

In the first component of four-force, this quantity is divided	power
by the opposite of the speed of light. The SI unit of this	
quantity per square meter is divided by ten to the negative	
twelfth in decibel calculations. For circular motion this	
quantity equals torque times angular velocity, and for linear	
motion this quantity equals force times velocity. Name this	
quantity that equals energy per time and that is often	
measured in watts.	

Extra Question #2: Fine Arts – Art History

This person designed an opera house in Baghdad for King	Frank Lloyd <u>Wright</u>
Feisal [FIE-sahl] the Second, but after Feisal was	
assassinated he used those plans for Gammage Auditorium	
at Arizona State University. This person's fame increased	
when he designed the Johnson Wax Headquarters in Racine	
[ray-SEEN], Wisconsin, and a house on the Bear Run	
mountain stream in southwest Pennsylvania. Name this	
Prairie School architect who named his studios Taliesin	
[ta-lee-EH-sen] and who designed Fallingwater.	



Round # 7 Extra Section Toss-up Questions

Extra Question #3: Literature – U.S. Literature

10 points

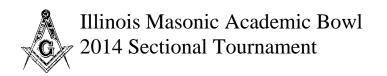
Near the end of this novel, it is revealed that the descendants	Charlotte's Web
of Joy, Nellie, and Aranea stay with the protagonist. In this	
novel, Templeton has to be bribed with food in order to	
help. Most of its action takes place on the farm of Mr.	
Zuckerman, the uncle of Fern Arable. Name this E.B. White	
novel in which the pig Wilbur befriends the title spider.	

Extra Question #4: Mathematics – Math Concepts

10 points

In graph theory, this adjective is synonymous with stable
and refers to a set of vertices that are not connected to each
other by any edges. In statistics, this adjective applies to
variables that have a correlation coefficient near zero. In
probability, this adjective applies to events if the probability
of both events occurring is the product of the individual
probabilities. Name this adjective that in algebra refers to a
variable that is input into a function.

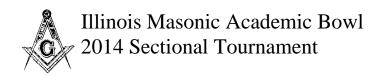
independent (or independence) (do not accept "dependent" or "dependence")



Round # 7 Extra Section Toss-up Questions

Extra Question #5: Social Studies – U.S. History

In one battle, this leader erected a post at Great Meadows	George Washington	
before leading an attack that killed Coulon [koo-lon] de		
Jumonville. This person ordered the court-martial of Charles		
Lee following the Battle of Monmouth. Following the death		
Edward Braddock, this aide-de-camp took command of the		
Virginia troops fighting in the French and Indian War.		
Name this leader of the Continental Army and the first		
United States President.		



Round # 7 Extra Section Teamwork Questions

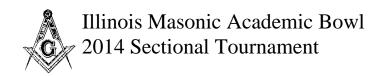
Extra Question #6: Literature – U.S. Literature

10 points per part

cha	his story, the local Baptist minister wrote to the title racter's Alabama cousins concerning an alleged tionship between a construction supervisor and an	
	tocrat.	
1	Name this story in which the protagonist gives chinapainting lessons to Jefferson youth sent by their parents.	"A Rose for Emily"
2	"A Rose for Emily" was written by this writer, who set many works in the fictional county of Yoknapatawpha.	William Cuthbert <u>Faulkner</u>
3	At the end, it is established that Emily Grierson had a relationship with Homer Barron even after death. Next to Homer's skeleton, one of these from Emily was found.	gray strand of <u>hair</u>

Extra Question #7: Literature – U.S. Literature

	one play by this author, Larry knew of his father's applicity in shipping defective engine parts.	
1	Chris Keller shoots himself to atone for his actions in <i>All My Sons</i> , written by this author.	Arthur Asher Miller
2	At the conclusion of this Arthur Miller play, a man from New York fatally crashed his car in order to ensure a large insurance payoff for his family.	Death of a Salesman
3	Arthur Miller wrote <i>The Crucible</i> , drawing inspiration from being blacklisted in Hollywood for refusing to testify in front of this Congressional group chaired by Martin Dies.	House <u>Un-American Activities</u> <u>Committee</u> (accept <u>HUAC</u>)



Round # 7 Extra Section Teamwork Questions

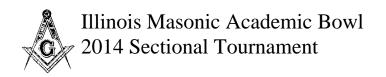
Extra Question #8: Mathematics – Geometry

10 points per part

	see shapes have a base that is a polygon and an apex in a erent plane.	
1	Name these shapes formed by connecting the vertices of the base to the apex.	pyramid s
2	Find the slant height of the pyramid if it has a square base with side lengths of 6, and it has an apex located four units above the center of the square. Do not worry about units.	5
3	That pyramid has four triangular faces. Find the area of any one of those faces. Do not worry about units.	<u>15</u>

Extra Question #9: Mathematics – Geometry

Thi	s is the distance halfway around a shape.	
1	Name this distance found by adding the side lengths of a shape and dividing by two.	semiperimeter (prompt on "s")
2	The semiperimeter is used in this triangle area formula named for a first century mathematician.	Heron's formula (or Hero's formula)
3	Find the semiperimeter of a pentagon if the arithmetic [ar-ith-MA-tik] mean of its side lengths is 10.	<u>25</u>



Round # 8 1st Section Toss-up Questions

Question #1: Fine Arts – Art History

10 points

One work by this artist, showing armored soldiers on the	Pablo Picasso
right and naked villagers on the left, is Massacre in Korea.	
Some of his works portray Dora Maar, including a work in	
which yellow and green is lacking from the center of the	
painting, The Weeping Woman. His work showing a	
musician looking down with his legs crossed is <i>The Old</i>	
Guitarist, which was part of his Blue Period. Name this	
artist who portrayed the destruction of the Spanish Civil	
War in Guernica.	

Question #2: Literature – British Literature

10 points

This character met his brother at the Diogenes [die-O-jeh-nees] Room, where he offered to help Mr. Melas. Earlier, this character claimed that his brother Mycroft was greater than he was but averse to interruptions. This character lured Chicago crook Abe Slaney out of hiding by using drawings of dancing men. He caught John Clay breaking into a vault after Clay had created a fictional league as part of the scheme. Name this fictional detective created by Sir Arthur Conan Doyle.

<u>Sherlock</u> <u>Holmes</u> (accept either underlined part)

Round # 8 1st Section Toss-up Questions

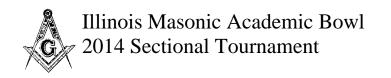
Question #3: Social Studies – U.S. History

10 points

In 1992, this state's citizens voted to add a "taxpayer bill of	<u>Colorado</u>
rights" to its state constitution. A gold rush along the South	
Platte River in this state led to the founding of towns like	
Central City and Cripple Creek, but it sparked a conflict	
with natives that led to the Sand Creek massacre. In 2008,	
this state hosted the Democratic National Convention where	
Barack Obama was nominated. Name this state with capital	
Denver.	

Question #4: Mathematics – Math Concepts

The substitution named for this mathematician is used to	(Leonhard Paul) Euler
take the integral of the square root of a quadratic expression.	
The path visiting each edge of a graph is named for this	
person because he proved that the Seven Bridges of	
Konigsberg Problem is unsolvable. The characteristic	
named for this person equals the number of vertices minus	
edges plus faces, which equals two for any simple	
polyhedron. Identify this namesake of the identity e raised	
to the i pi power plus one equals zero, and of the number e.	



Round # 8 1st Section Toss-up Questions

Question #5: Literature – World Literature

10 points

This person wrote that "one day's absence is as long as three years" in a poem concerning kudzu [KUD-zoo] vine. He described a poem as "the place to which one's preoccupations go" in the preface to his *Book of Songs*. This person's philosophical teachings espouse the concepts of the ideal person, the rules of propriety, and ideal relationships, also known as *junzi* [joon-zee], *li*, and *ren*. Name this author of the *Analects*, an ancient Chinese philosopher.

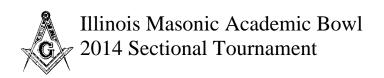
Confucius (accept Kong Qiu, K'ung Ch'iu; K'ung Chung-ni; K'ung-Fu-Tzu; K'ung-Tzu; Kongfuzi; Kongzi; Master Kung or Zhong Ni)

Question #6: Science – Physics

10 points

A shortened version of this person's name is used for the
CGS unit of acceleration. The spacecraft named for this
person, launched from the Space Shuttle Atlantis, was the
first orbiter of Jupiter. This person stated that mathematics
is the language of science in his book <i>The Assayer</i> , and he
supported the work of Copernicus in his Dialogue
Concerning the Two Chief World Systems. Name this
scientist who was put under house arrest and who, according
to legend, dropped cannonballs from the Leaning Tower of
Pisa.

Galileo Galilei (accept either)



Question #7: Mathematics – Geometry

10 points per part

	s shape has the same number of sides as a cross with an rior.	
1	Given the name of a tweve-gon, which is a polygon with twelve sides.	duodecagon (or dodecagon)
2	Each vertex of a regular duodecagon has this number of diagonals that have that vertex as an endpoint.	2
3	This is the total number of diagonals in a regular duodecagon.	<u>54</u>

Question #8: Mathematics – Geometry

	s name is given to a line that passes through at least two er lines.	
1	Name this line. Several straightforward theorems relate the angles between this line and two parallel lines.	<u>transversal</u> (line)
2	In this pair of congruent angles created by a transversal going through two parallel lines, neither angle is between the two parallel lines.	<u>alternate exterior</u> angles (accept <u>alternating exterior</u> angles, prompt partial answer)
3	If one of the exterior angles created by a transversal through two parallel lines is 20 degrees, this is the angle of the other exterior angles that are not alternate exterior angles.	160 degrees

Question #9: Fine Arts – Classical/Opera

10 points per part

	s composer wrote many songs but few operas, one of the being <i>Die Zwillingsbruder</i> [dee zvil-lings-broo-der].	
	Name this composer of the "Trout" Quintet and the	Franz Schubert
1	song cycles Winterreise [vin-ter-rise-uh] and Die	
	schone Mullerin.	XX OF A X
	Schubert's 8 th symphony, which has two complete	<u>Unfinished</u>
2	movements, is given this nickname.	
		-
	Schubert added this nickname to his fourth symphony.	<u>Tragic</u>
3		

Question #10: Fine Arts – Classical/Opera

	riations on a Theme by this composer.	
1	Name this composer whose nine symphonies include <i>Eroica</i> , which was almost dedicated to Napoleon.	(Ludwig van) Beethoven
2	This opera, about a woman who disguises herself as a prison guard, was the only one written by Beethoven.	<u>Fidelio</u>
3	This is the name of the woman who disguises herself in Fidelio. Earlier operas based on the same story used this name for their titles, as did the overtures Beethoven wrote for his opera.	Leonore (accept Leonora)

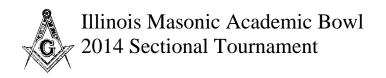
Question #11: Literature – British Literature

10 points per part

		re perme per part
The	protagonist of this play is a former chancellor who	
was	s alleged to have conspired with the Pope and the	
Fre	nch king.	
	Name this play in which the group committing the title	Murder in the Cathedral
1	act later claimed that it must be considered suicide, as	
	the Archbishop of Canterbury was of unsound mind.	
	Murder in the Cathedral was penned by this author of	Thomas Stearns Eliot
2	"The Love Song of J. Alfred Prufrock" and "The Waste	
	Land."	
	Upon returning to Canterbury, Thomas Becket was	<u>four</u>
3	approached by this number of tempters. In the end, this	
	same number of knights slew him.	

Question #12: Literature – British Literature

The	father of this cabin boy owns the Admiral Benbow.	
1	Name this character who managed to shoot Israel Hands shortly after being struck in the shoulder with a knife.	Jim <u>Hawkins</u>
2	In this novel, Jim Hawkins travelled with Squire Trelawney aboard the <i>Hispaniola</i> in search of riches.	<u>Treasure Island</u>
3	Treasure Island was penned by this Scottish author of The Strange Case of Dr. Jekyll and Mr. Hyde.	Robert Louis Balfour <u>Stevenson</u>



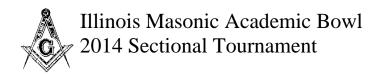
Question #13: Science – Biology

10 points per part

The	se organs contain a gel [jel] called the vitreous humor.	
1	Name these organs that are used to see.	<u>eve</u> s
2	This membrane that lines the eye contains Jacob's membrane, which is also known as the layer of rods and cones.	retina
3	Other than the optical nerve, this nerve not connected to the eye is the only cranial nerve that does not join the brainstem.	olfactory nerve

Question #14: Science – Biology

Тур	bes of this process include fission and budding.	
1	Give the general name for this process in which a new organism is produced from one parent.	asexual reproduction (or agamogenesis)
2	This term, based on the Greek words for virgin birth, refers to the process of an organism growing from an unfertilized egg.	<u>parthenogenesis</u>
3	Parthenogenesis is sometimes studied in these insects also known as plant lice, greenflies, or ant cows that have cornicles, cooperate with ants, and eat plant sap.	aphid s



Round # 8 3rd Section Toss-up Questions

Question #15: Social Studies – World History

10 points

Around the turn of the 16th century, this structure was split into Inner and Outer Lines, each featuring three key passes. The predecessors to this were ordered destroyed following the Warring States period. In later years, beacons, towers and forts were built with a fixed distance of a number of *li*. The longest section of this stretches from Mount Hu to Jiayu [JYAH-yoo] Pass. Name this series of bulwarks stretching across China and Mongolia.

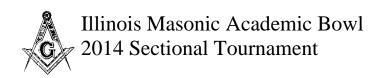
Great Wall of China (accept Wanli Changcheng or 10,000-Li Long Wall)

Question #16: Science – Astronomy

10 points

In 2012, David Turner claimed that this star was significantly closer than 434 light-years away, which is the distance found by the satellite Hipparcos in the 1990s. This is the closest Cepheid [SHE-fee-id] variable to Earth, though it is actually a triple star. This can be located by drawing a line starting in Merak and going through Dubhe [DOOB-hee], and it is also at the end of the handle of the Little Dipper. This star plays a role that used to be played by Draco [DRAY-koe]. Name this star useful to navigators because of its Northern location.

<u>Polaris</u> (or <u>Alpha Ursa</u>e <u>Minor</u>is) (prompt on "North Star" or "Ursa Minor")



Round # 8 3rd Section Toss-up Questions

Question #17: Literature – U.S. Literature

10 points

This playwright wrote of the gardener Seth boarding up the Mannon home with Lavinia in it. In another play, he wrote of the captain of the coal barge *Simeon Winthrop* and his suspicion of Mat Burke. In addition to writing *Mourning Becomes Electra* and *Anna Christie*, this playwright wrote *A Moon for the Misbegotten*, about an alcoholic actor named James Tyrone. Name this playwright who also included Tyrone in *Long Day's Journey into Night*.

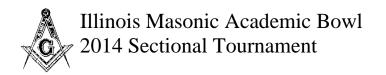
Eugene Gladstone O'Neill

Question #18: Miscellaneous – Pop Culture

10 points

In German folklore, this character's companions include Farmhand Rupert and Black Pete. In a Weird Al Yankovic song, this figure ended up in Federal Prison after being pursued by the National Guard and FBI. A misprinted telephone number in a Sears ad led to NORAD developing a program that "tracks" this legend. Name this legendary deliverer of Christmas toys.

<u>Santa</u> Claus (accept <u>St. Nicholas</u>, <u>Father Christmas</u>, <u>Sinterklaas</u> or Kris Kringle)



Round # 8 3rd Section Toss-up Questions

Question #19: Social Studies – U.S. History

10 points

During this presidential campaign, the eventual victor allowed for the networks to cut him off during the middle of a speech as a ploy to raise funds. In this election, the incumbent overcame the Progressive Henry Wallace and the Dixiecrats, who were led by Strom Thurmond. The day after this election's conclusion, the *Chicago Tribune* ran a headline that described the wrong outcome. Name this election in which Thomas Dewey lost to Harry Truman.

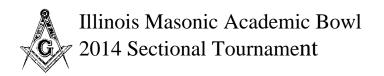
United States Presidential Election of 1948

Question #20: Science – Biology

10 points

This phylum includes the proposed serialia clade [seh-ree-A-lee-uh klade], which in turn includes monoplacophora, which were once thought to be extinct. Though it does not exist in protobranchia and heterodonta, most of the animals in this phylum use a radula to take in food. These animals have a mantle that secretes conchiolin [kon-KIE-uh-lin] and calcium carbonate. Name this phylum that includes cephalopods [SEH-fuh-loe-pods] such as octopus and squid and also includes bivalves and snails, a phylum whose animals are often covered by shells.

Mollusca (or Mollusks)



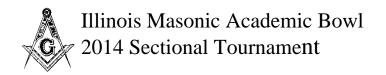
Question #21: Social Studies – World History

10 points per part

	forced Ahmed Hassan al-Bakr to resign following a	
fail	ed attempted by the President to unite with Syria.	
1	Name this leader who ordered an invasion of the Khuzestan [KOO-zeh-stan] region in order to head off a potential Shia [SHEE-uh] revolution following Iran's 1979 uprising.	Saddam <u>Hussein</u> Abd al-Majid al- Tikriti
2	Saddam Hussein ruled this Mid-East nation until being overthrown by US forces in 2003.	<u>Iraq</u>
3	Hussein and al-Bakr rose to power within this party, which was behind the attempted assassination of Iraqi president Abd al-Karim Qasim [ah-bid ahl kah-REEM kah-SEEM].	Ba'ath ist Party

Question #22: Social Studies – World History

		To pointe per part
	s organization's Charter of Fundamental Rights drew conventions published by the UN and International	
	or Organization.	
Lat	of Organization.	
1	Name this political entity that admitted Croatia as its 28 th member in 2013.	European Union (accept EU)
2	Since signing a trade agreement with Singapore in 2012, the EU has been moving towards free trade agreements with other members of this organization, which includes Brunei, Cambodia, and Laos.	Association of South East Asian Nations (accept ASEAN)
3	In 2009, the EU signed a Memorandum of Understanding with this political body currently headed by Secretary-General Jose Miguel Insulza of Chile.	Organization of American States (accept OAS, Organizacion de los Estados Americanos, or OEA)



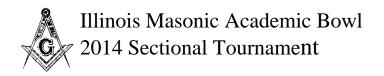
Question #23: Mathematics – Trigonometry

10 points per part

The	e common meaning of this word is 'next to.'	
1	Give this term used to label certain sides of right triangles that share a vertex with a given angle. This term is often contrasted with opposite and hypotenuse.	adjacent (side or leg)
2	If the tangent of an angle in a right triangle is 3, and the length of the opposite leg is 6, this is the length of the adjacent leg.	2
3	If the cosine of an angle in a right triangle is one-third, and the length of the opposite leg is the square root of 2, this is the length of the adjacent leg.	½ (or 0 <u>.5</u>)

Question #24: Mathematics – Trigonometry

	en functions are used this way, their derivative can be nd using the chain rule.	
1	What is the term for a function made by putting the output of one function into another function?	<pre>composition (accept word forms such as composite or composed)</pre>
2	This prefix is used to show that you are taking the inverse of a trigonometric function. As a separate word, this refers to the distance part of the way around a circle.	arc
3	Find the sine of the arctangent of nine fortieths.	9/41



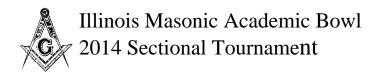
Question #25: Science – Physics

10 points per part

Thi	s quantity equals electromotive force divided by current.	
1	Name this quantity measured in ohms. Give the term used in DC circuits.	(electrical) <u>resistance</u>
2	This measure of how well a given material resists electric current equals resistance times cross-sectional area divided by length.	(electrical) <u>resistivity</u>
3	Often used in alternating current circuits, this complex number is the effective resistance once reactance is taken into account.	(electrical) impedance

Question #26: Science – Physics

		10 100
Ide	ntify these units of pressure.	
1	This is the SI derived unit of pressure, equal to a Newton per square meter.	<u>Pascal</u>
2	This unit, slightly larger than a bar, is equal to 101,325 Pascals.	(standard) <u>atmosphere</u>
3	This unit, almost equal to a millimeter of mercury, equals 1/760 atmospheres.	torr (do not accept "Torricelli")



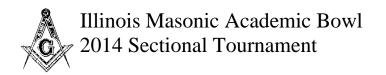
Question #27: Literature - U.S. Literature

10 points per part

A tı	rip to Russia inspired this author's <i>Eimi</i> [AY-mee].	
1	This poet contrasted "anyone" and "noone" with "someones and everyones" in "Anyone lived in a pretty how town."	Edward Estlin <u>Cummings</u>
2	E.E. Cummings was inspired to write the autobiographical <i>The Enormous Room</i> after being imprisoned on suspicion of disloyalty while serving in World War One in this country.	France
3	During World War One, E.E. Cummings served in the Norton Harjes [HAR-jes] Corps in this role. John Dos Passos and Ernest Hemingway also volunteered in this role during the conflict.	ambulance driver

Question #28: Literature – U.S. Literature

The	e title features in this poem are "older than the flow of	
blo	od in human veins."	
	Name this poem in which the speaker describes one	"The Negro Speaks of Rivers"
1	entity singing as "Abe Lincoln went down to New	
1	Orleans," and "its' muddy bosom turn(ing) all golden in	
	the sunset."	
	"The Negro Speaks of Rivers" was penned by this	James Mercer Langston Hughes
2	Harlem Renaissance poet and author of the "Simple"	
	series of novels.	
	In "The Negro Speaks of Rivers," twice the speaker	his soul
3	claims that <i>this</i> of his has grown deep like the rivers.	



Round # 8 5th Section Toss-up Questions

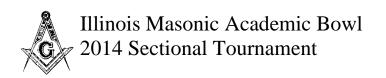
Question #29: Mathematics – Math Concepts

10 points

This is the ratio of the area of an inscribed circle to the area	<u>one-half</u> (or 0 <u>.5</u>)	
of a circumscribed circle for a square. This number is		
hypothesized to be the real part of solutions in the Riemann		
[REE-mahn] hypothesis. Multiplying this number by a		
whole number and one more than that whole number gives a		
triangular number. This number equals the cosine of the		
quantity pi over three. Raising a number to this power is		
equivalent to taking a square root. Give this number that is		
multiplied by the base and height of a triangle to find its		
area.		

Question #30: Science – Chemistry

After an attempt to use this element instead of tungsten in	uranium (prompt on "U")
lamp filaments was unsuccessful, the Westinghouse Lamp	
Plant in New Jersey supplied this element to the government	
during World War Two. An isotope of this element decays	
into barium, krypton, and three neutrons. This element's	
depleted form is used in dense weapons, while its enriched	
form is used by nuclear power plants. Name this element	
just before neptunium and plutonium on the Periodic Table	
whose 235 isotope is used in chain reactions.	



Round # 8 5th Section Toss-up Questions

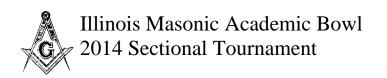
Question #31: Social Studies – U.S. History

10 points

In the build-up to this battle, two of the Combined Fleet's	Battle of Midway
forces were sent north as a diversion, while the main force	
was met by a Task Force led by Frank Fletcher and	
Raymond Spruance. At this battle, the <i>Enterprise</i> set the	
Hirpu afire, but not before the Yorktown went down. Name	
this World War Two battle fought northwest of Hawaii,	
seen as a turning point in the Pacific theater.	

Question #32: Literature – World Literature

	10 pointo
This person wrote that "if prophecies of living birds are	Ovid (accept Publius Ovidius
ever truthful, I shall be living, always." He wrote of two	Naso)
children of Aeolus [ay-OE-lus] having an incestuous	
relationship in one section of his <i>Heroides</i>	
[heh-ROE-ih-dees]. In one of this writer's poems, the	
speaker compares himself to Tiphys [TIH-fis] and	
Automedon [ow-toe-MEH-don]. He advocated seducing a	
maid to advance cause with a lady in Art of Love. Name	
this author of the <i>Metamorphoses</i> .	



Round # 8 Extra Section Toss-up Questions

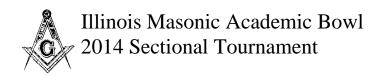
Extra Question #1: Fine Arts – Art History

10 points

Many of this artist's paintings showed Lise Trehot [LEE-	Pierre-Auguste Renoir
suh TRAY-hot], including one work in which she wears a	
white dress with a black belt and holds a parasol. One of his	
works showing a young girl with flowers in her hair and a	
teen-ager wearing a red hat is Two Sisters on the Terrace.	
That work is set at the Maison Fournaise [may-son	
for-nase], which is also the setting of a work showing Aline	
Charigot [uh-leen cha-ree-goe], this man's future wife,	
holding up a dog. Name this French impressionist who	
painted Girl With a Hoop and Luncheon of the Boating	
Party.	

Extra Question #2: Science – Biology

Different types of these body tissues contain nebulette and	<u>muscle</u> s
nebulin proteins. A small example of these tissues attached	
to hair follicles are the arrector pili [PIH-lie], which create	
goosebumps. Three pairs of these tissues in the neck are	
called scalene. These tissues have fibrils that contain myosin	
and actin, which work in conjunction to change the lengths	
of these. These can be classified as cardiac, skeletal, or	
smooth, and these can also be classified by whether or not	
they are striated [STRIE-ay-ted]. Name this tissue often	
connected to a bone with a tendon, including the trapezius,	
deltoid, and biceps.	
-	



Round # 8 Extra Section Toss-up Questions

Extra Question #3: Mathematics – Math Concepts

10 points

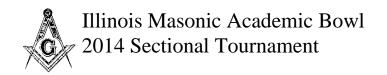
This person's The Chemical Basis of Morphogenesis	(Alan) <u>Turing</u>
modeled cell differentiation. A thesis originally named for	
somebody else states that any computable problem can be	
solved using a type of machine named for this person. The	
machine in that thesis originally named for Alonzo Church	
is only allowed to use a strip of tape. Name this person who	
imagined a computer able to carry on a conversation in a	
way that could not be distinguished from human	
conversation in his namesake test of artificial intelligence.	
Č	

Extra Question #4: Social Studies – World History

10 points

The defending side in this battle utilized the Chain Home		
system to great effect. The defensive capabilities afforded		
Marshal Hugh Dowding in this engagement were severely		
curtailed by Eagle Attack, the main offensive undertaken by		
the losing side. The victorious side had superior firepower		
in its Hurricanes and Spitfires, and on the ground utilized		
newly-developed radar technology. Name this failed attempt		
by the Luftwaffe [LOOFT-wahf] to cross the Channel and		
conquer an island.		

Battle of <u>Britain</u> (accept Operation <u>Sea Lion</u>)

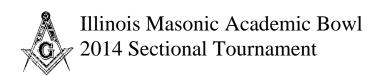


Round # 8 Extra Section Toss-up Questions

Extra Question #5: Literature – World Literature

10 points

Henri-René-Albert-Guy de **Maupassant**



Round # 8 Extra Section Teamwork Questions

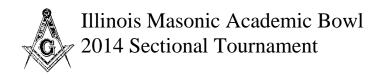
Extra Question #6: Social Studies – World History

10 points per part

Bef	ore studying at the French War College, this person	
WOI	n the Virtuti Militari for his actions during a civil war in	
Pol	and.	
	Name this founder of the right-wing Rally of the French	Charles de Gaulle
1	People. After two courts martial, he was sentenced to	
	death in absentia by the government of Vichy France.	
2	Charles de Gaulle was publicly denounced by this	Henri-Philippe Petain
	leader of the Vichy France government. He was	
2	convicted of treason for aiding Germany, and sentenced	
	to life in prison.	
	Charles de Gaulle and Michael Debré collaborated on	Fifth Republic
2	the constitution for this government. In 1962, its	
3	constitution was modified to allow direct election of the	
	President.	

Extra Question #7: Social Studies – World History

Thi	s was on the verge of collapse when Gustav	
Str	esemann formed the Great Coalition, which only staved	
off	its fall from power.	
	Name this interim government that eventually fell when	Weimar Republic
1	America began demanding repayment on money lent	
	via the Dawes and Young plans.	
	The Weimar Republic was the direct replacement of	Federal Republic of Germany
2	this country's imperial government, which fell when	(accept Deuschland)
	Kaiser Wilhelm the Second abdicated following World	
	War One.	
	This successor to Friedrich Ebert as President of the	Paul von <u>Hindenburg</u>
2	Weimar Republic dismissed Heinrich Bruning as	
3	chancellor and appointed Franz von Papen to succeed	
	him.	



Round # 8 Extra Section Teamwork Questions

Extra Question #8: Science - Physics

10 points per part

This scientist compiled the Rudolphine [ROO-dol-feen]		
Tables using observations made by Tycho Brahe [TIE-koe		
BRAH-hay].		
	Name this scientist who devised three laws of planetary	Johannes <u>Kepler</u>
1	motion.	
	Kepler's first law states that planetary orbits are this	<u>ellipse</u> s
2	shape.	
	Kepler's third law states that the period of an orbit is	<u>3/2</u> (accept <u>1 ½</u> or <u>1.5</u>)
3	proportional to the length of the semi-major axis raised	
	to this power.	

Extra Question #9: Science – Physics

	re are generally considered to be six of these devices, uding the lever.	
1	Give the two-word phrase for mechanical devices used to impact the direction of magnitude of force.	simple machines
2	This is the name for the simple machine that consists of a wheel with a rope around part of its circumference.	<u>pulley</u> s
3	This machine invented in the 18 th century, which is not a simple machine, uses two weights hanging from a pulley to measure gravitational field strength.	Atwood machine