

2015 OAC Regionals – Round 9

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

Category Round

American Literature: Name the following related to literary movements.

Team A: What literary movement had Jack Kerouac (kair-EW-ack), Lawrence Ferlinghetti (“fair”-LIN-get-ee), and Allen Ginsberg as members?

ANSWER: the **Beat** Movement [accept the **Beatniks**]

Team B: Lawrence Ferlinghetti founded the City Lights Bookstore in what city which was home to the Beat movement? Mark Twain moved to this city in the 1860s.

ANSWER: **San Francisco**, California

Tossup: One member of this movement wrote “Whirl up, sea, whirl your pointed pines” in her poem “Oread.” In addition to its member H.D., another member of this movement wrote “The apparition of these faces in the crowd; petals on a wet black bough” in his extremely short poem “In a Station of the Metro.” This modernist movement is associated with an author who wrote “So much depends upon the red wheelbarrow glazed with rainwater beside the white chickens.” Name this early 20th century literary movement, whose members included William Carlos Williams.

ANSWER: **Imagism** [accept word forms]

Mathematics: Pencil and paper ready. Name the following related to coordinate systems. You will have 30 seconds for each team question.

Team B: What is the value, in polar coordinates, of the rectangular coordinate (4,4) (“four comma four”). Please express your “r” coordinate as a positive simplified root and your azimuthal (a-zih-MOO-thall) coordinate in degrees as a value that is positive and less than 360.

ANSWER: $r = \mathbf{4\sqrt{2}}$ and $\phi = \mathbf{45}$ [or $r = \mathbf{4\text{ times square root of }2}$ and $\phi = \mathbf{45}$; accept in either order]

Team A: What is the value, in polar coordinates, of the rectangular coordinate (-10,10) (“negative 10 comma 10”). Please express your “r” coordinate as a positive simplified root and your azimuthal [a-zih-MOO-thall] coordinate in degrees as a value that is positive and less than 360.

ANSWER: $r = \mathbf{10\sqrt{2}}$ and $\phi = \mathbf{135}$ [or $r = \mathbf{10\text{ times square root of }2}$ and $\phi = \mathbf{135}$; accept in either order]

Tossup: **Pencil and paper will not be necessary.** The “harmonics” of this coordinate system are the solutions to Laplace’s (LUH-plass-iz) equation where the radial coordinates are given by Bessel (BESS-ull) functions. These coordinates are useful when longitudinal symmetry is present, such as a system where water flows down a pipe or an infinite line of charge. Rho (“row”), phi (fye), and z are the coordinates of this system, where z is the height distance. Name this three-dimensional coordinate system which uses two distance coordinates and one angular coordinate, and which is an alternative to the spherical coordinate system.

ANSWER: **cylindrical** coordinates [accept word forms]

World History: Name the following related to the Roman Empire.

Team A: The start of Octavian's rule in 27 BC triggered the start of this 200 year period of relative calm within the Empire that is most commonly known by a two word Latin phrase.

ANSWER: Pax Romana [or Roman Peace or Pax Augusta; prompt on "Pax" or "Peace"]

Team B: Toleration of Christianity within the Roman Empire was promulgated by Constantine the Great in this AD 313 declaration.

ANSWER: Edict of Milan [or Edictum Mediolanense]

Tossup: In one incident this man expelled Dolabella from the Roman Forum when the latter occupied it in an attempt to pass debt relief legislation. Starting in 40 BC, this man led an unsuccessful war against the Parthians; in an earlier conflict, he prompted the suicide of Cassius after defeating his troops in the Battle of Philippi. This man served in the Second Triumvirate with Lepidus and Augustus, the latter of whom became the first Roman Emperor after defeating this man at the 31 BC Battle of Actium. Name this Roman statesman who gave Julius Caesar's elegy and later had an affair with an Egyptian queen.

ANSWER: Mark Antony [or Marcus Antonius or Mark Anthony]

Fine Arts: Name these places of historical importance to classical music.

Team B: This city's philharmonic orchestra performs a popular annual New Year's concert. It rose to prominence as a musical center during the Classical period, when composers such as Joseph Haydn and Wolfgang Amadeus Mozart worked here.

ANSWER: Vienna [or Wien]

Team A: Nikolai Rimsky-Korsakov was inspired by the music of this country to write a "Capriccio" off it. A composer from this country wrote "Ritual Fire Dance."

ANSWER: Kingdom of Spain [or Reino de Espana]

Tossup: A composer from this country developed a method of teaching music that focuses on the use of folk music and singing as a basis. That composer used folk melodies of this country in his *Dances of Galanta* and *Hary Janos* (YA-nohsh) *Suite*. Another composer from this country developed a style of "night music" in several of his pieces and arranged 153 piano pieces from easy to hard in *Mikrokosmos*. This birthplace of Zoltan Kodaly is also home to a composer who used gypsy melodies in a set of rhapsodies named after this country. Name this country, the birthplace of Bela Bartok and Franz Liszt ("list").

ANSWER: Kingdom of Hungary [accept Republic of Hungary or Magyarország or Magyar Köztársaság]

Life Science: Answer the following questions about evolution.

Team A: Darwin's finches underwent this process, since they all derive from a single ancestor to occupy many niches within the ecosystem.

ANSWER: **adaptive radiation**

Team B: Named after a literary character, this theory states that organisms evolve to not only increase their survival but also to do so against competitors, prey, predators, hosts, or parasites.

ANSWER: **Red Queen** hypothesis [accept any equivalent answer with **Red Queen** in it]

Tossup: The Court Jester hypothesis gives a method for this evolutionary theory to work, as it describes randomly-occurring abiotic changes in the environment that cause changes to occur. This idea emphasizes cladogenesis over anagenesis. This theory accounts for speciation events as those that drive change. It built upon Ernst Mayr's observation that there were gaps in the fossil record. This idea opposes gradualism, which states that evolution occurs slowly but constantly. Niles Eldredge and Stephen Jay Gould put forth what theory of evolution characterized by short bursts of change followed by long periods of stasis?

ANSWER: **punctuated equilibrium**

English / World Literature: Answer the following about authors who wrote epic poems.

Team B: *The Shield of Heracles* and *Works and Days* are epic poems by what Greek author, who described the origin of the gods in *Theogony* (THEE-odj-uh-nee)?

ANSWER: **Hesiod**

Team A: Apollonius Rhodius (APP-uh-loh-nee-us ROE-dee-us) wrote an epic poem about what object from Greek mythology that was used in a journey from Iolcus (EE-oll-cuss) to Colchis (KOLL-chiss) to acquire an item possessed by King Aetes ("eye"-EE-teez).

ANSWER: **Argo**

Tossup: This man wrote an epic poem about "The Death and Judgment of the Eternal Man" that is named for Tharmas (TAR-muss), Luvah (LOO-vuh), Urizen (YUR-ee-zen), and Urthona (UR-thoe-nuh). This author of *The Four Zoas* wrote a shorter poem that begins "I was angry with my friend; I told my wrath, my wrath did not end." That poem ends with the speaker seeing his foe outstretched beneath the title plant. Another poem, which appears in the same collection as the previous one, describes an "invisible worm, that flies in the night." Name this author whose poems "A Poison Tree" and "The Sick Rose" appear in *Songs of Innocence and Experience*.

ANSWER: William **Blake**

American Government / Economics: Name these Articles of the Constitution.

Team A: The “Full Faith and Credit” clause is mentioned within this Article, which notes that the Federal government will guarantee every state a republican form of government and protect them against invasion.

ANSWER: Article **Four** or **4th** Article

Team B: This Article specifies that the Constitution must be ratified by nine of the original thirteen states in order to become valid.

ANSWER: Article **Seven** or **7th** Article

Tossup: The Constitution’s Recommendation Clause is within this Article, which notes how care shall be taken to ensure “that laws be faithfully executed.” The text of this Article, which addresses who can negotiate treaties and appoint ambassadors, was revised by both the 25th and 12th Amendments. Command over the U.S. Armed Forces is granted within this Article, which also requires a regular State of the Union address. The requirements and powers of the U.S. President are outlined in what Article of the Constitution which follows the Article describing the government’s legislative branch?

ANSWER: Article **Two** or **2nd** Article

Physical Science: Name these types of chemicals.

Team B: This type of solution is made of two liquids that cannot be separated by distillation. An example of one is 95% ethanol in water.

ANSWER: **azeotropes**

Team A: Another liquid/liquid mixture is this type of colloid, examples of which include mayonnaise and milk.

ANSWER: **emulsions**

Tossup: One type of this substance contains a carbon-nitrogen double bond, with the nitrogen bound to an R group. That type of this substance is named after (*) Schiff. Along with being a strong nucleophile, n-butyl lithium is one of the strongest examples of this type of chemical. In the inductive effect, the strength of these substances is increased by nearby electropositive groups, such as in guanidinium. In the Henderson-Hasselbalch equation, the numerator of the log term is the conjugate type. They donate electron pairs according to Lewis theory, and most strong types lose a hydroxide in solution. Name these chemicals with a pH greater than 7.

ANSWER: **bases** [or **Lewis bases**; or **Bronsted-Lowry bases**; or **Arrhenius bases**; accept **imine** until (*)]

Geography: Name these Canadian province or territories.

Team A: The Klondike Gold Rush occurred in this territory, which borders Alaska and has its capital at Whitehorse.

ANSWER: Yukon Territory

Team B: The St. Lawrence River flows past the city of Montreal within this province, which has been the subject of an organized sovereignty movement since the late 1960s.

ANSWER: Quebec

Tossup: The Coast Salish (SAY-ish) people are Canadian aboriginals native to this province. This province borders the Queen Charlotte Strait and contains Kootenay and Yoho National Parks on its eastern border. Whistler is a popular winter sports resort town in this province, and its most populous city is situated at the mouth of the Fraser River. The capital of this province is on an island separated from the mainland by the Strait of Georgia; that island shares its name with its most populous city, which hosted the 2010 Winter Olympics. Name Canada's westernmost province, which has its capital at Victoria and contains the city of Vancouver.

ANSWER: British Columbia [prompt on "BC"]

American History: Give the following related to notable speeches.

Team B: While speaking at the 1896 Democratic National Convention prior to gaining the Presidential nomination, this politician delivered the "Cross of Gold" speech to advocate against the gold standard.

ANSWER: William Jennings Bryan

Team A: After being elected as President on a ticket featuring John Nance Garner, this New Yorker noted in his first inaugural address that "the only thing we have to fear is...fear itself."

ANSWER: Franklin Delano Roosevelt [or FDR; prompt on "Roosevelt"]

Tossup: One speech given prior to this event included a recitation of the Pericles quote "the whole earth is the sepulchre (SEP-uhl-ker) of illustrious men." The services of secretaries John Nicolay and John Hay were utilized on the day of this event, which included a statement that "the world will little note, nor long remember, what we say here." A two hour speech by Edward Everett preceded this event, which referenced a "new nation, conceived in liberty, and dedicated to the proposition that all men are created equal." Beginning with the words "four score and seven years ago," name this speech given in 1863 by Abraham Lincoln to honor those who died in a namesake Civil War battle in Pennsylvania.

ANSWER: Gettysburg Address

Alphabet Round – Letter R

1. Eid-al-Fitr ends this period of time in Islam. A Swiss scholar with this last name wrote *To be a European Muslim* and *The Quest for Meaning*.
2. Member of Bill Clinton's Cabinet who was the second-longest tenured U.S. Attorney General in history.
3. This Victorian art critic and fantasy writer who wrote "The King of the Golden River" authored a three-volume treatise on Italian art called *The Stones of Venice*.
4. 20th century American artist who illustrated the cover of the *Saturday Evening Post* for over 40 years.
5. There are 57.3 degrees for every one of these dimensionless units. There are 2π of these for a full circle.
6. Dynasty whose reign over Russia was ended in 1598, leading to the Time of Troubles.
7. This French dramatist authored the sublime *Spiritual Canticles*; another of his works is an adaptation of the Theseus story titled *Phedre*.
8. Purification method that takes advantage of the desired substance being insoluble at low temperatures but soluble at high temperatures.
9. The Fischer equation outputs this kind of interest rate, which is formally defined as the nominal interest rate minus the rate of inflation.
10. This jazz saxophonist recorded an album with the song "Blue 7" and a rendition of "You Don't Know What Love Is"; that album is titled *Saxophone Colossus*.
11. World leader who was assassinated in 1995 by Yigal Amir.
12. This author's time in Native American captivity was the subject of her work *The Sovereignty and Goodness of God*.
13. **(TWO WORD OR HYPHENATED ANSWER)** – This rule of thumb allows one to ascertain the direction of a vector generated from the cross-product; the namesake body part is rotated in accordance with the two input vectors.
14. **(MULTI-WORD ANSWER)** – City that is overlooked by the Corcovado mountain, which is located within Tijuca Forest.
15. This character, created by Nathaniel Hawthorne, raises his child so that she is immune to poisonous plants, but she inadvertently poisons other people.
16. **(TWO WORD ANSWER)** – Nickname of the cavalry unit in which Theodore Roosevelt served during the Spanish-American War.
17. In Japanese mythology, god of the seas who controlled the tides with jewels.
18. **(MULTI-WORD ANSWER)** – Source material for a "fantasy-overture" by Tchaikovsky and a ballet by Prokofiev, the latter of which contains the "Dance of the Knights."
19. This philosopher authored *Discourse on Inequality* and wrote "man is born free but is everywhere in chains" in his book *The Social Contract*.
20. Feature of mollusks that is used to consume food.

Alphabet Round – Letter R Answers

1. **Ramadan** [accept Tariq **Ramadan**]
2. Janet Wood **Reno**
3. John **Ruskin**
4. Norman Perceval **Rockwell**
5. **radians**
6. **Rurikid** Dynasty
7. Jean-Baptiste **Racine**
8. **recrystallization**
9. **real** interest rate
10. Theodore Walter “Sonny” **Rollins**
11. Yitzhak **Rabin**
12. Mary White **Rowlandson** Talcott
13. **right hand** rule or **right-hand** rule (TWO WORD OR HYPHENATED ANSWER)
14. **Rio de Janeiro**, Brazil (MULTI-WORD ANSWER)
15. Giacomo **Rappaccini**
16. **Rough Riders** (TWO WORD ANSWER)
17. **Ryujin** or **Ryojin** [do not accept “Raijin”]
18. **Romeo and Juliet** (MULTI-WORD ANSWER)
19. Jean-Jacques **Rousseau**
20. **radula** or **radulae**

Lightning Round

1. Allowing commoners to “pursue [their] own calling so that there may be no discontent” was one of five stated goals of the government during this (*) period. The Satsuma Rebellion occurred during this period, which saw the promulgation of the Charter Oath. This period included victory in a 1904 to 1905 war with Russia, and it succeeded the Edo Period, which was ruled by the Tokugawa Shogunate. Name this period, lasting from 1868 to 1912, which saw the modernization of Japan.

ANSWER: Meiji (may-EE-jee) Period or Meiji Restoration [or Meiji Ishin; accept equivalents to “Restoration” such as “Revolution” or “Reform”; prompt on “Charter Oath” or “Oath in Five Articles” or “Gokajo no Goseimon” before (*)]

2. It doesn’t measure activity, but this equation only works well for dilute solutions, and it does not work with polychromatic radiation. A quantity in this equation, symbolized epsilon, is sometimes called the extinction coefficient. This law takes into account the path length of the cell and a constant called the molar absorptivity. This law is used after testing samples in a spectrophotometer. Name this law that relates the concentration of a solution to its absorbance.

ANSWER: Beer’s law [or Beer-Lambert law or Lambert-Beer law or Beer-Lambert-Bouguer law]

3. This man only started composing after a hand injury, possibly from a mechanical device, ended any chances of a piano career. Motifs such as A-S-C-H occur repeatedly in a piano piece about commedia dell’arte characters. His compositions for piano include a piece about dreaming entitled “Traumerei” (TROW-muh-rye), which is found in his collection of *Scenes from Childhood*. Name this German composer who was married to the pianist Clara Wieck (veek).

ANSWER: Robert Schumann (SHOO-mahn)

4. This nation’s capital city is home to Binondo (be-NAHN-doh), the world’s oldest Chinatown, which is located along the Pasig (PAH-sig) River. The island of Cebu (say-BOO) is controlled by this nation, which is to the northeast of the Sulu Sea. Davao (DAH-“vow”) is the most populous city on its second largest island, Mindanao (min-duh-NOW). This nation’s capital and Quezon (KAY-zahn) City are located on its island of Luzon. Name this Pacific island nation whose capital is Manila.

ANSWER: Republic of the Philippines [or Republika ng Pilipinas]

5. One of this author’s characters is the “mad poet of Sanaa”, a Yemenese author named Abdul Alhazred who supposedly wrote the *Kitab* (KEE-tawb) *al-Azif*. This author of “The Nameless City” wrote about William Dyer’s adventure to Antarctica in *At the Mountains of Madness*, which features spawn of the “Great Old One”, who resembles a gigantic human and an octopus. Name this American horror story writer who created the monster Cthulhu (kuh-THEW-loo).

ANSWER: Howard Philips Lovecraft

6. This author, who died during the Great Flu pandemic of 1918, defined the state as an entity that has a monopoly on the use of force in his lecture “Politics as a Vocation.” This author of the late work *Economy and Society* wrote another book which links the title Christian spirit with the advent of mercantilism. Name this German sociologist who authored *The Protestant Ethic and the Spirit of Capitalism*.

ANSWER: Karl Emil Maximilian “Max” Weber (VAY-bur)

7. One firsthand account of this battle came from the wife of Friedrich Riedesel (“RYE”-dih-sool), who commanded a German regiment here. General Simon Fraser was killed during this battle, which included fighting at Freeman’s Farm and Bemis Heights. Benedict Arnold’s left leg was seriously wounded at this battle, which saw the surrender of 6,000 troops commanded by John Burgoyne (bur-GOYN). Name this Revolutionary War battle, a 1777 victory for Horatio Gates in upstate New York.

ANSWER: Battle of Saratoga [prompt on “Battle of Freeman’s Farm” or “Battle of Bemis Heights” early]

8. Huchra’s (HUK-rahz) lens is actually an instance of gravitational lensing that is distorting a galaxy named for this man, which is called his “cross.” His namesake “ring” is the general astronomical optical illusion that occurs through lensing. He proposed a set of ten equations that describe the curvature of spacetime due to gravitation; those are his namesake field equations. Name this scientist who formulated the theory of general relativity.

ANSWER: Albert Einstein

9. One of this author's books features a blind monk named Jorge (HOR-hay) of Burgos, who eats a poisoned copy of Aristotle's treatise on comedy. He wrote about an amnesiac bookseller named Yambo in *The Mysterious Flame of Queen Loana*. Adso of Melk and William of Baskerville investigate a series of murders at a monastery in another of this novelist's books. Name this Italian author of *Foucault's Pendulum* and *The Name of the Rose*.

ANSWER: Umberto **Eco**

10. One religious group within this country believed that all matter was created by Satan, and they were later exterminated by Pope Innocent III (the third). In addition to the Albigensian heresy, this country was home to a religion that venerated a godhead on the Field of Mars. State religions from this country included the Cult of Reason and the Cult of the Supreme Being, which were instituted after its revolution. Name this nation home to a group of Protestants known as Huguenots.

ANSWER: **France** [or **French Republic** or **Republique francaise**]

11. Late in life, this man made the gelatin silver print *Looking Northwest from the Shelton*, which depicts the skyline of New York City. He made a series of prints depicting clouds called *Equivalents*, and he was inspired by Pablo Picasso's cubism in depicting a group of passengers in the third-class section of a ship. Name this photographer who took a photo called *The Steerage* and was the husband of artist Georgia O'Keefe.

ANSWER: Alfred **Stieglitz**

12. A dwarf named John Bean attempted to assassinate this leader, who was possibly fathered by John Conroy. During the reign of this ruler, the Bedchamber Crisis occurred after the brief resignation of Prime Minister Lord Melbourne. This final British ruler of the House of Hanover wore primarily black following the death of her husband, Prince Albert. The title "Empress of India" was given to what queen who was the longest British ruler in history, reigning from 1837 to 1901?

ANSWER: Queen **Victoria** [or Alexandrina **Victoria** Hanover]

13. This is the surname of the playwright who wrote *Cloud Nine*, as well as a play about Scilla (SKILL-luh) investigating Jake Todd's death. In addition to naming Caryl, who penned *Serious Money*, it is the surname of a writer whose only novel is set in the country of Laurania (LOR-ayn-ee-uh). That author of *Savrola* won the Nobel Prize in Literature in 1953, but he is better known for writing a six-volume history of World War 2. Give the surname of the British politician who gave the "Their Finest Hour" speech.

ANSWER: **Churchill** [accept Caryl **Churchill** or Winston Leonard Spencer-**Churchill**]

14. In prokaryotes (PRO-"carry"-oats"), this process is initiated by sigma factors. Sequences such as the Pribnow box and TATA (tah-tah) box allow its main enzyme to bind in the promoter region. Following this process, the resulting product can be modified by the addition of a guanidine cap and a poly-A-tail. Name this process in which mRNA is created out of a DNA template.

ANSWER: **transcription**

15. People supporting this head of state sing the song "Bring Me My Machine Gun". While facing criminal charges in 2006, he claimed that he took a shower to reduce the chances of acquiring HIV after having unprotected sex; that testimony was given during a trial in which this leader was charged with rape. Name this current head of state and leader of the African National Congress who succeeded Thabo Mbeki as president of South Africa.

ANSWER: Jacob Gedleyihlekisa **Zuma**

16. It's not Heracles, but this figure fathered the goddess Macaria (mahk-ah-REE-uh). Minthe (MIHN-thee) was turned into a mint plant due to the pursuit of this god, who several times loaned away his cap of invisibility. He trapped Pirithous ("pie"-RIH-thoh-uss) in a chair for attempting to kidnap and marry his wife, Persephone (per-SEF-uh-nee), whom this god had previously kidnapped and married himself. Poseidon and Zeus are the brothers of what Greek god, who is served by the ferryman Charon (KAIR-un) and guard dog Cerberus (SER-buh-russ) as ruler of the underworld?

ANSWER: **Hades** (HAY-deez) [or **Plouton**; do not accept or prompt on "Pluto"]

17. Soldiers who took part in an assault of this specific location were the primary recipients of the Gillmore Medal; that battle against this location was launched from nearby Morris Island. The ship ~Star of the West~ was prevented from resupplying this location, which was later surrendered by Robert Anderson in response to an attack led by P.G.T. Beauregard (BOH-reh-gard) in April 1861. The harbor of Charleston, South Carolina is the site of what fort that saw the first shots of the Civil War?

ANSWER: Fort **Sumter**

18. This post has been held by Billy Collins, Donald Hall, and Charles Simic, the last of whom wrote *The World Doesn't End*. It has also been held by Stephen Spender and the author of the novel *Deliverance*, James Dickey, whose work "The Strength of Fields" was read at the inauguration of Jimmy Carter. Charles Wright is the current holder of what post which promotes the awareness of American poetry?

ANSWER: **United States Poet Laureate** [accept **Poet Laureate** Consultant in Poetry **to the Library of Congress**; prompt on "Poet Laureate"]

19. This physicist is the second namesake of an approximation that splits a molecule's wavefunction into its electronic and nuclear components. This researcher, whose work is discussed in the Smyth Report, quoted the *Bhagavad Gita's* (BAH-guh-vawd GEE-tuhz) line "I am become Death, the destroyer of worlds" after conducting an experiment known by the code name "Trinity." Name this physicist known as the "father of the atomic bomb" for his role in the Manhattan project.

ANSWER: Julius Robert **Oppenheimer** [accept the Born-**Oppenheimer** approximation]

20. Worthington Whittredge was used as the model for this man in a painting that was destroyed during a World War 2 bombing of Bremen, Germany. Someone pulls back a red curtain to reveal this man holding a hatchet in the painting *Parson Weems' Fable*. In one painting, he is shown standing in a boat next to an American flag while crossing an icy river. *The Athenaeum* (ath-uh-NAY-um) was an unfinished portrait by Gilbert Stuart of what man, who was the subject of an Emanuel Leutze (LOYT-zuh) painting in which he was *Crossing the Delaware*?

ANSWER: George **Washington**