Darien High School’s DEFT: 2017-2018

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**Packet 8**

**Tossups**

**1. In one play by this author, Quentin debates whether to marry Helga after Maggie’s suicide. This author of *After the Fall* wrote about the imprisonment of Steve Deever for producing defective airplane parts that kill 21 pilots, a crime actually committed by Joe Keller. Flute music accompanies a character who is fired by Howard Wagner after trying to find his son** **(\*)** Biff a job in another play by this author. That character later commits suicide for insurance money. For 10 points, what playwright of *All My Sons* wrote about Willy Loman in *Death of a Salesman*?

**ANSWER**: Arthur Miller

<J. Tong>

**2. One law based on this effect was challenged by Olbers, who claimed the universe was static and did not expand. Light undergoes chromatic aberration at velocities near the speed of light due to the relativistic form of this effect. Edwin Hubble used this (\*)** effect to explain why some galaxies will never be visible from Earth. This effect explains why the sound of the siren of an ambulance passing a stationary observer will decrease as it passes them, an example of blueshift or reverse redshift. For 10 points, name this effect which governs how a perceived frequency changes depending on the relative velocity of the source.

**ANSWER:** Doppler Effect

<Shenoy>

**3. A group of these people established the Rurik dynasty in Novgorod and formed the Byzantine Varangian Guard. Charles the Simple gave Rollo, one of these people, control of the Duchy of Normandy. These people attacked the Lindisfarne (\*)** monastery, and Cnut [KA-NOOT] the Great, one of their leaders, controlled both Denmark and England. These people established a settlement at L’Anse aux [LANCE AUS] Meadows in Newfoundland. For 10 points, name these Scandinavian seafarers once led by Leif Erikson.

**ANSWER:** Vikings (accept Norsemen; prompt on “Danes”)

<Nalawade/Borecki>

**4. The protagonist of one of this author’s works compares Amsterdam to the “circles of hell”; that character, Jean-Baptiste Clamence, fails to save a woman from suicide in *The Fall*. The death of a host of rats leads Bernard Rieux [REE-YOU] to attempt to eradicate a disease in Oran in another novel by this author. The line “Maman (\*)** died today”opens a work by this author in which the protagonist sleeps with Marie Cardona and shoots an Arab on the beach. For 10 points, name this French-Algerian author of *The Plague*, who wrote about Meursault’s [MER-SO’S] execution in *The Stranger*.

**ANSWER**: Albert Camus

<J. Tong>

**5. A blue curtain was used to cover a copy of this painting at the UN during a 2003 speech by Colin Powell, while anti-war protests in 1974 led Tony Shafrazi [SHUH-FRAWZ-I] to deface it with the phrase “KILL LIES ALL.”. A flower blooms from the shattered (\*)** sword of a dismembered soldier who lies under an eye-shaped light bulb in this painting. A hidden skull overlays an agonized horse to the right of a bull with a burning tail in, for 10 points, what painting of the bombing of a Basque town during the Spanish Civil War, a work by Pablo Picasso?

**ANSWER:** Guernica

<Narayan>

**6. One character in this film says the best part of his day is the ten seconds where he thinks the protagonist has left for good. A bar scene in this film sees Chuckie try to pick up a girl in his “history” class. That scene in this film ends with the protagonist shouting “I got her number! How do you like them (\*)** apples?” The title character of this film works with Professor Lambeau [LAM-BO] and dates Skylar while receiving therapy. Robin Williams, Ben Affleck, and Matt Damon star in, for 10 points, what film about a genius who works as a janitor at MIT?

**ANSWER:** Good Will Hunting

<Borecki>

**7. An “alkaline tide” occurs when bicarbonate secreted in this organ causes an increase in blood pH. The fundus of this organ contains cells that secrete intrinsic factor for the absorption of vitamin B12, and this organ contains folds called rugae that allow it to expand. Chief cells in the walls of this organ secrete (\*)** pepsinogen, which serves as a precursor to another aspartic protease [PRO-TEE-ASE] found in it. Ulcers in this organ are caused by the bacteria *H. pylori*. For 10 points, name this primary digestive organ, where gastric acid digests food delivered from the esophagus.

**ANSWER:** stomach

<Narayan>

**8. This figure’s mother legendarily had a dream about a white elephant piercing her womb with its tusks. His teachings are collected in the Sutta Pitaka, while seeking refuge in this figure is the first of the Three Jewels. After reflecting under the Bodhi (\*)** tree, this figure preached at the Deer Park in Sarnath; those teachings advised followers to seek the Middle Way and to end suffering by following the Eightfold Path. For 10 points, name this ascetic founder of a religion with Mahayana and Zen branches, whose title means “enlightened one”.

**ANSWER:** the Buddha (accept Siddhartha Gautama or Gautama Buddha or Shakyamuni Buddha)

<Narayan>

**9. One ruler of this city placed laws of tablets called *axons* and made petty theft punishable by death, while another ruler divided residents of this city into four classes including the *Thetes* [THEE-TES]. A leader of this city began a practice in which names were written on pottery shards and citizens were (\*)** exiled for 10 years. That ruler expanded the *boule* into the Council of Five Hundred. Ostracism was a practice of, for 10 points, what city ruled by Draco, Cleisthenes, and Solon, the Greek “birthplace” of democracy?

**ANSWER:** Athens

<Borecki>

**10. This god branded the leopard form of Set with an iron rod while protecting Osiris’ body and is enticed by bodies covered in herbs. The shrines of Cynopolis were dedicated to this deity, who performs an “opening of the mouth” ritual to allow individuals to eat and drink in the (\*)** Duat. This father of Kebechet weighs hearts against the feather of Ma’at to determine if the dead can move on to the afterlife. For 10 points, name this jackal-headed Egyptian god of cemeteries and mummification.

**ANSWER:** Anubis (or Anpu)

<Bennett>

**HALFTIME**

**11. This artist collaborated with John McLaughlin to write “Shhh/Peaceful” on the album *In a Silent Way*. This artist included a variation of guitarist Joaquin Rodrigo’s “Concierto de Aranjuez” [CON-CIER-TO DAY AR-AHN-HUEZ] in an album arranged by Gil Evans. He experimented with electronic instruments in the album *Bitches Brew*, and collaborated with (\*)** John Coltrane, Cannonball Adderley, and Bill Evans on an album including “Flamenco Sketches” and “So What.” For 10 points, name this jazz trumpeter behind *Sketches of Spain* and *Kind of Blue*.

**ANSWER:** Miles Davis

**12. Modular arithmetic is applied to these values to find the Pisano period, and they can be generated using Binet’s [BI-NAYS] formula. Every positive integer can be written as a sum of these numbers according to Zeckendorf’s theorem. These companions to the Lucas numbers appear in the shallow diagonals of (\*)** Pascal’s Triangle, and were used to describe the growth of a rabbit population in the book *Liber Abaci*. The limit of the ratios of these numbers converges to the golden ratio. For 10 points, name these numbers that begin with 0,1,1,2,3,5, named for an Italian mathematician.

**ANSWER**: Fibonacci numbers (accept Fibonacci sequence)

<Narayan>

**13. In one short story by this author, rats and the French Army free the protagonist from an execution device created by the Spanish Inquisition. This author also wrote about the walling in of a man wearing a jester costume who screams “For the love of God, (\*)** Montresor!” This author of “The Pit and the Pendulum” described a maiden who was envied by angels and was interred in a “sepulchre by the sea.” For 10 points, name this author of “The Cask of Amontillado” and “Annabel Lee,” who described a bird saying “nevermore” in “The Raven.”

**ANSWER**: Edgar Allen Poe

<J. Tong>

**14. In one of these works, Eddie Money sings “Two Tickets to Paradise” while running a travel agency. Another one of these works sees Jack Be Nimble accidentally burn his shag carpeting before getting new pants from Banana Republic. Another one of these campaigns depicts a man drowning in quicksand in the desert while his feline pet looks on, because “If you’re a cat, you ignore people. (\*)** It’s what you do.” For 10 points, name these TV advertisements that often feature a talking lizard advising that “15 minutes could save you 15 percent or more on car insurance”.

**ANSWER:** GEICO commercials (accept GEICO advertisements; prompt on partial answer)

<Narayan>

**15. The silver salts of carboxylic acids are reacted with these elements in the Hunsdiecker [HUNS-DEE-KER] reaction, while atoms of them are exchanged in the Finkelstein reaction. One element in this group is used to detect starches in Lugol’s solution and is added to salt to prevent goiter. Teflon is formed from carbon and the element with the highest (\*)** electronegativity, which is in this group of elements with seven valence electrons. Iodine, chlorine, and fluorine are among, for 10 points, what group of elements left of the Noble Gases on the periodic table?

**ANSWER:** halogens (accept Group 17 or Group 7A)

<Narayan>

**16. 214 radicals were included in a dictionary compiled by this dynasty’s Kangxi emperor, while its Guangxu emperor attempted the Hundred Days’ Reform. Hong Xiuquan [SIOU-CHUAN], who claimed to be the brother of Jesus, led the (\*)** Taiping Rebellion against this dynasty, while another revolt against it was put down by the Eight Nation Alliance. Sun Yat-Sen came to power after the Xinhai Revolution led to the resignation of this dynasty’s emperor Puyi. The Boxer Rebellion was faced by, for 10 points, what last Chinese dynasty?

**ANSWER:** Qing Dynasty (pronounced “Ching;” do not accept or prompt on Qin dynasty)

<Borecki>

**17. The narrator of one of this author’s poems describes himself as an “attendant lord” rather than Prince Hamlet. This author described “eyes I dare not meet in dreams” that appear in a poem which concludes “the world ends/Not with a bang, but with a whimper.” Madame Sosostris (\*)** reads tarot cards in “The Burial of the Dead,” a section of a poem by this author; that poem opens with the line “April is the cruellest month.” For 10 points, name this British poet of “The Hollow Men,” “The Love Song of J. Alfred Prufrock,” and “The Waste Land.”

**ANSWER**: Thomas Stearns (T.S.) Eliot

<J. Tong>

**18. This work argues that the “main abuse of Scripture” is using it to prove the “Kingdom of God is the present Christian church,” damaging the authority of the civil ruler. This work, which outlines the four causes of the Kingdom of Darkness, states there is no (\*)** *summum bonum*, a greatest good, but only a *summum malum*, a greatest evil, in “Of Man.” That leads to the creation of a commonwealth and a sovereign with twelve rights in order to avoid a “war of all against all” where life is “nasty, poor, brutish, and short.” For 10 points, name this work by Thomas Hobbes.

**ANSWER**: Leviathan or The Matter, Forme, and Power of a Commonwealth Ecclesiastical and Civil

<Borecki>

**19. One political cartoon depicts this leader slaying a snake-like “many-headed monster” led by a man in a top hat, while another shows him stepping on the Constitution and wielding a “veto” in his left hand. This president required payment for government land in gold or silver in his (\*)** Specie Circular and defeated Nicholas Biddle in the “Bank War.” He won the election of 1828, four years after Henry Clay struck the so-called “corrupt bargain” with John Quincy Adams. For 10 points, name this seventh American president, the victor of the Battle of New Orleans in the War of 1812.

**ANSWER:** Andrew Jackson

<Borecki>

**20. The MKAD and the Garden Ring are both ring roads circling this city. A Hilton Hotel and the Ministry of Foreign Affairs building are skyscrapers among this city’s “seven sisters.” A church in this city is shaped like a flame, contains nine side churches around a main Church of Intercession, and is known for its brightly colored onion domes. (\*)** Gorky Park and the GUM department store are in this city home to St. Basil’s Cathedral. Red Square and the Kremlin are in, for 10 points, what capital of Russia?

**ANSWER:** Moscow (or Moskva)

<Borecki>

**TIEBREAK: ONLY PROCEED IF THE GAME IS TIED**

**21. One of these functions can be used to approximate every continuous function on a closed interval according to the Weierstrass Approximation Theorem. Descartes’ rule of signs can be used to determine the number of solutions to these expressions. The Abel-Ruffini theorem states there is no general solution to expressions of these with a (\*)** degree five or higher. For 10 points, name these expressions featuring variables raised to a power and multiplied by a coefficient, such as x2 + x + 1 [X-SQUARED PLUS X PLUS 1].

**ANSWER:** Polynomials (accept Polynomial Equations/Expressions/Functions)

<Borecki>

**Bonuses**

**1.** This event was carried out by the *devas* and *asuras* so they could obtain the sacred nectar of immortality. For 10 points each-

**A.** Name this event from Hindu mythology. The snake Vasuki and Mount Mandara were used as tools to perform this action.

**ANSWER**: the churning of the ocean of milk (accept synonyms for “ocean” such as “sea”; accept synonyms for “churning” such as “mixing”; accept Samudra Manthana or Sagara Manthana)

**B.** The poison Halahala was released from the mouth of Vasuki during the churning and caught in the throat of this destroyer God.

**ANSWER**: Shiva

**C.** Shiva’s matted hair is said to be the source of this Indian river. This most sacred river in Hinduism is the site of the Kumbh Mela festival in Varanasi.

**ANSWER**: Ganges (or Ganga)

<Narayan>

**2.** The narrator of this poem visits a place with “steep and lofty cliffs” which “impress / Thoughts of more deep seclusion.” For 10 points each-

**A.** Name this poem addressed to Dorothy, whose narrator notes that “five years have passed” while visiting the titular ruined monastery on the banks of the River Wye.

**ANSWER:** Lines Composed a Few Miles Above Tintern Abbey, On Revisiting the Banks of the Wye during a Tour. July 13, 1798.

**B.** “Tintern Abbey” was written by this Lake poet of “I Wandered Lonely as a Cloud” and a series of poems about Lucy.

**ANSWER**: William Wordsworth

**C.** In “I Wandered Lonely as a Cloud,” the narrator sees “ten thousand” of these flowers “stretched in never-ending line” and “fluttering and dancing in the breeze.”

**ANSWER**: daffodils

<J. Tong>

**3.** This type of reaction causes the electroplating of metals. For 10 points each-

**A.** Name this type of reaction, in which one chemical species loses electrons and the other gains electrons, a change in oxidation state.

**ANSWER:** redox reaction (accept oxidation-reduction reaction or equivalents)

**B.** Combustion, one type of redox reaction, is this type of process because energy is released, usually in the form of light, heat, or sound.

**ANSWER:** exothermic process

**C.** Exothermic reactions have a negative value for change in this quantity, which is a state function according to Hess’s Law.

**ANSWER:** enthalpy (do not accept entropy)

<E. Tong>

**4.** The destruction of these devices was made illegal by the 1812 Frame-Breaking Act. For 10 points each--

**A.** Name these weaving machines, a “power” one of which was invented by Edmund Cartwright.

**ANSWER:** looms (accept power loom)

**B.** The Power Loom was an invention of this period that saw a transition from the putting-out system to the factory system.

**ANSWER:** Industrial Revolution (accept First or Second Industrial Revolution)

**C.** The Frame-Breaking Act was passed in response to these protesters who attempted to destroy industrial machinery.

**ANSWER:** Luddites

<Borecki>

**5.** These objects contain 95% of the earth’s freshwater. For 10 points each--

**A.** Name these large, slow-moving masses of ice which may form cirques or fjords.

**ANSWER:** glaciers

**B.** Retreating glaciers may leave “lateral” and “terminal” examples of these structures composed of accumulated debris.

**ANSWER:** moraines

**C.** Retreating glaciers also form these small, shallow lakes, holes which fill with water and sediment.

**ANSWER:** kettle lakes (or kettles)

<Krishnan/Borecki>

**6.** This character is wrapped in a blanket at an inn after another character refuses to pay for their stay. For 10 points each--

**A**. Name this squire in a Miguel de Cervantes novel who rides the donkey Dapple and is promised governorship of an island by the knight he serves.

**ANSWER**: Sancho Panza

**B**. Sancho Panza serves this chivalry-obsessed character who fights the Knight of the White Moon and tilts at windmills he mistakes for giants.

**ANSWER**: Don Quixote

**C**. Don Quixote falls in love with this peasant girl from El Toboso, whom he believes is a princess.

**ANSWER**: Dulcinea

<J. Tong>

**7.** Depictions of many animals can be found in this Paleolithic site’s Hall of Bulls. For 10 points each--

**A.** Name this site of many cave paintings, including one of a man with the head of a bird being attacked by a bison.

**ANSWER:** Lascaux [LAS-KO] Cave(s) Paintings (or Grotte de Lascaux)

**B.** The Lascaux Caves are located near Montignac, east of Bordeaux in the Nouvelle-Aquitaine region of this country.

**ANSWER:** France (or French Republic or République Française)

**C.** Another prehistoric cave site is the Maros-Pangkep system found north of Makassar on this country’s island of Sulawesi. Java and Sumatra are other islands in this country.

**ANSWER:** Republic of Indonesia (or Republik Indonesia)

<Phipps>

**8.** These situations occur if both players are making the best decision possible when taking account of the current decision of the other players. For 10 points each--

**A.** Name this Game Theory concept, which occurs at “stag, stag” and “hare, hare” in the Stag Hunt game.

**ANSWER:** Nash Equilibrium

**B.** A classic example of Nash Equilibria is the result where two of these individuals should choose to betray the other rather than cooperate and remain silent.

**ANSWER:** prisoners (accept Prisoner’s Dilemma)

**C.** This strategy for the iterated Prisoner’s Dilemma involves cooperating on the first turn and copying the opponent’s previous move on every subsequent turn.

**ANSWER:** tit-for-tat

<Borecki>

**9.** This character orders the dwarf Mime [MEEM] to reforge the sword Nothung, and learns to feel fear after seeing a woman for the first time. For 10 points each--

**A.** Name this operatic character who kills Fafnir and wakes Brunnhilde after crossing a circle of magical fire.

**ANSWER**: Siegfried (do not accept or prompt on “Siegmund” or “Sigurd”)

**B.** *Siegfried* is the third opera in this operatic cycle, which ends with the “twilight of the gods” in *Gotterdammerung* [GOT-ER-DAM-ER-UNG]. This cycle also features “The Ride of the Valkyries” in *Die Walkure* [DEE VAL-CURE]*.*

**ANSWER**: The Ring Cycle (accept The Ring of the Nibelung, or Der Ring des Nibelungen)

**C**. This composer of *The Ring Cycle* built the Bayreuth Festival Theater for the premier of the cycle. A character sings the “Liebestod” after the death of a knight in this composer’s *Tristan und Isolde* [I-SOLD-EE].

**ANSWER**: Richard Wagner

<J. Tong>

**10.** This woman sparked the Antinomian Controversy by arguing that faith, rather than adherence to laws, is key to gaining salvation. For 10 points each--

**A**. Name this woman expelled from the Massachusetts Bay Colony by John Winthrop for advocating her views during weekly Sunday meetings.

**ANSWER**: Anne Hutchinson

**B.** After being banished, Hutchinson moved to this state, a haven for religious dissenters. The founder of this state bought land from the Narragansett to form “Providence Plantations.”

**ANSWER**: Rhode Island and Providence Plantations

**C.** This man founded Rhode Island after being banished from the Massachusetts Bay Colony for arguing for the separation of church and state.

**ANSWER**: Roger Williams
<J. Tong>

**11.** In this play, a woman who drowned her baby in a lake, Estelle, attempts to stab the lesbian Inez with a paper knife. For 10 points each--

**A.** Name this play in which Garcin refuses to leave a Second Empire-style drawing room.

**ANSWER:** No Exit (accept Huis Clos)

**B.** *No Exit* is a play by this French existentialist author, who discussed the concept of “bad faith” in *Being and Nothingness*.

**ANSWER:** Jean-Paul Sartre

**C.** In *No Exit*, Garcin states that this place, which is a locked room they are sent to for eternal damnation, is “other people.”

**ANSWER:** hell (accept underworld or equivalents; do not accept “heaven”)

<J. Tong>

**12.** This substance is used to absorb light energy into photosystems I and II in the thylakoid membrane. For 10 points each--

**A.** Name this green pigment.

**ANSWER:** chlorophyll

**B.** Chlorophyll is a vital component of this process through which plants use light energy to convert carbon dioxide and water into sugar and oxygen.

**ANSWER:** photosynthesis

**C.** This alternative metabolic pathway used by cacti and succulents to preserve water involves the absorption and storage of carbon dioxide at night, and the onset of photosynthesis only during the day.

**ANSWER:** CAM photosynthesis (or Crassulacean acid metabolism or CAM plants)

<Narayan>

**13.** Maester [MAE-STER] Aemon notes that eventually this motto is always right. For 10 points each--

**A.** Give this motto of House Stark, a three-word phrase about the arrival of a certain season.

**ANSWER:** Winter is Coming

**B.** “Winter is Coming” titles the first episode of this HBO series based on George R.R. Martin’s *Song of Ice and Fire*.

**ANSWER**: Game of Thrones

**C.** This other phrase from *Game of Thrones* is Valyrian for “all men must die.” In *A Feast for Crows*, Arya gains access to the temple of the Many-Faced God in Braavos by saying this phrase.

**ANSWER**: Valar Morghulis

<Borecki>

**14.** These people were banned from Jerusalem after a revolt led by Simon bar Kokhba. For 10 points each--

**A.** Name this religious group that captured the twelfth legion eagles at the Battle of Beth Horon during the first of three revolts against Roman rule.

**ANSWER:** Jews

**B.** This Roman general and his son Titus put down the First Jewish Revolt. This founder of the Flavian dynasty was the last ruler in the Year of the Four Emperors following the death of Nero.

**ANSWER:** Titus Flavius Vespasianus

**C.** The First Jewish Revolt ended after the 73-74 C.E. siege of this hilltop fortress and the resulting mass suicide of the Sicarii.

**ANSWER:** Masada

<Borecki>

**15.** This man, dressed in a black velvet suit, gestures to his right, and holds a sword in his left hand as Doric columns stand in the background in the Lansdowne portrait. For 10 points each--

**A.** Name that U.S. president.

**ANSWER:** George Washington

**B.** This artist painted the Lansdowne portrait and gave the first copy to British Prime Minister William Petty FitzMaurice.

**ANSWER:** Gilbert Stuart

**C.** John Trumbull, another early American artist, painted the presentation of this document to John Hancock by the Committee of Five on June 28, 1776, though it would not be signed until a few days later.

**ANSWER:** Declaration of Independence

<Borecki>

**16.** A girl in this story declares the drink Anis del Toro tastes like licorice after drinking it while waiting at a train station. For 10 points each--

**A.** Name this short story, in which the American attempts to convince Jig to get an abortion.

**ANSWER**: Hills Like White Elephants

**B.** “Hills Like White Elephants” was written by this author, who featured Nick Adams in stories such as “The Killers” and wrote of Harry’s death by gangrene during a safari in Africa in “The Snows of Kilimanjaro,”

**ANSWER**: Ernest Hemingway

**C.** “Hills Like White Elephants” is set in this country. In Hemingway’s *The Sun Also Rises*, Lady Brett Ashley has an affair with the bullfighter Pedro Romero in this country.

**ANSWER**: Spain (or España)

<J. Tong>

**17.** Diamond Reynolds made a Facebook Live video of the aftermath of this man’s shooting. For 10 points each--

**A** Name this man shot seven times by Geronimo Yanez, a St. Anthony police officer, while reaching for his ID during a traffic stop.

**ANSWER:** Philando Castile

**B.** The shooting of Philando Castile took place in this state, where the Australian-American Justine Damond was killed by police officer Mohammad Noor.

**ANSWER:** Minnesota

**C.** Castile’s death led to protests by this activist group, which began with a Twitter hashtag after the shootings of Trayvon Martin and Michael Brown.

**ANSWER:** Black Lives Matter

<Borecki>

**18.** This author used the “restraint” of the Pueblo and the “abandon” of Great Plains cultures to argue for cultural relativism in *Patterns of Culture*. For 10 points each--

**A.** Name this anthropologist who dispelled racist beliefs in “The Races of Mankind,” a collaboration with Gene Weltfish.

**ANSWER:** Ruth Benedict

**B.** This other work by Benedict contrasts the western “guilt” culture with the “shame” culture of a foreign country.

**ANSWER:** The Chrysanthemum and the Sword

**C.** *The Chrysanthemum and the Sword* studies the culture of this country, which fought the U.S. in World War II. Takeo Doi, an anthropologist from this country, criticized Benedict’s findings.

**ANSWER:** Japan (or Nippon; or Nihon)

<Borecki>

**19.** Hugh Allan was accused of bribing the Conservative government to acquire the contract for this country’s first transcontinental railway. For 10 points each--

**A.** Name this country where the Pacific Scandal led to the formation of a government under Alexander Mackenzie.

**ANSWER:** Canada

**B.** This Prime Minister of Canada resigned following the Pacific Scandal.

**ANSWER:** John Alexander Macdonald

**C.** This U.S. president and former Civil War general’s administration was rocked by the Credit Mobilier scandal, which involved the construction of the Union Pacific railroad.

**ANSWER:** Ulysses S. Grant (or Hiram Ulysses Grant)

<Borecki>

**20.** This force occurs perpendicular to the direction of fluid flow, unlike drag, which is parallel to direction. For 10 points each--

**A.** Name this upward force generated by different speeds at the top and bottom of an airfoil, enabling the sustained flight of aircraft.

**ANSWER**: lift

**B.** According to a principle developed by this physicist, the greater airflow velocity above the airfoil leads to lower pressure above the airfoil.

**ANSWER**: Daniel Bernoulli

**C.** Increasing this angle between the plane’s velocity vector and the flow velocity vector will increase the amount of lift until it is maximized at the critical angle.

**ANSWER**: angle of attack (prompt on “alpha”)

<Borecki>