

RTO 2016

Round 6

Tossups:

1. **These molecules are often created using the Fischer-Tropsch process. Alkenes are reacted with a palladium catalyst to produce them and they are reacted with steam and a nickel catalyst to produce hydrogen. These molecules are commonly viewed with Newman projections. They are (*)** often used as fuels and are produced when Grignard (GRIN-yard) reagents are reacted with water. FTP, name this type of hydrocarbon with all carbon-carbon single bonds and formula $C_nH_{(2n+2)}$, the simplest of which is methane.

Alkanes

2. **In this novel, one character allegedly had his blood-surrogate contaminated by alcohol, explaining his stunted figure. Darwin Bonaparte videotapes a man flogging himself. That man, John (*)** the Savage, was the illicit son of the Director and Linda. In this novel, the World State artificially raises human embryos to be fit for a caste, such as alpha and epsilon, and uses a drug called "soma." FTP, name this dystopian novel by Aldous Huxley.

Brave New World

3. **This religion classifies time into utsarpani and avasarpani. Nirjara is one tattva in this religion, which says that asceticism can result in discarding karma. Adherents must follow the five vows. Two sects in this religion are the (*)** Svetambara and Digambara, the latter of which means sky-clad, referring to their avoidance of clothing. The symbol of this religion is a hand with a chakra placed below a swastika. Adherents believe in twenty four tirthankaras and sometimes wear masks and sweep the ground in front of them to avoid killing insects. This religion's book is the Agamas. FTP, name this religion founded by Mahavira that believes in ahimsa, or nonviolence.

Jainism

4. **This man's predecessor and successor were Justin I and Justin II respectively. This man utilized Narses and another general to realize his dream of *renovatio imperii* or "restoration (*)** of the Empire" but never fully realized this ambition. This man also invaded North Africa in the Vandalic War. Under this man's rule the capital city saw a riot over chariot racing and half the city was burned, those were the Nika Riots. Name this ruler of the Eastern Roman Empire who is considered to be the last Roman emperor to speak Latin.

Justinian I (accept Justinian the Great or Saint Justinian the Great, prompt on Justinian)

5. **This country's national anthem is "Ishy Bilady," which translates into "Long Live My Nation." The name for this nation's currency, derives from the Greek word that means "handful." This currency, the dirham, was introduced in 1973. Mohammed bin Rashid Al Maktoum, the vice president and Prime Minister of this country, owns companies like DP World, the Jumeirah Group, and this country's (*)** namesake airline, based in Dubai. This country, which lies between Oman and Saudi Arabia, also borders the Persian Gulf to the south. Its 9.2 million population includes only 1.4 million citizens. For ten points, name this nation with capital Abu Dhabi.

United Arab Emirates or UAE

6. **This country's bid for chair of ASEAN was approved in 2014. Its Union Solidarity and Development Party was trounced in the 2015 general election, losing 295 seats. Many accusations of**

genocide against the Rohingya people have been made against its government. The (*) National League For Democracy gained a super majority in both houses, which is even more impressive given that a quarter of the seats in the lower house is reserved for the military. However, the leader of the NLD will not be able to become president due to a constitutional ban. FTP, name this Southeast Asian country, where Aung San Suu Kyi leads the NLD, whose capital was recently moved from Yangon to Naypyidaw.

Myanmar (accept Burma)

7. **This rapper, who is running for president in 2016, has based his platform on legalizing marijuana, banning animals from restaurants, and banning people with shoe sizes above size thirteen from walking on public sidewalks. The Atlanta native was referenced in Eminem's (*) Rap God. FTP, name this rapper of No Hands and Hard in da Paint, which appeared in his album, Flockavelli.**

Waka Flocka Flame

8. **These constructs can be factored using LU decomposition or eigen decomposition, and ones containing second partial derivatives of a function are known as Hessian. Gaussian elimination can be used (*) to convert these into row echelon form. Their name is also used to describe the intermitochondrial space, and they can be used with Cramer's rule to solve systems of linear equations. FTP, name these mathematical constructs for some of which ad-bc can be used to find the determinant.**

Matrix or Matrices

9. **This man argues that Judaism was formed when rebels felt bad after murdering Moses in *Moses and Monotheism*. He also says that people have safeguards against potential incest in *Totem and Taboo*. In *Civilization and its Discontents* this man described an (*) "oceanic feeling." He imagines Irma having experienced side effects from receiving a particular injection, and he describes mental development and says that all girls experience penis envy during the phallic stage of development. FTP, name this Austrian who wrote *The Interpretation of Dreams* and *Beyond the Pleasure Principle* where he describes the id, ego, and superego.**

Sigmund Schlomo Freud

10. **This man accused Christendom as the destroyer of the harvest of not only ancient civilization, but also of Mohammedan civilization while bemoaning the loss of Moor culture in Spain. He then claims that the lost Moor culture was richer than the legacy of the Greeks and Romans. This man also provocatively wrote that "Plato is boring" and that liberalism is (*) herd-animalization. In one of his most famous works, this man compares the moral condition and progression of mankind to a rope over a wide chasm. According to this man, that very same rope resides in between a beast and what he famously called the overman. For ten points, name this German existentialist philosopher who wrote *Thus Spoke Zarathustra*, *Beyond Good and Evil*, and *The Will to Power*.**

Friedrich Nietzsche (Pronounced Neets-shuh)

11. **The Five Knights Case occurred under this man's reign. His enemies signed the Solemn League and Covenant. His favored advisor, Thomas Wentworth, (*) First Earl of Stratford, was executed under orders from Parliament. He abused ship money and forced loans, leading to his downfall at the Battle of Naseby. FTP, name this English monarch whose son returned to power in the Restoration.**

Charles I (prompt on Charles, do not accept Charles II)

12. **In this book, one of the characters breaks off an engagement after one year. Another character is known for his short temper and living out in the middle of nowhere. A timid character in this book fends off many (*) military attacks in this book, yet almost gets in trouble for losing two cannons before being saved by Prince Andrei. General Kutuzov remarks "I will make them eat horse meat" in this**

book. For ten points, name this book about Russian nobles and Napoleon's disastrous attack of Russia, by Leo Tolstoy.

War and Peace

13. **This city is bounded in the west by the Serra de Collserola mountain range; it is found between the Llobregat and Besos rivers, and this city lies north of Tarragona. The architect Lluís Domènech i Montaner worked almost exclusively in this city as did (*) Antoni Gaudí. Works in this city include the Parc Güell and the Casa Milà, as well as the city's largest cathedral, the Sagrada Família. FTP, name this city in Catalonia which hosted the 1992 Summer Olympics and is the second largest city in Spain.**

Barcelona

14. **This man's most famous work was used by BBC during World War II since it had the same rhythm as the Morse code "V." Another work by this man was originally dedicated to a French general. A letter sent by this man is now called the Heiligenstadt (hi-lee-gen-stadt) Testament. (*) He wrote the Kreutzer Sonata and Eroica. His most famous work ends with 29 C chords and symbolizes fate knocking at the door. FTP, name this German composer, famous for his Moonlight Sonata, Für Elise, and his 5th symphony.**

Ludwig van **Beethoven**

15. **This country experienced an earthquake that killed over 375 people on October 26, 2015 and is the sixth most populous country in the world, exceeding 199 million people. This country's current Prime Minister is (*) Nawaz Sharif and in 1999 that man was thrown out in a bloodless military coup. This country who fought and lost a war in 1971 with India and also lost its Eastern part, now known as Bangladesh. Name this country, the home of Osama bin Laden during the latter part of his life.**

Islamic Republic of **Pakistan**

16. **One type of this mineral found near hot springs is called travertine. Most biological forms of this mineral come from coccolithophores, and most of the impurities in it come from marine organisms. The amount of it being (*) produced is currently decreasing, however, due to ocean acidification. This mineral is commonly found in karst topography along with other soluble rocks like gypsum and dolomite. FTP, name this mineral that makes stalactites and stalagmites, is composed of calcium carbonate, and can turn into marble.**

Limestone

17. **Forms of this process include Fused Deposition Modelling, Selective Laser Sintering, and Stereolithography. First developed in the 1980's, this technology did not become popular until the early 2000's. The (*) RepRap project was designed to make a machine that could do this process and replicate itself. This type of manufacturing is contrasted with subtractive manufacturing because it adds material to build objects rather than taking it away. FTP, name this type of manufacturing in which objects are built layer by layer. Makerbot is the most famous company to make machines that do this process.**

Additive Manufacturing (also accept **3D Printing**)

18. **This man's name means "the kinsman is a healer." During this man's reign, his city-state took the position of "most holy city" from Nippur. This man stated that "I established law (*) in the land" in the prologue of one text. This son of Sin-Muballit succeeded in defeating Ishme-Dagan I to gain control of all of Mesopotamia. The laws of the land were inscribed in his stele. For ten points, name this Amorite sixth king of the First Babylonian Dynasty who enacted his namesake code which stated "If a man destroy the eye of another, they shall destroy his eye."**

Hammurabi

19. **One of the characters in this novel mutters physics under his breath during bombardments. Two characters in this novel bet a bottle of beer on the outcome of an air duel. Two of the characters in this novel take a cat in a birdcage with them as they leave a town that is being bombed. The transfer of boots between characters is an important symbol of this novel. The main characters hatch a plan to humiliate (*) Himmelstoss. The narrator's mentor, Katczinsky, dies from a shrapnel wound to the back of the head. FTP, the narrator, Paul Baumer, dies after writing about his experiences on the namesake battleground in what Erich Maria Remarque novel?**

All Quiet on the Western Front

20. **A valet in this play has no eyelids, while those of another character are atrophied. A postal clerk is the only character who from the beginning confesses that she did something wrong. She falls in love (*) with another character in this play, Estelle Rigault. Ines stabs Estelle near the end in a fit of raging jealousy as Estelle successfully seduces Joseph. Joseph abused and cheated on his wife, Estelle killed the child that resulted from her affair, and Ines turned her cousin's wife against him by seducing her. FTP, name this play that is known for its famous quote "Hell is other people," about three damned souls stuck in a room together for all eternity and afterlife, written by Jean-Paul Sartre.**

No Exit (or Huis Clos)

21. **During the Manhattan Project, he co-developed a formula to calculate the yield of a fission bomb while working under Hans Bethe (BAY-tuh). This man produced an explanation that followed quantum mechanics for the seeming lack of viscosity in supercooled (*) helium. His work on superfluidity helped lead into the development of superconductors. He won the Nobel Prize in Physics along with Julian Schwinger and Sin-Itiro Tomonaga for his work on quantum electrodynamics. His namesake diagrams show the interactions between particles. FTP, name this great explainer, known for his work on the Manhattan project and in QED.**

Richard Feynman

Bonuses Round 6

:

1. For ten points each, name these Robert Frost poems given their last few lines.

A.

"The woods are lovely, dark and deep / But I have promises to keep. / And miles to go before I sleep / And miles to go before I sleep."

Stopping by Woods on a Snowy Evening

B. "I took the one less traveled by, / And that has made all the difference."

The Road Not Taken

C. "The woodchuck could say whether it's like his / Long sleep, as I describe its coming on, / Or just some human sleep."

After Apple-Picking

2. Some wars have been fought over really weird things. FTPE, name these answers related to wars started by animals.

A.

Australia fought a war against these large flightless birds, not to be confused with ostriches. A major from this battle said "if we had a military division with the bullet-carrying capacity of these birds it would face any army in the world."

Emus (accept also the Great **Emu War**)

B. The "Pig War" started when an American farmer shot a pig eating his potatoes, took place on the San Juan Islands, which lie between the mainland of America and this Canadian Island.

Vancouver Island

C. The "War of the Stray Dog" possibly occurred when a Greek soldier ran after his dog that crossed the border with this country, whose capital is Sofia.

Bulgaria

3. For ten points each, answer these questions about the former United States Secretary of Education.

A.

This Secretary of Education stepped down at the end of 2015. He was succeeded by John King, Jr.

Arne Duncan

B. Duncan supported this 2009 competitive grant that awarded states points for satisfying certain educational policies, such as adopting Common Core States Standards.

Race to the Top

C. Arne Duncan, before being Secretary of Education, was the superintendent for this city's school district, the fourth largest in the United States. This city is also home to the O'Hare International Airport and Millennium Park.

Chicago

4. FTPE, answer these questions about John Snow.

A.

John Snow studied this disease. Symptoms include sunken eyes, diarrhea, and bluish skin. It is

caused by contaminated water.

Cholera

B. Snow gained important information in his study of the disease from a well on this street. A memorial to him is now situated there.

Broad Street (prompt on Broadwick Street)

C. Snow is considered one of the fathers of this branch of science. It involves the tracking and study of the spread of diseases.

Epidemiology

5. FTPE, name these facts about the German Empire.

A.

This *Kaiser* was the first and longest-reigning *Kaiser*. Chancellor Otto von Bismarck served under him for 21 years.

Wilhelm I (prompt on Wilhelm)

B. This son of Wilhelm I ruled for only 99 days before dying and having his son, Wilhelm II, take his place. He wrote an edict to limit the power of the *Kaiser* and the *Reichskanzler* but it never came into effect. He was named after a "Great" predecessor.

Frederick III (prompt on Frederick)

C. Frederick III died of cancer. Name the specific type of cancer that he succumbed to.

Throat cancer (accept **laryngeal carcinoma**)

6. FTPE Answer these questions about Constitutional amendments

A.

This amendment defined Citizenship along with allowing the incorporation of rights to be used in state courts through the due process clause

14th Amendment

B. This amendment banned the use of poll taxes.

24th Amendment

C. Which amendment was passed to reverse the 1793 Supreme Court ruling in *Chisholm v. Georgia*?

11th Amendment

7. FTPE, name these answers about Japanese literature.

A.

In this novel, a man paints himself red and inserts a cucumber in his anus before killing himself. It also involves Mitsu and Takashi returning to their home village.

The Silent Cry

B. In this novel, Bird tried to avoid responsibility for his child who is born with a brain hernia. He almost kills the child at one point.

A Personal Matter

C. Both of those books were written by this author. Many of his books were based on his son who is mentally disabled.

Kenzaburo **Oe**

8. These islands were the only American soil conquered by the Japanese in WWII.

A.

FTPE, name this island archipelago of the United States.

Aleutian Islands

B. The Aleutians are a part of this largest state in America, from which former governor Sarah Palin could see Russia.

Alaska

C. In 1989, the Exxon Valdez spilled at least 11 million gallons of oil into this sound in Alaska.

Prince William Sound

9. FTPE answer these questions about World War Two in the Pacific.

A. This battle, fought in May of 1942, was indecisive. The US took heavier losses, but the Japanese were unable to cut supply lines of attack Australia because of the battle.

Battle of **Coral Sea**

B. This naval battle was one of the first ever fought without the battleships ever catching sight of each other. This battle was seen as a turning point to many.

Battle of **Midway**

C. This air raid, also known as the Tokyo raid, was the first time American bombers were able to bomb Tokyo. The bombers later crash landed in China and were hidden by partisans.

Doolittle raid

10. FTPE, answer these questions about a famous monkey.

A.

This monkey protected the monk Xuanzang from many demons on his quest to gather scriptures from India in *Journey to the West*.

Sun Wukong

B. Sun Wukong defeated this dragon to retrieve a magical staff that could change to any size and control the tides.

Ao Kuang or **Ao Guang**

C. For many indignations against him, Sun Wukong caused much trouble for all the gods of heaven until this person was finally able to seal him under a mountain.

Buddha

11. In his fifteen years of campaigning, Alexander the Great never lost a battle. For ten points each name some of these battles.

A. Although he didn't lose a battle, his armies did mutiny and refuse to go further after the Battle of Hydaspes in the Punjab. However, Alexander did found a city that he named in honor of his horse that had died in that battle. Name that horse and city.

Bucephela or Bucephalus

B. This battle marked the end of Persian military resistance to Alexander. It saw him acquire Babylon, half of Persia, and all parts of Mesopotamia.

Battle of **Gaugamela**

C. Alexander defeated King Porus in modern India at this battle.

Battle of the **Hydaspes**

12. FTPE name these years in which famous sports events took place.

A. In this World Series, the Black Sox Scandal took place. Name this year in which eight Chicago White Sox players purposely threw away the Series.

1919

B. The Summer Olympics in this year were originally scheduled to be held in Berlin, Germany. Name this year that the Summer Olympics were cancelled due to the outbreak of World War I.

1916

C. This year was when the first Super Bowl ever was played. Name the year of the first Super Bowl in which the Green Bay Packers beat the Kansas City Chiefs.

1967

13. FTPE, answer these questions about Hearthstone!

A. This player is on Team SoloMid and is commonly referred as "The Mayor of Value Town". He shares his name with a leading presidential candidate.

Trump

B. This overplayed 7-mana card summons 2 1/1 bots that may explode and is commonly referred to as Dr. 7.

Dr. Boom

C. This player won the 2015 Hearthstone World Championship.

Ostkaka (be generous in pronunciation)

14. Excessive singing can apparently cause sudden and violent loss of life. FTPE,

A.

Name these vulture-women Greek monsters, whose singing lured passing mortals to their deaths.

Sirens

B. Sirens would only die after a mortal safely passed them. Which is exactly what Jason and the Argonauts did, with the help of this lyre player whose musical talents rivaled the gods'.

Orpheus

C. Odysseus thought it would be easier for his men to just not listen to anything at all, and used this

substance to block the ears of his crew.

Beeswax (accept wax)

15. This structure contains a cis face and a trans face and consists of stacks called cisternae. FTPE,
A.
Name this organelle that modifies, packages, and exports proteins to different parts of a eukaryotic cell.

Golgi body [or **Golgi apparatus**]

B. This structure encloses cells, and it consists of a phospholipid bilayer. This is described by the fluid mosaic model and is surrounded by a cell wall in bacteria, plants, and fungi.

Cell membrane [or **plasma membrane**; or **cytoplasmic membrane**]

C. These transmembrane proteins serve as channels to allow the movement of water molecules through the cell membrane. They were discovered by Peter Agre, who won the Nobel Prize in Chemistry in 2003.

Aquaporins

16. FTPE, answer these questions about the incompleteness theorem.
A. The incompleteness theorem states that one of these devices cannot prove all mathematical theorems.

Computer

B. The incompleteness theorem was first proven by this Austrian mathematician.

Gödel

C. Gödel names a book also known as *The Eternal Golden Braid* along with two other people. Name one of them.

Bach or **Escher**

17. For ten points each, name some cities in Germany.
A.
This city is Germany's fourteenth largest city; its namesake trials took place in the Palace of Justice.

Nuremberg

B. This town was the former royal residence of the Kings of Saxony and had to be practically rebuilt after allied air raids.

Dresden

C. Although no longer in Germany, but in Russia, this town, meaning King's Mountain, was the first capital of the Prussian Empire and has been renamed to Kaliningrad.

Konigsberg

18. FTPE, name these fundamental particles.
A.

These particles are the mediators of the four fundamental forces. The Grand Unified Theory predicts two more, the X and Y, while the one for gravity, the graviton, has not been discovered.

Gauge Bosons

B. This boson, one of the two involved in the weak force, is more massive than its counterpart. It has a charge of 0 and a spin of 1.

Z boson

C. The Gluon interacts with these particles. Their flavors include Strange, Charm, and Top. 3 of these make a Baryon.

Quarks

19. FTPE, name these movements from a Gustav Holst's *Planets*.

A.

This first movement is said to involve "motion" just as the zodiac of it predicts. It is subtitled *The Bringer of War*.

Mars

B. This movement, like *Mars*, is written in quintuple meter. This god's consort is Salacia and his fountains can be found in Nuremberg and Florence.

Neptune

C. Three of the seven movements by Holst are thought to be influenced by this Schoenberg piece. It mirrors the writer's block Schoenberg experienced as well as the tensions of the expressionist movement.

Five Pieces for Orchestra

20. FTPE, name these things related to the states of matter

A.

A solid turns into this state through sublimation and this state can be reached from a liquid the the process of vaporization.

Gas

B. This element does not have a liquid state at 1 atmosphere. This is the fourth most abundant element in the universe and is also known for a radioactive dating method.

Carbon

C. This point on a phase diagram is where the liquid, solid, and gas states all exist in equilibrium.

Triple point

21. For ten points each, name these nomadic peoples.

A.

These people found throughout the Arabian and Syrian deserts, are known for their hospitality and herding dromedary camels and goats.

Bedouin

B. These herders of Reindeer, who live in northern Norway and Sweden, wear the boots made famous by elves.

Sami (prompt on “Lapps” or the like)

C. These largely Nepali people have wider nostrils that allow them to live at higher temperatures. These famous mountaineers are known to deposit prayer flags on Mount Everest and other peaks in the Himalayas.

Sherpa