

Teterboro's Academic Packets of Intellectual Rigor  
Packet 1

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**Tossups**

1. **In the Rig Veda, 7 deities of this domain are collectively known as the Adityas, which in other Hindu myths are associated with Surya. One deity associated with the cult of a deity of this domain was symbolized by the Mnevis Bull. After 9 of these objects were shot down by the archer Hou Yi, he spared the last one for mankind. The (\*) Aztec god Nanahuatzin became the fifth of these objects by sacrificing himself by setting himself on fire before later appearing in the sky. For 10 points, name this celestial object ruled over by Ra.**

ANSWER: the Sun

2. **Ciguatera and a paralytic poisoning may result from these events, the latter of which occurs due to saxitoxins. A combination of iron influx from melting glaciers and upwelling frequently triggers these events in the eastern Pacific, which are also associated with (\*) dinoflagellates. Agricultural runoff from fertilizers may result in eutrophication, which leads to these events. One type of these events is known as red tide, and often leads to mass fish kills. For 10 points, name these events in which the population of microscopic marine organisms explode.**

ANSWER: algal blooms [or algae bloom, accept eutrophication before mentioned]

3. **One painting by this artist shows a man in blue with his arms raised towards the sky on the left in a work that may have inspired *Les Demoiselles d'Avignon*. This painter also depicted a scene in which a man dressed in red next to a man in green about to undress him. Another painting by this artist of *The (\*) Disrobing of Christ* shows 23 men in black below a heavenly scene while two men ornately dressed in gold perform the title action below. For 10 points, name this painter of *The Opening of the Fifth Seal*, *The Burial of the Count of Orgaz* and *View of Toledo* originally from Crete.**

ANSWER: El Greco

4. **The narrator of this work is reminded of the title character's laughter after looking at the stars, and finds a well to save them from dehydration. This work's title character is told that "one sees clearly only with the heart" by a fox, and later disappears after talking to a snake who promises to bring him home. A glass dome is built to protect a (\*) rose in this novella, who lives on a place overrun with baobab trees and 3 volcanoes. For 10 points, name this novella about a pilot who crash lands in the Sahara and meets the title resident of asteroid B-612 by Antoine Saint-Exupery.**

ANSWER: The Little Prince (or Le Petit Prince if someone wants to flex their French)

5. **This actor uncovers a plot by the authentic IRA in the 2017 film *The Foreigner*, throughout which he says one of his catchphrases: "I don't want trouble." In another film starring this actor, he rescues Dre Parker after defeating a child street gang, and then trains him to win a (\*) martial arts tournament. This actor voiced Monkey in the *Kung Fu Panda* series. This actor sings Edwin Starr's "War" after safely rescuing the consul's daughter from Juntao alongside Chris Tucker in the film "Rush Hour." For 10 points, name this stuntman and actor from Hong Kong.**

ANSWER: Jackie Chan

6. **This man's formulations, like his successor's, were preserved on tetrahedral wooden tablets known as axones. An attempted revolt by Kylon to overthrow the aristocracy led this man to write his constitution. This man passed a law exiling people who committed involuntary murder, which was the only one not repealed by (\*) Solon. This man legendarily died after being suffocated by the weight of clothes thrown by his supporters. Another law made by this man gave the death sentence to cabbage thieves. For 10 points, name this Athenian lawmaker known for his harsh laws.**

ANSWER: **Draco**(n)

7. **The Girdler Sulfide process uses hot and cool columns to separate two types of this substance and discards its depleted form. The SNO detector uses a rarer type of this substance since its isotopes easily break in a charged current or neutral current reaction when struck by neutrinos. Nuclear reactor coolants and moderators often utilize a (\*) deuterated form of this substance with two extra neutrons, known as its "heavy" type. The prevalent hydrogen bonds in this chemical result in its abnormally high specific heat and boiling point. For 10 points, name this chemical with formula H<sub>2</sub>O.**

ANSWER: **water** [or **H<sub>2</sub>O**; accept heavy **water**]

8. **This man offered Roscoe Conkling a seat on the Supreme Court, who refused to serve after being confirmed by the senate. This vice president's relationship with the president was strained after the president appointed James G Blaine as secretary of state. This former Collector for the Port of New York and Stalwart politician passed the (\*) Pendleton Act as part of his civil service reform program, and also banned Chinese people from entering the country during his time as president. For 10 points, name this person who became president of the US following Garfield's assassination.**

ANSWER: Chester A(lan) **Arthur**

9. **The experiment which led to the creation of this law used a torsion balance with a metal ball on a silk thread. This law is analogous to the Biot-Savart Law, which assumes a steady state current. The constant in this law is equal to the reciprocal of (\*) 4 pi times epsilon, the vacuum permittivity. This inverse square law upholds all of Newton's laws, and is also analogous to his law of universal gravitation. For 10 points, name this law which states that electrical force is equal to k times the product of the two charges over radius squared.**

ANSWER: **Coulomb's** law

10. **In one poem, the appearance of fruits like bananas and mangos in this city causes the speaker to cry out of homesickness. Another writer from this city describes how "they send me to eat in the kitchen when company comes," and proclaims "I, too, am America" in one poem, and describes "a drowsy (\*) syncopated tune" that he heard "down Lenox Avenue the other night" in another. That author of the Weary Blues also asks "what happens to a dream deferred." For 10 points, name this city home to poets like Claude McKay and Langston Hughes during the Harlem Renaissance.**

ANSWER: **New York** City [accept **Harlem** before mentioned]

11. **These things are commonly infested with a mollusc commonly consumed in the Philippines known as Tampilok or the Teredo worm. The creation of one of these things during the War of the Spanish Succession occurred near the Isles of Scilly. Several of these structures known as sloops are found in (\*) Lake Ontario and are extremely well preserved. One large example of these structures was discovered 375 miles south of Newfoundland and was created after a collision with an iceberg. For 10 points, name these remains of destroyed ships.**

ANSWER: **shipwrecks** [prompt on **ship**]

12. **During one of these events, the Eastern Route Army attacked without the aid of the Southern Route Army at the Battle of Koan. One of these events involved the Bun'ei Campaign, which was preceded by the capture of Iki and Tsushima. A proposed one of these events during (\*) World War II known as Operation Downfall was estimated to result in up to 800,000 American casualties, but was abandoned shortly after the losing side's surrender. Two of these events failed due to two convenient typhoons, or kamikaze. For 10 points, name these attempted captures of an Asian island nation.**

ANSWER: **Invasion** of **Japan** (accept any answer indicating a foreign invasion of Japan)

13. **James Joyce inspired this author to write a collection of autobiographical short stories in his "Portrait of the Artist as a Young Dog." This poet wrote about a time when he was "young and easy under the apple boughs" and "green and carefree" based on his visits to his (\*) aunt's farm. One poem by this writer begins and ends with "And Death Shall Have No Dominion," while his most famous work uses the refrain "Rage, Rage against the dying of the light." For 10 points, name this Welsh poet of "Fern Hill" and "Do not go gentle into that good night."**

ANSWER: Dylan **Thomas**

14. **When this number is used as the base of a number system, all integers are terminating while all fractions are nonterminating. Ptolemy's theorem can be used to calculate this as the relationship between a chord and side of a cyclic pentagon. A proof to demonstrate the (\*) irrationality of this number observes that it is equal to both the ratio of two integers as well as the sum of those two integers over the larger number. The ratio of consecutive numbers in the Fibonacci sequence converges to this value For 10 points, name this value denoted by the letter phi.**

ANSWER: **golden ratio** [accept **phi** before mentioned]

15. **The archaeological site of Nan Madol in Micronesia consists of a system of these structures built on top of a coral reef. One of these locations constructed near Nagasaki that housed foreigners is named Dejima. The largest example of these structures is named (\*) Flevopolder, and led to the creation of a new state in the Netherlands in 1986. International airports in Hong Kong and Osaka are located on examples of these structures. Large amounts of sand in Dubai were used to produce a palm like example of, For 10 points, what type of man made offshore landmass?**

ANSWER: **artificial islands** (accept **canals** before "Nagasaki," prompt on **islands**, prompt on **trading post** or **trading port** with "on what" before Flevopolder)

16. **An orchestral one of these works contains a Malaguena, Habanera and Feria movements. One of these works that contains variations on La Folia begins with a cadenza, and is based on Spanish music. A C sharp minor lasso transitions into an extremely difficult friska in the second of a collection of (\*) 19 of these works. Rachmaninoff wrote one of these works based on a theme by Paganini. For 10 points, name these one movement works with highly contrasting moods and tones, examples of which include Liszt's Hungarian ones.**

ANSWER: **rhapsodies**

17. **Specimens from this event in one location are often found preserved with an opaque carbon film. This event was marked by the emergence of triploblastic organisms, and was preceded by the Ediacaran period. Anomalocaris, the largest predator shortly after this event, used its (\*) compound eyes to hunt prey. Stephen Jay Gould hypothesized this event after noting the large amounts of lagerstätten in one site. Many bizarre arthropods from this event may be found in the Burgess Shale. For 10 points, name this event in which life dramatically diversified, after which trilobites flourished.**

ANSWER: **Cambrian explosion** [prompt on **Cambrian** era]

18. **This writer wrote of a man who eats gardenias and rose petals in order to show his affection for another character. That man works in the River Company in order to make money to gain the love of the woman whom he has loved for 51 years, the widower of the celebrated (\*) Dr. Juvenal Urbino, Fermina, on a river boat. In another work by this author, Aureliano Buendia, who loses his memory after losing 32 civil wars, is the first resident of Macondo. For 10 points, name this Colombian author of *Love in the Time of Cholera* and *100 Years of Solitude*.**

ANSWER: Gabriel Garcia Marquez (prompt on partial answer)

19. **The 10th of August insurrection saw the massacre of this group by the Republicans during their defense of Louis XVI at Tuileries Palace. During the War of the League of Cognac, this group was massacred defending against a force of mutinous, unpaid Germans, allowing for safe passage across the Passetto di Borgo by (\*) Clement VII. Jakob Fugger financed the formation of this entity in 1506 by the request of Julius II. This former mercenary force ceremonially wields the traditional halberd weapon. For 10 points, name this force which protects the Pope, originally from Switzerland.**

ANSWER: the Swiss Guard

20. **This thinker wrote that man's freedom "can be achieved only through the freedom of others" in a work discussing "radical freedom," "The Ethics of Ambiguity." Another work by this thinker, which begins with "Facts and Myths," also argues that one group forces another group to be "the other" in order to make society a (\*) patriarchy and also argues that "one is not born but becomes" part of the title group. This feminist argues that man is the default, while women are the title group to answer the question "what is a woman." For 10 points, name this author of *The Second Sex*.**

ANSWER: Simone de Beauvoir

**Bonuses**

1. The protagonist of this novel is saved from drowning by her husband, who she is eventually forced to shoot after he is bitten by a rabid dog. For 10 points each:  
[10] Name this novel in whose protagonist stays in two unhappy marriages before marrying Tea Cake.  
ANSWER: ***Their Eyes Were Watching God***  
[10] *Their Eyes Were Watching God* was written by this African American author who wrote about her experiences in moving from the all black town of Eatonville to Jacksonville in her essay How it Feels to be Colored Me.  
ANSWER: Zora Neale **Hurston**  
[10] *Their Eyes Were Watching God* is told in this format, as Janie tells her story while having a conversation with her friend Phoebe.  
ANSWER: **frame story**
2. A dragon named Zahak is defeated by Atar, who is a personification of this substance. For 10 points each:  
[10] Name this substance which is housed in its namesake temples of worship for a middle eastern religion along with water.  
ANSWER: **fire**  
[10] Fire Temples are sites of worship for this Persian monotheistic religion, which centers on the conflict between Ahura Mazda and Ahriman.  
ANSWER: **Zoroastrianism**  
[10] The fires in Fire Temples are fueled by this substance noted for its fragrance. In Hinduism, a paste typically using a powder of this wood or vermillion is applied to the forehead during tilaka.  
ANSWER: **sandalwood**
3. During this battle, the American forces were able to rout the warriors led by Blue Jacket following a bayonet charge. For 10 points each:  
[10] Name this 1794 battle, the last in the Northwest Indian War which occurred north of the Maumee River in present day Ohio.  
ANSWER: Battle of **Fallen Timbers**  
[10] This "Mad" general led the American forces at the battle of Fallen Timbers. This negotiator of the Treaty of Greenville names the second most populous city in Indiana.  
ANSWER: "Mad" Anthony **Wayne**  
[10] Blue Jacket was a leader of this tribe. These natives of the Ohio valley were supported by the Delaware, the Miami and the British in the Battle of Fallen Timbers.  
ANSWER: **Shawnee**

4. Organisms living in cold environments find clever ways to adapt and survive! For 10 points each:
- [10] Unlike with other solutions, the freezing point depression in organisms with antifreeze protein does not possess this quality affected only by the molality of the solution.  
ANSWER: **colligative** properties (accept non **colligative** properties too)
- [10] In fish, antifreeze proteins are more specifically glycoproteins, which contain a polymer of these molecules attached to their amino acid side chains. One example of these molecules is glucose.  
ANSWER: **sugars** (accept **saccharides**, monos**saccharides**, oligos**saccharides**, polys**saccharides**, prompt on **carbohydrates**)
- [10] Antifreeze proteins result in a difference between the melting and freezing temperatures known as the thermal "this word." In general, this term refers to a system's state's dependence based on its history.  
ANSWER: thermal **hysteresis**
5. Mark Rothko belonged to the color field painters of this art movement. For 10 points each:
- [10] Name this post World War II art movement which emphasized the use of spontaneity and gestural brushes and strokes to display feelings and emotions in paintings.  
ANSWER: **Abstract Expressionism**
- [10] This action painter of the Abstract Expressionism movement often painted by simply dripping paint onto a canvas. His famous works include *No. 5, 1948* and *No. 17A*.  
ANSWER: Jackson **Pollock**
- [10] Abstract Expressionism was heavily influenced by this earlier art movement, which sought to express the unconscious mind and is often characterized by illogical scenes. Salvador Dali was an important artist from this movement.  
ANSWER: **Surrealism**
6. One smash in this sport reached a speed of 265 miles per hour and was performed by Danish athlete Mads Peter Kolding. For 10 points each:
- [10] Name this sport played with lightweight rackets in which players attempt to prevent a projectile from hitting the ground.  
ANSWER: **badminton**
- [10] This projectile used in badminton consists of a roughly conical shape, and contains features embedded in cork, leading to high drag.  
ANSWER: **shuttlecock** (or **birdie** or **bird**)
- [10] During a game of badminton, the birdie may only be struck once per side before it is sent over this structure which divides the two sides of the court. Other sports such as volleyball have similar gameplay in which the ball must not touch the ground until passed over this structure.  
ANSWER: **net**
7. The title character of this novel stabs Alec, the father of her illegitimate baby, Sorrow, to death. For 10 points each:
- [10] Name this novel about the title character by Thomas Hardy.  
ANSWER: **Tess of the d'Urbervilles**
- [10] Although Tess obviously does not love Alec, she does eventually marry this man, who is unable to prevent a search party from discovering them after Tess's murder.  
ANSWER: **Angel Clare** (either underlined part is fine)
- [10] Tess dreams of a gentleman suitor while driving a wagon, resulting in her accidentally killing Prince, one of these animals. D. H. Lawrence often wrote about races involving these animals.  
ANSWER: **horses**

8. One species of these organisms causes the fatal disease naegleriasis. For 10 points each:  
[10] Name these unicellular organisms without a defined shape, one variety of which that can infect people is known as the “brain eating” type.  
ANSWER: **amoebas** (or **amoeboids**)  
[10] Amoebas are characterized by their locomotion using these appendages that allow them to change their shape.  
ANSWER: **pseudopods**  
[10] Certain amoeba species are able to change into a different form in which they use these structures to move instead of pseudopods. These whip like structures are longer than cilia.  
ANSWER: **flagella** (or **flagellum**)
9. Before becoming ruler of his empire, this man was a cupbearer for Ur-Zababa. For 10 points each:  
[10] Name this ancient ruler who conquered many city-states in Mesopotamia to found the earliest known ancient empire.  
ANSWER: **Sargon** the Great (or **Sargon I** or **Sargon** of Akkad)  
[10] Sargon founded the Akkadian Empire, which used clay seals in the place of these objects for the use of their postal service, the first in the world.  
ANSWER: **stamps**  
[10] Sargon imposed the Akkadian language over this kingdom’s Awan Dynasty, which was centered at Susa.  
ANSWER: **Elam**
10. Although most are found along the coast, river deltas can be found inland as well! For 10 points each.  
[10] The island of Marajo is found in the inland delta of this river. This largest South American river discharges billions of tons of sediment into the Atlantic annually.  
ANSWER: **Amazon** River  
[10] This river is joined by the Bani near the city of Mopti in its inland delta. The main delta on the Gulf of Guinea contains the city of Port Harcourt.  
ANSWER: **Niger** River  
[10] The inland delta of the Okavango River forms a biodiverse swamp in this desert which covers much of Botswana.  
ANSWER: **Kalahari** Desert
11. This novel’s title muscular character cannot remember the faces of his sister or mother, who both left his family, and he too runs away from home. For 10 points each:  
[10] Name this novel in which the title character is instructed by his alter-ego Crow to be the toughest 15 year old in the world.  
ANSWER: ***Kafka on the Shore***  
[10] *In Kafka on the Shore*, Satoru Nakata is able to perform this action after he loses his memory in a mysterious incident. Since he is able to perform this action, Nakata often helps his neighbors find their lost pets.  
ANSWER: **talking to cats** (accept equivalents like **being able to communicate with animals**)  
[10] *Kafka on the Shore* was written by this Japanese author who also wrote *Norwegian Wood* and *1Q84*.  
ANSWER: Haruki **Murakami**

12. This theory may be explained using Galois Theory. For 10 points each:
- [10] Name this theorem which states that there is no general solution for polynomials of degree 5 or higher.  
ANSWER: **Abel-Ruffini** Theorem
- [10] Abel also names a type of group with this property, in which the order of 2 group operations performed on the group does not matter  
ANSWER: **commutative**
- [10] All examples of these groups are abelian. These groups are groups generated by a single element  $g$ , and all other elements are created by applying a group generator or its inverse to  $g$ .  
ANSWER: **cyclic** groups
13. These conflicts resulted in the explosion of the ship Intrepid and the burning of the USS Philadelphia by Stephen Decatur. For 10 points each:
- [10] Name these conflicts, the first war in which the US fought in, after northern African pirates demanded increased tribute from US ships. This war ended shortly after the capture of Derna.  
ANSWER: The **Barbary Wars** (accept the First **Barbary War**)
- [10] The burning of the USS Philadelphia occurred after it was captured in the harbor of this city. The First Barbary War began after Yusuf Karamanli, the pasha of this city, declared war on the US.  
ANSWER: **Tripoli**
- [10] The First Barbary War was fought primarily in this north African country west of Egypt, which at the time was governed by the Ottoman Empire from Tripolitania.  
ANSWER: **Libya**
14. Buying a house is a complicated process. For 10 points each:
- [10] The most common way to finance for a house is to take out one of these loans, which allows the purchaser to pay over many years with predetermined purchases.  
ANSWER: **mortgage**
- [10] Before beginning to pay out a mortgage or large loan, you must make one of these investments that are typically around 20% of the house's purchase price.  
ANSWER: **down payment**
- [10] This is the last step of taking out a mortgage. During this step, you will meet with your lender and seller to finalize the mortgage and become the owner of your mansion at last.  
ANSWER: **closing**
15. Jamie Oliver is cooking the perfect Eggs Benedict. For 10 points each:
- [10] While poaching his egg, the whites of the eggs set due to the coagulation of these molecules, which are polymer chains made of amino acids linked together by peptide bonds.  
ANSWER: **proteins**
- [10] On top of his English Muffins, Jamie Oliver adds vegetables which have undergone this chemical reaction in which the sugars oxidize and turn brown. It occurs at higher temperatures than maillard reactions.  
ANSWER: **caramelization**
- [10] To finish his Eggs Benedict, Jamie Oliver must make a hollandaise sauce, an example of one of these inseparable mixtures in which particles are suspended.  
ANSWER: **colloids**

16. Among the earliest known practitioners of this science was John Aubrey, who excavated Stonehenge. For 10 points each:  
[10] Name this field concerned with the study of human culture through recovering remnants of past cultures.  
ANSWER: **archaeology**  
[10] One notable archaeologist was this man who famously excavated the pristine tomb of King Tut. He also served as Chief Inspector for the Egyptian Antiquities Service.  
ANSWER: Howard **Carter**  
[10] Frank Calvert surveyed this site in Turkey, which was later excavated by Heinrich Schliemann. Schliemann would later excavate Priam's treasure at this site of the city of Troy.  
ANSWER: **Hisarlik**
17. This piece begins with the flute playing pentatonic scales in E major to represent the rising sun. For 10 points each:  
[10] Name this first movement of the *Peer Gynt* suite.  
ANSWER: **Morning Mood**  
[10] The *Peer Gynt Suite*, whose famous piece "In the Hall of the Mountain King" begins with a low, quiet theme that gradually accelerates and crescendos, was written by this Norwegian composer.  
ANSWER: Edvard **Grieg**  
[10] Grieg also composed one of these compositions in A minor, which consists of a solo pianist accompanied by an orchestra.  
ANSWER: **Piano Concerto** (prompt on concerto)
18. This reform movement, whose name means restructuring, may have contributed to the fall of the Soviet Union. For 10 points each:  
[10] Name this reform movement advocated by Mikhail Gorbachev often associated with Glasnost, which decentralized many economic policies.  
ANSWER: **Perestroika**  
[10] Following the dissolution of the Soviet Union, this man became the first president of Russia. This man used economic shock therapy as part of his economic reform policy, and also once famously walked around drunk in Washington DC in his underwear.  
ANSWER: Boris **Yeltsin**  
[10] Yeltsin also decreased the value of this currency of the Soviet Union, and implemented its market exchange rate as well. This currency also names the current currency of Belarus and Russia.  
ANSWER: **Ruble**
19. This number is the ratio of the inertial forces to the viscous forces. For 10 points each:  
[10] Name this value which determines the type of flow of a fluid.  
ANSWER: **Reynolds number**  
[10] At low Reynolds number, this type of flow is present, in which the fluid particles are highly ordered in sheets and do not mix.  
ANSWER: **laminar** flow  
[10] Since the Reynolds Number does not possess a unit, it is known as this type of quantity.  
ANSWER: **dimensionless** (or **scalar quantity**)

20. In one play, these characters lead a revolt after Helena Glory burns a manuscript. For 10 points each:  
[10] Name these characters, two of which in the epilogue of a play are dubbed the new Adam and Eve by Alquist.

ANSWER: **robots**

[10] This science fiction writer wrote about the love between the robots Primus and Helena in *RUR*. He also wrote the satirical novel *War with the Newts*.

ANSWER: Karel **Capek**

[10] Capek was from this European country, where the first copies of *RUR* were published in Prague.

ANSWER: **Czechia** (or the **Czech** Republic)