

2015 OAC Regionals – Round 8

Questions written by Ike Jose, Jasper Lee, and Steven Wellstead

Category Round

American Literature: Give the following related to 19th century poetry.

Team A: What 19th century author wrote the poetry collection *The Black Riders*, which includes a poem that imagines a bestial creature who eats his own heart?

ANSWER: Stephen **Crane**

Team B: What other 19th century author wrote about a “true daughter of old time” in his poem “Sonnet -To Science”? Other poems by this author include “Al Aaraaf” (al uh-rawf) and “Tamerlane”.

ANSWER: Edgar Allan **Poe**

Tossup: This poem describes a “last onset” that occurs “when the king be witnessed in the room.” Its speaker describes how “I willed my Keepsakes” and “signed away what portion of me be assignable” before noting how the title figure “was there interposed.” That figure is described as “blue” and “uncertain”, and it occupies a space “between the light and me” where the speaker realizes “and then I could not see to see.” This poem opens by describing a “stillness in the room” between “the heavens of storm.” Name this poem by Emily Dickinson titled for the noise a creature makes when the speaker perishes.

ANSWER: “**I heard a fly buzz - when I died**” [accept Poem **465** or Poem **591**]

Mathematics: Answer the following about conic sections.

Team B: By definition, a conic section is formed by intersecting a cone with what other geometric object?

ANSWER: **plane** [do not accept a “square” or other answers]

Team A: The conic section defined by $x^2 + y^2 = 0$ (“x squared plus y squared equals zero”) is described by what word that also describes a triangle whose points are collinear (KOH-lin-ee-ur)?

ANSWER: **degenerate** [accept word forms; accept **degenerate** triangle]

Tossup: This conic section gives its name to both quadrics that are doubly-ruled surfaces. This is the most eccentric conic section that was used by Apollonius [app-uh-LOH-nee-uss] of Perga to trisect an angle; Apollonius used one with an eccentricity of two. They are defined by a plane that cuts through both halves of a cone. The equation $f(x) = 1/x$ (“f of x equals one over x”) is the simplest example of this conic section, which has an undefined value at some point. Two asymptotes (ASS-im-totes) characterize what conic section with an eccentricity greater than a parabola?

ANSWER: **hyperbolas** or **hyperbolae**

World History: Name these medieval European leaders.

Team A: This German King was victorious at the Battle of Lechfeld seven years before Pope John XII (the twelfth) crowned him as Holy Roman Emperor in 962.

ANSWER: Otto I or Otto the Great or Otto der Grosse [prompt on “Otto”]

Team B: In 1002, this Wessex King of England ordered what became known as the St. Brice’s Day Massacre, which prompted Danish King Sweyn Forkbeard to invade England and briefly exile this man.

ANSWER: Ethelred the Unready or Ethelred II [prompt on “Ethelred”]

Tossup: This ruler was the oldest son of a woman nicknamed “Bertha Broadfoot,” most likely because she was born with a clubfoot. This leader deposed Desiderius while successfully conquering the Kingdom of the Lombards. The *Life* of this man was the subject of a biography by Einhard, and his forces were defeated by Basques at the Battle of Roncevaux (rawn-suh-VOH) Pass, which was described in *The Song of Roland*. Twenty-nine years after his death, three of this ruler’s grandkids divided his kingdom in the 843 Treaty of Verdun. Pepin the Short was the father and predecessor of what Frankish King whom Pope Leo III (the third) crowned Holy Roman Emperor on Christmas Day of the year 800?

ANSWER: Charlemagne (SHAHR-luh-“main”) [or Charles the Great or Charles I or Carolus Magnus or Karl der Grosse; prompt on “Charles”]

Fine Arts: Name these musical instruments.

Team B: This instrument plays at its highest register in the opening to *The Rite of Spring* and represents the grandfather in *Peter and the Wolf*.

ANSWER: bassoon

Team A: Georg Philipp Telemann wrote the first extant concerto for this instrument, which plays the solo part in *Harold in Italy*.

ANSWER: viola

Tossup: Along with the timpani, Francis Poulenc (POO-lonk) wrote a single-movement concerto for this instrument in G minor. Charles-Marie Widor’s (vee-DORZ) fifth symphony for this instrument ends with his famous “Toccata.” A performance of John Cage’s *ASLSP* (“A” “S” “L” “S” “P”) on this instrument will end in the year 2640. Because two sections of it use this instrument, Camille Saint-Saens’ third symphony is nicknamed after it. J.S. Bach supposedly traveled a few hundred miles to see Dieterich Buxtehude (BOOKS-tuh-HOO-duh) perform on this instrument and later wrote his *Toccata and Fugue in D minor* for it. Name this large instrument often found in churches.

ANSWER: pipe organ

Life Science: Answer the following regarding lab techniques.

Team A: In this technique, often done in mice, a gene is made unusable in an organism. This is done to study the function of the removed gene.

ANSWER: gene **knockout**

Team B: This technique allows one to separate molecules such as DNA by size by sending an electrical current through a medium made of agarose or poly-acryl-amide.

ANSWER: **gel electro-phoresis**

Tossup: Magnesium chloride is an important reagent in this technique since the magnesium cation is a cofactor of the central enzyme. A variant of this technique is used to check for the presence of specific mRNA, and it can be used to detect and quantify certain viruses. This process was devised by Kary Mullis. An enzyme essential to this process is taken from the bacterium *Thermus aquaticus*. This technique takes place in a thermal cycler, which allows it to repeatedly cycle through denaturation, annealing, and elongation steps. Name this technique in which a piece of DNA is copied millions of times.

ANSWER: **p**olymerase **c**hain **r**reaction or **PCR** [accept real time **PCR** or RT-**PCR**]

English / World Literature: Give the following related to illustrators of English literature.

Team B: Hablot Browne illustrated the novels of what author, whose works include *Martin Chuzzlewit* and *Bleak House*?

ANSWER: Charles John Huffam **Dickens**

Team A: John Tenniel illustrated what Lewis Carroll novel, whose characters included the Red Queen and Tweedledum?

ANSWER: **Through the Looking Glass**, and *What Alice Found There*

Tossup: At the end of this story, which was illustrated by Sidney Paget (PUH-jay), a sea-battered stern post with the letters "L.S." painted on it is discovered. This story is told through the character of John Openshaw, who describes how his Uncle Elias is a former colonel that is given an envelope with the title objects; that envelope causes him to burn some secret papers and pace frantically before he is found dead in his own pool. Name this short story in which Sherlock Holmes deduces that a boat captain and his two mates are members of the K.K.K. and thus responsible for two murders.

ANSWER: "The **Five Orange Pips**"

American Government / Economics: Name these current U.S. Senators.

Team A: The most senior member of the Senate is this Democrat from Vermont who was replaced as president pro tempore in January 2015.

ANSWER: Patrick Joseph **Leahy** (LAY-hee)

Team B: This woman, who became Mayor of San Francisco following the 1978 assassination of George Moscone and Harvey Milk, is currently the senior Senator from California.

ANSWER: Dianne Goldman Berman **Feinstein** [or Dianne Emiel **Goldman**]

Tossup: This politician first entered the Senate by winning an election against Richard Kimball. In September 2014, this Senator battled rumors that he met and took a photograph with ISIS leader Abu Bakr al-Baghdadi (AH-boo BAH-kur ahl-bahg-DAH-dee). Early in his career, this Senator was cleared of wrongdoing after becoming embroiled in a scandal involving Charles Keating. The memoir *Faith of My Fathers* recounted the military service of this man, who co-authored a 2002 campaign finance reform law with Russ Feingold. More recently, this Senatorial successor to Barry Goldwater ran for president on a ticket with Sarah Palin. The loser to Barack Obama in the Election of 2008 was what former Vietnam War POW and current Senator from Arizona?

ANSWER: John Sidney **McCain** III

Physical Science: Answer the following about iron.

Team B: Iron is the main component of steel, which is made through this process that creates steel out of pig iron.

ANSWER: **Bessemer** process

Team A: To prevent iron from rusting, one can perform galvanization on it, which means plating the iron with this other element.

ANSWER: **zinc**

Tossup: An iron-containing chemical named after this color is used medically to remove cesium and thallium from the body. A compound named after this color is used to treat methemoglobinemia. In a Bradford assay, solutions that contain protein will turn into this color; the reagent used in Bradford assays is a dye called Coomassie brilliant. A solution of copper in water turns this color. An iron-containing pigment is called the Prussian type of this color. In gaseous and liquid phases, ozone has this color. An indicator named after this color is called bromo-thymol. Name this color that litmus paper turns into when dipped into a basic solution.

ANSWER: **blue**

Geography: Name these U.S. states.

Team A: Fort Pulaski National Monument is within this state, which has part of its western border formed by the Chattahoochee River.

ANSWER: Georgia

Team B: Most of prehistoric Lake Bonneville was located within the existing boundaries of this state, which contains both Capitol Reef and Canyonlands National Parks.

ANSWER: Utah

Tossup: The Chena Hot Springs are found within a resort in this state, in which much of the Kobuk River Valley is protected before emptying into the Kotzebue Sound. This state controls Little Diomed (DY-uh-meed) Island, and in 1964 the Good Friday Earthquake led to the relocation of its city of Valdez (val-DEEZ), which receives an oil pipeline that originates in Prudhoe Bay and crosses the Brooks Range. Prince William Sound and Kodiak Island are off the southern coast of this state, which is bisected by the Yukon River. Mount McKinley is the highest point in what northernmost U.S. state whose capital is Juneau?

ANSWER: Alaska

American History: Name these things related to the American West.

Team B: San Antonio, Texas and Abilene, Kansas were at either end of this 19th century trail used primarily by cowboys for the transportation of cattle.

ANSWER: Chisholm (CHIZ-um) Trail

Team A: Much of the American West was settled due to the provisions of this 1862 legislation which provided 160 acres for free to individuals willing to improve and live on the land for five years.

ANSWER: Homestead Act of 1862

Tossup: Jack Walton was impeached while serving as the governor of this state. Sarah Page and Dick Rowland were involved in an elevator incident that triggered a 1921 race riot in this state, part of which was the site for the proposed state of Sequoyah. Before achieving statehood, much of its Unassigned Lands were settled by the Land Rush of 1889. The Alfred P. Murrah Federal Building was located in this state until it was bombed by Terry Nichols and Timothy McVeigh. The terminus of the Trail of Tears led to the settlement of the Indian Territory that went on to become this state. Name this plains state north of Texas which contains Tulsa and a namesake capital city.

ANSWER: Oklahoma

Alphabet Round – Letter L

1. **(MULTI-WORD ANSWER)** – This pirate and villain of *Treasure Island* owns a parrot named Captain Flint that repeats many things that are said to it. Jim Hawkins joins his crew in search of treasure.
2. In mathematical proof theory, this term refers to some statement that must be proven so that it can be used as part of a proof. One named for Euclid is used in the proof of the fundamental theorem of arithmetic.
3. Trojan priest from Greek mythology who was killed by sea serpents after warning against acceptance of the Trojan horse.
4. **(HYPHENATED ANSWER)** – 1941 act by which the U.S. provided supplies to the Allied nations during World War II.
5. **(MULTI-WORD ANSWER)** – Joseph Kony is the current leader of this organization in Uganda which employs child soldiers and espouses a militaristic view of Christianity.
6. **(TWO WORD ANSWER)** – Reactant that is completely consumed at the end of a chemical reaction.
7. **(MULTI-WORD ANSWER)** – The artist's wife, Aline Charigot, plays with a dog in the foreground of this 1881 painting which depicts a meal taking place along the Seine River.
8. **(TWO WORD ANSWER)** – This Edward Bellamy novel follows Julian West, who puts himself asleep in 1887 and wakes up in the year 2000 to discover a utopia in the U.S.
9. 1925 treaties which sought to establish peace and settled international borders in Western Europe.
10. Method of viral replication in which the virus stays latent by incorporating itself into the host genome.
11. This psychosurgical technique, which was developed by Antonio Egas Moniz, was a way of treating psychological disorders. It often involves cutting away the prefrontal cortex of a brain.
12. **(MULTI-WORD ANSWER)** – This film is the masterpiece of Alain Resnais and focuses on “the man” who mysteriously reunites with a woman he met at the title location.
13. This author's experiences in concentration camps led him to write a short story collection structured around the Periodic Table. He also wrote the memoir *If This is a Man*, a book about his survival in Auschwitz.
14. Abolitionist newspaper co-founded by William Lloyd Garrison in 1831.
15. Nickname given to Shostakovich's 7th symphony, which was written during the Second World War.
16. Biblical character whose wife was turned into a pillar of salt during the destruction of Sodom and Gomorrah.
17. **(MULTI-WORD ANSWER)** – This autobiographical play, which is set at the Monte Cristo Cottage, was written by Eugene O'Neill and follows a single day in the life of the Tyrone family.
18. Mountain along the China-Nepal border which, at 27,940 feet above sea level, is the 4th highest mountain in the world.
19. Primary military leader in the fight for Haitian independence; he died in a French prison in 1803.
20. **(TWO WORD ANSWER)** – This largest particle collider in the world was built by CERN and does actually produce micro-black holes.

Alphabet Round – Letter L Answers

1. Long John Silver (MULTI-WORD ANSWER)
2. lemmata
3. Laocoon
4. Lend-Lease Act (HYPHENATED ANSWER)
5. Lord's Resistance Army or Lord's Resistance Movement (MULTI-WORD ANSWER)
6. limiting reagent or limiting reactant (TWO WORD ANSWER)
7. Luncheon of the Boating Party [title must be exact] (MULTI-WORD ANSWER)
8. Looking Backward: 2000-1887 (TWO WORD ANSWER)
9. Locarno Treaties or Locarno Pact
10. lysogenic cycle or lysogeny
11. lobotomy [or leucotomy or leucotomy]
12. Last Year at Marienbad or Last Year in Marienbad [or L'Année dernière à Marienbad] (MULTI-WORD ANSWER)
13. Primo Michele Levi
14. *The* Liberator
15. Leningrad
16. Lot
17. Long Day's Journey into Night (MULTI-WORD ANSWER)
18. Lhotse
19. Francois Dominique Toussaint Louverture
20. Large Hadron Collider (TWO WORD ANSWER)

Lightning Round

1. It's not Brazil, but a composer from this country interspersed a melody repeated in every major key with Brazilian tunes. This home of the composer of *The Ox on the Roof* is also the birthplace of a man who used a "Passepie" (PAHSS-pee-ay) to conclude his *Suite Bergamasque*, which contains "Clair de Lune" (klair duh loon). Name this country that was home to the composers Darius Milhaud (mee-YOH) and Claude Debussy (deh-BYOO-see).

ANSWER: France [or French Republic or Republique française]

2. The opera based on this novella had its libretto written by E.M. Forster and was composed by Benjamin Britten. The last chapter of this book is a ballad describing the struggles of the title character, who makes an enemy after accidentally spilling over a shipmate's soup. Its title character serves aboard the HMS *Bellipotent* and states "God Bless you, Captain Vere" as he is executed for striking Claggart. Name this Herman Melville novella about an alliteratively named sailor.

ANSWER: Billy Budd, *Foretopman* [or Billy Budd, *Sailor: An Inside Narrative*]

3. One assassination plot against this ruler resulted in the forced exile of his vice president Francisco Santander. While leading the Admirable Campaign, this leader consented to the killing of civilians in his "Decree of War to the Death." This ruler later fought alongside Antonio Jose de Sucre (SOO-kray), who won the Battle of Ayacucho ("eye"-uh-KOO-choh), while serving as the first president of Gran Colombia. Name this early 19th century leader who fought for South American independence from Spain, earning him the nickname "The Liberator"?

ANSWER: Simon Bolivar (see-MOHN boh-LEE-var) [or Simon Jose Antonio de la Santisima Trinidad Bolivar y Palacios Ponte y Blanco]

4. These data structures are necessary to implement the breadth-first search algorithm for a graph. Circular buffers are actually circular kinds of this data structure, which in some cases, may be "double-ended." They have the last-in first-out property, unlike the similar stacks. Name these abstract containers used in computer science, which share their name with a line, usually of people waiting.

ANSWER: queues

5. This term originally referred to one of the two main methods of sacrificing an animal in Greek religion. As opposed to *thyesthai* ("THIGH"-es-"thigh") sacrifices, this type of sacrifice completely burns an animal whole. For the Romani peoples, the modern usage of this term is equivalent to the Porajmos (por-AYE-muss). That modern day usage of this term is also equivalent to the Hebrew word *Shoah*, which means "the catastrophe." Name this once religious term, which now is used to identify the genocide of the Jews by the Nazi.

ANSWER: holocaust

6. This author's first novel follows the soldier Andreas, who journeys to Poland aboard the title conveyance. In addition to *The Train was on Time*, this writer of "rubble-literature" wrote a novel that features a family who has built St. Anthony's Abbey. That book by this author follows the Faehmel (FAY-muhl) family, whose patriarch Robert plays the title game every morning. Name this German winner of the 1972 Nobel Prize in Literature who authored *Billiards at Half-Past Nine*.

ANSWER: Heinrich Theodore Boll

7. This conflict ended shortly after one side rebuffed an offer of peace following the Battle of the Great Plains, which forced the retreat of Syphax ("SIGH"-fax). One side in this conflict developed the Fabian strategy after their defeat at the Battle of Lake Trasimene (TRAZ-ih-meen). Generals in this war included Hasdrubal and his more famous brother, who unsuccessfully deployed elephants against Scipio Africanus (SKIH-pee-oh aaf-rih-KAHN-uss) at the Battle of Zama. Name this 3rd century BC conflict, during which Hannibal crossed the Alps to attack Rome.

ANSWER: Second Punic War [prompt on "Punic War(s)"]

8. This compound is combined with hydrogen gas to produce organic molecules in the Fischer-Tropsch process. It forms a coordination complex with nickel in the Mond process. Along with hydrogen, this compound makes up syngas ("sin"- "gas"). This gas forms during incomplete combustion, and it binds to hemoglobin more strongly than oxygen. Name this poisonous gas which consists of carbon triple bonded to oxygen.

ANSWER: carbon monoxide [or CO]

9. This city was where the musician King Buddy Bolden played a cornet for the entirety of his life. The bandleader King Oliver first came to prominence playing in the bordellos of this city's red light district, Storyville. Another musician who was born in this American city was taught by King Oliver and first recorded a song that begins "I see trees of green, red roses too." Name this southern city that was the birthplace of the artist who recorded "What a Wonderful World," Louis "Satchmo" Armstrong.

ANSWER: New Orleans, Louisiana

10. This author's nonfiction works include *The Romantic Manifesto* as well as a series of essays promoting egoism entitled *The Virtue of Selfishness*. One of this author's characters completely dynamites the Cortland housing project after Peter Keating ruins it. Another of her books begins with the question "Who is John Galt?". Howard Roark was created by this author in her book *The Fountainhead*. Name this Russian-American author who also wrote *Atlas Shrugged*.

ANSWER: Ayn Rand [or Alisa Zinov'yevna Rosenbaum]

11. This man obtains a horse named Grani from a disguised Odin. An enemy of this man tricks him into marrying Gudrun. After slaying one foe, this man learns that his foster-father will betray him after he has a taste from that foe's heart, allowing him to understand birds. Hagen kills this man, who is raised by Regin and wields the sword Gram. Name this hero of Norse mythology who slays the dragon Fafnir.

ANSWER: Sigurd [or Siegfried]

12. One archaeological site in this country, Maiden Castle, was formally inhabited by the Durotriges (dur-oh-TREE-gehs). A ship burial featuring numerous embossed helmets in this country is suspected to be the tomb of King Raedwald ("RAID"-wald). This country, which is home to Sutton Hoo, is also home to a large prehistoric monument that consists of many standing stones quarried from Marlborough Downs. Name this country that is home to Stonehenge.

ANSWER: England or United Kingdom of Great Britain and Northern Ireland or U.K. [accept any underlined portion]

13. This group was originally to have been led by the 1st Marquis (marr-"KEY") of Santa Cruz, who died three months before its formation. The appearance of this group prompted one leader to give the Tilbury Speech. After failing to rendezvous (RON-day-voo) with the Duke of Parma in Dunkirk, this group lost the Battle of Gravelines (GRAH-vuh-leen). The Duke of Medina-Sidonia led this force, which was repulsed with the help of Sir Francis Drake. King Philip II (the second) ordered the launch of what naval fleet that failed to invade England in 1588?

ANSWER: Spanish Armada [or Grande y Felicísima Armada or Armada Invencible]

14. This physicist proposed that it was possible to extract useful work from random collisions by imagining a device called a Brownian Ratchet. He immersed a seal in a glass of ice water to demonstrate a flaw in the so-called "O-Rings" while he was a part of the Rogers Commission, which investigated the Challenger accident. Name this scientist, who developed the path integral formulation of quantum mechanics, and whose namesake diagrams illustrate the behavior of subatomic particles.

ANSWER: Richard Phillips Feynman ("FINE"-mun)

15. The north part of this nation contains the Plateau of the Tamarugal (tuh-MAH-rue-gall). Alexander Selkirk was shipwrecked on an archipelago currently controlled by this nation: the Juan Fernandez Islands. It controls an island that is the site of sculptures known as moai (MOH-"eye"), which were created by the Rapa Nui people. This nation, which controls Easter Island, shares Tierra del Fuego with its eastern neighbor, Argentina. Name this South American nation that is over ten times longer than it is wide.

ANSWER: Republic of Chile (CHEE-lay) [or Republica de Chile]

16. This author fictionalized the trial of Count Guido Franceschini (gee-DO fran-chess-CHEE-nee), who apparently murdered his wife Pompilia Comparini (pom-pill-EE-uh com-puh-REE-nee), in *The Ring and the Book*. One of this author's poems mentions the Claus of Innsbruck's sculpture of Neptune and features a woman whose heart was "too soon made glad." Name this author of dramatic monologues featuring tormented narrators, such as "My Last Duchess."

ANSWER: Robert Browning

17. One work by this author is a refutation of the virtues of monarchy that are presented in Sir Robert Filmer's *Patriarcha* (PAY-tree-AR-kuh). Another of this philosopher's works uses the example of an apple on a tree to argue that a man owns an apple after he has picked it, due to the labor that is needed to acquire it. That book argues that all humans have the right to life, liberty, and the right to own property. Name this English philosopher who authored *Two Treatises on Government*.
ANSWER: John **Locke**

18. Sitting Secretary of the Navy Smith Thompson aspired to run in this election before his appointment to the Supreme Court. Prior to this election, Nathaniel Macon replaced Albert Gallatin as the vice presidential candidate on a ticket with William Crawford. Henry Clay finished fourth in this election, which was decided by the House of Representatives in what detractors dubbed the "corrupt bargain." Despite receiving the most popular and electoral votes, Andrew Jackson lost what election which conferred the presidency to John Quincy Adams?
ANSWER: Presidential Election of **1824**

19. One figure in this painting was the subject of another work by its artist entitled *Head of a Negro*. In the top right of this painting, Morro Castle appears in the background. The primary figure in this work grasps for a rope held by a black man, who stands next to a man about to plunge a spear into the creature below him. The event in this painting took place in Havana Harbor in 1749 and resulted in the title figure losing his right foot. Name this John Singleton Copley painting that depicts an attack by a carnivorous fish.
ANSWER: **Watson and the Shark**

20. One method of doing this task sees the release of pyro·phosphate, which is converted to ATP that causes the emission of light. Another method for performing this technique is to use radio·labeled or fluorescently-labeled ddNTP's ("d"- "d"- "N"- "T"- "P's"), which will cause chain termination and allow one to see what the last nucleo·tide added is; that is the Sanger method of doing this. Name this technique of determining the order in which base pairs are arranged.
ANSWER: **DNA sequencing** or **gene sequencing** or **genome sequencing** [prompt on "sequencing"]