

LIMIT 2015: A Limit to Learning is a Dangerous Thing

Written by Lexington High School (Colin Cantwell, Kyle Doney, Reggie Luo, Gavin Mak, Duncan McCallum, Arjun Sarathy, Devin Shang), Hinsdale Central High School (Ankush Bajaj, Sunny Chen, Harrison Wang, James Zhou), and Victor Pavao

Edited by Rohan Nag and Jarret Greene

Packet 4

Tossups

1) This author described a narrator who is “Done with the Compass/ Done with the Chart!” in one poem, while in another, this writer is a “Debauchee of Dew” and an “Inebriate of air” after drinking the title substance from “tankards scooped in pearl.” This poet of “Wild Nights! Wild Nights!” and (*) “I taste a liquor never brewed” wrote a work in which “the horses’ heads were toward eternity” and the narrator rides in a carriage with the title figure, who “kindly stopped for me.” For 10 points, name this “Belle of Amherst” and author of “Because I could not stop for Death.”

ANSWER: Emily (Elizabeth) Dickinson <CC>

2) This artist showed an eye in the middle of a piece of a ham in *The Portrait*, while in another painting, the iris of an eye is replaced with a cloudy sky. This artist of *The False Mirror* showed a black clock between two candles, but only one is reflected in a mirror on top of a mantle in another work. One work by this man shows an upright-standing (*) man in front of a wall, beyond which is a seascape. For 10 points, name this artist of an apple-obscured face in *The Son of Man* and a train racing out of a fireplace in *Time Transfixed*, a Belgian surrealist who declared “This is not a pipe” below a painting of a pipe in *The Treachery of Images*.

ANSWER: René François Ghislain Magritte <DS>

Note to all: the answerline is broad

3) One polycentric neighborhood of this ethnic group is in Chicago, and it has four equal-area districts. For Asians and this ethnicity, the more diverse the ‘port of entry’, the more segregated the city. Most “overstayers” are of this ethnicity. In 2050, this ethnic group will be the (*) ‘minority majority’ in the US, and many speak Cubonic or Chicano English. This group’s population increase has been called the “Browning of America”, and most live in barrios. For 10 points, name this ethnic group, of whom most came from Mexico.

ANSWER: Hispanic- or Latino-Americans; accept synonyms

4) This man kept the writ but introduced the inquest into conquered lands. This leader’s son made the first pipe rolls to be given to Barons of the Exchequer. This man suppressed revolting earls Edwin and Morcar during the Harrying of the North. This ruler’s forces landed at Pevensey before fighting a battle near (*) Senlac Hill. The opposing commander in that battle was shot with an arrow in the eye according to the Bayeux Tapestry. This man compiled the *Domesday Book*. For 10 points, name this winner of the Battle of Hastings, the first Norman king of England.

ANSWER: William the Conqueror or William I or William the Bastard or Guillaume le Conquerant or Guillaume le Batard; prompt on “William” or “Guillaume” <CC>

5) Indicator diagrams show this quantity on the y-axis during one type of work, as do van der Waals loops. This quantity for an otherwise-ideal gas is fugacity over the fugacity coefficient. The compression factor features this quantity in its numerator. In (*) mechanical equilibrium in gases, this quantity is held constant. The reaction quotient can be calculated with concentrations or with this quantity. The work *done* by a gas is equal to this quantity multiplied by the change in volume. For 10 points, name this quantity, defined as force per unit area, which is measured in Pascals.

ANSWER: pressure <HW>

6) William Herndon planned a “Republic of the Amazon” to be an “escape valve” for one people living along this river. The intersection of this river with a colonial border was the subject of 1818 London Convention. The Northwest Ordinance proposed free trade on the St. Lawrence and this river. Henry Miller Shreve broke the trade monopoly of (*) Robert Fulton in steamboats on this river. The Chickasaw were the primary slavers of Indians along the lower part of this river. Part of the Anaconda Plan was an assault up this river, which David Farragut did between Vicksburg and New Orleans. For 10 points, name this river.

ANSWER: Mississippi River

7) In one work by this man, the narrator stomps on the hat of Charlus, who accused him of slander, at a party hosted by the title family. In the final volume of that work by this author, the narrator learns that the tailor Jupien owns a male brothel once visited by Saint-Loup, and is introduced to Gilberte’s daughter at a party. This author began that work with the line “For a long time, I went to bed early” as he recalled his youth in (*) Combray, which is partly sparked by a tea-soaked Madeleine. For 10 points, name this French author who included *The Guermantes Way*, *Time Regained* and *Swann’s Way* in his seven-volume *In Search of Lost Time*.

ANSWER: (Valentin Louis Georges Eugène) Marcel Proust <JG>

8) Every Friday, a dove comes down from the heavens to lay upon this object. The man who took this object to the island of Sarras had a shield called Perlesvaus. The last king in charge of keeping this object was wounded in punishment for taking a wife. This object could only be retrieved by the man who could sit in the (*) Siege Perilous without dying. Lancelot’s illegitimate son found this object. That son was Sir Galahad, and after seeing this object, he requested to die whenever he wanted to. For 10 points, name this mythical object sought after in movies like Monty Python and Indiana Jones.

ANSWER: Holy Grail <KD>

9) This quantity is different for each bulb in a Galileo thermometer. This quantity multiplied by the velocity and the cross-sectional area gives the mass flow rate. Isopycnic [iso-picnic] centrifugation creates layers with different values of this quantity. In a continuous mass distribution, when this quantity is constant, (*) the center of mass is the centroid of the volume. An object’s moment of inertia may be determined by integrating radius squared times this quantity with respect to volume. Specific gravity is defined using this quantity’s value for water at 4 degrees Celsius, equal to one gram per cubic centimeter. For 10 points, name this ratio of mass to volume.

ANSWER: mass density; accept specific gravity before mentioned <HW>

10) This character is told to “screw his courage to the sticking-place” by his wife, who commands spirits to “unsex me here.” He claims that life is a “tale told by an idiot, full of sound and fury,” on the death of this character’s wife. This man kills Young Siward when (*) Birnam Wood comes to Dunsinane. This man is told by three witches that he will become Thane of Cawdor. For 10 points, name this Shakespeare character who murders Duncan to become the king of Scotland, but is later killed by Macduff.

ANSWER: Macbeth <CC>

11) During a vision quest, young girls are the first to touch one of these objects, which are also the centers of the Sun Dance. Murtis, which are Hindu folk deities, are placed underneath these objects. There are ten spaces on one of these objects “of life”, called the sephiroth. (*) Djinn’s haunt sacred ones, and Kodama are spirits within these objects in Shinto. Siddhartha Gautama sat under one of these objects called the bodhi to attain Enlightenment. For 10 points, name these plants that are used at Christmas.

ANSWER: trees; accept specific types of trees and prompt on “plants”

12) In this work, a clarinet playing a B-sharp and G-Sharp ostinato over pianos playing chords represents “The Cuckoo in the middle of the woods.” A section of this composition begins with a solo flute playing thirty-second notes over two trilling pianos. In another movement of this piece, the pianos deliberately play out of sync with each other to portray (*) beginning pianists practicing their scales. In this work’s penultimate movement, a solo cello plays a melody over pianos’ arpeggios to depict the title bird drifting over water. For 10 points, name this suite that includes the movements “Aviary” and “The Swan”, composed by Camille Saint-Saens.

ANSWER: The Carnival of the Animals or Le Carnaval des Animaux <DS>

13) To do the D-type of this process, one may find a rational number p over q so that an integer n times q times the absolute value of α minus p over q is less than one. Dirichlet and this process name the previous theorem, which is a basic result in Diophantine approaches to this process. You may calculate f of quantity x plus h by adding h times f prime of x in this process named for (*) Euler. The trapezoidal method, LRAM, and RRAM are examples of numerical integration, which is one of these processes. Slide rules do this process when trying to find logarithms. For 10 points, name this general process of closely predicting values.

ANSWER: approximations; accept word forms or anything more specific <HW>

14) In this novel, sick people are taken to die in the Evil Forest, and one character in this novel adopts the name Isaac when he converts to Christianity. The protagonist of this novel frequently states that he wishes his only surviving daughter was a son, and the Oracle of the Hills and Caves demands to see that daughter, (*) Ezinma. Its protagonist is exiled for accidentally killing Ezeudu’s son at his funeral, and he cares for Ikemefuna before killing him. The town of Umuofia is colonized in this novel, and it ends with the protagonist’s suicide. For 10 points, name this novel about Okonkwo, by Chinua Achebe.

ANSWER: Things Fall Apart <CC>

15) “Ingram’s Peace” and later treaties shifted most of this country from British Indian to direct British rule. This country’s eastern Hadhramaut Valley included the frankincense-exporting Qataban kingdom. The “first flash of light” from Mohammed’s trench was his rule over this country. In the 1700s, Dutch “coffee ships” travelled from this nation’s port of (*) Mocha to Galle in Sri Lanka. Trade routes near this country, called Arabia Felix by the Romans, went through Socotra and along the Red Sea and the Arabian Sea, even though its primary port was Aden. For 10 points, name this country bordered by Oman and Saudi Arabia with capital Sana’a.

ANSWER: Yemen

16) Shaw and McKay used cultural transmission theory to explain why crime rates in these places persisted despite changed populations. *The Death and Life of Great American Cities* argued that the block, not this kind of place, was the basic unit of city life. They’re not communities, but most participants in the Great Migration moved to (*) central examples of these areas, becoming part of the urban underclass. ‘Edge cities’ were created by ‘white flight’ from these places. Barrios and ghettos are monoethnic examples of these often gentrified places. For 10 points, name these hubs of daily life including locales like Chinatowns and Little Italies, as well as Harlem.

ANSWER: neighborhoods or ‘hoods’ or districts or localities, accept locales before mentioned; **do not accept suburbs or city/ies**

17) Membrane branches called frets connect two types of lamellae in this organelle. S-triazine drugs uncouple one part of this organelle’s metabolism. One part of this organelle has four manganese, one calcium, and one chloride ions, and “evolves” a gas. This organelle has an inward chemiosmotic force, and it has an enzyme that is both an oxygenase and a (*) carbon fixative, called RuBisCo. Mesophyll cells house these plastids, whose grana are stacks of thylakoids. Both the light reactions and Calvin cycle occur in this organelle, which makes glucose. For 10 points, name this green plant organelle that photosynthesizes.

ANSWER: chloroplast(s)

18) One awkward character on this show is mistakenly referred to as Jerry, Larry, and Terry, before it is revealed that his real name is Garry Gergich, and another character opens various business ventures such as Rent-A-Swag. The protagonist of this show, featuring Aziz Ansari as (*) Tom Haverford, marries auditor Ben Wyatt, and her boss is a staunch libertarian named Ron Swanson. This show came to an end with its sixth season in 2015. For 10 points, name this NBC comedy which starred Amy Poehler as bureaucrat Leslie Knope in the fictional town of Pawnee, Indiana.

ANSWER: Parks and Recreation <CC>

19) In one opera by this composer, Marilyn furiously sings “You embraced them!” to accuse a ship’s captain of sympathizing with Rambo and Molqi, two Palestinian hijackers. In another opera by this man, a character is delighted upon receiving a green glass elephant from factory workers. In another scene of that opera by this composer, the sight of a landlord beating a peasant girl during a performance of the ballet (*) *The Red Detachment of Women* causes Pat to rush upon the stage, prompting another character to sing the aria “I am the wife of Mao Tse-Tung”. For 10 points, name this composer of *The Death of Klinghoffer* and *Nixon in China*.

ANSWER: John Adams or John Coolidge Adams <DS>

20) Settlers moving through this state would mark “witness trees”. This state’s hemp and cotton bagging industries needed protections, leading to the Dallas Tariff of 1816. Indians called most of this state ‘that dark and bloody land’. Alexis de Tocqueville contrasted ‘industrious Ohio’ with this ‘idle’ state. This state saw a large “camp meeting” in 1801 at Cane Ridge. Along with (*) Virginia, this state named some 1798 Resolutions, and this Virginia “backcountry” became a state in 1792. In the election of 1860, John S. Breckinridge of this state was the Democratic nominee. For 10 points, name this home state of Henry Clay and Abraham Lincoln.

ANSWER: Kentucky or KY

Bonuses

1) Many techniques, including gold and other nanoparticles, target drugs to specific parts of the body. For 10 points each:

[10] Name this high-frequency technique that disrupts the blood-brain barrier so drugs can get in. This technique's pulses can also break up kidney stones and scar tissue, but more often, it images the inside of the human body.

ANSWER: focused **ultrasound** or **ultrasonic** delivery or **sonography**

[10] These strong, small vesicle bilayers can form around molecules of drugs and then be PEGylated and inserted into most organs without immune rejection or toxicity to humans. They are not micelles.

ANSWER: **liposomes**

[10] This most common way of consuming drugs relies on people eating tablets or pills.

ANSWER: **oral** delivery or through the **mouth** or **ingestion** or synonyms

2) In a poem written after her death, the speaker describes this woman's hair and smile as objects that "used to make this earth a paradise," and concludes "and this, my lyre, turned at last to tears." For 10 points each:

[10] Name this possibly fictional woman, the object of most of the poetry collection *Il Canzoniere*.

ANSWER: **Laura**

[10] *Il Canzoniere* was written by this 13th-century Italian poet sometimes called "The Father of Humanism." His other works were *On Famous Men* and his collected letters, including ones "on Familial Matters" and "of Old age."

ANSWER: **Petrarch** or Francesco **Petrarca**

[10] Petrarch is credited with the perfection and popularization of his namesake type of this poetic form invented by Giacomo da Lentini and also famously used by Dante and Milton.

ANSWER: Petrarchan **sonnet** <JG>

3) Followers of this religion read the *Namaskara* [Nama-scara] *Mantra*, which mentions no historical persons. For 10 points each:

[10] Name this religion founded by Mahavira, the last of its 24 tirthankaras [Teer-tung-ker-uhs].

ANSWER: **Jainism**

[10] Dig-am-bara Jains are always naked because they follow this principle closely associated with non-attachment. It's also called *apari-gra-ha* and is similar to the Hindu Satyagraha.

ANSWER: **not possessing** or **owning** anything; be lenient and accept word forms and synonyms

[10] The Jain principle of *ahimsa* is the lack of this broad concept, which Hinduism believes is perfectly normal to use or do, and has a caste called the *Kshatriyas* [K-shut-ree-yuhs] dedicated to.

ANSWER: **violence**; accept synonyms and antiprompt on "**war**"

4) Name these things about a certain keyboard instrument. For 10 points each:

[10] This keyboard instrument features plucked strings, unlike its successor, the piano. The *Goldberg Variations* were composed for this instrument.

ANSWER: **harpsichord**

[10] The *Goldberg Variations* were composed by this German Baroque composer, who also composed a double concerto for violin and the *Brandenburg Concertos*.

ANSWER: Johann Sebastian **Bach**

[10] This Frenchman composed *The Art of Harpsichord Playing*, a manual that influenced much of Baroque harpsichord composition. Maurice Ravel wrote a Tombeau, or memorial, for this man.

ANSWER: Francois **Couperin**

5) Jason [laugh] Jason Derülo! For 10 points each:

[10] On this Derülo song featuring 2Chainz, the title track of an album including “Wiggle,” the addressee’s “booty don’t need explaining,” but all Derülo needs to understand is when she performs the title action to him.

ANSWER: “**Talk Dirty**”

[10] This single by Jason Derülo describes how “it’s too hard to sleep” because the thought of the addressee “gets me so high.”

ANSWER: “**Want to Want Me**”

[10] Derülo states that the addressee’s eyes “remind me of a Coldplay song,” on this track in which he hears the title instruments “when you’re turning me on.”

ANSWER: “**Trumpets**” <CC>

6) John Hartley said that these actions stem from voluntary behavior, and John Dewey wrote an article about “arcs” of these actions. For 10 points each:

[10] Name these actions, which Descartes noted that a flame and animal spirits in the brain caused. The Hering-Breuer one is breathing.

ANSWER: **reflexes**; prompt on “**involuntary**” actions

[10] This Russian worked on conditioned reflexes in dog digestion and a cortical mosaic, and those dogs would salivate at a bell even if this man didn’t give them food when the bell rang.

ANSWER: Ivan **Pavlov**

[10] Ivan Sechenov described this process done to reflexes, which the vagus nerve does to a frog’s heart. Sechenov found that salting a frog’s brain when it’s in an acid bath will do this to leg movement.

ANSWER: **inhibition**; accept synonyms like **suppression**, **stopping**, **deactivation** and word forms

7) John Adams anonymously published four articles in a *Gazette* after this event, which was precipitated by the Townshend-Grenville Acts. For 10 points each:

[10] Name this 1770 event in which Thomas Preston’s British troops killed five colonists in a Massachusetts city.

ANSWER: **Boston Massacre**

[10] Preston’s soldiers were tried in these non-‘common law’ courts where judges were Crown-appointed. The Stamp Act forced criminals to be tried in these courts, which assumed defendants guilty, not innocent.

ANSWER: **vice-admiralty** courts; prompt on “**admiralty**”

[10] This British Prime Minister during the Boston Massacre succeeded the Duke of Grafton. He passed the Intolerable Acts after the Boston Tea Party, and lost his title after the British surrender at Yorktown.

ANSWER: Lord **North** or Frederick **North**, 2nd Duke of Guilford <CC>

8) James Monroe is depicted holding a flag behind the central figure of this painting. For 10 points each:

[10] Name this massive painting depicting the leader of the Continental Army heroically standing up in a boat navigating an ice-strewn river just prior to the Battle of Trenton.

ANSWER: **Washington Crossing the Delaware**

[10] *Washington Crossing the Delaware* is the best-known painting of this artist, whose other history paintings include *Westward The Course of Empire Takes Its Way* and *Columbus before the Queen*.

ANSWER: Emanuel (Gottlieb) **Leutze**

[10] Perhaps the most well-known portraits of George Washington were painted by this man, whose *Landsdowne Portrait* was saved from the burning of Washington by Dolly Madison. His *Athenaeum* is unfinished.

ANSWER: Gilbert (Charles) **Stuart** <JG>

9) A rooster finds a jewel but rejects it in order to search for a kernel of corn in one tale attributed to this author. For 10 points each:

[10] Name this ancient Greek storyteller whose other fables include *The Fox and the Grapes* and *The Tortoise and the Hare*.

ANSWER: Aesop

[10] Most of the poetry of this author from Lesbos, sometimes called the Tenth Muse, has been lost or is in fragments, except for her "Hymn to Aphrodite."

ANSWER: Sappho

[10] Much of the work of this ancient Theban poet is dedicated to the victors of athletic competitions such as the Pythian and Olympic Games.

ANSWER: Pindar <JG>

10) Jean Gottman first described one of these places in a 1961 study. For 10 points each:

[10] Name this type of city, including Washington-Baltimore-Philadelphia-NYC. They exceed metropolises in size and population because they are urban agglomerations, and their name comes from a Greek city.

ANSWER: megapolises; accept megapolises or megaregions or supercities

[10] This endangered coniferous tree is located in the Northeast and Great Lakes near that megalopolis, where a namesake invasive woolly adelgid targets it. It's actually not poisonous and was harvested for tannin from its bark.

ANSWER: Eastern hemlock; prompt on "hemlock"

[10] The Northeast Corridor is a transportation network bridged by the Acela Express of this speedy train service, whose headquarters is at Union Station in DC. It was once called the National Railroad Passenger Corporation.

ANSWER: Amtrak

Moderator: do not say the word "negro" in the second part

11) This 1862 act gave 160 acre grants to legalized squatters, prompting many sodbusters to go on the "Oklahoma Run". For 10 points each:

[10] Name this act passed along with the Morrill Land Grant Acts that freely gave migrants to the West their namesake small plots of land.

ANSWER: Homestead Act

[10] These Louisiana and Kentucky Civil War veterans of the 10th Cavalry built Western forts, strung telegraph lines, protected railroad crews, and subdued Indians, who named them after an animal.

ANSWER: buffalo soldiers; accept Negro Cavalry

[10] The "buffalo soldiers" and people who went on the "Oklahoma Run" were of this race, many of whom were freed by the Emancipation Proclamation.

ANSWER: African-Americans

12) Holgrave and Phoebe marry at the end of this novel. For 10 points each:

[10] Name this novel in which Hepzibah and Clifford Pyncheon flee a home cursed by Matthew Maule after the death of the Judge.

ANSWER: The House of the Seven Gables

[10] *The House of the Seven Gables* was written by this American author of *The Scarlet Letter*.

ANSWER: Nathaniel Hawthorne or Nathaniel Hathorne

[10] This Hawthorne novel is subtitled "The Romance of Monte Beni" and concerns a group of American artists in Italy, including Miriam, who convinces Donatello to murder Antonio by throwing him from the Tarpeian Rock.

ANSWER: *The* Marble Faun <CC/JG>

13) Holders of this title began a company based on the “fort and factory” model and later controlled the Spice Islands. For 10 points each:

[10] Name this title given to provincial governors in the Dutch Republic. William the Silent and several Williams of the House of Orange held this title, and its holders initially acted as absentee monarchs.

ANSWER: stadtholder or stadhouder

[10] In order to protect their land from flooding, Dutch stadtholders often built these artificial ridges along the coast. During the sieges of Leiden and Alkmaar in the 80 Years’ War, these structures were deliberately broken.

ANSWER: dikes or levees; **do not accept dams**

[10] William the Silent led Dutch forces at the start of their war for independence from this European country, whose fiercely Catholic king Philip II later killed him.

ANSWER: Spain or España <CC>

14) This artist caused a minor scandal at the 1920 Salon with his phallic-shaped sculpture of Marie Bonaparte, *Princess X*. For 10 points each:

[10] Name this Romanian-born modernist sculptor of works such as *Bird in Space* and *The Table of Silence*.

ANSWER: Constantin Brancusi

[10] A court case involving *Bird in Space* led to a decision declaring for the first time that this kind of art was, in fact, art. This style of art is non-representational and exemplified by artists such as Kandinsky and Picasso.

ANSWER: abstract art

[10] Another modernist sculptor is this English artist of *Nuclear Energy* and a series of *Reclining Figures*.

ANSWER: Henry Moore <JG>

15) The average case runtime of mergesort is *big O of n times this function of n*. For 10 points each:

[10] Give this function that, while its output is defined to give a number's exponent of 10, computer scientists usually assume it has a base of 2.

ANSWER: logarithm of n

[10] This other recursive sort algorithm has average runtime big O of n log n. It sorts subsets separated by a randomly-determined pivot.

ANSWER: quicksort

[10] This extremely inefficient, humorously named sorting algorithm randomly permutes a set until it is sorted.

ANSWER: bogosort, or stupid sort, monkey sort, slow sort, shotgun sort; prompt on “**random**” sort <HW>

16) Spanish bankruptcies and the lack of silver caused the British to create a trade in this good. For 10 points each:

[10] Name this addictive drug grown in British India used to create demand in China. Two namesake wars fought over this drug led to Chinese humiliation.

ANSWER: opium

[10] The 1844 Treaty of Nanjing ending the First Opium War and the treaties of Wangxia and Whampoa were all this type of treaty. They opened Chinese ports called “treaty ports” to foreign trade.

ANSWER: unequal treaties

[10] The Kiautschou [Kee-out-chu] Bay concession and flooding in Shandong prompted this group, with support from governors Li Bingheng and Yuxian, to organize as the ‘Great Sword Society’.

ANSWER: Boxers; accept Righteous and Harmonious Fists; prompt on partial answer

17) In the work in which it appears, this poem is read by a character only after she holds the words up to a mirror. For 10 points each:

[10] Name this poem that begins “’Twas Brillig and the slithy toves / Did gyre and gimble in the wabe” and describes a figure who faces the title creature with “vorpal sword in hand.”

ANSWER: “**Jabberwocky**”

[10] “Jabberwocky” appears in *Through the Looking Glass*, a sequel to this author’s *Alice’s Adventures in Wonderland*.

ANSWER: Lewis **Carroll** or Charles Lutwidge **Dodgson**

[10] Carroll is credited with inventing these types of words, which are a blend of two or more existing words, like making “lithe” and “slimy” into “slithy” in “Jabberwocky.” James Joyce is also famous for using them.

ANSWER: **portmanteau** words <JG>

18) This property of a compound can be found from a unit cell and it can predict an anion’s coordination type. For 10 points each:

[10] Name this often annoying process of balancing coefficients and calculating moles and masses of reactants and products that often uses ICE tables.

ANSWER: **stoichiometry**; accept **stoich**

[10] Redox reactions have different stoichiometries than other reactions, because single electrons and protons are exchanged in two of these kinds of electrochemical cells.

ANSWER: **half-cells**; prompt on “**voltaic cells**”

[10] Anodes and cathodes used in redox reactions can be temporarily protected from corrosion by a thin external metallic layer, in which the thin layer is called this adjective.

ANSWER: **sacrificial** anodes or cathodes or electrodes

19) For 10 points each, answer some questions about people gifted prophecy by Apollo.

[10] Name these priestesses guided by Apollo to deliver prophecies by inhaling chemicals released from the earth. The Pythia is another name for this type of priestess that lived on Mount Parnassus.

ANSWER: **Delphic Oracles**; prompt on “**oracles**”

[10] This prophet of Apollo was transformed into a woman for 7 years by Hera, as punishment for killing mating snakes. While in the fields of Asphodel, this prophet warned Odysseus about slaughtering the cattle of Helios.

ANSWER: **Tiresias**

[10] Apollo gave this woman the gift of prophecy in an attempt to seduce her, but when this failed, he spat into her mouth cursing her to never be believed, which would lead to her being known as insane.

ANSWER: **Cassandra** <KD>

20) In this process, the angular momentum vector of an object sweeps out a body cone while the lab angle is constant. For 10 points each:

[10] Name this phenomenon in which the symmetry axis of a rigid body periodically changes position, which is not nutation.

ANSWER: **precession**

[10] Rigid bodies normally have six of these parameters with two for each dimension. These are velocity components needed to fully describe the range of motion of an object.

ANSWER: **degrees** of **freedom**- both parts required; or **DOFs**

[10] The symmetry axis of a precessing object does this during precession. This motion is circular for an object moving around a fixed point or axis.

ANSWER: **rotation**