

**LADUE INVITATIONAL
SPRING TOURNAMENT 2011**

Round 9

TOSS-UPS

1. One motif common to this civilization, characterized by almond-shaped eyes and a down-turned open mouth, is called the “were-jaguar”, while two nearly-identical seated human figures created by this civilization can be found at El Azuzul, near Veracruz. This civilization is credited as the first to use blood-letting and (*) ritually sacrifice humans, and members of this civilization developed a ball game that later led the Aztecs to give them their modern name, meaning “rubber people”. San Lorenzo, La Venta, and Tres Zapotes were cultural centers of, for ten points, which pre-Columbian Mesoamerican civilization that flourished between 1200 and 400 BCE and was famous for its giant basalt heads?

ANSWER: **Olmec**

<HX>

2. This god is the son of Laufey and Farbaui, and he had a child with the horse Svaoilfari. This god is currently bound by the entrails of his son, and a serpent drips venom on his head, which his wife Sigyn catches in a bowl. All that was punishment for this god making a magical spear out of (*) mistletoe, the only plant which hadn’t promised Frigg not to harm her son, and this god is the father of Hel, the wolf Fenrir, and the “World Serpent” Jormungandr. For ten points, name this god who helped kill Baldr, the shape-shifting trickster of Norse mythology.

ANSWER: **Loki**

<MS>

3. These compounds can be “replenished” through reactions catalyzed by nucleoside diphosphate kinases, and proteins that bind this molecule have a characteristic fold known as the Rossman fold. One derivative of this molecule is a second messenger that regulates the passage of the calcium ion through ion channels and is called cyclic (*) AMP, and this molecule itself plays a crucial part in many cellular processes due to its ability to readily give up a phosphate ion by hydrolysis. Glycolysis produces two molecules of, for ten points, what energy-carrying compound, consisting of a nucleotide and three phosphate groups?

ANSWER: **Adenosine triphosphate** (accept **ATP**)

<HX>

4. In one of this author’s works, Podtochina Grigorievna wants Major Kovalyov to marry her daughter, and the barber Ivan Yakovlevich finds the title object in his bread. In another, two robbers assault the protagonist on his way home from a party celebrating the purchase of the title (*) garment by Akaky Akakievich. However, this author is most famous for an incomplete novel in which Chichikov attempts to buy deceased serfs. For ten points, name this Russian author of “The Nose”, “The Overcoat”, and *Dead Souls*.

ANSWER: Nikolai **Gogol**

<MS>

5. This number is the smallest composite Motzkin number, and a theorem based on this number was proven in 1976 by Wolfgang Haken and Kenneth Appel. This is the smallest number of elements in a non-cyclic group, and a tesseract, or hypercube, has this many (*) dimensions. It is the maximum number of colors needed to color a plane, and is the smallest positive non-Fibonacci number. For ten points, what number, the number of faces of a tetrahedron, is equal to two squared?

ANSWER: Four

<MS>

6. This man allied with the Peshwa Madhu Rao Narayan in an attempt to expel the British from India, and he, along with Prince Nguyen Anh, signed a 1787 Treaty of Versailles. *Parlements* instated by this man blocked financial reforms by his ministers, Jacques Turgot and Guillaume Malesherbes, who were replaced by (*) Jacques Necker, and this man's reign saw the first meeting of the Estates-General since 1614. For ten points, name this Bourbon king who, like his wife Marie Antoinette, was executed during the French Revolution.

ANSWER: Louis XVI (prompt on Louis)

<HX>

7. In one scene in this movie, the main character is named Dragon Warrior after flying over the palace walls while strapped to a chair of fireworks. In another, it is revealed that Ping has a secret noodle recipe that his grandfather obtained in a game of Mahjong. and a third scene in this movie sees the main character defeat (*) Tai Lung using the secret Wushu Finger Hold. That character, Po, goes against his father's will and trains with the Furious Five under the guidance of Master Shifu. Starring Jack Black, for ten points, name this 2008 comedy film about a black-and-white bear trying to learn Chinese martial arts.

Answer: Kung Fu Panda

<EnzeC>

8. One of this man's works depicts Jesus calming the waves on the title body of water, which was stolen from the Isabella Stewart Gardner Museum in 1990. Another work by this painter of *The Storm on the Sea of Galilee* shows himself dressed in red, raising a glass to his wife Saskia. In addition to *The Prodigal Son in the Tavern*, this artist famously depicted the (*) corpse of Aris Kindt being examined by a figure instructing the Amsterdam Guild of Surgeons during a dissection. He also painted a girl in a yellow dress carrying a goblet while some Arquebusiers follow Captain Frans Banning Cocq. For ten points, name this Dutch painter of *The Anatomy Lesson of Dr. Nicolaes Tulp* and *The Night Watch*.

ANSWER: Rembrandt Harmenszoon van Rijn (accept either underlined part)

<HX>

9. This man gave John Preskill a baseball encyclopedia after losing a bet regarding his namesake radiation from black holes, and this man proposed a new model of the universe's shape with Jim Hartle. He tries to make advanced physics accessible to the layperson in books like (*) *George's Secret Key to the Universe* and *The Universe in a Nutshell*, but is more famous for a work which only includes one equation, *A Brief History of Time*. For ten points, name this wheelchair-bound theoretical physicist, who, due to his tracheotomy, has to speak through a voice synthesizer.

ANSWER: Stephen Hawking

<MS>

10. In South Africa, one of these events occurred at Witwatersrand, and the first instance of this in the United States began with John and Conrad Reed. These events caused the founding of Australian towns like Beechworth, Kalgoorlie, and the Tasmanian Queenstown, and another one of these events began after the Skookum Party came across (*) Bonanza Creek. The most famous one of these events began after John Sutter's discovery and prompted a massive influx of the "forty-niners". For ten points, give the common terms for this events, which involve a ton of people moving to a single location to mine for a certain precious metal, famous examples of which occurred in California and Yukon.

ANSWER: Gold Rushes

<MS>

HALFTIME

11. One side in this war had a significant win at Bladensburg, the "most humiliating episode in American history", and the bloodiest battle of this war was a British victory at Lundy's Lane. Other events in this war included a bombardment of Fort McHenry, famously memorialized by (*) Francis Scott Key, and a boast that "we have met the enemy and they are ours" after Oliver Hazard Perry's victory at Lake Erie. Though Washington D.C. was sacked, the Americans won, for ten points, what war which saw Andrew Jackson's victory in New Orleans occur after the signing of the Treaty of Ghent?

ANSWER: War of 1812

<MS>

12. One character in this novel is ridiculed because of his “ass-mar,” while another character prefers to be called Merridew because it sounds more grown-up. This novel sees Roger and Maurice destroy a sand castle, while in another incident, a kid with a mulberry-colored mark on his face disappears after a (*) signal fire is lit. A red-headed boy and his choir are so obsessed with killing a boar that they let a ship pass by their island, prompting the chief to call a meeting with the conch. The kids on the island mistake a dead pilot as the “beast,” which results in the death of Simon. Piggy’s spectacles are stolen in, for ten points, what novel that sees Jack and Ralph lead schoolboys stuck on a deserted island, the most famous work of William Golding?

ANSWER: Lord of the Flies

<JD>

13. Vaughan Williams’ symphony of this number was based on *Tess of the D’urbervilles* and, though it is not 6, Schubert’s symphony of this number is in C major and called “The Great”. One symphony of this number was the last written by (*) Mahler, and a part of another symphony of this number was adapted from a Schiller poem. Believed by some to be cursed, for ten points, give this number, the Beethoven symphony of which contains the “Ode to Joy”.

ANSWER: Nine

<MS>

14. This politician was criticized for their involvement in the awarding of the M100 Media Award to cartoonist Kurt Westergaard in 2010, and this politician also stated that “Islam is part [their home country]”. This former chair of the G8 told members of (*) her Christian Democratic Union party that attempts to build a multicultural society in Germany have “utterly failed”, and she was awarded the Presidential Medal of Freedom in February 2011. For ten points, name this current Chancellor of Germany, the first woman to hold that position.

ANSWER: Angela Dorothea Merkel

<HX>

15. Studies of the acoustic properties of this phenomenon have shown that loud sounds, such as that of a pistol firing, can be used to measure this phenomenon, and the Lake-effect kind of this phenomenon occurs when cold winds move across long expanses of warmer lake water. Photokeratitis, or blindness caused by this phenomenon, is due to the fact that it can (*) reflect 90% or more of ultraviolet radiation, which explains why Inuits wear special goggles. This meteorological phenomenon occurs when tiny, supercooled cloud droplets freeze into six-armed crystals, no two of which are the same. For ten points, name this type of powdery winter precipitation.

ANSWER: Snow (accept synonyms like snowfall, but do not accept sleet, hail, or any other type of precipitation)

<HX>

16. This man wrote the script for a film explaining to soldiers what to do after VE Day, *Your Job in Germany*, but is more famous for his books, such as one about a boy who fishes in dirty water, *McElligot's Pool*. One of this man's books won a bet with Bennet Cerf that he could write a book using only fifty different words, and sees the main character refuse to (*) eat, even while on a boat or with a goat, while in another, two children are entertained by the title character, who unboxes Thing 1 and Thing 2. The creator of Sam-I-Am, for ten points, name this American author of *Horton Hears a Who!*, *Green Eggs and Ham*, and *The Cat in the Hat*?

ANSWER: Dr. Seuss or Theodore Seuss Geisel

<MS>

17. These compounds can be formed by nickel/chromium coupling called the Nozaki-Hiyama-Kishi reaction, and secondary or tertiary forms of these compounds are given when alkenes undergo a hydration reaction catalysed by sulfuric acid. These compounds can act as weak acids after undergoing (*) deprotonation, and they are combined with carboxylic acids to form an ester in a reaction known as Fischer esterification. Hydroxyl groups are characteristic of, for ten points, what organic compounds, exemplified by methanol and ethanol?

ANSWER: Alcohols

<HX>

18. This state's Lake Tear of the Clouds lies on the southern side of Mount Marcy, while Utica lies in the Mohawk Valley. The Morris Canal connects the Delaware River to this state's longest river, which flows past cities like Beacon, Yonkers, and Troy. This state contains Lake Ostego, the source of the (*) Susquehanna River, and Ithaca lies at the tip of Cayuga Lake, one of the Finger Lakes. This is the only state to border both a Great Lake and the Atlantic Ocean, and contains the northern tip of the Allegheny Plateau, as well as the Adirondack and Catskill Mountains. For ten points, name this northeastern state that contains the Hudson River and has capital at Albany.

ANSWER: New York

<JD>

19. This man explored how skyscrapers affected urban life in "Vertical City", and he also had a group of people interact with an individual whose words were being controlled by a third party to examine the use of a cyranoid in social interaction. Another of this man's studies involved a "type ZLB" apparatus that had thirty switches, the results from which were used to explain the (*) My Lai massacre. Residents in Omaha, Nebraska were asked to forward a package in the "small-world" experiment by, for ten points, which American social psychologist, who also had "teachers" inflict fake electrical shocks to "learners" in his famous shock experiment, demonstrating obedience to authority?

ANSWER: Stanley Milgram

<EmilyC>

20. This mythological figure is sometimes believed to have founded Ljubljana, the capital of Slovenia, after slaying a dragon there on his way home from his most famous quest. Hercules left this man's side after Hylas drowned, and this man fell in love with the daughter of Aeetes, who helped him deal with the (*) Khalkotauroi and men who sprung up from dragon's teeth. That woman helped him escape by killing her brother Apsyrtus and throwing pieces of him into the sea, and she was thanked for her help when this man became engaged to Creusa, whom she killed and fled away in Helios' chariot. For ten points, who was this man, the former friend of Medea, who brought his Argonauts on a quest for the Golden Fleece?

ANSWER: Jason

<MS>

BONUSES

1. Bonus: One of their most famous leaders was William Bradford. For ten points each:

[10] Name this group which founded Plymouth Colony and engaged in the first Thanksgiving.

ANSWER: **Pilgrims**

[10] This Native American of the Patuxet tribe taught the Englishmen to plant maize and other crops, though his dealings led to him being distrusted by both sides.

ANSWER: **Squanto** or **Tisquantum**

[10] Squanto's Patuxets were a member of this confederation of Indian tribes, which was led by Massasoit at the time of the Pilgrims' arrival.

ANSWER: **Wampanoag**

<CC>

2. Bonus: The title character ultimately throws herself in front of a train. For ten points each:

[10] Identify this novel in which the protagonist's sister, Prince Oblonsky, takes on the role of a civil servant and the title character falls in love with Count Vronsky.

ANSWER: **Anna Karenina**

[10] This author of *Anna Karenina* also wrote a really long book set during Napoleon's invasion of Russia, *War and Peace*.

ANSWER: Leo **Tolstoy**

[10] In this Tolstoy novella, the title judge suffers an injury while hanging curtains, and ends up dying with the loyal Gerasim by his side.

ANSWER: *The **Death of Ivan Ilyich*** (accept **Smert' Ivana Ilyicha**)

<KT>

3. Bonus: This event was supposedly caused by an explosion that killed 11 men. For ten points each:

[10] Name this 2010 disaster that resulted in the loss of 205.8 million gallons of crude oil from a BP rig in a certain body of water.

ANSWER: **Gulf** of Mexico **oil spill** (also accept **Macondo blowout** or **Deepwater Horizon oil spill** or basically any equivalents)

[10] This Chief Executive of BP was replaced by Bob Dudley following the Gulf of Mexico oil spill.

ANSWER: Tony **Hayward**

[10] This was the name of the procedure of one unsuccessful attempt to seal the *Deepwater Horizon* oil well. It involved pumping heavy drilling fluids into the blowout before permanently sealing it with cement.

ANSWER: **Top kill**

<HX>

4. Bonus: This person was born on the exact same day as Abraham Lincoln. For ten points each:

[10] Name this English naturalist whose voyage on the *HMS Beagle* and observation of Galapagos finches allowed him to formulate a groundbreaking theory of evolution.

Answer: Charles **Darwin**

[10] Darwin wrote this work, published in 1859, in which he introduced the theory of evolution through common descent and natural selection.

Answer: *On the **Origin of Species***

[10] This other famous Darwin work focuses on human evolution and explains his theory of sexual selection.

Answer: ***The Descent of Man**, and Selection in Relation to Sex*

<EnzeC>

5. Bonus: One character in this work marries “in the Japanese style: for 999 years, but with the right to cancel the marriage each month”. For ten points each:

[10] Name this opera in which Sharpless tells the USS *Abraham Lincoln* naval officer Pinkerton to not pluck the wings off of his bride-to-be, Cio-Cio San.

ANSWER: **Madama Butterfly** (or **Madame Butterfly**)

[10] This composer of *Madama Butterfly* and *Tosca* also wrote about the love between the seamstress Mimi and the poet Rodolfo in *La Bohème*.

ANSWER: Giacomo Antonio Domencio Michele Secondo Maria **Puccini**

[10] This other Puccini opera includes a tenor aria, *Nessun dorma*, sung by Calaf, an unknown prince who falls in love with the title princess and must answer three riddles before marrying her.

ANSWER: **Turandot**

<HX>

6. Bonus: Although he may seem like a household pet, he can be easily identified by his brown fedora. For ten points each,

[10] Name this turquoise-colored secret agent living in Danville who enters various passageways to get briefings from Major Monogram.

Answer: **Perry** the Platypus (accept **Agent P**)

[10] Perry the Platypus is featured on this T.V. show where Candace is constantly trying to bust his two brothers, the title figures, in the act of building an ingenious contraption.

Answer: **Phineas and Ferb**

[10] Perry's nemesis is this evil scientist whose attempts to rule the whole Tri-State Area are constantly being foiled by Perry. Online, he goes by the name StrudelCutie4427.

Answer: Dr. Heinz **Doofenshmirtz**

<EnzeC>

7. Bonus: At the end of this play, Horatio is the only main character still alive. For ten points each:

[10] Name this play by Shakespeare which sees the title Prince of Denmark take revenge on Claudius for killing his father. Numerous other characters like Laertes and Polonius are also killed.

ANSWER: *The Tragedy of Hamlet, Prince of Denmark*

[10] This love interest of Hamlet is the daughter of Polonius and commits suicide after he is killed. She is also told by Hamlet to “get thee to a nunnery”.

ANSWER: Ophelia

[10] This pair of courtiers and friends of Hamlet are killed after he orders them dead in a letter to the King of England. They also appear in the title of works by Tom Stoppard and W.S. Gilbert.

ANSWER: Rosencrantz and Guildenstern [accept in reverse order]

<BZ>

8. Bonus: Its value is 7 for water and 3 for vinegar. For ten points each:

[10] Name this quantity, calculated as the negative base 10 logarithm of the molar concentration of hydrogen ions in an aqueous solution.

ANSWER: pH

[10] pH can be measured using these substances, examples of which include phenolphthalein and Congo Red.

ANSWER: Indicators

[10] Another way to find pH is by using this equation, which states that pH is equal to the acid dissociation constant minus the logarithm of the concentration of the acid over the concentration of its conjugate base. It can be used to calculate the isoelectric point of proteins.

ANSWER: Henderson-Hasselbalch equation

<HX>

9. Bonus: His silkscreen painting *Eight Elvises* was recently sold for \$100 million. For ten points each:

[10] Identify this artist, who filmed his friend John Giorno for over 5 hours in *Sleep*, but is better known for his paintings of Campbell’s Soup Cans.

ANSWER: Andy Warhol

[10] This other 20th century artist illustrated scenes that appear straight out of a comic book, the most famous of which, *Whaam!*, appeared in 1963.

ANSWER: Roy Lichtenstein

[10] Warhol and Lichtenstein were both pioneering members of this art movement, one of the first pieces of art from which was Richard Hamilton’s *Just What Is It that Makes Today’s Homes So Different, So Appealing?*

ANSWER: Pop Art or Popism

<MS>

10. Bonus: He died in a plane crash, the cause of which is still unknown. For ten points each:

[10] Name this Russian pilot of Vostok 1, the first man in space.

ANSWER: Yuri **Gagarin**

[10] This best friend of Gagarin died during the re-entry of the flawed Soyuz 1 mission. This man refused to allow Gagarin to fly the mission, wishing to save his friend's life, as the flaws of the spacecraft were common knowledge.

ANSWER: Vladimir **Komarov**

[10] Komarov and Gagarin were both Russians, which means they were called this term, contrasted with the American "astronaut".

ANSWER: **Cosmonaut**

<MS>

11. Bonus: It was first published in the Socialist newspaper *Appeal to Reason*. For ten points each:

[10] Identify this novel, where a Lithuanian family suffers while in the stockyards of Chicago, including Ona's death in childbirth. It depicts the meatpacking industry with gruesome accuracy.

ANSWER: **The Jungle**

[10] *The Jungle* is a work by this journalist and author, whose series about Lanny Budd includes *Dragon's Teeth* and *World's End*.

ANSWER: Upton **Sinclair**

[10] This protagonist of *The Jungle* is married to Ona. He begins working in the stockyards, and the book ends with him at a Socialist rally.

ANSWER: **Jurgis** Rudkus (prompt on Rudkus)

<MS>

12. Bonus: Answer some questions about Canadian geography, for ten points each:

[10] This largest lake lying entirely in Canada is the seventh largest in the world.

ANSWER: **Great Bear** Lake

[10] Most of the outflow of Great Bear Lake is into the Great Bear River, which is a tributary of this longest Canadian river.

ANSWER: **Mackenzie** River

[10] The Mackenzie River is named after Alexander Mackenzie, who tried to find the Northwest Passage to this body of water.

ANSWER: **Pacific** Ocean

<MS>

13. Bonus: These objects store potential energy when stretched or compressed. For ten points each:

[10] Name these elastic coils, usually made of metal, an example of which is a Slinky.

ANSWER: **springs**

[10] Most springs obey this law, which states that the force with which a spring pushes back is directly proportional to the displacement vector and the spring constant.

ANSWER: **Hooke's** law

[10] Hooke's Law is only applicable until a spring is stretched to this point, at which point it begins to irreversibly deform.

ANSWER: **Yield** Point

<HX>

14. Bonus: This quantity can include loss of money, as well as loss of time or energy. For ten points each:

[10] Identify this economic concept that describes what one has to give up in order to pursue a certain action. When you have two options, the one you don't choose is called this.

ANSWER: **Opportunity cost**

[10] The normal type of this economic quantity represents the total opportunity costs. In accounting, it is the difference between revenue and cost.

ANSWER: **Profit**

[10] This other type of cost is the cost of producing one more unit of a good, the function of which can be found by taking the derivative of the total cost function with respect to quantity.

ANSWER: **Marginal** cost

<HX>

15. Bonus: It was triggered by the assassination of Archduke Franz Ferdinand of Austria, and saw the formation of the Triple Entente. For ten points each:

[10] Name this war that lasted from 1914 to 1918, the second deadliest conflict in Western history.

ANSWER: **World War I** or **First World War** or The **Great War** (prompt on **World War**)

[10] Franz Ferdinand was killed by this man, a Bosnian-Serb student and member of Young Bosnia.

ANSWER: Gavrilo **Princip**

[10] Fighting between the Allies and Germany ceased after the signing of this document on November

11. A similar document signed in Villa Giusti ended warfare between Italy and Austria-Hungary.

ANSWER: **Armistice** with Germany

<HX>

16. Bonus: Answer some questions about the split of the Roman Empire. For ten points each:

[10] The empire was split under this emperor in 285, who had defeated Carinus at the Battle of Margus to claim power.

ANSWER: **Diocletian**

[10] About a century later, this man combined the Eastern and Western halves, making him the last man to rule over a unified Roman Empire.

ANSWER: **Theodosius I** or **Theodosius the Great** or **Flavius Theodosius**

[10] The Eastern half of the empire grew into an empire in its own right, which came to be known by this name.

ANSWER: **Byzantine** Empire or **Byzantium**

<MS>

17. Bonus: Name some famous mathematical proofs. For ten points each:

[10] This theorem was first proven by Gauss and describes a method of solving second-degree equations modulo some prime number.

ANSWER: Law of **Quadratic Reciprocity**

[10] Carl Friedrich Gauss also found many proofs of this theorem which states that every polynomial of degree n with complex coefficients has n complex roots.

ANSWER: **Fundamental Theorem of Algebra**

[10] Euclid proved the infinitude of these numbers using contradiction to show that if a finite number existed, there would exist a number divisible by none of them.

ANSWER: **Primes**

<EnzeC>

18. Bonus: The building in this story consists of infinitely many hexagons, and most of the books in it are gibberish. For ten points each:

[10] Name this short story, in which the title locale contains every book containing every possible combination of letters.

ANSWER: **“The Library of Babel”**

[10] “The Library of Babel” is included in this short story collection, which also contains “The Lottery of Babylon” and “The Garden of Forking Paths”.

ANSWER: **Ficciones**

[10] *Ficciones* and all the aforementioned stories were written by this Argentinian author.

ANSWER: Jorge Luis **Borges**

<MS>

19. Bonus: It merges traditional Yoruba religious beliefs with Roman Catholic and Native American elements. For ten points each:

[10] Name this syncretic religion of West Africa and the Caribbean, which has priests called “olorishas” and is sometimes called Lukumi.

ANSWER: **Santeria** (also accept **Regla de Ocha**)

[10] This other syncretic religion originated in Haiti, and is associated with sticking needles in dolls.

ANSWER: **Voodoo** or **Vodoun**

[10] These gods of voodoo are subordinate to Bondye. As Bondye does not interfere in mortal affairs, these entities are prayed to and served instead.

ANSWER: **Loas** or **Lwas**

<MS>

20. Bonus: Identify some stuff Odysseus had to deal with on his journey home, for ten points each:

[10] Odysseus and his men blinded Polyphemus, one of these large one-eyed children of Poseidon.

ANSWER: **Cyclopes**

[10] Odysseus also got stranded on an island with this nymph and daughter of Atlas, who finally let him go home after Hermes ordered her to.

ANSWER: **Calypso**

[10] This witch turned Odysseus’ men into pigs when they stopped on her island, but Athena helped Odysseus avoid the same fate.

ANSWER: **Circe**

<MS>