

## Teterboro's Academic Packets of Intellectual Rigor

## Packet 6

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**Tossups**

1. **Dyes of this color were primarily made from the woad plant until it was replaced by a superior tropical plant. In diamonds, impurities of boron lend this colored hue. Despite containing cyanide, the Prussian example of this dye is nontoxic, as opposed to another pigment of this color made from (\*) cobalt.** Rayleigh scattering often causes a certain entity to appear as this color, since waves of this color have shorter wavelengths and can thus be scattered more strongly. For 10 points, what color is the sky during the day?

ANSWER: **blue**

2. **These structures are infiltrated through their gastrodermal cells by microscopic organisms which gives them their color. The prevalence of these structures in low nutrient environments is the concern of Darwin's paradox. One variety of these structures are composed of a base of aragonite, a form of calcite, on which (\*) cnidarians called polyps are attached. Ships may be used to construct artificial examples of these structures that are not susceptible to bleaching. For 10 points, name these structures, the largest of which is the Great Barrier one off the coast of Australia.**

ANSWER: **reefs** [accept **coral** reefs]

3. **The 3rd movement of this composition is a scherzo with trio with 3 horns, and pianissimo in B Flat and later features a descending arpeggio motif played first by strings and then by the full orchestra. This allegro molto 4th movement of this composition consists of 10 variations on a theme while its second movement is a (\*) C minor funeral march. This piece was rededicated to "a great man" following the coronation of Napoleon as emperor, which angered its composer. For 10 points, name this "heroic" symphony in E flat by Beethoven.**

ANSWER: ***Eroica* Symphony** (accept any answer indicating **Beethoven's 3rd** Symphony in E flat major, or **Beethoven's Opus 55**)

4. **In a novel by this author, Vera kills Lombard before hanging herself on a noose, a plan arranged by Judge Wargrave. Earlier in that novel, every guest on an island finds a copy of a nursery rhyme hanging in their room titled "Ten Little Indians." In another novel by this author, it is revealed that the fugitive (\*) Cassetti and the elderly Samuel Ratchett are the same person by Hercule Poirot, who also discovers that everyone on the title train had conspired to kill him together. For 10 points, name this British author of "And Then There Were None" and "Murder on the Orient Express."**

ANSWER: Agatha **Christie**

5. **This man invented a larger-board variant of chess that featured three rows of pieces and unique types of pawns. The design of this man's tomb of Guri Amir, featuring a iwan, minarets, and a dome, may have inspired the design of the Taj Mahal. Conquests of this man include his victory at (\*) the Battle of Ankara and his capture of Delhi, the latter of which may have caused up to 200,000 casualties. A descendent of this ruler, Babur the Great, founded the Mughal Empire. For 10 points, name this Muslim conqueror who ruled over much of the Middle East from his capital Samarkand.**

ANSWER: Timur the Lame (accept Tamerlane)

6. **The Sturm sequence may be used to calculate the number of these values. These values are contrasted with poles when describing transfer functions. The product and sums of these values can be calculated using Vieta's Formulas. According to Rolle's Theorem, one of these points of a function's (\*) derivative must exist if a function is differentiable and attains the same value at two different points. A quadratic equation may have at most 2 of these points in the real plane. For 10 points, name these values where a function is equal to zero.**

ANSWER: roots (accept zeroes and critical points before mentioned)

7. **In this work, the speaker advises that it's "Better be jocund with the fruitful grape than sadden after none, or bitter, fruit." This collection's first work describes "the sun, who scatter'd into flight" and urges the reader to "wake." A poem from this collection describes an entity that cannot be "lured by wit" to "cancel a line" while describing a (\*) "moving finger" which "having writ, writes on." This collection of quatrains was most notably translated by Edward FitzGerald. "A jug of wine, a loaf of bread and thou" is a line from, for 10 points, what collection of poems by Omar Khayyam?**

ANSWER: *The Rubaiyat of Omar Khayyam*

8. **A boycott of this practice prohibited a team from competing at two Rugby World Cups, while other boycotts opposed the Group Areas Act and Land Act. A suburban uprising where this practice was enacted resulted in 176 deaths of mainly school children after police brutality in (\*) Soweto. 69 protestors against this policy were killed during the Sharpeville Massacre, after which the African National Congress resorted to guerilla warfare after they were banned. For 10 points, name this practice of racial segregation formerly practiced in South Africa.**

ANSWER: apartheid

9. **This group honored the victims of a ferry disaster in the music video of a song that begins with "I miss you." That song is "Spring Day." In another song by this group, one member remarks "now I don't know me" after changing everything about himself in "Fake Love." During a campaign with UNICEF, this group spoke to the (\*) United Nations as part of their Love Myself campaign about self-acceptance. The fans of this group whose members include J-Hope, Jimin, Jungkook and V are called "army." For 10 points, name this South Korean boy band.**

ANSWER: BTS (accept Bangtan Sonyeondan, Bangtan Boys or Bulletproof Boy Scouts)

10. **Indian forms of this activity are largely based on the text Natya Shastra, which describes 108 fundamental karanas which make it up. In many native american rituals, this activity is done with multiple hoops symbolizing the endless cycle of life, while southwestern tribes like the Zuni may perform another form of it in order to invoke (\*) rain. This activity is performed by a group in a circle during weddings in many Near East cultures. For 10 points, name this activity, which is performed by 2 people in a lion costume on Chinese New Year's.**

ANSWER: dancing

11. **One advocate for the construction of this structure later founded Rensselaer Polytechnic Institute, the oldest university of its type in the US. Over a thousand workers possibly died working on this structure at Montezuma's Marsh. Opponents of this structure, the first leg of which ended at (\*) Utica, often referred to it as Clinton's Folly, as it was approved by Governor Dewitt Clinton. 5 locks were built to continue this project past the Niagara escarpment near its western terminus, a few miles west of the town of Lockport. For 10 points, name this canal in upstate New York.**

ANSWER: the Erie Canal

12. **This scientist created a model used to parton showers to analyze high energy hadron collision experiments. This scientist created a model for weak decay that showed it only acted on left-handed particles along with Murray Gell-Mann. Interactions happen at (\*) vertices while photons and electrons are represented by a wave and straight lines respectively in a diagram created by this physicist. A collection of this percussion musician's lectures were recorded in 3 volumes. For 10 points, name this physicist and professor at Caltech.**

ANSWER: Richard Feynman

13. **One structure of this type near the Pompidou Center features a colorful sculpture of the Firebird and a black sculpture of a treble clef. Two famous examples of these structures in Barcelona include one topped by an arch in Citadel Park as well as a mercury one built by (\*) Alexander Calder. An Egyptian obelisk is at the center of one of these structures depicting one deity carrying an oar and another with a shrouded head, which was designed by Bernini for Pope Innocent X. For 10 points, name these structures, examples of which in Rome include the Trevi and one "of the Four Rivers."**

ANSWER: fountains

14. **The shape of these materials can be defined by their habit. A temperature associated with these substances is on the vertical axis of Bowen's reaction series. These substances, which are discolored by impurities, possess a long range order. (\*) In honey and other supersaturated solutions, these substances may be grown from excess solute from the introduction of a small sample called a "seed." Vacancies are the absence of an atom in the lattice of these structures. For 10 points, name these substances with highly ordered molecular structures.**

ANSWER: crystals

15. **This author wrote a poem in which the "moon came to forge" and shows her breasts to a boy. Another of this author's works ends with no one crying following the suicide of a woman who wears a green dress. The appearance of death in another play in this author's Rural Trilogy causes Leonardo Felix and (\*) the Groom to kill each other. A poem by this Generation of '27 author of Yerma laments the death of the bullfighter Ignacio Sanchez Mejias. For 10 points, name this Spanish writer of Blood Wedding and The House of Bernarda Alba.**

ANSWER: Federico Garcia Lorca (prompt on partial answer)

16. **A mine in this country's town of Naica is connected to a cave containing extremely large selenite crystals of up to 39 feet long. The Tarahumara people are native to the area around this nation's large Copper Canyon, which is found near its Sierra Madre Occidental mountain range. In this country, the volcano (\*) Paricutin suddenly emerged from a farmer's cornfield in 1943, while the taller volcano Popocatepetl is found adjacent to its capital city as well as Puebla. For 10 points, name this whose city of Juarez is just south of the Rio Grande.**

ANSWER: Mexico

17. **One thinker from this school argues to accept death as a natural transformation after singing and drumming following the death of his wife. That thinker also described waking from a dream, after which he was unable to distinguish if he was a man or a butterfly. This school also advocated for acting in a (\*) calm state free from desire, as well as to act in a non-forcing way to preserve naturalness with effortless action. This school contrasts that concept, wuwei, with naturalness, or ziran. For 10 points, name this religious and philosophical school founded by Laozi which centers on “the way.”**

ANSWER: Daoism

18. **In plants, organisms may undergo this process as a result of becoming polyploid. The phyletic gradualism model proposes a slow and uniform rate for this process. Reinforcement may increase this process by selecting against low fitness offspring according to the (\*) Wallace Effect. Two forms of this process include allopatric and sympatric types, which occurs due to geographic isolation and gene flow being cut off by organisms inhabiting the same range respectively. For 10 points, name this process in which a lineage is split, and a new type of organisms are formed.**

ANSWER: speciation

19. **This novel’s protagonist sees “a wonderful feature” as figs on the tips of the branches of a tree. The protagonist of this novel refuses to marry a man whom she feels is a hypocrite for not being a virgin. This novel’s protagonist is taken to a hospital after being rejected from a writing class after having interned at (\*) Ladies Day magazine. Dr. Nolan, the psychiatrist of this novel’s protagonist, administers electroshock therapy on her. For 10 points, name this novel in which Esther Greenwood’s depression is compared to being trapped under the title object by Sylvia Plath.**

ANSWER: *The Bell Jar*

20. **Men in this civilization used a personal ring used to sign off documents. Young boys from this civilization often wore a bulla necklace for good luck. A loose sinus fold was one part of a formal clothing worn by citizens of this civilization, which experienced a craze for Chinese silk. A plumed red crest decorated the helmets of this civilization’s (\*) military leaders. Horse riders in this civilization wore two thin red stripes on a shorter tunic than elites, who wore long tunics with stripes colored with Tyrian purple. For 10 points, name this Mediterranean civilization whose emperors often wore togas.**

ANSWER: Rome (or the Roman Empire)

**Bonuses**

1. This writer wrote a work in which 2 poems are compared to one another in a contest. For 10 points each:  
[10] Name this Japanese poet who compiled *The Seashell Game*. This poet used a renku linked verse form for that collection.

ANSWER: Matsuo **Basho**

[10] Basho is considered to be the master of this poetry form, which consists of 3 lines consisting of 5 syllables, 7 syllables, and 5 syllables respectively.

ANSWER: **haiku**

[10] Basho wrote that “every day is a journey, and the journey itself home” in this collection written as he traveled through Japan.

ANSWER: ***Oku no Hosomichi*** (or ***The Narrow Road to the Deep North***)

2. This event transformed one country’s economy from one of the poorest in the world to one of the largest in the region. For 10 points each:

[10] Name this event during which the emergence of Chaebol conglomerates helped spur the rapid modernization and economic growth of an Asian country.

ANSWER: **Miracle on the Han River**

[10] The Miracle on the Han River occurred in this country, where the Han River flows past the city where Hyundai, Lotte and Samsung are headquartered.

ANSWER: **South Korea**

[10] In order to demonstrate the growth of South Korea, Chun Doo-Hwan submitted a bid to host this international event held in its capital.

ANSWER: **1988 Seoul Olympics** (also accept **1988 Olympics** or the **Seoul Olympics**, prompt on just the **Olympics**)

3. So you want to send your teammate into outer space. For 10 points each answer the following about space systems:

[10] To make sure that the takeoff will be safe, you must make sure that your teammate does not exceed this quantity, the maximum carrying capacity of the spacecraft.

ANSWER: **payload**

[10] To help calculate the motion of your teammate in the spacecraft, you may use this equation which states that the change in velocity is equal to the exhaust velocity times the natural log of the initial mass over the final mass.

ANSWER: Tsiolkovsky **rocket equation** (accept the **ideal rocket equation**)

[10] To get a better understanding of rocket dynamics, you might want to read up on the work of this American rocket scientist, who developed the world’s first liquid fueled rocket and applied two axis control to control rocket flight.

ANSWER: Robert Hutchings **Goddard**

4. The Kit variety of these non-kat items are sometimes called pochettes since they are small enough to fit inside a pocket. For 10 points each:
- [10] Name this string instrument, the highest pitched in its namesake family, and certain expensive specimens of which were made by Stradivarius.
- ANSWER: **violin**
- [10] In addition to playing pizzicato or con arco, the violin may also be played in this manner in which the wooden stick of the bow is used to play on the strings.
- ANSWER: **col legno** (or **col legno** battuto)
- [10] This substance commonly comprises the strings of a violin, although today steel and synthetic polymers are generally favored over them. These natural fibers are, contrary to their name, not made from felines.
- ANSWER: **catgut**
5. In the game League of Legends, Fizz wields a seastone one of these weapons. For 10 points each:
- [10] Name these three pointed weapons, one of which is wielded by the Greek sea god Poseidon.
- ANSWER: **trident**
- [10] Tridents are sometimes used in this technique used to catch fish. This traditional art of fishing now mostly utilizes a modified gun to launch a projectile to catch fish.
- ANSWER: **spearfishing**
- [10] Shiva used his trident trishula to behead this other deity. This deity was created from clay by his mother to protect herself from Shiva.
- ANSWER: **Ganesh**
6. These items may stand up to 11 feet tall and weigh up to 50 tons, and they typically display flat noses. For 10 points each:
- [10] Name these giant basalt sculptures which possibly depicted the faces of ballgame players or ancient rulers.
- ANSWER: Colossal Olmec **Heads**
- [10] The Colossal Heads were created by this earliest major civilization of Mesoamerica, who were the first to play the mesoamerican ballgame. This culture's writing system may have influenced the later Mayan hieroglyphics system.
- ANSWER: the **Olmec** Civilization
- [10] Several colossal heads have been found in the sites of San Lorenzo, Tres Zapotes, and Complex B in this Olmec archaeological site in Tabasco. This site also contains the Great Pyramid.
- ANSWER: **La Venta**
7. This equation is used to calculate the speed of the water coming from the water cooler. For 10 points each:
- [10] Name this statement which computes that the velocity of a fluid exiting a tank is equal to the square root of twice the height of water above it times the gravitational acceleration.
- ANSWER: **Torricelli's Theorem**
- [10] Torricelli's theorem can be derived from Bernoulli's equation, which can be simplified as the total amount of this quantity equals the sum of its static and dynamic forms. This quantity is equal to force over area.
- ANSWER: **pressure**
- [10] That form of Bernoulli's equation is only applicable when the fluid possesses this quality, which water does. In fluids possessing this quality, the density does not change as a result of pressure.
- ANSWER: **incompressible**

8. All current canon quiz bowl packets are written in languages from this group. For 10 points each:  
 [10] Name this most commonly used language family in the entire world, one of the oldest members of which is Sanskrit. Both English and Latin fall into this language family.  
 ANSWER: **Indo European** (prompt on **Romance**, **Germanic**, or more specific language families)  
 [10] Languages which do not fall into any language family are referred to by this term. Examples of these languages include Ainu, Korean, and Basque.  
 ANSWER: language **isolates**  
 [10] This language group is known for its use of vowel harmony as well as common use of stressing the first syllable. Hungarian and Estonian both belong to this language group.  
 ANSWER: **Uralic**
9. In one of the few works in which this writer is named, she asks “What my frenzied heart craved in utter yearning, Whom its wild desire would persuade to passion?” to her addressee. For 10 points each:  
 [10] Name this ancient Greek poet who wrote “Ode to Aphrodite.”  
 ANSWER: **Sappho**  
 [10] Sappho lived on this large Greek island. As a result of many of Sappho’s homoerotic texts, a term for homosexual women derives its name from this island.  
 ANSWER: **Lesbos** (accept **lesbians**)  
 [10] Anne Carson translated the texts of Sappho in this collection, which only consists of one complete poem, as today nearly all of Sappho’s poems only remain as fragments.  
 ANSWER: ***If Not, Winter***
10. One of these substances known as Wood’s metal has a low melting point of 70 degrees celsius and is composed of 50% bismuth by weight. For 10 points each:  
 [10] Name these substances, the combination of a metal, some variety of other elements such as pewter and bronze.  
 ANSWER: **alloy**  
 [10] When an alloy completely changes from solid to liquid at a single temperature lower than any of the individual metals, then it is classified as one of these substances which melt at their single namesake point.  
 ANSWER: **eutectic**  
 [10] These mercury containing alloys are often used in dentistry, and with a high mercury percentage, may sometimes be liquid at room temperature.  
 ANSWER: **amalgams**
11. You can find sheep in more places than just the butcher shop and petting zoo! For 10 points each:  
 [10] This southern hemisphere country has the highest density of sheep in the world. The Merino breed of sheep is commonly raised on its South Island.  
 ANSWER: **New Zealand**  
 [10] The Dall Sheep is a common game animal in the state of Alaska and this territory of Canada. This territory is named for a river that passes through its capital of Whitehorse.  
 ANSWER: the **Yukon** Territory  
 [10] The Mouflon, which is the likely ancestor of domestic sheep, is thought to have originated in this mountain range. European bison once roamed these mountains, whose highest point is Mount Elbrus.  
 ANSWER: the **Caucasus** Mountains

12. This author wrote her poem “Sestina” based on her experiences living with her relatives following the death of her father. For 10 points each:
- [10] Name this American poet of “The Armadillo.”  
ANSWER: Elizabeth **Bishop**
- [10] In her poem “One Art,” Bishop remarks that the art of this isn’t hard to master, remarking on how inevitably we will be unable to recover things important to us.  
ANSWER: **losing**
- [10] Bishop’s poem “One Art” is written in this form, which consists of 19 lines and comes from a rural Italian song.  
ANSWER: **villanelle**
13. Welcome to TAPIR, the housewrite with hot tossups and even hotter bonuses. For 10 points each:
- [10] Name this host of the YouTube series Hot Ones, in which this man interviews celebrities while tasting spicier and spicier foods.  
ANSWER: Sean **Evans**
- [10] On his show Hot Ones, Sean Evans and the interviewee eat these spicy foods, the spiciest of which is topped with a sauce known as the last dab. A famous dish of these foods originated in Buffalo, New York.  
ANSWER: Chicken **Wings**
- [10] Sometimes, Sean Evans hosts for 2 people on Hot Ones, like when he interviewed this duo who starred in their namesake comedy central show.  
ANSWER: Keegan Michael **Key** and Jordan **Peele**
14. For 10 points each answer some of the following about flood myths.
- [10] In the Christian flood story this man builds his namesake ark, housing 2 of each animal until a bird tells him that the flood is over.  
ANSWER: **Noah**
- [10] In a mesopotamian flood myth, Utnapishtim is tasked by this god to build a ship to survive a catastrophic flood. This Sumerian god of water was also the creator of mankind.  
ANSWER: **Enki**
- [10] In another flood myth, the annual flooding of this body of water was governed by the god Hapi. Since the flooding of this body of water allowed for people to grow crops, Hapi was also considered a god of fertility.  
ANSWER: the **Nile** River
15. God wills this bonus! For 10 points each, answer some of the following about the event in which other people used that motto.
- [10] The phrase Deus vult, or God Wills It, was used during by Pope Urban II during this council, which also led to the excommunication of Philip I of France. This council began a conflict led by Peter the Hermit against the Seljuk Turks.  
ANSWER: **Council of Clermont**
- [10] The Council of Clermont resulted in this event, during which the Crusaders were victorious in capturing the city of Antioch on the way to capturing Jerusalem.  
ANSWER: **First Crusade**
- [10] Although Pope Urban II claims that God willed the first crusade, it was actually requested by the Byzantines during this council in northern Italy which was attended by so many people that it had to be held outside the city.  
ANSWER: **Council of Piacenza**



16. These substances act on substrates, which they convert into products. For 10 points each:
- [10] Name these biological catalysts, examples of which like pepsin aid in digestion.  
ANSWER: **enzymes**
- [10] Nucleases are enzymes which work by cleaving the bond between the deoxyribose sugar and this group between two nucleotides. This ion forms the backbone of DNA.  
ANSWER: **phosphate**
- [10] These enzymes bind to DNA and help correct the overwinding of DNA ahead of a replication fork caused by helicases.  
ANSWER: **topoisomerase**
17. In this play, Frederick overthrows his brother Duke Senior, but eventually repents for his crimes and hands sovereignty back to Duke Senior after meeting an old religious man. For 10 points each:
- [10] Name this comedy set in a duchy in France in which Orlando is exiled to the Arden Forest along with the heroine, who is disguised as Ganymede.  
ANSWER: **As You Like It**
- [10] This woman is the heroine of *As You Like It*. She is the daughter of Duke Senior and lives with her cousin Celia before eventually marrying Orlando.  
ANSWER: **Rosalind**
- [10] *As You Like It* includes a speech which begins with these 5 words. In that speech, spoken by Jaques, he describes all the men and women as merely players and a man's acts being seven ages.  
ANSWER: **All the World's a Stage**
18. This man painted several paintings of his dead wife Camille after she died of tuberculosis. How romantic. For 10 points each:
- [10] Name this French artist of *Woman with a Parasol* and a blue-gray scene of a harbor with a red sun in the background in *Impression, Sunrise*.  
ANSWER: Claude **Monet**
- [10] Monet is also famous for painting these vegetations under a Japanese bridge in his garden at Giverny. After his cataract surgery Monet painted these flowers bluer than before.  
ANSWER: **water lilies**
- [10] In addition to water lilies, Monet also painted a series of 12 of these buildings named for Saint-Lazare. The Musee d'Orsay, which contains many of his works, was once one of these buildings.  
ANSWER: **train stations** (or **gares**)
19. The speaker of this speech quotes "My Country Tis of Thee" for a desire to sing with a new meaning: "from every mountainside, let freedom ring!" For 10 points each:
- [10] Name this speech in which the speaker wishes that allowing Freedom to ring would speed up the day that all of God's children can join hands and sing "free at last."  
ANSWER: **"I Have a Dream"**
- [10] This civil rights activist stated that "one hundred years later the Negro is still not free" in his I Have a Dream Speech. This man also gave his "I've been to the Mountaintop" speech one day before his assassination.  
ANSWER: Martin Luther **King** Jr.
- [10] Martin Luther King Jr spoke about this at the time ongoing event in his I've Been to the Mountaintop speech. This event was caused due to poor working conditions and the death of 2 two men who were killed in a garbage compactor in a Tennessee City.  
ANSWER: **Memphis Sanitation Strike** (accept equivalent descriptive answers, prompt on partial answers)

20. Tapirs are interesting creatures. For 10 points each:

[10] Tapirs are distinguishable by this flexible anatomical feature on their face, which they use to help them forage. Elephants use this appendage of theirs as a snorkel to breathe while swimming.

ANSWER: **trunk** (or **proboscis**, prompt on nose or snout)

[10] Mountain tapirs inhabit both paramos and these high elevation tropical environments. These jungle ecosystems are characterized by persistent fog.

ANSWER: **cloud forests**

[10] Tapirs belong to the order Perissodactyla, a group of ungulates also including horses and rhinos that are distinguished from Artiodactyls by this feature.

ANSWER: **having an odd number of toes** (accept answer indicating that perissodactyls have an odd number or 1 or 3 toes)