

## Round 4 1st Section Toss-up Questions

#### **Question #1: Literature – British Literature**

10 points

This author wrote of two women named Mrs. Dai Bread, who lived with nostalgic and blind Captain Cat in the village of Llareggub [LAR-eg-ub]. He wrote of a boy who was "prince of the apple towns", "famous among the farms", and sang in his chains like the sea, in "Fern Hill". In another poem, which this author dedicated to his father, the speaker claims that "old age should burn and rave at close of day." That poem advises the listener to "Rage, rage against the dying of the light." Name this Welshman who wrote "Do Not Go Gentle into That Good Night."

Dylan (Marlais) **Thomas** 

### **Question #2: Science – Biology**

10 points

An organism from this phylum was studied to learn about a system that uses the proteins Argonaute [ar-goh-NOHT] and dicer ["DICE"-ur]. This phylum contains a 959-cell model organism that was studied by Craig Mello and Andrew Fire. Organisms in this phylum do not have respiratory systems or excretory organs. RNAi [R-N-A-I] was studied in a model organism from this pseudocoelomate [soo-doh-SEE-luh-"mate"] phylum. This phylum includes *C. elegans* and hookworms. Name this phylum of roundworms.

nematoda or nematodes
[accept roundworms before
the end; prompt on worms
before "hookworms"; do not
accept "flatworms" or
"segmented worms"]



## Round 4 1st Section Toss-up Questions

### **Question #3: Social Studies – World History**

10 points

A 16th- and 17th-century dynasty in this country shared its name with its current city Taungoo. In this country, the resignation of Ne Win in 1988 resulted in the creation of the State Law and Order Restoration Council, led by General Saw Maung. Its Union Solidarity and Development Party was defeated in 2015 elections, leading to a promise of a smooth transition by President Thein Sein [THAYN sayn]. That election went well for the National League Democracy party, which is headed by Aung San Suu Kyi [awn sawn soo chee]. Name this southeast Asian nation that in the 2000s moved its capital to Nay Pyi Taw from Rangoon.

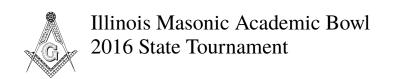
(Union of) **Burma** or (Republic of the Union of) **Myanmar** [mee-YAHN-mar] [or Pyidaungzu **Myanma** Naingngandaw]

#### **Question #4: Miscellaneous – Industrial Arts**

10 points

A strike in this industry was the subject of Ken Kesey's novel *Sometimes a Great Notion*. Independent workers in this industry are called "gyppos" [rhymes with "hippos"], in contrast to members of the "Four L". Stem-only harvesting and cut-to-length are among the methods for operating in this industry, which is one aspect of silviculture [SIL-vih-"culture"]. Workers in this industry often use chainsaws, and in excess this industry can cause deforestation. Name this industry in which trees are cut by lumberjacks.

logging [accept
lumberjacking; prompt on
answers relating to forestry
or trees or wood]



## Round 4 1st Section Toss-up Questions

## **Question #5: Mathematics – Math Concepts**

10 points

Each of these numbers is a hexagonal number, meaning	<b>perfect</b> number
that it can be written in the form $2 n$ squared minus $n$ .	
Euclid proved that adding consecutive powers of two	
until you get a prime number, then multiplying that sum	
by the last power of two in the series, gives one of these	
numbers. That theorem relates these numbers to	
Mersenne [mur-sen] primes. These numbers are neither	
abundant nor deficient, and the first few of them are 6,	
28, and 496. Name these numbers equal to the sum of	
all of their proper divisors.	

## **Question #6: Science – Earth Science**

Granules of plasma in the Sun's photosphere are known	convection [or convective
as "cells" named for this process. Arthur Holmes	heat transfer or <b>convecting</b> ]
explained plate tectonic movement using "currents"	
named for this process inside the Earth's mantle. This	
process explains cloud formation, which occurs when	
warm moist air rises. The cells named for this process	
have warm rising centers balanced by cool peripheries.	
This process involves advection and diffusion in fluids	
with temperature gradients. Name this method of heat	
transfer that can only take place in a fluid and is often	
compared to radiation and conduction.	



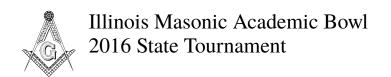
## **Question #7: Literature – World Literature**

10 points per part

In T	he Mysterious Island, Union soldiers discover the	
hide	eout of this man.	
1	Name this captain born as Prince Dakkar. He	Captain <u>Nemo</u>
	utilized a Bunsen cell that required sodium instead	
	of zinc to power his all-electrical ship.	
2	Nemo was created by this author of <i>Twenty</i>	Jules (Gabriel) Verne [zhool
	Thousand Leagues Under the Sea.	vairn]
3	The United States military believes the <i>Nautilus</i> to	USS Abraham Lincoln
	be a monster, which resulted in it being attacked by	
	this ship. Pierre Arronax, Ned Land, and Conseil	
	[kone-say] were aboard when it was sunk.	

### **Question #8: Literature – World Literature**

In th	nis author's <i>The Stone Raft</i> , an entire peninsula	
brea	iks off from mainland Europe.	
1	Name this author who does not use quotations or	José (de Sousa) Saramago
	hyphens in his writing. He wrote about a place	
	where nobody dies in <i>Death with Interruptions</i> .	
2	Saramago is from this country, whose national epic	Portugal [or Portuguese
	is <i>The Lusiads [LOO-see-ads]</i> . One of Saramago's	Republic or República
	novels concerns an elephant traveling from Lisbon	<u>Portuguesa</u> ]
	in this country to Vienna.	
3	In another novel by Saramago, the only character	blindness [accept variations
	not afflicted with this condition—also called	like being <b>blind</b> ; prompt on
	"white sickness"—is the wife of an	answers referring to
	ophthalmologist. John Milton wrote a sonnet about	impaired vision]
	living with this condition.	



## **Question #9: Social Studies – Current Events**

10 points per part

This	son of a former Canadian Prime Minister led his	
Libe	eral Party to a major sweep in October 2015	
elec	tions.	
1	Name this leader who entered politics following the	Justin (Pierre James)
	death of his brother Michel [mee-shel]. He served	<u>Trudeau</u>
	as an MP from Montreal prior to heading the	
	Liberals.	
2	This incumbent Conservative Prime Minister	Stephen (Joseph) Harper
	stepped down following the resounding defeat.	
3	Trudeau is attempting to reform the way Canadians	House of Commons
	elect members of this body, the lower house of the	[prompt partial answer]
	Canadian Parliament. Canada's upper house, like	
	ours, is called the Senate.	

## **Question #10: Social Studies – Current Events**

A su	apporter of this foreign leader filed a lawsuit in the	
Unit	ted States against Fethullah Gulen [feh-too-LAH	
goo-	-LEN].	
1	Name this Turkish leader who was the target of the	Recep Tayyip Erdogan
	2013 Ergenekon [air-GEN-uh-kahn] coup. He was	[AIR-doh-wahn, but be
	criticized for referring to the Gezi [geh-zee] Park	lenient]
	protesters as "looters".	
2	Turkish leaders publicly complained about planes	Russia [or Russian
	from this country flying over Turkish airspace en	Federation or Rossiya or
	route to the conflict in Syria. Turkey shot down one	Rossiyskaya Federatsiya]
	of its planes in November 2015.	
3	Turkey also drew criticism for arresting lawyer	Kurds [or Kurdistan
	Tahir Elçi [TAH-heer EL-chee], who said that a	Workers' Party or Partiya
	political party representing this group of people "is	Karkeren Kurdistane]
	not a terrorist group."	



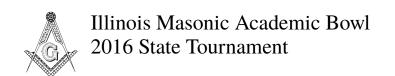
# **Question #11: Science – Physics**

10 points per part

The	se systems are sometimes described using a	
hydı	raulic analogy that compares voltage to pressure	
and	resistance to pipe constriction.	
1	Name these electrical systems in which current	electrical <b>circuit</b> s [accept
	may flow. These systems typically have a voltage	electrical <b>network</b> s]
	source and components like resistors, inductors,	
	and capacitors.	
2	This man's loop and junction rules are useful for	Gustav Kirchhoff
	analyzing electric circuits.	
3	Thévenin's [TEV-nin'z] theorem states that any	Norton's theorem
	part of a circuit can be replaced by a series circuit.	
	This complementary theorem states that any part of	
	a circuit can be replaced by a parallel circuit.	

# **Question #12: Science – Physics**

This	s theory explained the anomalous precession of	
the	perihelion [per-uh-HEE-lee-un] of Mercury.	
1	Name this theory of Einstein's that characterizes gravity as the warping of spacetime.	general relativity [prompt on partial answer; do not accept "special relativity"]
2	In this 1959 experiment, general relativity was tested by measuring the gravitational redshift of Mössbauer ["MOSS"-bao-ur] gamma rays sent between two iron-57 samples.	Pound-Rebka experiment
3	Gravitational redshift is similar to this effect in which the frequency of a wave changes when an observer and the source of the wave are moving with respect to each other.	<b>Doppler</b> effect or <b>Doppler</b> shift



# **Question #13: Mathematics – Trigonometry**

10 points per part

The	se identities are named for the fact that they can be	
dem	onstrated using a theorem about right triangles.	
1	Name these three identities, one of which is that the	Pythagorean identities
	sine squared of $x$ plus the cosine squared of $x$	
	equals one, for any $x$ .	
2	If the sine of <i>x</i> equals twelve thirteenths, what is	5/13
	the only possible positive value for the cosine of $x$ ?	
3	If the tangent of <i>x</i> equals three fourths, what is the	5/4 [or $1.25$ or $1+1/4$ ]
	only possible positive value for the secant of $x$ ?	

# **Question #14: Mathematics – Trigonometry**

give	right triangle, this function of an acute angle is the ratio of the hypotenuse length to the length ne side opposite the angle.	
1	Name this function, the reciprocal [reh-SIP-ruh-kul] of the sine function.	cosecant [or csc; accept answers that additionally mention a variable; do not prompt on "secant"]
2	What is the cosecant of the quantity seven pi divided by four?	negative root 2 [or negative square root of 2 or negative radical 2; accept the opposite of in place of negative]
3	Find the smallest positive input value in radians for which the cosecant function is undefined.	(one) <b>pi</b> radians



## Round 4 3rd Section Toss-up Questions

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

10 points

On account of non-payment, Hugh Forbes told Senator	John <u>Brown</u>
Henry Wilson about this man's activities. Years before	
bailing out Jefferson Davis, Gerrit Smith financially	
supported this man as part of the Secret Six. To protect	
escaped slaves in Springfield, Massachusetts, this	
person founded the League of Gilead [GIL-ee-ad].	
After the sacking of Lawrence, his followers responded	
with force at Pottawatomie. Robert E. Lee led marines	
to stop this man's raid. Name this abolitionist who	
attacked the arsenal at Harpers Ferry.	

## **Question #16: Literature – Mythology**

During the creation of the world, Tezcatlipoca	<u>feet</u> [or <u>foot</u> ]
[TEZ-kaht-lee-POH-kah] sacrificed one of these body	
parts. These parts of Njord [nee-YORD] were elegant,	
which led to his marriage to Skadi. While fighting the	
Hydra, Heracles had one of these body parts trapped,	
then attacked by a crab. Orion was stung here by a	
scorpion. Sciron ["SKY"-rahn] forced passersby to	
wash these parts as a toll. Oedipus' name stems from	
the fact that his were swollen. The number of these	
objects changes in the riddle of the Sphinx. Name these	
body parts that, for the Hippopodes ["hippo"-pohdz],	
resembled horse hooves.	



## Round 4 3rd Section Toss-up Questions

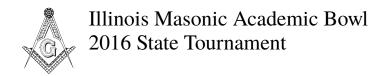
## **Question #17: Fine Arts – Classical Music & Opera**

10 points

This composer's Roman Carnival Overture borrows	(Louis-)Hector Berlioz
heavily from his opera about Benvenuto Cellini	
[ben-vay-NOO-toh chay-LEE-nee]. This composer had	
a close friendship with Théophile Gautier [tay-oh-feel	
goht-yay], setting six of Gautier's poems to music in	
Summer Nights. Another of this composer's works,	
which he classified as a dramatic legend, includes	
Hungarian March and Dance of the Sylphes. Like	
Tchaikovsky, this composer wrote a piece based on	
Romeo and Juliet. Name this French composer of La	
damnation de Faust who included the section "March	
to the Scaffold" in his Symphonie fantastique.	

## **Question #18: Science – Chemistry**

The Tolman cone angle was developed to characterize	<b>phosphorus</b> [prompt on <b>P</b>
ligands whose central atom is this element. A	before the end]
pentaoxide [pent-uh-"oxide"] of this element is a	
dessicating agent with an adamantane	
[ad-uh-MAN-tayn] structure. This atom is bound to	
three benzene rings in a reagent used in the Appel	
reaction. An atom of this element is the central one in	
an ion that forms a triprotic ["try-PRO-tick"] acid, and	
its white allotrope [AL-oh-"trope"] combusts in air.	
This element is immediately above arsenic on the	
periodic table, and can form amine [AM-een]-like	
compounds because it is below nitrogen. This element	
was discovered by Hennig Brand in urine. Name this	
element whose atomic symbol is P.	



# Round 4 3rd Section Toss-up Questions

## **Question #19: Social Studies – Geography**

10 points

Mario Pani designed this city's Plaza de las Tres Culturas ["trace" kool-TOOR-ahss], which is near the end of a wide avenue designed by Ferdinand von Rosenzweig, the Paseo de la Reforma. Its large urban park, Alameda Central [ah-lah-MAY-dah sen-TRAHL], is near its large central open square, Zócalo [ZOH-kah-loh]. This city is the home of the official residence called Los Pinos, which several decades ago replaced its Chapultepec Castle. By population, it is the largest city in the Western Hemisphere. Name this capital of a nation bordering the U.S.

Mexico City [or Ciudad México; accept México, Distrito Federal]

### **Question #20: Literature – World Literature**

10 points

In one collection, this writer relates the story of Aristaeus ["air"-iss-TAY-us] and his bees. That work was dedicated to Maecenas [may-SEN-us]. In another collection, this person wrote of a boy whose birth would be heralded as a "great increase of Jove". This person wrote a work in which the Cumaean Sibyl [kyoo-MAY-un SI-bul] allowed the protagonist to speak to the dead. That work begins with the line "I sing of arms and the man." Name this ancient Roman author of *Georgics*, *Eclogues*, and *The Aeneid [uh-NEE-id]*.

<u>Virgil</u> [or Publius <u>Vergil</u>ius Maro]



# **Question #21: Mathematics – Algebra**

10 points per part

This	s person developed the type of algebra named for	
him	in the books The Mathematical Analysis of Logic	
and	An Investigation of the Laws of Thought.	
1	Name this mathematician whose algebra uses	George <b>Boole</b> [prompt on
	variables that are either true or false, sometimes	Boolean algebra]
	written as one or zero.	
2	Boole used the word 'conjunction' to represent the	disjunction
	concept of 'and'. What corresponding word did he	
	use to represent the concept of 'or'?	
3	If a truth table is made for an expression in Boolean	8
	algebra with three variables, how many possible	
	scenarios should be considered? Each possibility	
	should be represented by a row in the truth table.	

# **Question #22: Mathematics – Algebra**

	s type of mathematical structure is a ring in which	
ever	y element other than zero has a multiplicative	
inve	rse.	
1	Name this kind of structure, in which there are two	<b>field</b> (s)
	operations, often called multiplication and addition,	
	with multiplication "distributing" over addition.	
2	This field axiom says that the quantity $x$ plus $y$ , end	associative property of
	quantity, plus $z$ , is equal to $x$ plus the quantity $y$	addition [or <b>associative</b>
	plus z.	axiom]
3	Perhaps using the fact that multiplication is also	830
	associative, multiply eighty-three times five times	
	two.	



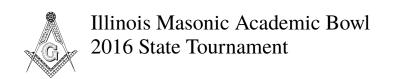
# **Question #23: Fine Arts – Art History**

10 points per part

Iden	tify these artists whose paintings are displayed at	
the 1	National Gallery in London:	
1	The museum recently displayed both versions of	<u>Leonardo</u> [di ser Piero] <u>da</u>
	this painter's Virgin of the Rocks, though one of	Vinci [accept either
	them usually is in the Louvre [loov].	underlined portion]
_		I I C. All
2	The museum displays this painter's <i>The Hay Wain</i>	John <u>Constable</u>
	but recently sold his Salisbury Cathedral from the	
	Meadows to the Tate Gallery.	
3	The Gallery closed temporarily in 1914 after five	Giovanni <b>Bellini</b>
	works by this painter were attacked by a suffragist.	
	His paintings include <i>Portrait of Doge [dohj]</i>	
	Leonardo Loredan and Agony in the Garden.	

# **Question #24: Fine Arts – Art History**

trou	s painter showed Amor, or Cupid, gleefully noting on symbols of several human endeavors in	
1 Ama	or Vincit [VIN-cheet] Omnia.  Name this late-16th- and early-17th-century Italian	Caravaggio
	artist who also painted Conversion on the Way to Damascus.	[kar-uh-VAH-jee-oh] [or Michelangelo (da) Merisi [muh-REE-zee]; do not accept "Michelangelo"]
2	Some of Caravaggio's most famous works show the <i>Calling, Inspiration</i> , and <i>Martyrdom</i> of this saint, the writer of the first gospel.	Saint Matthew [or Matityahu or Matai; prompt on Levi]
3	Caravaggio made a "young sick" painting of this god and another painting showing him half covered with a robe and with leaves in his hair.	Bacchus [or Dionysus]



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

10 points per part

He l	nad permission from the Massachusetts	
Con	nmittee of Safety to capture Fort Ticonderoga	
["tie	e-CON"-dur-OH-guh], but begrudgingly ceded the	
com	mand to Ethan Allen.	
1	Name this man whose wife introduced him to	Benedict Arnold
	Major John André, with whom he almost	
	transferred control of West Point to the British.	
2	Richard Montgomery provided reinforcements for	Quebec City [or Ville de
	Arnold's attempt to take this Canadian city. Daniel	Québec]
	Morgan had some success, but Guy Carleton's	
	release of civilians infected with smallpox rendered	
	the siege ineffective.	
3	A monument to Benedict Arnold in this New York	Saratoga
	town shows his boot. General John Burgoyne	
	surrendered to Horatio Gates after a battle here.	

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

	, , ,
998, former professional wrestler and Reform	
y candidate Jesse Ventura was elected this state's	
ernor over Norm Coleman and Skip Humphrey.	
Name this state where Norm Coleman became a	Minnesota
senator but then lost his re-election bid to former	
SNL writer and comedian Al Franken.	
In this presidential election, Skip's father Hubert	Election of 1968 [prompt on
Humphrey won the Democratic nomination after	<u>'68</u> ]
the assassination of Robert Kennedy.	
This Minnesota senator was the first Democrat to	Eugene (Joseph) McCarthy
challenge Lyndon Johnson in 1968. He was	
succeeded by Hubert Humphrey in the Senate after	
declining to run for re-election in 1970.	
	y candidate Jesse Ventura was elected this state's ernor over Norm Coleman and Skip Humphrey.  Name this state where Norm Coleman became a senator but then lost his re-election bid to former <i>SNL</i> writer and comedian Al Franken.  In this presidential election, Skip's father Hubert Humphrey won the Democratic nomination after the assassination of Robert Kennedy.  This Minnesota senator was the first Democrat to challenge Lyndon Johnson in 1968. He was succeeded by Hubert Humphrey in the Senate after



## **Question #27: Literature – British Literature**

10 points per part

Dur	ing this play, Dogberry often makes ridiculous	
state	ements like "You speak like an ancient and most	
quie	t watchman."	
1	Name this play in which Conrade and Borachio	Much Ado About Nothing
	were pawns of Don John, who ultimately failed in	
	his attempt to prevent the marriage of Hero and	
	Claudio.	
2	These two characters carry on a battle of wits	Beatrice and Benedick
	throughout Much Ado About Nothing, but in the	[either order]
	end are wed alongside Hero and Claudio.	
3	Much Ado About Nothing is set in this Sicilian	<u>Messina</u>
	town, also the namesake of the strait separating	
	Sicily from Italy.	

### **Question #28: Literature – British Literature**

_	ene Onegin is compared twice to the this poem's	
title	fictional traveler.	
1	Name this poem whose speaker describes a	"Childe Harold's
	"pleasure in the pathless woods" and a "rapture on	Pilgrimage"
	the lonely shore". Its first canto contains a vivid	
	description of a Spanish bullfight.	
2	This English romantic poet wrote "Childe Harold's	Lord <b>Byron</b> [or George
	Pilgrimage" as well as "She Walks in Beauty."	Gordon (Noel); accept any
		underlined name]
3	The last canto of "Childe Harold's Pilgrimage"	<u>Venice</u> , Italy [or <u>Venezia</u> ]
	opens on this city's Bridge of Sighs, and described	
	it as "a palace and a prison on each hand."	



# Round 4 5th Section Toss-up Questions

### **Question #29: Science – Physics**

10 points

Events caused by this force are encoded in the CKM matrix. The gauge bosons carrying this force are more massive than others because of the Higgs mechanism. Madame Wu's experiment involving cobalt-60 atoms demonstrated that this force violates parity conservation. This force can change the flavor of quarks, and is carried by the W and Z bosons. Glashow, Salam, and Weinberg were awarded the 1979 Nobel Prize in Physics for unifying this force with electromagnetism. This force is responsible for beta decay. Identify this fundamental force named for not being as strong as the strong force.

weak nuclear force [or weak
interaction; prompt on
answers containing
electroweak]

## **Question #30: Social Studies – World History**

10 points

This ruler's army lost to Stephen Báthory's [BAH-tor-ee'z] at the Siege of Pskov [p'SKOHF], and he was forced to give up Lithuanian territory conquered during the Livonian War. This ruler sent his fourth wife, Anna Koltovskaya [kol-tof-SKAH-yah], to a convent, and his last wife was Maria Nagaya [nah-GAH-yah]. After conquering the region of Kazan, this leader ordered the construction of St. Basil's Cathedral. To counter dissenting boyars, this leader set up the Oprichniki [o-PREECH-nee-kee], though he later outlawed any mention of them. The false Dmitris all claimed to be the son of this ruler. Name this Russian czar known for many acts of cruelty.

Ivan the Terrible [or IvanIV Vasilyevich or IvanGrozny; prompt on Ivan



## Round 4 5th Section Toss-up Questions

### **Question #31: Mathematics – Math Concepts**

10 points

This word can mean the splitting of a binary tree before reconnection in order to find the most efficient tree. This process can be performed repeatedly to intervals to find roots in an application of the Intermediate Value Theorem. If this process is performed on a triangle angle, you can set up a proportion with the parts of the divided triangle side and the other two sides. A radius of a circle does this to any chord it is perpendicular to, and the diagonals of a parallelogram do this to each other. Name this splitting of a segment or angle into two congruent parts.

**bisect**ion or **bisect**ing [prompt on answers that involve **halving**; prompt on answers indicating sub**dividing** or sub**division**]

### **Question #32: Literature – U.S. Literature**

10 points

Near the end of this novel, Dallas is allowed to say that his dad is old-fashioned but may not say that his dad does not like elevators. The second half of this novel begins with a wedding at Grace Church, a three-month honeymoon in Europe, and a competition at the Newport Archery Club. In this novel, Manson Mingott's granddaughter has been in an abusive marriage with a Polish count. Name this novel about the marriage between May Welland and Newland Archer, by Edith Wharton.

### The **Age of Innocence**



# Round 4 Extra Section Toss-up Questions

### Extra Question #1: Fine Arts – Art History

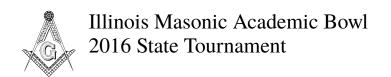
10 points

This painter showed a woman in a dark robe carrying a sword over her shoulder, and a woman in a yellow robe carrying a basket with a severed head in it, in *Judith and her Maidservant*. This painter showed a nearly nude woman turning away from two robed men leaning towards her in *Susanna and The Elders*. This painter of *Self-Portrait as the Allegory of Painting* showed a woman in blue being assisted by a woman in red in the act of decapitation in the work *Judith Slaying Holofernes*. Name this 17th-century female artist.

Artemisia Gentileschi [ar-tem-EE-zee-ah jen-teel-ESS-kee]

## Extra Question #2: Science – Physics

This quantity transitions from zero to nonzero when	viscosity
entering the boundary layer. Newtonian fluids are	
defined by having a constant value for this quantity,	
which comes in dynamic and kinematic varieties. For a	
spherical object, drag is given as 6 pi times radius times	
velocity times this quantity, according to Stokes' law.	
This quantity is measured in poise [pwahz]. The ratio	
of inertial forces to the forces caused by this quantity	
defines the Reynolds number. Name this resistance to	
fluid flow.	



# Round 4 Extra Section Toss-up Questions

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

10 points

In this state, Lon Horiuchi was charged with	<u>Idaho</u>
involuntary manslaughter over the death of Vicki	
Weaver. Big Bill Haywood was tried for the murder of	
a former governor of this state, Frank Steunenberg	
[STOY-nen-burg]. Before being charged with	
solicitation in an airport restroom, Larry Craig was a	
congressman from this state. Randy Weaver was killed	
by the FBI in the Ruby Ridge incident in this state. This	
state has recently been governed by Butch Otter, and its	
U.S. Senators are Jim Risch and Mike Crapo	
[KRAY-poh]. Name this state known for its potato crop.	

## **Extra Question #4: Mathematics – Math Concepts**

Dividing several prime numbers by four demonstrates	<u>bias</u>
the example of this phenomenon named for Chebyshev	
[CHEH-bee-shef]. The omitted variable type of this	
phenomenon can lead to either its upward or downward	
type. For an estimator, this value equals the expected	
value of the error. Careful experimental design tries to	
minimize the sampling type of this phenomenon, which	
is an example of its selection type. Name this term for a	
systematic measurement error which, in common	
English, is a synonym of prejudice or favoritism.	



# Round 4 Extra Section Toss-up Questions

# Extra Question #5: Literature – U.S. Literature

The setting of this work is near the Fitchburg Railway.	Walden(, or Life in the
This book features an illiterate man who lives an	Woods)
"animal life", Alex Therien. It states "A man is rich in	
proportion to the number of things which he can afford	
to let alone." The writer of this book said he "wished to	
live deliberately, to front only the essential facts of life".	
Its first chapter, which outlines the 28 dollars spent on	
materials to build a house, is titled "Economy". Name	
this book set on a pond in rural Massachusetts, by	
Henry David Thoreau.	



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

10 points per part

Its n	ame comes from the Chickasaw words for "split	
land	;··	
1	Name this fictional place that includes part of the Tallahatchie River. Lee Goodwin was tried and lynched in it.	Yoknapatawpha [yawk-nuh-puh-TAW-fuh] County
2	This author included a map of Yoknapatawpha County in the novel <i>Absalom, Absalom!</i>	William (Cuthbert)  Faulkner [or William  Cuthbert Falkner]
3	This family's "Mile" is located near the middle of Yoknapatawpha County. A golf course was built on a partition that was sold to pay for Quentin's tuition at Harvard.	Compson family or the Compsons

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

o Arms
er) <u>Hemingway</u>
l [or <u>Swiss</u>
ion or <u>Schweiz</u>
rische
schaft or
on <u>Suisse</u> or
one <u>Svizzera</u> or
un <u>Svizra</u> ]



# Extra Question #8: Science - Biology

10 points per part

The	amount of this ion surges in the egg upon	
ferti	lization in the cortical reaction.	
1	Name this ion which, like diacylglycerol	<u>calcium</u> [or <u>Ca<sup>2+</sup></u> ]
	["die"-uh-sil-GLISS-ur-awl], can activate protein	
	kinase C [KYE-nayss "C"].	
2	Parathyroid hormone increases blood calcium by	<u>osteoclast</u> s
	inducing these cells to break down nearby bone	[AH-stee-oh-klasts]
	tissue.	
3	Protein kinase C acts when phospholipase C	cell(ular) <b>membrane</b> [do not
	[FAHSS-foh-"LIE-pace C"] cleaves one of the	accept "cell wall"]
	phospholipids from this cellular structure, which	
	consists of a lipid bilayer.	

## Extra Question #9: Science – Biology

These hormones typically oppose the action of auxins.		
1	Name these hormones whose effects were discovered by Folke Skoog [FOHL-keh SKOOG]. They promote cell division in plants.	cytokinins ["SITE"-oh-KYE-nin(z)] [do not accept "cytokines"]
2	This other plant hormone was initially believed to cause leaves to fall. It does induce bud dormancy.	abscisic acid [or abscisin; prompt on ABA or dormin]
3	This gaseous plant hormone causes fruits to ripen. This compound is the simplest alkene [AL-keen].	ethylene [or ethene; prompt on $C_2$ $H_2$ ]