

Teterboro's Academic Packets of Intellectual Rigor
Packet 9

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Tossups

1. **One work on this group described the title character representing suppressed rage in the Victorian Era in contrast to "the angel in the house." Another work described a person in this group who is unable to read and write and fails to become an actor unlike their successful relative, (*) William Shakespeare.** These people are argued to be companions in a "Vindication" of their rights, and are argued to require a "room of one's own" in order to write in works by Mary Wollstonecraft and Virginia Woolfe respectively. For 10 points, name this group whose rights are advocated by the feminist movement.

ANSWER: **women**

2. **The ratio of a constant for the light isotope to that of the heavy isotope is used to quantify the change in this quantity as a result of the Kinetic Isotope Effect. This quantity is proportional to the steric factor and collision frequency. A constant related to this quantity may be calculated in either the Eyring equation or the (*) Arrhenius equation, which shows its dependence on temperature.** This quantity may be increased by stirring, increasing concentration or by introducing a catalyst. For 10 points, name this quantity, the speed in which a reaction takes place.

ANSWER: reaction **rate** [or **rate** constant]

3. **One poem on this topic discusses approaching a location "by an unfaltering trust...like one who wraps the drapery of his couch about him." Another poem on this topic describes the "Stillness in the Air - Between the Heaves of Storm -" and the "blue - uncertain - stumbling buzz" before (*) "the windows failed-/ and then I could not see to see-." In another poem, this figure's " carriage held but just ourselves and Immortality." For 10 points, name this subject of William Cullen Bryant's "Thanatopsis," who "kindly stops" for the speaker of an Emily Dickinson poem.**

ANSWER: **death**

4. **This man is shown seated reading the news behind a charkha wheel in a photo by Margaret Bourke White while he was imprisoned. After this man's assassination at the Birla House, his nation's president gave a speech lamenting (*) "the light has gone out of our lives."** This man advocated for people to wear the homespun, cotton khadi cloth instead of foreign textiles, and also led a 240 mile march to Dandi protesting a salt tax. This man used his strategy of Satyagraha to lead both of those movements. For 10 points, name this Indian activist who used nonviolence to fight for Indian independence.

ANSWER: Mahatma (or Mohandas) **Gandhi** (do not accept or prompt on Indira Gandhi)

5. **The activity of FOXO proteins are regulated by the Daf-2 and Daf-16 genes, regulating this process in *C. elegans*. This process can be accelerated with the methylation of DNA caused by oxidative stress from free radicals and can be measured through an epigenetic (*) clock. HeLa cells do not undergo this process since they circumvent the Hayflick Limit by having an active protein that prevents the shortening of telomeres during cell division. For 10 points, name this process in which organisms function progressively worse over time.**

ANSWER: senescence (accept aging)

6. **One scientist from this period wrote a Book of Optics which rejected the emission theory for light, while another was the first discoverer of Snell's Law. One treatise written after Fibonacci's study during this period introduced Indian numbers to Europe. The title of a another treatise on math from this period introduced the word (*) Algebra. A large library known as the House of Wisdom was constructed during this period in the city of Baghdad. For 10 points, name this caliphate of heightened intellectualism peaking after the fall of the Umayyads.**

ANSWER: the Abbasid Caliphate (accept the Golden Age of Islam)

7. **Two pianos playing sixteenth note arpeggiated G major chords accompany one of these instruments playing a melody in a piece marked andantino grazioso. A G major prelude begins the first of a six movement suite for this instrument first recorded by Pedro Casals and composed by (*) Bach. Jacqueline du Pre made a recording of a concerto for this instrument composed by Edward Elgar. This string instrument represents the swan in *Carnival of the Animals* and is the lowest pitched in a string quartet. For 10 points, name this string instrument pitched between the double bass and viola.**

ANSWER: cello

8. **This phenomenon is paired with "waves" in a novel in which the young man Shinji falls in love with Hatsue, the daughter of a wealthy ship owner by Yukio Mishima. The aging Shingo contemplates his relationships with his relatives, such as Kikuko, after experiencing this phenomenon "of the mountain," (*) which he interprets as an omen of death. That novel was written by Yasunari Kawabata. The last line of a short Japanese poem describes this property of water after a frog jumps into a pond. For 10 points, name this auditory phenomenon.**

ANSWER: sound (accept The Sound of Waves, The Sound of the Mountain, and the sound of water)

9. **This phenomenon is predicted by the Friedmann Equation for positive energy densities. In the lambda CDM model, the existence of dark energy is proposed to explain this phenomenon, whose rate is given by Hubble's constant. Original observations of this phenomenon contradicted the existence of a (*) cosmological constant in Einstein's Field Equations, but later observations uphold that constant since this phenomenon is accelerating. For 10 points, name this phenomenon which causes galaxies to appear redshifted, the growth of distance between two points in space.**

ANSWER: cosmic expansion (accept any answers indicating that the universe becoming bigger)

10. **Laser beams projected onto the ground by an electric car were used to guide participants of one of these events. That event was done on the Hauptallee in Vienna in October 2019 in order to minimize the impacts of jetlag, weather, elevation changes, and turns. The current world record in this event was sponsored by Ineos and set by (*) Kenyan athlete Eliud Kipchoge, who completed it in just under 2 hours. 3 people were killed in a 2013 bombing of one of these races in Boston. For 10 points, name this 26.2 mile long race.**

ANSWER: the Marathon

11. **This structure was first dedicated to the moon god Hubal, and once contained a statue of that god where arrows would be tossed. This structure once contained 360 idols, possibly representing each day of the year. This structure, which is draped with the kiswah cloth, contains a (*) black stone in its eastern corner which is kissed during the tawaf. This structure is circumnavigated counter-clockwise seven times as part of the Hajj, and determines the direction of prayer for Muslims. For 10 points, name this holiest site in Islam, located in Mecca.**

ANSWER: the Kaaba [or Ka'bah]

12. **Innovations in this industry helped inspire the assembly line process used by Ford motors. One author claimed that he “aimed at the public’s heart and by accident I hit it in the stomach” in a novel where a character is eaten by rats in this industry centered on the (*) stockyards, whose protagonist is Jurgis Rudkus. The Pure Food and Drug Act was passed in order to help resolve the poor working conditions exposed in that Chicago set muckraker novel. For 10 points, name this industry described in Upton Sinclair’s *The Jungle*.**

ANSWER: meat packing

13. **This novel’s protagonist spends a night with a former coworker watching a film, which is later used against him during her testimony. That character also refuses to accept God despite being urged to do so by his chaplain and being presented with a crucifix, the latter of which leads him to be dubbed “antichrist.” This novel begins with the narrator (*) attending a funeral without any signs of mourning and forgetting when Maman had died. For 10 points, name this novel in which a detached, apathetic character named Meursault shoots and kills an Arab.**

ANSWER: The Stranger (or L'Etranger if someone wants to flex their french)

14. **The Vinča [“vin-chuh”] culture in the Balkans showed early use of this substance. The widespread use of this substance coincided with the rise of the city of Merv in the BMAC civilization. Invasions by the Sea Peoples and the (*) collapse of civilizations such as Mycenae marked the end of the period named for this substance. That period also coincided with the earliest developments of writing and followed the chalcolithic age. For 10 points, name this alloy which names an age that succeeded the Stone Age and Copper Ages and preceded the Iron age.**

ANSWER: bronze

15. **A flying woman in a red robe carries a man who is pointing towards one of these objects in the background in *Asmodea*, one of Francisco Goya’s *Black Paintings*. The Tetschen Altarpiece depicts a silhouetted cross atop one of these things, and was made by Caspar Friedrich. The chinese shanshui painting style often features (*) natural scenery such as waterfalls and these landmarks. *The Great Wave off Kanagawa* is a woodblock print featuring a famous landmark of this type in the background. For 10 points, name these geographic features, examples of which include “Fuji” in Japan.**

ANSWER: mountains (accept Mount Fuji)

16. **The Bouguer correction can account for anomalies in the measurement of this value, which may also be accounted for in the free-air correction. The square root of twice the product of the radius and this value can be used to calculate the escape velocity. This value can be calculated by evaluating (*) big G times the mass of the Earth over the square of its radius. One form of potential energy equals the product of mass, height, and this quantity. For 10 points, name this constant equal to about 9.8 meters per second squared at sea level denoted by little g.**

ANSWER: gravitational acceleration [or acceleration due to gravity; accept little g before read]

17. In 2010, the Augustine Committee under Obama announced that this organization would undergo a “flexible path.” This organization established the Ames Research Center in 1939 after the onset of World War II. During Operation Paperclip, (*) Wenher von Braun and over 1,000 other German scientists were secretly employed by this organization. The film Hidden Figures was inspired by three of the African American “human computers” employed by this Houston based organization for calculating orbital mechanics. For 10 points, name this organisation which oversees the US space program.

ANSWER: NASA (or the National Aeronautics and Space Administration)

18. A purple one of these creatures called the sisserou appears on the national emblem and flag of Dominica. A resort town near the Smoky Mountains named for one of these creatures contains the Dollywood Amusement park. South Georgia island is an important breeding site for an exceptionally large “wandering” species of these animals which (*) migrates over the Southern Ocean. One of these animals that is a national symbol of New Zealand is the Kiwi. For 10 points, name these animals, one flightless example of which is the penguin.

ANSWER: birds (accept parrots, pigeon forgo, wandering albatross and penguins before mentioned)

19. The Nicholson-Bailey model is used to describe this behavior, and includes a term for the probability of survival. Microorganisms that perform the “endo” type of this behavior are transmitted by vectors. Those diseases caused by this behavior include schistosomiasis and malaria. Mimicry aids in the (*) brood type of this behavior, which is done by birds such as the cuckoo and forces other species to raise their offspring. For 10 points, name these relationships in which one organism lives to the detriment of its host.

ANSWER: parasitism (prompt on sybiosis, do not accept or prompt on mutualism)

20. The first act of one play by this writer ends with one character noting that the handwriting on a letter seems familiar. In another play by this author, one character gets out of attending social events he doesn't want to go to by visiting an imaginary friend and eats a plate of cucumber sandwiches. In that play, Cecily Cardew and (*) Gwendolen Fairfax both claim to be engaged to a man with the same name, which is truly possessed by Jack Worthing and not Algernon. For 10 points, name this Irish playwright of *The Importance of Being Earnest*.

ANSWER: Oscar Wilde

Bonuses

1. CoCo is a company specializing in this drink. For 10 points each:
 - [10] Name this Taiwanese drink consisting of tea, milk, sugar and chewy balls.
ANSWER: **bubble tea**
 - [10] Most of the boba in Bubble Tea is made from this starch extracted from the Cassava plant. This substance may also be used to make a type of namesake pudding.
ANSWER: **tapioca**
 - [10] Another popular food made from tapioca are these fried seafood flavored snacks. These seafood snacks are often in either a chip or stick form and are popular throughout East Asia.
ANSWER: **shrimp chips**

2. This event breached the London Avenue Canal and Industrial Canal, leading to mass flooding of New Orleans. For 10 points each:
 - [10] Name this event which caused about \$125 billion in damage to Florida and Louisiana in 2005.
ANSWER: Hurricane **Katrina**
 - [10] This government agency faced intense scrutiny over their handling of the disaster. The director of this agency who Bush claimed was doing "a heck of a job," Michael Brown, resigned shortly afterwards.
ANSWER: **Federal Emergency Management Agency**
 - [10] Following Hurricane Katrina, this organization's Corps of Engineers deduced that failure of the levee and flood walls that they built was responsible for most of the damage, directing criticism at them as well.
ANSWER: the US **Army** (prompt on the US **Military**)

3. Although the Milwaukee protocol may be used to treat this disease, it is generally not considered to be effective. For 10 points each:
 - [10] Name this disease associated with violent movement and encephalitis after an incubation period. This disease is most commonly spread through dog or bat bites.
ANSWER: **rabies**
 - [10] Like another disease, rabies may cause encephalitis as well as inflammation of these three membranes which cover the brain and spinal cord.
ANSWER: **meninges**
 - [10] One symptom often associated with rabies is fear of this substance, which typically leads to overproduction of saliva.
ANSWER: **water** (accept equivalents and descriptive answers like **drinking water**)

4. Many thinkers from this country focus on individuals becoming free following spiritual practices. For 10 points each:
 - [10] Name this country where several schools of thought originated concerning how a person can reach enlightenment, or nirvana.
ANSWER: **India**
 - [10] This school of Indian philosophy considers only the senses, inference and reliable sources as true paths to knowledge. This school's teachings have been adapted into a posture based exercise emphasizing relaxation.
ANSWER: **Yoga**
 - [10] This school of Buddhism emphasizes the importance of the six perfections, including the perfection of wisdom, as well as the importance of bodhisattvas.
ANSWER: **Mahayana** Buddhism

5. This story begins with Jonathan Harker visiting the castle of the title character. For 10 points each:
[10] Name this Bram Stoker novel in which the title character drinks the blood of Lucy but is finally defeated by being slit in the throat by a Kukri knife.
ANSWER: **Dracula**
[10] Dracula was written in this style in which the story is primarily told through letters.
ANSWER: **epistolary**
[10] This character is the first to realize that Lucy has been attacked by Dracula. This doctor and expert vampire hunter leads the group of people who eventually kill Dracula.
ANSWER: Abraham Van **Helsing**
6. Two of these bonds are present in carbon dioxide. For 10 points each:
[10] Name these bonds which include 4 bonding electrons instead of 2.
ANSWER: **double bonds**
[10] In valence bond theory, double bonds form as a result of this phenomenon such as sp², in which orbitals mix in order to form bonds.
ANSWER: orbital **hybridization**
[10] Each of a double bond's two covalent bonds contains these two types of bonds. One of these two bonds is formed by overlapping atomic orbitals while the other is formed by overlapping p orbitals from adjacent atoms.
ANSWER: **pi** and **sigma**
7. The editor believes that you should know about places named Bergen. For 10 points each:
[10] Bergen, which lies in the Byfjorden inlet, is the second largest city of this northern European country. Other ports in this country include Trondheim.
ANSWER: **Norway**
[10] Bergen County, the greatest place on earth, is primarily drained by the Hackensack River, which eventually flows into the namesake bay of this largest city of New Jersey.
ANSWER: **Newark**
[10] One of these notably not great places was built near the Belsen village of the German town of Bergen. Prior to becoming one of these places, the complex held hostages that were exchanged for German prisoners of war.
ANSWER: **Concentration Camp**
8. This leader led a force of allied tribes which were ultimately defeated at the Battle of Watling Street. For 10 points each:
[10] Name this leader of the Iceni people who destroyed Camulodunum while leading a revolt following the death of Prasutagus.
ANSWER: **Boudicca**
[10] The Iceni tribe were native to this region, where Boudicca's defeat at Watling Street ultimately marked the end of resistance to Roman rule over it. The Romans established the city of Londinium here.
ANSWER: Great **Britain** (accept Roman **Britain** or **Britannia**, prompt on **England**)
[10] The Iceni belonged to the Brittonic subgroup of this culture, who had inhabited Great Britain since the Iron Age. A revival of this culture in the 19th and 20th centuries promoted Gaelic and Welsh literature.
ANSWER: **Celts** (or **Celtic People**)

9. This man described Mugo's betrayal of Kihika in his novel *A Grain of Wheat*. For 10 points each:
- [10] Name this author who wrote about the Mau Mau uprising and the death of Jacobo at the hands of Ngotho in *Weep Not, Child*.
ANSWER: **Ngugi** wa Thiong'o
- [10] Ngugi wa Thiong'o is a Kikuyu writer from this East African nation, and wrote about its Mau Mau uprising during its independence from Britain.
ANSWER: **Kenya**
- [10] Although Ngugi writes primarily in Kikuyu, many other Kenyan texts are written in this Bantu language, such as the epic *Utendi wa Tambuka*, which is about the conflicts between the Byzantines and the Muslims.
ANSWER: **Swahili**
10. Theories for the traditional use of these designs include camouflage and intimidation. For 10 points each:
- [10] Name this form of artwork applied on the skin, normally permanently.
ANSWER: **tattooing**
- [10] Most members of this culture used a form of tattooing called Ta Moko that sometimes involved chisels. This culture's Ta Moko tattoos lead to permanent grooves in the skin and feature wavy black designs.
ANSWER: **Maori**
- [10] The Ainu women of this country often wore blue mustache like tattoos around their lips. Many paintings in this country are produced on folding screens called byobu during the Heian and Muromachi periods.
ANSWER: **Japan**
11. One poem describes the "tattered ensign" of one of these things that "many an eye has danced to see" and whose "thunders shook the mighty deep." For 10 points each:
- [10] Name these things, an 18th century example of which served in the War of 1812 and was commemorated in "Old Ironsides."
ANSWER: **ships** (accept **frigates** or the USS **Constitution**)
- [10] This fireside poet of the *Breakfast Table* series wrote "Old Ironsides."
ANSWER: Oliver Wendell **Holmes** Sr.
- [10] In this other Holmes poem, the speaker implores to "build thee more stately mansions" and describes a "ship of pearl" which "sails the unshadowed main."
ANSWER: **"The Chambered Nautilus"**
12. This quantity is equal to the cross product of the electric and magnetic field vectors. For 10 points each:
- [10] Name this quantity which shows the direction in which energy is transferred in an electromagnetic field.
ANSWER: **Poynting Vector**
- [10] Taking this function of the Poynting vector over a region yields the energy flux leaving that region. According to Gauss' Law, this function of the electric field is equal to charge enclosed over epsilon naught.
ANSWER: **surface integral** (prompt on **integral**)
- [10] The unit for the Poynting Vector is this unit divided by meters squared. This unit is equal to one joule per second and quantifies the rate at which work is done, or power.
ANSWER: **watt**

13. The first leader of this kingdom unified it after his victory at the Battle of the Leaping Mullet. For 10 points each:
- [10] Name this polynesian kingdom founded by Kamehameha I. This kingdom was later annexed by the US through the Newlands Resolution.
ANSWER: **Hawaii**
- [10] Following her overthrow in 1893, this former final queen of Hawaii heavily opposed the US annexation of Hawaii. This monarch proposed a new constitution to replace the Bayonet Constitution.
ANSWER: **Liliuokalani**
- [10] Liliuokalani's proposal to replace the Bayonet Constitution caused her being overthrown in a conspiracy with this businessman. This man founded a fruit company known for its pineapples.
ANSWER: Sanford **Dole**
14. Distortions on these things arise because it is impossible to represent a sphere's surface on a plane. For 10 points each:
- [10] Name these things made from projecting a globe onto a flat surface.
ANSWER: **maps**
- [10] This cylindrical map projection was often used by seafarers since it made all lines of longitude straight. However, this map projection also made areas in high latitudes like Greenland appear too large.
ANSWER: **Mercator** projection
- [10] These projections produce a circular map with a center point that is tangent a the globe. Its name comes from a coordinate angle on spheres contrasted with the polar angle.
ANSWER: **azimuthal** projections
15. For 10 points each name these Messier Objects.
- [10] This object designated Messier 1 was used to measure the thickness of Titan's atmosphere as the moon made a transit of it. This nebula is located in the constellation Taurus.
ANSWER: **Crab Nebula**
- [10] This nearby spiral galaxy is designated Messier 31. It is the largest galaxy in the local group.
ANSWER: **Andromeda**
- [10] Messier 87 is the elliptical galaxy located at the center of this supercluster that includes the local group.
ANSWER: the **Virgo Supercluster**
16. First piece in this genre in a certain collection begins with two repeating C major arpeggios. For 10 points each:
- [10] Name these multi-voiced works that are paired with a prelude in all 24 keys in Bach's *The Well Tempered Clavier*.
ANSWER: **fugues**
- [10] This non-Bach Russian composer also compiled a set of preludes and fugues in every major and minor key. His "Fugue in A minor" has perfect harmony.
ANSWER: Dmitri **Shostakovich**
- [10] This composer was also inspired by *The Well Tempered Clavier* to compose his *Ludus Tonalis*, which consists of a piece in every key. This German composer also created the *Opera Mathis der Maler*.
ANSWER: Paul **Hindemith**

17. After the main character of this play threatens to become a phonetics teacher, she is called a “pillar of strength.” For 10 points each:
- [10] Name this play by George Bernard Shaw in which Henry Higgins attempts to make Eliza Doolittle speak without a cockney accent.
ANSWER: **Pygmalion**
- [10] In Act II, Eliza drapes a cloth over one of these objects before taking a bath, since she doesn’t like seeing how dirty and unladylike she is.
ANSWER: **mirror**
- [10] Prior to the bet between Henry Higgins and Colonel Pickering, Eliza worked in this profession.
ANSWER: **flower girl**
18. You will not be an answer to this bonus unless you are of course a mongol. For 10 points each:
- [10] This mongol leader unified and founded the mongol empire, and during his conquests, he destroyed the Khwarezmian Empire and Jin Dynasty.
ANSWER: **Genghis Khan** (or **Temujin**)
- [10] This mongol ruler was the founder of the Golden Horde. This grandson of Genghis Khan also conquered much of eastern Europe such as Poland.
ANSWER: **Batu Khan**
- [10] This general planned most of the invasions of both Genghis Khan and Ogedei Khan. This valiant general coordinated attacks between armies that were far apart from each other while campaigning in eastern Europe.
ANSWER: **Subutai**
19. Many cultures believe we live on the backs of various creatures instead of tectonic plates. For 10 points each:
- [10] Name this animal upon which many Native Americans believe the North American continent lies on. Scholars speculate that these animals are assigned the role of continent bears due to their valuable longevity.
ANSWER: **turtles**
- [10] According to the Amarakosha, 8 of these animals bear the weight of the world. One of those animals named Airavata is the steed of the god Indra.
ANSWER: **elephant**
- [10] According to Norse mythology, Jormungandr, who often fights Thor, encircles this realm inhabited by humans.
ANSWER: **midgard**
20. This law, along with the Law of Strata, comprise William Smith’s 2 rules of geology. For 10 points each:
- [10] Name this law which states that younger layers of rock lie on top of older layers of rock.
ANSWER: **Law of Superposition**
- [10] The Law of Superposition is important to the stratigraphic form of this technique, which involves using the order of rock layers to compare when events happened.
ANSWER: stratigraphic **dating**
- [10] Another common method of dating is to use this type of fossils that are abundantly found in a widespread range and occur in a specific time range.
ANSWER: **index** fossils (or **guide** fossils)