

2015 OAC States – Round 1

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

Category Round

American Literature: Answer the following about trees and plants in American poetry.

Team A: What author wrote “I think that I shall never see a poem as lovely as a tree” in his poem “Trees”?

ANSWER: Alfred Joyce **Kilmer**

Team B: What author of the essay “Nature” and essay collection *Representative Men* wrote about “The self-same power that brought me there, brought you” in his plant poem “The Rhodora” (ROH-dor-uh)?

ANSWER: Ralph Waldo **Emerson**

Tossup: One poem by this author asserts “Earth’s the right place for love: I don’t know where it’s likely to go better.” That plant-centric poem by this author describes how ice-storms cause the title plants to stay down. That poem, which was read at JFK’s inauguration, asserts “One could do worse than be a swinger” of the title plants. Another plant-centric poem by this author features a speaker who wishes he could state “But here there are no cows” to a person who repeatedly exclaims “Good fences make good neighbors.” Name this author who wrote “Birches” and “Mending Wall.”

ANSWER: Robert Lee **Frost**

Mathematics: Give the following related to properties of functions.

Team B: The horizontal line test is used to test for what property of functions, in which the values of the codomain are never mapped to more than once.

ANSWER: **one-to-one** [accept **injective** function or **injection**]

Team A: When the codomain of a function equals its range, the function has this property in which the range is completely “covered.”

ANSWER: **onto** [accept **surjective** function or **surjection**]

Tossup: This property of a function is defined if and only if a function is one-to-one and onto. The conditions for this sort of property to exist are given by a theorem in differential calculus that is proven using the contraction mapping theorem. Continuous functions have this property if and only if its derivative is completely positive. For the logarithm function, this property of the function is the exponential function, and for x^2 (“x squared”) this kind of function is the square root of x. Name this type of function, which switches the domain with its range and vice versa.

ANSWER: **inverse** function [accept **invertible** functions]

World History: Name these Asian nations.

Team A: The 1923 Treaty of Lausanne (loh-SAHN) recognized the sovereignty and established the borders of this nation which was first ruled independently by Mustafa Kemal.

ANSWER: Republic of Turkey [or Türkiye Cumhuriyeti]

Team B: Leaders of the Safavid Dynasty administered an area centered in this present day nation, which is currently ruled by a man who succeeded Mahmoud Ahmadinejad (mah-MOOD ah-mah-dee-nee-ZHAHD) in 2013.

ANSWER: Islamic Republic of Iran [or Jomhuri-ye Eslami-ye Iran]

Tossup: A government known by the acronym GRUNK was formed by a deposed leader of this country who had earlier established the Sangkum movement. The United Nations oversaw the administration of this country in the aftermath of the 1991 Paris Peace Agreements. S-21 was the designation of a former prison, now known as Tuol (“tool”) Sleng, that was used during a genocide in this nation, which saw a civil war that deposed Norodom Sihanouk (noh-roh-“DOME” see-hah-NOOK) in 1970. One government of this nation established mass burial sites known as the “killing fields” and changed this nation’s name to Democratic (*) Kampuchea. Name this Southeast Asian nation that was ruled briefly by the Khmer Rouge under the leadership of Pol Pot.

ANSWER: Kingdom of Cambodia [accept Preahreacheanachakr Kampuchea before (*)]

Fine Arts: Name these American artists.

Team B: Amid the Battle of Quebec, a Native American sits in a pose reminiscent of Rodin’s *The Thinker* in the best known work by this colonial-era artist who also painted *Penn’s Treaty with the Indians*.

ANSWER: Benjamin West

Team A: Five paintings comprise the *Course of Empire* series created by this 19th century artist whose other notable works include *The Titan’s Goblet* and *The Oxbow*.

ANSWER: Thomas Cole

Tossup: An impending hilltop collision between a car and red truck is the subject of this artist’s painting *Death on Ridge Road*. One painting by this artist depicts a tall church being passed by a galloping horse, while another of his works shows three old ladies standing in front of a copy of Emanuel Leutze’s (LOYT-zuhz) *Washington Crossing the Delaware*. Those paintings are *The Midnight Ride of Paul Revere* and *Daughters of Revolution*. The Dibble House is portrayed in his best known work, which depicts two figures modeled after this artist’s sister Nan and his dentist Byron McKeeby. Name this Iowa native who shows a bespectacled farmer holding a pitchfork in his 1930 painting *American Gothic*.

ANSWER: Grant DeVolson Wood

Life Science: Name these organisms important to the history of biology.

Team A: The first virus to be discovered was one that infects this plant. This model organism is often used in plant virology studies and has high levels of regeneration, making it a great plant for tissue culture.

ANSWER: tobacco [or Nicotiana]

Team B: This weed is the most widely-used model plant organism because of its short lifespan and relatively small genome.

ANSWER: Arabidopsis thaliana

Tossup: In 2014, the ICE-First-Aging experiment studied aging in this organism in space flight conditions. In 2012, this model organism's connectome was fully mapped, and it currently remains the only organism in which that has been accomplished. Sydney Brenner pioneered the use of this organism. This organism goes through four larval stages called L1 to L4, but it can respond to stresses by entering a dauer (DOW-err) stage. Fire and Mello studied RNA interference in this animal. Mature hermaphrodites of it have 959 somatic cells, and it was the first multicellular organism to have its genome sequenced. Name this model organism that is a nematode.

ANSWER: Caenorhabditis elegans [prompt on "*Nematoda*" or "nematodes"]

English / World Literature: Give the following related to labyrinths mentioned in works of literature.

Team B: "The Day of the Dead" is an essay in *The Labyrinth of Solitude*, which was written by what Mexican author?

ANSWER: Octavio Paz Lozano

Team A: "Pierre Menard, Author of the Quixote (kee-HO-tay)" is a short story that appears in *Labyrinths*, which was written by what Argentine master of the short story?

ANSWER: Jorge Francisco Isidoro Luis Borges

Tossup: A poet from this country who authored *Heavensgate* also wrote the collection *Labyrinths*, which features his poem "A Path of Thunder." Another author from this country reimagined the Wedding of Cana in his adaptation of Euripides' (YUR-ip-uh-deez-iz) *The Bacchae* (BAH-"key"). That author from this country wrote about Simon Pilkings interrupting Elesin's (ELL-uh-sinz) ritual suicide. Another work by that author from this nation is about the love between Sidi (SEE-dee) and Lakunle (LUH-koon-lay). Those works from this nation are *Death and the King's Horseman* and *The Lion and the Jewel*. Christopher Okigbo (OH-kig-boh) and Wole Soyinka (woll-AY soy-ING-kuh) are both natives of this African country which was also the birthplace of Chinua Achebe (uh-CHAY-bay).

ANSWER: Federal Republic of Nigeria

American Government / Economics: Name these former Attorneys General.

Team A: James Madison's final Attorney General was this Pennsylvania politician best known for negotiating an 1818 disarmament treaty with British minister Charles Bagot (BAG-ut).

ANSWER: Richard Rush [accept Rush-Bagot Treaty]

Team B: Serving as the Attorney General under William Henry Harrison, John Tyler, and Millard Fillmore, this Kentuckian proposed a namesake 1860 compromise in a fruitless attempt to avoid the Civil War.

ANSWER: John Jordan Crittenden [accept Crittenden Compromise]

Tossup: The Senate rejected this politician's nomination to the Supreme Court as a replacement for Gabriel Duvall. This man became Attorney General after the position was resigned by John Berrien, and he served briefly as Andrew Jackson's Secretary of Treasury before being rejected by the Senate and replaced by Levi Woodbury. This man ruled that the writ of habeas corpus may not be suspended by the president in the case *Ex parte Merryman*, but he is best known for ruling that the Missouri Compromise was unconstitutional in an 1857 case which also determined that African-Americans were not U.S. citizens. What Chief Justice of the Supreme Court between 1836 and 1864 delivered the majority opinion in the Dred Scott case?

ANSWER: Roger Brooke Taney

Physical Science: Name the following related to physical constants from the study of electromagnetism.

Team B: What constant, whose reciprocal is multiplied by $1/4\pi$ ("one over four pi") in Coulomb's law, is partly determined by the magnetic permeability?

ANSWER: vacuum permittivity or permittivity of free space or electric constant

Team A: What other electromagnetic constant was first measured by Robert Millikan's oil drop experiment?

ANSWER: charge of the electron [accept fundamental charge]

Tossup: This scientist gives his name to a constant defined by "e times h bar, divided by 2, times the electron rest mass, times the speed of light." That constant gives the magnetic moment of an electron and is known as his "magneton." The philosophical underpinnings of quantum mechanics were debated between Albert Einstein and this physicist, who defended his complementarity principle. This physicist also proposed that electrons occupy discrete levels above the nucleus, a model which Arnold Sommerfeld refined into a better model. Name this 20th century Danish physicist who proposed a namesake model of the atom.

ANSWER: Niels Henrik David Bohr

Geography: Name these European rivers.

Team A: With its source in the Cambrian Mountains, this river of northeast Spain flows through the city of Zaragoza before flowing into the Mediterranean Sea south of Barcelona.

ANSWER: Ebro (EH-broh) River [or Ebre River]

Team B: Near the end of its run, the Volga River is connected by a channel to this other Russian river that flows through the city of Rostov before emptying into the Sea of Azov near the Ukrainian border.

ANSWER: Don River

Tossup: This river is the site of an annual fireworks festival that occurs over five separate days and is known as this river “in Flames.” After the Sarpefossen in Norway, Europe’s largest waterfall is on this river, whose source is Lake Toma. The Aare (ARR-uh) River is a tributary of the high portion of this river, which flows past a large rock known as Lorelei (LOR-uh-lye) within a namesake gorge. This river, which discharges from Lake Constance, flows past the cities of Basel and Strasbourg before emptying into the North Sea at Rotterdam. The Western German cities of Bonn, Dusseldorf, and Cologne (kuh-LOHN) are on what river which forms part of the border between Germany and France?

ANSWER: Rhine River [or Rhein River or Rijn River]

American History: Name these activists or social reformers.

Team B: The slums of New York’s Mulberry Street were the focus of one work by this Danish-American muckraker best known for authoring *How the Other Half Lives*.

ANSWER: Jacob August Riis (“reese”)

Team A: James Meredith’s historic efforts to enroll in the University of Mississippi were done with the aid of this NAACP field secretary whose civil rights activism contributed to his 1963 assassination by Byron De La Beckwith.

ANSWER: Medgar Wiley Evers

Tossup: This activist denounced racism within places of worship in a speech entitled “The Church and Prejudice,” and he noted that success is explained mainly by “work! work! work! work!” in his “Self-Made Men” speech. This man was nominated by the Equal Rights Party as the vice-presidential candidate on a ticket that included Victoria Woodhull. His servitude under Edward Covey and Thomas Auld was recounted in *My Bondage and My Freedom*, which was the second of his three autobiographies. The *North Star* newspaper was published by what 19th century African American activist who wrote a “narrative” of his life as “an American slave”?

ANSWER: Frederick Douglass [or Frederick Augustus Washington Bailey]

Alphabet Round – Letter I

1. **(NAME AND REGNAL NUMBER REQUIRED)** – 17th century Russian czar who co-ruled with his brother Peter the Great.
2. In electromagnetism, this term refers to the production of an electromotive force across a conductor when a varying magnetic field is applied.
3. This literary group of writers at the University of Oxford championed the power of narrative and fantasy; its members included J.R.R. Tolkien and C.S. Lewis.
4. In Norse myth, the keeper of the golden apples and wife of Bragi.
5. **(MULTI-WORD ANSWER)** – Fourth movement of Peer Gynt Suite No. 1, which depicts Peer Gynt's encounter with trolls.
6. Plato's *Phaedo* uses the cyclic argument to argue that this philosophical idea with respect to the soul is true; Pythagoras's belief in metempsychosis necessitates that this doctrine with respect to the soul be true.
7. **(MULTI-WORD ANSWER)** – Name of the 1963 Martin Luther King Jr. speech which ends with the proclamation "we are free at last."
8. **(MULTI-WORD ANSWER)** – Location in the pancreas where hormones such as insulin and somatostatin are produced.
9. 19th century French artist of *The Turkish Bath* and *La Grande Odalisque*.
10. This narrator of *Moby Dick* is the sole survivor of the *Pequod*.
11. Arm of the Mediterranean Sea which separates Italy from Greece.
12. **(TWO WORD ANSWER)** – Alternate name of King Abdulaziz, who ruled as King of Saudi Arabia between 1932 and 1953.
13. This Savoy opera by Gilbert and Sullivan is named for a fairy that is the mother of Strephon; its characters include the Lord Chancellor, who is sung by a comic baritone.
14. **(TWO WORD ANSWER)** – Analytical technique in which the structure of a molecule is determined based on how a bond vibrates; contains a "fingerprint region" that helps uniquely identify a molecule.
15. In his poem "Dover Beach", Matthew Arnold describes a "darkling plain...where [these kinds of] armies clash by night."
16. Book of the Bible which contains the Songs of the Suffering Servant.
17. Alvin Toffler's book *Future Shock* argued that people in futurological societies would be overloaded with what concept, whose omnipresence characterizes a "super-industrial society"?
18. **(TWO WORD ANSWER)** – 1830 act which authorized relocation of the "Five Civilized Tribes" to lands west of the Mississippi River.
19. **(TWO WORD ANSWER)** – In programming, this term refers to a piece of code with a flaw such that a while-condition is never satisfied; thus, the code is executed endlessly.
20. This author wrote about a sculptor reuniting with his model in his last play *When We Dead Awaken*. Dr. Thomas Stockmann tries to warn people about poisoned water in another of his works.

Alphabet Round – Letter I Answers

1. **Ivan V** (the fifth) (NAME AND REGAL NUMBER REQUIRED)
2. **induction** [do not accept “inductance”]
3. The **Inklings**
4. **Idunn**
5. **“In the Hall of the Mountain King”** (MULTI-WORD ANSWER)
6. **immortality** of the soul or **immortal** soul
7. **“I Have A Dream”** (MULTI-WORD ANSWER)
8. **islets of Langerhans** (“eye”-litz “of” “LONG”-ur-hahnz) (MULTI-WORD ANSWER)
9. Jean-Auguste-Dominique **Ingres** (AHN-gruh)
10. **Ishmael**
11. **Ionian** Sea
12. **Ibn Saud** (TWO WORD ANSWER)
13. **Iolanthe**; or, *The Peer and the Peri*
14. **infrared spectroscopy** or **IR spectroscopy** (TWO WORD ANSWER)
15. **ignorant**
16. Book of **Isaiah**
17. **information**
18. **Indian Removal** Act (TWO WORD ANSWER)
19. **infinite loop** (TWO WORD ANSWER)
20. Henrik Johan **Ibsen**

Lightning Round

1. At the behest of Ian Fleming, this author wrote a short story in which Mary Maloney kills her husband using a piece of lamb, which is then fed to the detective investigating that murder. This author also wrote the screenplay to the Bond film *You Only Live Twice*. One of this author's novels ends with Miss Honey adopting the title character, who uses telekinesis to scare Miss Trunchbull. "Lamb to the Slaughter" and *Matilda* are works by what British children's author best known for writing *Charlie and the Chocolate Factory*?

ANSWER: Roald Dahl

2. One son of this mythical man immolated himself after being driven mad for failing to honor Artemis. This father of Broteas conspired with Pandareus to steal and hide a golden dog belonging to Zeus. One action by this man resulted in his second son receiving a shoulder made of ivory. In one myth, this man steals ambrosia from Mount Olympus, but he is better known for chopping up his son, Pelops, and serving him as food to the gods. Name this mythical king who was punished with eternal hunger and thirst despite standing below a fruit tree in a pool of water.

ANSWER: Tantalus [or Tantalos]

3. The Bwindi Impenetrable Forest is in the southwest part of this nation, which controls the Ssesse (SEH-say) Islands. Within this country, the Kazinga Channel connects the eastern end of Lake Edward to Lake George. Its western border goes through Lake Albert, which this nation shares with the Democratic Republic of the Congo. Located to the north of Rwanda, this nation controls the northwest part of Lake Victoria, which it shares with Kenya and Tanzania. Name this African nation whose capital is Kampala.

ANSWER: Republic of Uganda [or Jamhuri ya Uganda]

4. One side in this battle established their defensive line along the Rodriguez Canal. Following this battle, the winning side prevailed at the Siege of Fort St. Philip by repelling a fleet commanded by Alexander Cochrane. Losing commander Edward Pakenham was killed during this battle, which saw the winning side aided by the pirate Jean Lafitte. Name this battle in the War of 1812 in which Andrew Jackson defeated British troops after the Treaty of Ghent was signed.

ANSWER: Battle of New Orleans

5. In a carbohydrate, the anomeric carbon has a position of this number. In VSEPR (vesper) theory, there are this many lone pairs in the square pyramidal and seesaw geometries. This many hydrogen atoms are present in one molecule of chloroform. A sigma bond contains this many bonds, and alkali metals always have this oxidation state. Give this number that is the atomic number of hydrogen.

ANSWER: one [or positive one or plus one; do not accept "negative one" or "minus one"]

6. This writer portrayed Satan penning a series of epistles to the archangels Gabriel and Michael in his story "Letters from the Earth." The first volume of his autobiography in three parts was published one-hundred years after his death. He described his older brother Orion in *Roughing It*, and he wrote about training under Horace Bixby in a memoir about his time as a steamboat pilot while on the title American river. Name this man who wrote the non-fiction work *Life on the Mississippi*.

ANSWER: Mark Twain [or Samuel Langhorne Clemens]

7. Remo Giazotto wrote a piece of this name "in G minor" which he falsely claimed was inspired by a manuscript fragment from the composer Tomaso Albinoni. Another piece whose title begins with this word was rearranged by its composer for the choir composition *Agnus Dei*. That piece by Samuel Barber is called "[this] for Strings." Name this tempo marking which is faster than larghetto but slower than andante.

ANSWER: adagio [accept "Adagio in G minor" or "Adagio for Strings"]

8. This man discussed the subjugation of female society in "The Barbarian Status of Women." In another book, he argued that football and other sports have value in society because they provide visible leisure. That book argues that the consumerist portions of society have led people to publically display their economic power, a practice known as conspicuous consumption. Name this American economist and sociologist who authored *The Theory of the Leisure Class*.

ANSWER: Thorstein Bunde Veblen [accept Torsten Bunde Veblen]

9. One conflict for control over this nation was ended by the Tela Accord. Augusto Sandino opposed the American influence in this nation that led to the ousting of President Jose Zelaya. The U.S. signed the Bryan-Chamorro Treaty with this nation, which was briefly ruled by American William Walker. Several members of the Somoza family have ruled this nation, which was, for much of the 1980s, embroiled in conflict between the Contras and Sandinistas. Name this Central American nation currently ruled by Daniel Ortega.

ANSWER: Republic of **Nicaragua** [or Republica de **Nicaragua**]

10. Following this event, Theonas of Marmarica and Secundus of Ptolemais were exiled to Illyria. Much of the authority of Meletius of Lycopolis was stripped during this event, which was overseen by Hosius of Cordoba. It established the doctrine of homoousios (HOH-moh-OO-see-ohss) to describe the relationship between God and Jesus, which served as a denouncement of Arianism. Name this AD 325 meeting, the first Christian ecumenical council, which established a namesake creed that begins “we believe in one God.”

ANSWER: First Council of **Nicaea** (nye-SEE-uh) [prompt on “Nicene Creed”]

11. For a pendulum, this quantity is given by the formula “mass, times gravity, times length, times one minus the cosine of the angle.” For a two particle system due to gravity, this quantity is given by the negative of “big G, times ‘m one’, times ‘m two’, divided by the distance between them.” For a particle on earth, it is given by the formula “mass, times height, times little g.” Name this quantity that is a measure of “stored work” in an object and contrasted with its “kinetic” counterpart.

ANSWER: **potential** energy

12. A murder mystery set in this country in which the killer is never revealed is described in the title as “That Awful Mess” which takes place on a street named “Merulana”. An adaptation of the French *chanson de geste* (SHAN-sohn duh jest) written in this country focuses on a paladin who meets Angelica before eloping to Cathay. Another writer from this country wrote the *Canzoniere* (can-ZOH-nee-AIR-ay) and described his love for Laura in *Secretum Meum* (see-CRAY-tum MAY-um). A volta divides a sestet and an octet in this country’s type of sonnet. Name this birth country of Petrarch.

ANSWER: **Italy** [or **Italian Republic** or **Italia** or **Repubblica Italiana**]

13. This man’s sculpture *Table of Silence* can be found at the Târgu Jiu (TAR-gew JYU) ensemble, which also features his artwork *The Gate of the Kiss* and a sculpture consisting of seventeen rhomboidal nodules, *The Column of the Infinite*. His most famous series of sculptures was taxed by U.S. customs for resembling scrap metal; those sculptures depict an animal in motion. Name this Romanian sculptor who created *Bird in Space*.

ANSWER: Constantin **Brancusi** (bran-KOOSH)

14. During this conflict, the rule of one king was recognized by the Titulus Regius. The Act of Accord attempted to end this war, but it was soon violated at the Battle of Wakefield. St. Albans was the site of two battles in this war, during which English King Edward IV (the fourth) came to power. Near the end of this war, Richard III (the third) was killed at the Battle of Bosworth Field, leading to the rule of the Tudor Dynasty under Henry VII (the seventh). Name this 15th century English conflict fought between the Houses of York and Lancaster.

ANSWER: War(s) of the **Roses** [accept **Rose** War(s)]

15. These structures may be classified as transverse when a series of their long ridges are separated by troughs, or they can be classified as barchans (bar-KAHNZ) when they are generally crescent shaped. They are typically limited in size by the angle of repose, which is usually about thirty-four degrees. The slip face of these structures typically faces against the wind, which creates their counterparts, the broadsides. Name these conical collections of sand found in desert areas.

ANSWER: sand **dunes** [do not prompt on or accept “sand” by itself]

16. This philosopher’s love life is the subject of a novel by Nancy Mitford which details his relationship with Emilie du Chatelet (SHAH-tuh-lay), whom this figure called a “great man whose only fault was being a woman.” He criticized the church in his oft-censored *Philosophical Dictionary*. The phrase “we must cultivate our gardens” ends a novel by this man which satirized the philosophy of Gottfried Leibniz with the character of Dr. Pangloss. Name this French Enlightenment *philosophe* who wrote *Candide*.

ANSWER: **Voltaire** [or François-Marie **Arouet**]

17. This artist depicted a man holding up two fingers to signal a boy, who pulls a six of clubs from a belt behind his back, in the painting *Cardsharps*. An old woman looks on while the first title figure plunges a sword through the neck of the second title figure in his version of *Judith Beheading Holofernes*. In another work, a ray of light shines over several men counting coins at a table while the title figure is being beckoned by Jesus. Name this Italian painter of *The Calling of Saint Matthew*.

ANSWER: Caravaggio (kar-uh-VAH-jee-oh) [or Michelangelo da Merisi (muh-REE-zee); do not accept or prompt on “Michelangelo”]

18. This author wrote about the economic genius of Jesus in the preface to his play *Androcles and the Lion*. He also wrote about John Tanner, the descendant of Don Juan, in a play whose third act features Don Juan talking to the devil. In another of this author’s plays, a whisky distiller and an arms manufacturer named Andrew Undershaft make a donation to the Salvation Army. Name this late Victorian dramatist who authored *Man and Superman* and *Major Barbara*.

ANSWER: George Bernard Shaw

19. CD20 is found on these cells until they fully mature. Once activated, these cells undergo isotype switching inside the germinal center of a lymph node. These cells can differentiate into either plasma cells or memory cells. Their main job is to produce antibodies. Name this type of white blood cell, which is named because it matures in the bone marrow, unlike T cells.

ANSWER: B cells [prompt on white blood cell or leukocyte or lymphocyte]

20. The lyrics “yet what force on earth is weaker than the feeble strength of one” appear in this (*) organization’s song “Solidarity Forever.” Several of its members were killed aboard the *Verona* during the Everett Massacre. It was cofounded by such people as “Mother” Jones and a man charged with the murder of Idaho Governor Frank Steunenberg. “Big Bill” Haywood was a leader and co-founder of what labor union whose members are known as “Wobblies.”

ANSWER: IWW or Industrial Workers of the World [accept Wobblies before it is mentioned; prompt on “Solidarity Forever” before (*)]