

Teterboro's Academic Packets of Intellectual Rigor

Packet 11

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Tossups

1. **Deterministic examples of these systems can be graphed in a forking bifurcation diagram. One application for these systems comes from their use in fractal analysis, since their graphs often result in fractals. Systems with this property evolve towards a strange attractor, one example of which was made to model atmospheric convection by (*) Edward Lorenz. One simple example of a system with this property is a double pendulum. For 10 points, name this property in which small variations in a system's initial conditions drastically alter its state, exemplified by the butterfly effect.**

ANSWER: **chaos** (accept word forms and **chaotic systems**)

2. **Creating thin examples of this product requires the process of lamination, in which this product is repeatedly folded over itself and flattened. One traditional preparation of this good uses guanciale and tempered eggs. Early evidence of civilizations like the Etruscans making this product using (*) durum and semolina debunk the popular myth that it was introduced to Europe by Marco Polo. Common preparations of this product include cacio e pepe and carbonara. For 10 points, name this staple dough product of Italy, examples of which include linguine and spaghetti.**

ANSWER: **pasta** (accept noodles or any specific kind of pasta product like **carbonara**, **linguine** or **spaghetti** before they are mentioned)

3. **One author from this country wrote about Sybylla's poor family life and aspirations to become a writer in *My Brilliant Career*. That author now names a literature prize awarded in this country. One author wrote about a bet to move a glass church across this country's interior between (*) Oscar and Lucinda. Another author from this country described Amon Goeth and a factory owner who saves over a thousand Jews from death during the Holocaust in *Schindler's Ark*. For 10 points, name this home country of Peter Carey and Thomas Keneally in the southern hemisphere.**

ANSWER: **Australia**

4. **This practice is performed for the concept of sunyata, or emptiness during Buddhist meditation techniques. Benedictine monks must perform this action after compline, the last prayer of the day, until morning service the next day. Buddhist monks may carry a staff to announce their arrival while performing this action, which is often observed by visitors when (*) entering temples and monasteries. Human corpses are placed on structures named for "towers" of these things to allow for sky burials in Zoroastrianism. For 10 points, name this practice in which participants can refrain from speaking.**

ANSWER: **silence**

5. In a "Sonnet -to Science," the speaker of the poem asks "why preyest thou upon" this possession of "the poet." "A creature, naked, bestial" who holds this bitter possession in his hands and eats it is seen in the desert in a poem by Stephen Crane. In another poem, the speaker asks to bury this thing at (*) Wounded Knee. This "brute brute" body part of Sylvia Plath's "Daddy" has a stake in it according to the speaker, who claims her own "pretty red" one was bit in two. For 10 points, name this body part, a traditional symbol of love in poetry.

ANSWER: heart

6. Dr. Robert Wilson was a witness of an event committed by this country, and also established a safety zone there at the then capital of another country. In exchange for their experiment data, immunity from war crimes was granted to the scientists from this country who committed lethal experiments on civilians at Unit 731. During the (*) Jewel Voice Broadcast, this nation's ruler announced his country's unconditional surrender. Hundreds of thousands of "comfort women" were enslaved by this country in World War II. For 10 points, name this country once led by Emperor Hirohito.

ANSWER: Japan

7. A gate built during Expo 86 and the Millenium Gate were built in the largest of these places in Canada. Binondo is the oldest example of these places in the world, and is found in the city of Manila. Flushing, Queens is a growing example of one of (*) these districts, while the older one in New York City is found in lower Manhattan. The largest of these neighborhoods in the US, once run by Tong Gangs, is found in San Francisco, and grew heavily in response to the California Gold Rush. For 10 points, name these ethnic neighborhoods that may feature Dragon Gates.

ANSWER: Chinatowns

8. This designer of the smallest ancient obelisk in Rome had his assistant sculpt an elephant supporting the structure, which recurs in Picasso's works. This artist sculpted a bronze casing for a wooden throne relic claimed to have been used by St. Peter. An unfinished sculpture featuring the allegorical figure Truth being unveiled is another work by this artist of (*) the *Rape of Proserpina*. This artist also sculpted a baldacchino in St. Peter's Basilica to mark his tomb. For 10 points, name this Baroque Italian sculptor of the *Ecstasy of St. Teresa*.

ANSWER: Gian Lorenzo Bernini (thanks to AL!)

9. This action may be optimized at the critical angle of attack between the chord line connecting the leading and trailing edges and the relative motion vector. This action can be manipulated through yaw, pitch, and roll, which are rotations along the three dimensions. Organisms performing this action allow air to move faster (*) over the top of their curved airfoils than the bottom to increase lift while reducing drag, and also generally possess hollow bones to reduce their weight. For 10 points, name this ability, the prevailing form of locomotion through the air.

ANSWER: flight (accept word forms, prompt on answers indicating generating lift)

10. One story that takes place in this city ends by describing the snow "faintly falling, like the descent of their last end, upon all the living and the dead." The narrator visits a bazaar in this city in the short story "Araby." A typical day in the life of a resident of this city ends with a (*) stream of consciousness description of Molly's thoughts as she reminisces on her husband's proposing to her. Earlier in *Ulysses*, Leopold Bloom visits a pub in this city. For 10 points, name this city, the setting of many James Joyce works in Ireland.

ANSWER: Dublin

11. **This man compared a “city of a hundred hills” to the huntress Atalanta in one work which also described the two fields of vision a certain group must have in its section “Of Our Spiritual Strivings,” which he termed double consciousness. This man contradicted the Dunning school’s view that reconstruction was a failure in his work (*) *Black Reconstruction in America*. This man who led the Niagara movement with William Trotter was the first African American to earn a doctorate at Harvard. For 10 points, name this member of the civil rights movement who co-founded the NAACP.**

ANSWER: W. E. B. DuBois

12. **This work begins with four cellos and 2 violas playing the melody of “The Holy Cross.” The chimes representing the bells of a city are played at the end of this work. The folk song U vorot, or By the Gates is used in this work, as is the (*) *Marseillaise*, which competes with folk music and gradually wins out before slowly decrescendoing. Cannon fire is used in the climactic ending of this work, which contains the melody “God Save the Tsar.” For 10 points, name this work by Tchaikovsky written to commemorate Russia’s defense against Napoleon in a certain year.**

ANSWER: 1812 Overture

13. **This general caused the losing side to throw away their heavy clogs while retreating after his victory at the Battle of Koge near Copenhagen. This man’s victory over Marshal Auguste Marmont at the Battle of Salamanca helped him liberate Madrid. In another battle, this general defended Hougoumont chateau shortly after the (*) Battle of Quatre Bras. This man earned his title shortly before he and Prussian Field Marshal Blucher defeated a French Emperor at a Belgium town. For 10 points, name this British General who led the Seventh Coalition to victory in the Napoleonic Wars.**

ANSWER: Sir Arthur Wellesley, 1st Duke of Wellington (either underlined part is fine)

14. **The concentration of these substances in a sample can be determined through Mohr’s method. One type of these substances is formed when bile acids are conjugated with glycine or taurine. A “practical” scale for the concentration of these substances measures the conductivity of a solution. These compounds, along with (*) water, are the product of acid-base neutralization reactions. The evaporite mineral of these compounds are called halides, as they are typically formed when a halogen reacts with a metal. For 10 points, name these chemicals, one example of which is sodium chloride.**

ANSWER: salts (accept salinity)

15. **An enemy of this man claims that revenge rather than treason prompted his actions, leading to a duel between Pinabel and Thierry to determine who is right. That traitor and stepfather of this character had earlier been sent to the court of Marsilla in the city of Saragosse to accept an offer of peace. After being betrayed to the Saracens by (*) Ganelon, this man dies when he is driven by his wise friend Oliver to blow a horn for help during an ambush at the Battle of Roncevaux Pass. For 10 points, name this hero of a French epic poem who fights for Charlemagne.**

ANSWER: Roland (or Orlando. Accept the Song of Roland or La Chanson de Roland)

16. **IPTG artificially induces the breakdown of this molecule, which is positively regulated by the binding of cyclic AMP to the catabolite activator protein. The activity of that mechanism which metabolizes this molecule can be observed by the production of a pigment from X-gal in a blue-white screen. In humans an enzyme hydrolyses this (*) sugar into its glucose and galactose monomers, while in bacteria, this sugar is metabolized by the lac operon. East Asian people are more likely to have this sugar’s namesake “intolerance.” For 10 points, name this sugar found in milk.**

ANSWER: lactose

17. Edited clips of this man were made to show that he had “gone insane” in a running gag on Conan O’Brian’s show. This man remarked “they teach you that in school in Utah huh” after one person had responded with “hoe.” During one April Fool’s day show, this man walked on stage without his pants, while in another he swapped places with (*) Pat Sajak. After his announcement of his stage IV pancreatic cancer, this television star hosted a “Greatest of All Time” tournament between Brad Rutter, James Holzhauer and Ken Jennings. For 10 points, name this host of the game show Jeopardy.

ANSWER: Alex Trebek

18. A Sumerian hymn to the goddess Ninkasi celebrates this staple good and includes a guide for producing it. The earliest known production of this good was found in 13,000 year old remains in Raqefet Cave in Israel, and were likely used in ritual feasts. The independent development of this good around the world was facilitated by the domestication of (*) cereal crops. In places like ancient Egypt, this consumable’s safety from contamination made it preferable to water. For 10 points, name this alcoholic beverage.

ANSWER: beer (prompt on alcohol, do not accept or prompt on wine)

19. One holder of this position faced controversy for her advocacy of the 1999 bombing of Yugoslavia to liberate Kosovo without UN sanctioning. Following the September 11 attacks, the promotion of democracy in the Middle East was stressed in the Transformational Diplomacy initiative under (*) Condoleezza Rice’s tenure in this position. Under Bill Clinton, the first woman to hold this position was Madeleine Albright, while its first holder was Thomas Jefferson. For 10 points, name this position held by Hillary Clinton and John Kerry under Barack Obama.

ANSWER: Secretary of State

20. In one experiment conducted in this facility, it was observed that heptane droplets underwent “cool-flame extinction” in which they continually burned after they were extinguished. One component of this structure is the particle detector Alpha Magnetic Spectrometer. This structure’s Cupola (*) module is used for observations, and is connected to the Tranquility module, which houses life support systems. This structure completes a low Earth orbit once every 90 minutes. For 10 points, name this satellite orbiting Earth built as a joint project among 5 different space agencies.

ANSWER: the International Space Station

Bonuses

1. This music genre arose during the 1930s in response to Bebop. For 10 points each:
[10] Name this “traditional” style of Jazz originating in New Orleans. Common pieces in this style of jazz include “Muskrat Ramble” and “Tiger Rag.”
ANSWER: **Dixieland**
[10] Dixieland was revived due to the prevalence of bebop, a jazz style that featured much more complex music, and was led by this saxophone player nicknamed “bird.”
ANSWER: Charlie **Parker**
[10] Parker names a series of these sequences of ii-V rather than the more common I-IV-V. The twelve bar blues are an important example of these sequences.
ANSWER: **chord progressions**
2. This man wrote his *Sevastopol Sketches* based on his experiences in combat. For 10 points each:
[10] Name this Russian author of *War and Peace*.
ANSWER: Leo **Tolstoy**
[10] Tolstoy wrote this other work in which the title character’s terminal illness makes him realize that his life was artificial. That character earlier becomes ill while he accidentally falls while hanging curtains.
ANSWER: **The Death of Ivan Ilyich**
[10] In *The Death of Ivan Ilyich*, Ivan only finds comfort and compassion with Gerasim, who has this relation with him. Unlike Ivan’s wife, Praskovya, Gerasim interacts with people in an authentic way.
ANSWER: **servant**
3. This theory assumes that each and every atom in a molecule will orient themselves to minimize repulsion between their outermost electrons. For 10 points each:
[10] Name this theory often used to predict the molecular geometry of a molecule given the number of lone and bonding pairs.
ANSWER: **valence shell electron pair repulsion theory (VSEPR theory)**
[10] VSEPR theory is so named for the repulsion between pairs of electrons from this layer. Another principle states that elements tend to bond so that each has 8 electrons in this layer.
ANSWER: **valence shell** (accept **valence electrons**)
[10] In this molecular geometry, with steric number 5, one of the atoms in a trigonal bipyramid is replaced by a lone pair.
ANSWER: **seesaw** (or **disphenoidal**)
4. Back in Han Dynasty China, there was a lot of stuff still left to invent! For 10 points each:
[10] Cai Lun used a pulp of tree bark, fishnets and linen to create this material. Along with Egyptian Papyrus, it was among the first developed writing materials.
ANSWER: **paper**
[10] While drilling boreholes for collecting brine, Han Dynasty people accidentally discovered this substance, which they used to boil the brine for salt. The later advent of hydraulic fracturing in the late 1940s greatly increased the output of this fuel.
ANSWER: **natural gas**
[10] Zhang Heng invented the first of these devices with 8 dragon’s heads holding bronze balls that would drop into the mouth of a toad. This invention was created in order to figure out the location and intensity of a certain type of natural disaster.
ANSWER: **seismometers** (or **seismographs**)

5. All footage of one episode of this show was destroyed since it showed how to make an extremely dangerous and readily available explosive. For 10 points each:
[10] Name this show in which special effects experts Jamie Hyneman and Adam Savage “don’t just tell” urban legends, “they put them to the test.”
ANSWER: **Mythbusters**
[10] Mythbusters debuted on this television network once focusing on nature and science, but has now delved into pseudo science and reality shows. Other shows on this network include Deadliest Catch
ANSWER: the **Discovery** Channel
[10] Mythbusters had two special episodes for this Discovery Channel occasion, which runs every year in July or August. In one of those specials, they tested if playing dead or using strong magnets to repel predators.
ANSWER: **Shark Week** (for future reference: playing dead works but magnets don’t)
6. According to a novella in this genre, the universe will cease to exist after the blind idiot Azathoth awakes. For 10 points each:
[10] Name this genre of fiction intended to frighten its readers, one subgenre of which is “gothic.”
ANSWER: **horror** (accept **gothic horror** of course)
[10] Azathoth first appears in this author’s book *The Dream Quest of Unknown Kadath*. This strange author set many of his horror short stories in Arkham, Massachusetts.
ANSWER: Howard Phillips **Lovecraft**
[10] According to Lovecraft, this ancient being waits dreaming in the underwater city of R’lyeh. This eldritch god has octopus tentacles sprouting from its head.
ANSWER: **Cthulhu**
7. There are currently over 4,000 confirmed examples of these bodies primarily discovered through transit monitoring techniques. For 10 points each:
[10] Name these star orbiting objects outside of the solar system.
ANSWER: **Exoplanets**
[10] According to one model, planets form as material continually gain mass as a result of this process in a rotating protoplanetary disk. A disk named for this word surrounds massive objects like black holes.
ANSWER: **accretion** (accept **accretion disk**)
[10] Many possible candidates exist of exoplanets which possess this quality, such as Kepler-452b, which orbits in its star’s goldilocks zone.
ANSWER: **Habitable** (accept equivalents like “**able to sustain life**”)
8. While working at Oxford, Dorothy Hodgkin determined the structure of this compound using X-Ray crystallography. For 10 points each:
[10] Name this first commercially available antibiotic, whose extensive use has led to widespread bacteria resistance of it.
ANSWER: **Penicillin**
[10] Penicillin was accidentally discovered by this scottish scientist, who isolated it from a mold found while analyzing bacteria cultures at St. Mary’s Hospital.
ANSWER: Alexander **Fleming**
[10] Penicillin was widely used to treat this disease, which was secretly given to 600 african american men in a 40 year long experiment at the Tuskegee Institute. During that experiment, the subjects were intentionally not given penicillin, majorly violating ethical standards.
ANSWER: **Syphilis**

9. James Monroe is depicted holding one of these objects in the painting *Washington Crossing the Delaware*. For 10 points each:
- [10] Name this American symbol with 13 stripes.
ANSWER: the **US Flag** (accept equivalents)
- [10] An American flag is raised on a peak in this Japanese island in a Pulitzer winning photo taken by Joe Rosenthal. The photo was taken during this island's namesake battle in World War II.
ANSWER: **Iwo Jima** (accept the Battle of **Iwo Jima**)
- [10] Many paintings of the American flag were made by this American artist. This pop artist often used encaustic to make his artworks.
ANSWER: Jasper **Johns**
10. This thinker described the effects of mechanical and organic solidarity on social order in his work *The Division of Labor in Society*. For 10 points each:
- [10] Name this French sociologist who coined the term "collective consciousness"
ANSWER: Emile **Durkheim**
- [10] In this work Durkheim describes the altruistic form of the title action as being done to save or benefit others, and the anomie type as occurring due to illusion and lacking normalcy.
ANSWER: **Suicide**
- [10] This was the term coined by Durkheim to describe values and other aspects of society which affect the behavior and attitude of a member of that society.
ANSWER: **social facts**
11. There are 60 billion organisms from this phylum for every human on earth. For 10 points each:
- [10] Name this most abundant phylum in the world. Members of this phylum are unsegmented roundworms.
ANSWER: **Nematoda** (accept **nematodes**)
- [10] Parasitic nematodes from the genus *Trichinella* are commonly found in pork and bear meat, typically causing this disease when uncooked meat is ingested.
ANSWER: **Trichinosis**
- [10] While we may sometimes inadvertently eat nematodes, one group of organisms from this kingdom have adapted to specialize in hunting nematodes using their hyphae, which makes up their mycelium.
ANSWER: **Fungi** (accept word forms)
12. Toussaint Charbonneau, this woman's husband, was hired as an interpreter because of her language skills. For 10 points each:
- [10] Name this Shoshone woman who bartered horses and provided guide for an exploration of the Western US.
ANSWER: **Sacagawea**
- [10] Sacagawea and Charbonneau joined this group at Fort Mandan in North Dakota. This group was created by Thomas Jefferson in order to explore the recently purchased land of the Louisiana Purchase.
ANSWER: the **Corps of Discovery** (accept the **Lewis and Clark** Expedition)
- [10] Later on, the Shoshone moved to Idaho under the leadership of Pocatello, who maintained peace with this group by making land deals and encouraging some Baptism of his people.
ANSWER: **Mormons**

13. Keep hearing this bonus to be spared from losing silly points! For 10 points each:
- [10] Name this collection of tales recited by Scheherazade to her husband Shahyar, each of which ended with a cliffhanger at dawn so that she could be spared from losing her head to complete the story the next night.
- ANSWER: Arabian Nights (accept 1001 Nights or 1001 Arabian Nights or Kitab alf laylah wa-laylah)
- [10] In the tale of Ali Baba and the 40 Thieves, Ali Baba discovers this secret password to access the thieves's treasure. After his servant girl Morgiana kills the last thief, Ali Baba is the only one to know this phrase to access the treasure.
- ANSWER: Open Sesame
- [10] In one story from Arabian Nights, a fisherman kills his ill wife after believing that she was unfaithful for giving one of these items from the king's orchard to a slave. A golden one of these items begins the Trojan War after it is given to Aphrodite.
- ANSWER: apple
14. According to one myth from this culture, the world was created from the body of the crocodilian monster Cipactli. For 10 points each:
- [10] Name this mesoamerican culture that often practiced human sacrifice for the war god Huitzilopochtli.
- ANSWER: the Aztecs
- [10] This god and twin of Xolotl created the heavens and earth from the body of Cipactli. This god ruled over the wind in his form Ehecatl, and was often associated with the morning star Venus.
- ANSWER: Quetzalcoatl
- [10] In this text, the demon and mountain creator Zipacna is equivalent to Cipactli. This Kiche text also contains tells of the defeat of Seven Macaw.
- ANSWER: the Popol Vuh
15. The broca region of this organ allowed it to name itself. For 10 points each:
- [10] Name this extremely important organ responsible for actions like motor control, language and coming up with the answer to this bonus part.
- ANSWER: brain
- [10] Along with neurons, these cells compose most of your brain. These cells are responsible for supplying nutrients and oxygen to neurons and protecting them.
- ANSWER: glial cells (or neuroglia)
- [10] Glial cells produce this substance which forms a protective sheath over the axons of the neurons.
- ANSWER: myelin
16. Murmansk is the largest port city on this body of water. For 10 points each:
- [10] Name this ocean. The Kola Peninsula is bounded by portions of this ocean called the Barents Sea and White Sea.
- ANSWER: the Arctic Ocean
- [10] The Kola peninsula is also home to these indigeneous people who mainly live in Lapland. These people are known for their reindeer herding.
- ANSWER: the Sami (prompt on laps)
- [10] Lapland is the large northern region of this northern european country. In contrast its capital city of Helsinki is found in its far south.
- ANSWER: Finland

17. These works were often made to easily mold statues to commemorate a subject, but may sometimes lead to deformations from the weight of the plaster. For 10 points each:
- [10] Name these works often made directly after a person's death by making a cast of a corpse's face.
ANSWER: **death masks**
- [10] One well known death mask belongs to this ruler, made of pure gold inlaid with lapis lazuli, quartz and obsidian for the eyes. This man's well preserved death mask includes many blue stripes as well as a narrow beard.
ANSWER: King **Tutankhamun**
- [10] The Bambara people of Mali often make masks of Chiwara, which depicts this savannah animal. Traditionally, Chiwara masks are bestowed to those that are the fastest workers of the land, similar to these graceful, sometimes horned animals.
ANSWER: **antelopes**
18. This leader built Sankore University, and the Sidi Yahya and Djinguereber Mosques, which together made up the University of Timbuktu. For 10 points each:
- [10] Name this leader of the Mali Empire who ruled the city of Timbuktu.
ANSWER: Mansa **Musa I**
- [10] Mansa Musa is depicted holding a sceptre and piece of gold symbolizing his wealth in this 1375 Majorcan manuscript by Cresques Abraham which depicted the known world.
ANSWER: the **Catalan Atlas**
- [10] Mansa Musa's general Sagmandia captured the city of Gao, an important city of Trans-Saharan trade. However, in the 1400s the city was recaptured by Sunni Ali, who made it the capital of this later African Empire.
ANSWER: the **Songhai** Empire
19. For 10 points each answer the following about nonconservative forces:
- [10] The dry type of this nonconservative force is proportional to the normal force. This is the force that resists motion.
ANSWER: **friction**
- [10] Nonconservative forces are defined for having this quality, in which the amount of energy needed for a process changes based on how the process was performed rather than just on the difference between the start and end states.
ANSWER: **path dependence**
- [10] The Q factor determines the extent of this effect, in which a nonconservative force like friction reduces the amplitude of a simple harmonic oscillator over time.
ANSWER: **damping**
20. For 10 points each answer the following on poems about sailors:
- [10] At the end of one poem, the speaker imagines himself singing on a "golden bough" to "lords and ladies" of this "holy" city "of what is past, or passing, or to come."
ANSWER: **Byzantium** (do not accept any other name for the city)
- [10] In this long poem, the title character stops a man on the way to his wedding ceremony and describes the thirst and meeting with Death and Life-in-Death at sea after he shot an albatross.
ANSWER: "**Rime of the Ancient Mariner**"
- [10] The Sailor's Tale appears in this collection of stories told by pilgrims on the way to see the shrine of Thomas Becket by Geoffrey Chaucer.
ANSWER: ***The Canterbury Tales***