

## **2015 OAC States – Round 5**

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

### **Category Round**

**American Literature: Answer the following about novels named after musical instruments.**

Team A: A man who is liberated after playing the title flute is the subject of *Aaron's Rod*, a novel by what English novelist who relocated to America?

ANSWER: David Herbert Richards **Lawrence**

Team B: *Davita's Harp* and *My Name is Asher Lev* are two novels by what Jewish author and rabbi?

ANSWER: Herman Harold Chaim **Potok** (POH-tock)

Tossup: One novel by this author that is named for a musical instrument follows Colin Fenwick, who is raised by his Aunts Dolly and Verena. In addition to penning *The Grass Harp*, this author wrote a group of travel essays called *Local Color* and a novel narrated by Fred, who learns about the life style of Holly Golightly. Another work by this author describes ex-convicts Dick Hickock and Perry Smith, who murder the entire Clutter family. Name this author who wrote *Breakfast at Tiffany's* and the non-fiction novel *In Cold Blood*.

ANSWER: Truman **Capote** [or Truman Streckfus **Persons**]

**Mathematics: Pencil and paper ready. Give the following related to limits. For the team questions, consider the following step function (NOTE TO MODERATOR: read what follows slowly):  $f(x) = x$  ("f of x equals x") when x is less than one;  $f(x) = 5$  ("f of x equals five") when x is greater than 1; and  $f(x) = 15$  ("f of x equals fifteen") at 1.**

Team B: What is the limit of  $f(x)$  while approaching 1 from the left?

ANSWER: **1** or **one**

Team A: What is the limit of  $f(x)$  while approaching 1 from the right?

ANSWER: **5** or **five**

Tossup: Karl Weierstrass (VYE-err-strauss) showed, in his definition of a limit, that for every arbitrarily small value, there exists another quantity, which is represented by this letter, that exists and is also greater than zero. This letter denotes a mathematical function that returns one if both inputs are equal and zero if they are different. It also names another function which returns zero at all points, except for one point, where it returns infinity. Those are the Kronecker (CRO-neck-er) and Dirac (dih-RAK) functions. Name this Greek letter that is also used to represent changes in quantities.

ANSWER: **delta** [accept the epsilon-**delta** definition of a limit.]

## **World History: Name these Russian czars.**

Team A: Yemelyan Pugachev led a 1773 to 1774 rebellion while claiming to be this Russian czar who died in 1762, possibly as a result of a conspiracy involving his wife and successor, Catherine the Great.

ANSWER: **Peter III** Romanov [or **Pyotr III** Romanov; prompt on “Peter” or “Pyotr”]

Team B: The Treaty of Stolbovo ended the Ingrian War during the rule of this czar, which began in 1613 but was overshadowed for twenty years by the control of his father, The Patriarch Filaret.

ANSWER: **Michael Romanov** or **Michael I** [or **Mikhail Romanov** or **Mikhail I** Fyodorovich Romanov; prompt on “Michael” or “Mikhail”]

Tossup: During the rule of this czar, Prussia sent General Gustav von Alvensleben to negotiate a treaty of support against a nationalist insurgency known as the January Uprising. This czar caused a scandal by secretly marrying his longtime mistress, Ekaterina Dolgorukaya, less than two months after his wife’s death. Alexander Gorchakov was the chief foreign minister of this leader, who is known as “the good czar” in Finland due to his support of Finnish autonomy. A system of local self-government known as zemstvo was established by this ruler, from whom the U.S. purchased Alaska. This son and successor of Nicholas I was assassinated by members of the People’s Will in 1881. Name this czar who freed the Russian serfs.

ANSWER: **Alexander II** of Russia [or **Alexander II Romanov**; prompt on “Alexander”]

## **Fine Arts: Name these 20th century paintings.**

Team B: Two women wearing similar hats sit across a table from one another in this Edward Hopper painting, in which the sign for the title restaurant is partially visible through a window on the right side.

ANSWER: **Chop Suey**

Team A: The words “I pressed the fire control...and ahead of me rockets blazed through the sky” appear in this Roy Lichtenstein painting, which features the title written out directly above an airplane that is experiencing a fiery explosion.

ANSWER: **Whaam!**

Tossup: The words “beautiful world of cottages / of the night and of fields” begin a poem that accompanied this painting at its first exhibition; that poem was written by Paul Eluard. An early version of this painting depicted one figure weeping blood-colored tears, as well as a raised hand holding stalks of grain against the backdrop of a shining sun. The bottom left corner of this painting depicts the palm of a hand with the stigmata. At the top of this painting, one figure holds a lit candle next to a shining light bulb that hangs over the head of a horse. A flower sprouts out of a dismembered arm that holds a shattered sword in this painting, which features a bull standing above a grieving woman holding a dead child. Name this 1937 painting by Pablo Picasso that was created in response to a Nazi bombing of the title Spanish city.

ANSWER: **Guernica**

**Life Science: Name these scientists.**

Team A: This woman took the photograph from which Watson and Crick discovered the double helix structure of DNA.

ANSWER: Rosalind Elsie **Franklin**

Team B: This man devised binomial nomenclature as the method for naming species and established modern taxonomy with his book *Systema Naturae*.

ANSWER: Carolus **Linnaeus** or Carl **Linnaeus** [or Carl von **Linne** or Carolus a **Linne**]

Tossup: This scientist discovered a defective chromosomal behavior called the breakage-fusion-bridge cycle. This scientist built on Rollins Emerson's work in discovering that mutations in the Ds ("D"- "S") region of chromosome 9 caused streaks of brown and purple in a certain organism; that work led to the formulation of the Ac/Ds ("A"- "C"- "D"- "S") system. Independently of Herman Muller, this scientist discovered telomeres. She used early cytogenetics to find the first evidence that genetic variability in offspring came from crossing over. This scientist heavily studied maize plants, in which she made the first discovery of mobile genetic elements. Name this scientist who won the 1983 Nobel Prize in Medicine for her discovery of the "jumping genes" named transposons.

ANSWER: Barbara **McClintock**

**English / World Literature: Name these authors who had works inspired by mythology.**

Team B: What author of the poem "Under Ben Bulbin" wrote about the mythological king Goll Mac Morna in his poem "The Madness of King Goll"? He wrote about Greek mythology in his poem "Leda and the Swan."

ANSWER: William Butler **Yeats**

Team A: What author wrote about a titan in his poem *Prometheus* but is better known for *The Vision of Judgment* and *Childe Harold's Pilgrimage*?

ANSWER: George **Gordon Noel**, Lord **Byron** [accept any underlined name]

Tossup: This poet wrote about a mythological figure that "all saints...and sober men" revile; that poem appears in a "historical grammar of poetic myth." The soldier Decebalus (DEH-seh-ball-uss) narrates this author's novel about the life of Christ titled *King Jesus*. In another of his novels, Asinius Pollio (uh-SIN-ee-uss POLL-ee-oh) tells the title character to play the fool to survive. That work by this author of *The White Goddess* ends with the assassination of Caligula (cuh-LIG-"you"-luh) and the title character being discovered behind a curtain and made emperor by the Praetorian Guard. Name this English poet and novelist who wrote *I, Claudius*.

ANSWER: Robert von Ranke **Graves**

**American Government / Economics: Name these presidential elections.**

Team A: James Birney ran for president on the Liberty Party ticket for the second consecutive time in this election, which was won by a ticket featuring George Dallas.

ANSWER: Presidential Election of **1844**

Team B: James Weaver won 22 electoral votes while running for president on the People's Party ticket in this election, which was won by a ticket featuring Adlai Stevenson I (the first).

ANSWER: Presidential Election of **1892**

Tossup: The third place ticket in this election included Seymour Stedman as the vice presidential candidate. One party's nominee was chosen after the sitting president blocked the nomination of his son-in-law and former Secretary of the Treasury, William McAdoo. The eventual winner of this election only disclosed his adulterous affair with Carrie Phillips after his nomination was secured "in a smoke-filled room." Eugene V. Debs' final presidential run took place while in prison during this election, which included Franklin D. Roosevelt as the vice presidential candidate for Democratic nominee James Cox. The slogan "return to normalcy" was used by the Republicans, who won this election with a ticket featuring vice president Calvin Coolidge. Name this presidential election won by Warren G. Harding.

ANSWER: Presidential Election of **1920**

**Physical Science: Answer some questions regarding polymers.**

Team B: The Ziegler-Natta type of this substance is used in creating some types of polymers. More generally, they can be classified as heterogeneous or homogenous depending on their phase.

ANSWER: **catalysts**

Team A: This polymer, which is made up of polyamide chains, was the first synthetic fiber to be produced.

ANSWER: **nylon**

Tossup: Dynamic mechanical analysis is often used on polymers to determine the temperature at which a transition of this name occurs. That transition occurs at a point where this type of material switches from a rubber-like state to a more rigid form. When synthesizing this material, one can cool it through annealing or quenching. Boro-silicate types of this material are manufactured by Pyrex, although it is most commonly made from either soda-lime or silica. These materials are classified as amorphous solids, meaning that they have no crystal structure. Name these materials, whose name also describes the material used to make common laboratory equipment such as flasks and beakers.

ANSWER: **glass** [or **glassware**]

**Geography: Name these European nations.**

Team A: The Prut River forms the entire western border of this nation that contains the breakaway republic of Transnistria, which has its capital at Tiraspol (tih-RASS-pul).

ANSWER: Republic of **Moldova** (mohl-DOH-vuh) [or Republica **Moldova**; do not accept “Moldavia”]

Team B: The island of Saaremaa (SARR-ee-mah) is controlled by this nation whose eastern border runs through Lake Peipus.

ANSWER: Republic of **Estonia** [or **Eesti** Vabariik]

Tossup: This country is the site of a recently closed copper mine that operated for a millennium in the city of Falun, which is in one of its nine northern provinces that are part of a region known as Norrland. This country features an open air museum and zoo named Skansen within its capital city, which is built upon 14 islands at the east end of Lake Malaren. This nation is connected to the foreign island of Amager by the Oresund Bridge. This country is on the east side of the Kattegat Strait, which separates it from the Jutland Peninsula controlled by Denmark. Name this Scandinavian nation in which five of the six Nobel Prizes are awarded at its capital of Stockholm.

ANSWER: Kingdom of **Sweden** [or Konungariket **Sverige**]

**American History: Name the following Revolutionary War battles.**

Team B: The “Race to the Dan” occurred in the aftermath of this January 1781 battle which saw the force under British Colonel Banastre (“banister”) Tarleton decisively defeated by Daniel Morgan in South Carolina.

ANSWER: Battle of **Cowpens**

Team A: British troops under Lord Cornwallis suffered a Pyrrhic victory at this March 1781 battle, which was fought in present-day Greensboro and led to Nathaniel Greene’s retreat into South Carolina.

ANSWER: Battle of **Guilford Courthouse**

Tossup: According to one account, John Simpson was briefly arrested for prematurely firing the first shot in this battle. Engineer Richard Gridley designed the defensive fortifications used during this battle, which began shortly after the attackers congregated at Moulton's Point. Major John Pitcairn was killed while leading one of three assaults by the winning side in this battle, which resulted in the capture of Charlestown Peninsula. Joseph Warren died during this battle after giving command to Israel Putnam and William Prescott, each of which various sources have claimed gave the order “don’t fire until you see the whites of their eyes.” Name this June 1775 battle in Boston that actually took place on (\*) Breed’s Hill.

ANSWER: Battle of **Bunker Hill** [accept Battle of **Breed’s Hill** before (\*)]

### Alphabet Round – Letter H

1. Period of Japanese history lasting from 794 to 1185.
2. Type of instrument roughly shaped like a triangle and often containing many strings.
3. This term refers to sayings of the prophet Muhammad that are not collected in the Koran; one of these sayings that refers to the “two things” praises the Book of Allah and one’s own family.
4. Compound released by mast cells in large amounts during an allergic reaction.
5. This short story writer often wrote about the California Gold Rush in his short fiction, which includes “The Luck of Roaring Camp” and “The Outcasts of Poker Flat.”
6. **(HYPHENATED ANSWER)** – This term describes a society that obtains most of their foodstuffs from foraging and shooting animals. The Bushmen of the Kalahari are a modern day example.
7. **(NAME AND REGNAL NUMBER OR NAME AND EPITHET REQUIRED)** – English monarch who ascended to the throne at the age of nine amid the First Barons’ War.
8. This poet of Shiraz wrote the poems in the *Divan*, many of which praise the joys of wine. His tomb is a national monument in Iran.
9. This American architect designed the pedestal to the Statue of Liberty as well as the main hall of the Metropolitan Museum of Art.
10. Molecule with formula  $N_2H_4$ , which is used in rocket fuel.
11. Ancient Egyptian city that was site of the worship of Atum-Ra.
12. **(TWO WORD ANSWER)** – Chicago institution founded in 1889 by Jane Addams.
13. This ancient Greek mathematician’s namesake formula expresses the area of a triangle using the semi-perimeter.
14. Title animal that appears in Frieda Kahlo’s *Self-portrait with Thorn Necklace*.
15. This author wrote “It matters not how strait the gate, how charged with punishments the scroll, I am the master of my fate, I am the captain of my soul” in his poem “Invictus.”
16. This German philosopher authored a book that asks “what does it mean to be?”; that book, which uses the term “dasein” to name the state of the world, is *Being and Time*.
17. Royal house that ruled the Kingdom of Prussia and German Empire leading up to World War I.
18. This equation from classical mechanics states that the force on an object is equal to the negative of the spring constant times displacement from equilibrium.
19. Capital city of the Australian state of Tasmania.
20. This author of “The Hawk in the Rain” penned the collection *Birthday Letters*, which describes his marriage to Sylvia Plath.

### Alphabet Round – Letter H Answers

1. Heian period
2. harp
3. hadith
4. histamine
5. Francis Bret Harte
6. hunter-gatherer society (HYPHENATED ANSWER)
7. Henry III (the third) or Henry of Winchester (NAME AND REGNAL NUMBER OR NAME AND EPITHET REQUIRED)
8. Hafiz or Hafez [or Khwaja Shams-ud-Din Muhammad Hafez-e Shirazi]
9. Richard Morris Hunt
10. hydrazine
11. Heliopolis
12. Hull House (TWO WORD ANSWER)
13. Hero or Heron
14. hummingbird
15. William Ernest Henley
16. Martin Heidegger
17. House of Hohenzollern
18. Hooke's Law
19. Hobart
20. Edward James "Ted" Hughes

### Lightning Round

1. Depending on how many of these structures are present and their organization, bacteria can be classified into categories such as lophotrichous or peritrichous. In eukaryotes, these structures have axonemes arranged in a 9+2 manner. In prokaryotes these structures move through rotation, while in eukaryotes they move in a whip-like manner. Name these structures that enable cell movement and are longer than cilia.

ANSWER: flagella [or flagellum]

2. This character states that the events he describes are “merely casual events in a crowded summer” that happened while he was working at the Probity Trust. He ends the book in which he appears by stating “So we beat on, boats against the current, borne back ceaselessly into the past.” He begins the book in which he appears by describing his “younger and more vulnerable years.” He notes several times how his wealthy neighbor gazes at a distant green light at the home of this man’s cousin, Daisy Buchanan. Name this narrator of *The Great Gatsby*.

ANSWER: Nick Carraway [accept either underlined answer]

3. In one book related to fieldwork on this continent, Patrick Tierney accused James Neel and Napoleon Chagnon of unethical behavior while studying the Yanomamo people. This continent’s Bororo people, who were the subject of the Claude Levi-Strauss memoir *Tristes Tropiques* (TRESS-tays TROH-peek), live in the state of Mato Grosso within the world’s fifth largest country. The book *Darkness in Eldorado* recounted work on what continent, many of whose native tribes live along the basin of the Amazon River?

ANSWER: South America

4. In one song by this composer, a constant run of sixteenth notes is halted only when the singer imagines receiving a kiss from Faust. One of this composer’s song cycles includes pieces about a hurdy-gurdy man and a linden tree. This composer wrote a lieder in which the singer uses four different voices to represent the narrator, father, son, and title creature. Name this early 19th century Austrian composer of “Gretchen at the Spinning Wheel”, *Die Winterreise* (dee VINT-er-“ice”-uh), and “Der Erlkönig.”

ANSWER: Franz Peter Schubert

5. One king of this country was restored by the Treaty of Valencay (VAL-awn-see) in the aftermath of the Battle of Vitoria. The failure of one of its kings to pay a dowry was used by Louis XIV (the fourteenth) as pretext to start the War of Devolution. A rebellion by one of its possessions led to the Eighty Years War, which ended with this country granting independence to the Dutch Republic. Philip V (the fifth) was the first Bourbon ruler of this country, which contains the royal site El Escorial. Name this Iberian nation ruled until 2014 by Juan Carlos.

ANSWER: Kingdom of Spain [or Reino de Espana]

6. This mathematician suggested that there is no set whose cardinality is between aleph null and aleph one, a conjecture known as the continuum hypothesis. This scientist made a list of real numbers, and then altered the first digit from the first, and the second digit from the second, and so on, to show that there are more real numbers than natural numbers. Name this German mathematician who proposed the diagonalization argument and is also known as the father of set theory.

ANSWER: Georg Ferdinand Ludwig Philipp Cantor

7. One poem by this author praises its subject as a “weaver of wiles” and an occupant of the “shimmering throne.” The contemporaneous poet Alcaeus (al-KAY-us) of Mytilene (mih-tull-EE-nee) claimed that this author of “Hymn to Aphrodite” had a head full of “violet hair.” The last of Ovid’s *Heroides* (hee-ROH-ih-deez) fictionalizes this author’s discourse with her former love Phaon (FAY-on). Name this ancient Greek poet who was born in Lesbos and frequently called the “tenth muse.”

ANSWER: Sappho

8. This leader carried out a massacre with the help of the Green Gang during the April 12 Incident. This leader was compelled to form an alliance known as the Second United Front after being kidnapped in the Xi’an (SHEE-on) Incident. He briefly united his country following the Northern Expedition, and he pursued Communist troops undertaking the Long March, the leader of which later defeated this man in the Chinese Civil War. Name this Kuomintang leader who fled to Taiwan in 1949 after being defeated by Mao Zedong.

ANSWER: Chiang Kai-shek [or Jiang Jieshi or Jiang Zhongzheng]



9. In a tale by Chretien de Troyes (CREH-tee-en deh twah), this man earns temporary humiliation when he uses a dwarf-driven conveyance, earning him the title “Knight of the Cart.” This man knights Sir Gareth, but later accidentally kills Sir Gareth and Gaheris. This knight is seduced by a disguised Elaine of Corbenic, who gave birth to this man’s son Galahad. Name the lover of Guinevere who was the greatest knight of the Round Table.

ANSWER: Sir **Lancelot** du Lac or Sir **Lancelot** of the Lake [or **Launcelot**]

10. This artwork was commissioned by Omer Dewavrin and originally placed on a high pedestal, against the wishes of its creator. This work depicts Eustache de Saint-Pierre (YOO-stash day “saint” PE-air), who, according to Jean Froissart (zhahn fruh-SAR), was clad in sackcloth while bearing the keys to his city around his neck. This sculpture resides, and is named for, a city on the English Channel that was besieged during the Hundred Years’ War. Name this sculpture of six heroic Frenchmen that was made by Auguste Rodin.

ANSWER: *The **Burghers of Calais*** [accept *Les **Bourgeois de Calais***]

11. The northern end of this island is dominated by the Ou (OH-ew) Mountains. Its most populous city is near the Boso Peninsula and just north of Sagami Bay. The Oki Islands are off the west coast of this island, which was struck by the 1923 Great Kanto earthquake. This island that contains Lake Biwa (BEE-wah) is at the south end of the Seikan (SAY-kahn) Tunnel, which flows under the Tsugaru (soo-GAR-ew) Strait that separates it from Hokkaido. Mount Fuji and the city of Tokyo are what largest island of Japan?

ANSWER: **Honshu**

12. This man’s question of why a twirling human’s arms must necessarily spin as the stars also spin is known as his conjecture about inertia. A dimensionless quantity named for this man is given by the speed of an object divided by the speed of sound; when that number is greater than one, a sonic boom may be created. Name this Austrian physicist who gives his name to a “number” that characterizes supersonic speeds.

ANSWER: Ernst Waldfried Josef Wenzel **Mach** [accept **Mach**’s principle or **Mach**’s conjecture or **Mach** number]

13. This work’s translation by J.R.R. Tolkien is discussed in a lecture subtitled “The Monsters and the Critics.” John Gardner wrote a novel that reimagines this work from the point of view of a Biblical descendant of Cain. The author of *The Haw Lantern* and *Death of a Naturalist*, Seamus Heaney, made a translation of this poem, whose characters include Wiglaf and Unferth. Name this anonymously authored medieval poem about the King of the Geats, who slays a monster named Grendel.

ANSWER: **Beowulf**

14. Prior to this battle, one commander found it laughable that the opposing troops were exercising naked and combing their hair. The first assault in this battle was undertaken by a group of Medes (MEE-deez) and Cissians. Before this battle, Dieneces (die-eh-NEE-“seize”) noted that if their opponent’s arrows hid the sun, they could fight in the shade. It ended after Ephialtes (eh-fee-AHL-tees) revealed a mountain path that bypassed the “Hot Gates.” The naval Battle of Artemisium occurred concurrently with what 480 BC battle at which Xerxes defeated a Greek force led by Spartan King Leonidas?

ANSWER: Battle of **Thermopylae** (thur-MAH-puh-lee or thur-MAH-puh-“lie”)

15. In April 2014, this country revised its tax code so that investing in sports was a tax-deductible expense. In 2010, ten of its citizens were killed during a spill from an alumina plant in the city of Ajka (ODJ-kuh). More recently, protesters in this country threw old computers at buildings to contest a proposed plan to charge sixty-two cents per gigabyte of used Internet data; that tax proposal, however, was ultimately rejected by its ruling Fidesz (FEE-desh) party. Name this Eastern European country led by Viktor Orban from Budapest.

ANSWER: Republic of **Hungary** [or **Magyarország** or **Magyar Kostarsasag**]

16. One story in this text recounts how the warrior Shiz was beheaded by Coriantumr. Early in this text, a land named Bountiful is the embarkation point for a trans-oceanic journey that takes the family of Lehi (LEE-“high”) to America. Those stories, which follow a testimony from the Three Witnesses, appear within this text in books named for (\*) Ether and Nephi (NEE-fye). This text was allegedly translated with seer stones off of golden plates revealed by the angel Moroni. Name this holy text of the Latter Day Saints religion.

ANSWER: Book of **Mormon** [prompt on “Book of Ether” or “First Book of Nephi” or partial answers before (\*)]

17. One play by this author follows a con-man selling refrigerators who is named King Hedley. He wrote a set of ten plays that are each set in a different decade of the 20th century; those plays include *Ma Rainey's Black Bottom* and *Joe Turner's Come and Gone*. Boy Willie appears in another of those plays by this author that features Berniece trying to prevent the title musical instrument from being sold. Name this African-American author of *The Pittsburgh Cycle*, which includes his play *The Piano Lesson*.

ANSWER: August **Wilson**

18. A special type of this process is used to separate molecules of uranium hexafluoride based on the uranium isotope. A constant named after this process is found by multiplying Boltzmann's constant, temperature, and mobility. This process' namesake coefficient is related to its flux in the first of Fick's laws. When water undergoes this behavior, it is called osmosis. Name this behavior in which molecules move from areas of higher to lower concentration.

ANSWER: **diffusion**

19. This artist depicted a young, nude girl dipping her heel into a river populated with the title birds in the painting *The Goose Girl*. In the bottom center of another work, he painted a basket of potatoes to cover up what was originally a small coffin, presumably belonging the child of the two figures who stand next to a wheelbarrow and pitchfork while praying. A third work shows large haystacks behind three peasant women who bend down to pick grain. Name this French Barbizon school painter of *The Angelus* and *The Gleaners*.

ANSWER: Jean-Francois **Millet** (mil-LAY)

20. William Peers headed a commission that investigated this event, which was the subject of pictures taken by Ron Haeberle (HAY-burl). Hugh Thompson Jr. prevented several people from being killed in this event, which occurred at a location codenamed Pinkville. Despite being commanding officer, Ernest Medina escaped any convictions from this event, which led to jail time for William Calley. Name this 1968 event in which several hundred unarmed civilians were killed at a namesake Vietnam hamlet.

ANSWER: **My Lai** Massacre [or **Tham Sat My Lai**; accept **Songmy** Massacre or **Son My** Massacre]