

DACQ
Dynasty Academic Competition
Questions

October 2007
Packet 4:
Tossups

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1. The first man to hold this office as an official member of a political party was “Light Horse Harry” Lee, and other holders include Thomas Nelson Jr. One holder of this office was responsible for one half of the Connecticut (*) Compromise, while John Floyd's tenure saw Nat Turner's Rebellion. Charles Robb, James Gilmore, and Mark Warner have all held what gubernatorial position, currently held from Richmond by Tim Kaine?

ANSWER: Governor of Virginia

2. In August 2007, this company introduced an online grocery store whose service is restricted to Mercer Island, Washington. They are the exclusive retailer of Segway Human Transporters, though patent issues limit technologies like (*) one-click buying. Only becoming profitable a decade after its founding by Jeff Bezos, FTP, name this Internet company through which you can purchase just about anything, which shares its name with a large South American river.

ANSWER: Amazon.com

3. One story by this author sets the adventures of Roland Graeme against royal intrigue, while another describes the romances of Allan M'aulay. Those works, *The Abbot* and *Castle Dangerous*, appear in tales from “Benedictine Sources” and “From my Landlord,” while works like *Kenilworth* and *Guy Mannering* appear in the (*) Waverly series, as does *Rob Roy*. Best known for a tale of a Saxon noble who rescues Rowena and Rebecca, FTP, identify this Scottish author of *Ivanhoe*.

ANSWER: Sir Walter Scott

4. The most virulent form of this disease is generally considered the Vollum Strain, though the best-known strain was a mislabeled sample of cattle tissue from Texas, the Ames Strain. Its less fatal variety does not result in toxic shock beginning in the lymphatic system, and is characterized by black lesions on the skin. That (*) cutaneous form is far less common than the inhalation form, caused by spores of this bacillus bacteria. FTP, identify this bacteria, famously mailed to senators as white powder in 2001.

ANSWER: Anthrax (accept Bacillus Anthracis)

5. This man's second symphony experiments with atonality, while Schoenberg's twelve-tone system inspired his *Piano Sonata* and *Nocturne*. He set works by a Danish philosopher to music in *Prayers of Kierkegaard* and was inspired by *Prometheus Unbound* to create *Music for a Scene from* (*) *Shelley*. A Sheridan play led to his Overture for *The School for Scandal*, while his friend Menotti wrote the libretto for *Vanessa*. FTP, identify this American composer who also created the memorably somber *Adagio for Strings*.

ANSWER: Samuel Barber

6. This deliverer of the “Tryst with Destiny” speech negotiated the Pancha Sila with China. While serving a jail sentence for participating in protests, he wrote letters to his daughter, which were compiled in *Glimpses of World History*. At the 1929 meeting of the (*) National Congress, he declared his nation's goal of complete independence, though his relationship with Gandhi would later be strained. FTP, identify this first Prime Minister of India.

ANSWER: (Pundit) Jawaharlal Nehru

7. This figure's grandson, Astyanax, may have been killed by the man who later took her captive and from whom she would eventually escape in the form of a dog. In other stories, King Polymestor kills her son Polydorus, while (*) Neoptolemus and his father kill most of her family, including her daughter Polyxena, her sons Troilus and Hector, and her husband Priam. FTP, identify this queen of Troy captured after the Trojan War.

ANSWER: Hecuba

8. Its activation involves the Mg²⁺ ions in the active site and the formation of a carbamate ion. The first step of its pathway sees the formation of PGA via a six-carbon intermediate, while it can also produce CO₂ with an (*) oxygen substrate. Although it is the most abundant protein on earth, its inefficiency has resulted in the evolution of C₄ and CAM pathways. FTP, identify this enzyme which initiates the fixation of carbon dioxide in the Calvin cycle.

ANSWER: RuBisCO or Ribulose-1,5-bisphosphate carboxylase/oxygenase

9. One form of this process is indicated by low levels of reticulocytes, and can be either autologous or homologous. This term can also be applied to the practice of creating an extrinsic substance from an intrinsic one, and involves introducing impurities into (*) semiconductors. One major form involves the use of EPO, and hematocrit is generally analyzed to test for this process. FTP, identify this process in which red blood cells are added to the body, illegally practiced by Floyd Landis and professional athletes?

ANSWER: (Blood) Doping

10. A groom jumps out of a window to escape his bride in a rare comedy by this author, *Marriage*. This man burned all copies of first work *Hans Küchelgarten*, and he wrote about a cossack and his sons Andriy and Ostap in *Taras Bulba*. His *Diary of a Madman* appeared in *Arabesques*, as did (*) *Nevsky Prospect*. His best known novel describes Chichikov's purchases of the titular deceased serfs, *Dead Souls*. FTP, identify this Russian who also wrote *The Nose* and *Inspector General*.

ANSWER: Nikolai Gogol

11. Electrostatic forces may be responsible for the seasonal spokes observed in these objects, which feature Encke and Keeler regions near Atlas. Lin-Shu density wave theory has been successfully applied to them, and major ones include the Janus-Epimetheus and (*) D, B, and C. Famously observed by Galileo, they were first described in detail by Huygens. Composed of water ice and dust, FTP, identify these conglomerated objects which surround Saturn.

ANSWER: Saturn's Rings

12. This man spent entirely too much time handling mercury while doing experiments that would lead to his *New Experiments with the Vacuum*. His *Writ on the Signing of the Form* continued his support for the Jansenists, whom he had earlier defended in his (*) *Provincial Letters*. A near-death experience caused his religious focus demonstrated in his most famous work, the *Pensees*. FTP, identify this French mathematician and philosopher, perhaps most famous for his eponymous “wager” and “triangle.”

ANSWER: **Blaise Pascal**

13. According to Market Segmentation theory, it is determined independently and relies on investor behavior. Slutsky equations relate changes in one form, which requires wealth to be represented, with the Hicksian form of this quantity. Investment, (*) government spending, net-exports, and consumption are added to derive the aggregate form of this quantity, which can be analyzed by price-elasticity and income-elasticity models. Defined as the willingness to pay a certain price, FTP, identify this economic term usually paired with supply.

ANSWER: **Demand** (accept Marshallian Demand before “aggregate”)

14. The ascension of Hadrian I prompted this man to wage an Italian campaign with his uncle Bernard, culminating in the first battle of Pavia. He named his daughter with Hildegard after his sister, Gisela, as described in by his biographer Einhard. He disinherited his eldest son, called the hunchback, and made his son (*) Louis the Pious King of Aquitaine. FTP, identify this grandson of Charles Martel, a Frankish king crowned Holy Roman Emperor by Leo III on Christmas Day in 800 CE.

ANSWER: **Charlemagne** or **Charles the Great** (or **Carolus Magnus**)

15. “A chorus of wolves” salutes the dawn in this writer's short story about the wanderings of a plague victim from an ancient city, *An Inhabitant of Carcosa*, which appeared with *The Haunted Valley* in the collection *Can Such Things Be?*. This author of *Tales of Soldiers and Civilians* wrote of a man who meets his wife on the porch of his (*) home before experiencing a sharp pain in his neck, revealing he never fell from the title structure. FTP, identify this author of “An Occurrence at Owl Creek Bridge” as well as *The Devil's Dictionary*.

ANSWER: **Ambrose Bierce**

16. This formula relies on Maxwell-Boltzmann distribution and is closely tied to Transition State theory and the Tautz-Lewis model of Collision theory. It is so accurate that taking the slope and intercept of its natural log is used to determine activation energy, and it was first formulated by Van't Hoff before being explained by its (*) namesake, who also names the earliest definition of an acid. FTP, identify this equation that describes the temperature dependence of a chemical reaction rate, named for a Swedish chemist

ANSWER: **Arrhenius Equation**

17. Twenty-eight entrants usually make up this activity's second division, which is named for the salary they originally earned. Like elementary school, stars are used to signify progress, with a black star standing for a loss. Autographs are taboo but hand prints are popular in this activity, in which Chad Rowan is the (*) first foreign-born man to achieve the rank of *yokuzuna*. With matches beginning with the *shiko*, or leg-stamping, FTP, identify this sport in which two very large men try to knock each other out of a ring, a national sport of Japan.

ANSWER: **Sumo Wrestling**

18. This city is home to a cathedral to a saint who picked up his own severed head and sulked off after his execution, the Basilica of Saint Minias. Ammanati's *Fountain of Neptune* appears in the Piazza Signoria, while its Campanile tower was designed by Giberti, who also created the (*) *Gates of Paradise* here. Home to San Lorenzo and the Santa Maria del Fiore, whose dome was built by Brunelleschi, FTP, identify this Tuscan city on the Arno that features the Uffizi gallery and was ruled for years by the Medicis.

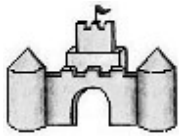
ANSWER: **Florence**

19. The second historical king of this nation was called “the treasurer,” perhaps to indicate his status as a vassal of Sweyn Forkbeard, who served as that king's stepfather after the death of Eric the Victorious. Margaret I was the first monarch to rule over it when it joined the Kalmar Union with Denmark and (*) Norway, and one of its best known kings was advised by Axel Oxenstierna, while another faced Peter the Great in the Great Northern War. FTP, identify this country whose kings included Charles XII and Gustavus Adolphus, with capital at Stockholm.

ANSWER: **Sweden**

20. This geographic entity is the setting for Herman Melville's *The Confidence-Man*, and it is central to Ike McCaskill's development in *The Bear*. The author of the *Dream Songs*, John Berryman, was smothered in mud after failing to jump into it, and an Edna (*) Ferber tale describes the mulatto Julia's experiences on the title vessel, *Show Boat*, on this river. FTP, identify this river, the “life” on which was described by Mark Twain, the largest river in the United States.

ANSWER: **The Mississippi River**



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Bonuses

1. Bonus: It was granted to the person most associated with it by Helen Culver, the niece of its namesake. FTPE:

[10] Identify this institution, located at 800 S. Halsted Street, which beginning in 1889 served as a center for urban growth, education, and social programs.

ANSWER: **Hull House**

[10] This author of *New Ideals of Peace* won the Nobel Peace Prize for co-founding Hull House.

ANSWER: **Jane Addams**

[10] Hull House was located in this Midwestern city, whose university was the namesake of a prominent school of American economics.

ANSWER: **Chicago**

2. Bonus: Make use of health class and identify these STDs, FTPE:

[10] The tertiary form of this disease effectively turns the brain into sponge, leading to severe dementia. It was the subject of infamous government tests conducted at Tuskegee.

ANSWER: **Syphilis**

[10] Caused by the cocci bacteria *neisseria*, this disease is famous for its prevalence, pus-generating abilities, and reputation as “the clap.”

ANSWER: **Gonorrhea**

[10] Bloodsucking parasites are responsible for the infestation that leads to this condition, named for the resemblance of the lice to a certain crustacean.

ANSWER: **Crabs (or Pubic Lice)**

3. Bonus: Its revival was a key characteristic of the renaissance. FTPE:

[10] Identify this pose seen in many ancient and renaissance structures, in which a figure is standing such that his upper and lower body are twisted off-axis from each other.

ANSWER: **Classical Contrapposto**

[10] The Contrapposto can be seen in this artist's famous marble *David*. He also painted the Sistine ceiling and sculpted the *Pieta*.

ANSWER: **Michaelangelo Buonarroti**

[10] This ancient Greek sculptor of *Doryphoros*, or *The Spear-Bearer*, used the Contrapposto style that inspired Donatello and Michaelangelo.

ANSWER: **Polykleitos**

4. Bonus: Identify these Eastern European cities, FTPE:

[10] This Czech Republic city is the namesake of a famous linguistic school, and is home to the Charles Bridge, which spans the Vltava River.

ANSWER: **Prague**

[10] This former capital of Rus was sacked in 1240 by the Mongols. It is the capital of Ukraine.

ANSWER: **Kiev**

[10] This city's two constituent parts, on opposite ends of the Danube, united in 1873.

ANSWER: **Budapest**

5. Bonus: Answer the following questions about American drama, FTPE:

[10] In this work paralleling Aeschylus's *Orestia*, Christine Mannon kills her husband Ezra, and is later killed by her daughter Lavinia.

ANSWER: **Mourning Becomes Electra**

[10] The maid Cathleen is the only character in this play who does not belong to the disastrous Tyrone family, which includes the morphine-addicted Mary and the disillusioned Jamie and Edmund.

ANSWER: **Long Day's Journey into Night**

[10] This American playwright wrote *Long Day's Journey into Night* and *Mourning Becomes Electra*, as well as *The Iceman Cometh* and *The Emperor Jones*.

ANSWER: **Eugene O'Neill**

6. Bonus: Answer these probably regrettable questions about current events in robotics, FTSNOP:

[10] This government agency recently sponsored the Urban Challenge, their third challenge for an autonomous vehicle.

ANSWER: **DARPA or Defense Advanced Research Projects Agency**

[10] DARPA awarded \$2 million dollars to the first place team, Tartan Racing, from the Robotics Institute at this Pittsburgh university.

ANSWER: **Carnegie Mellon University or CMU**

[5,5] FFPE, name the other two schools whose teams finished under the six hour time limit, one of which won the second DARPA Grand Challenge. They are located in Palo Alto and Blacksburg.

ANSWER: **Stanford University and Virginia Tech**

7. Bonus: Answer these questions about philosophy, FTPE:

[10] This Australian Professor of Bioethics at Princeton University is known for his controversial book, *Animal Liberation*. He also argues in "On Famine" that society has a duty to give aid to starving people, and that individuals should give until they, too, are living at a subsistence level.

ANSWER: **Peter Singer**

[10] Singer is a self-described advocate of the "preference" form of this philosophy, initially espoused by Jeremy Bentham, which advocates the greatest good for the greatest number of people.

ANSWER: **Utilitarianism**

[10] This author of *Utilitarianism* is known, unsurprisingly, for his advocacy of Bentham's philosophy. He also wrote *The Subjection of Women*, *A Few Words on Non-intervention*, and *On Liberty*.

ANSWER: **John Stuart Mill**

8. Bonus: Identify these Muslim rulers, FTPE:

[10] This founder of the Ayubbid dynasty was famed for his success against crusaders, such as his victory at the Battle of Hattin. He notably fought amicably with Richard the Lionhearted.

ANSWER: **Saladin or Salah al-Din**

[10] This Mughal overthrew his father Jahangir and fought an expansion campaign on the Deccan plateau, but is better known for constructing the Taj Mahal for his wife, Mumtaz.

ANSWER: **Shah Jahan**

[10] This Ottoman emperor's legal reforms, including his "Code of the Rayas," led to his epithet "the lawgiver." He is better known for his military campaigns, including an attempt at taking Vienna in the 1500s.

ANSWER: **Suleiman I or the Magnificent**

9. Bonus: Identify these poets whose work focused on marine life, FTPE:

[10] This father of a supreme court justice wrote of the “webs of living gauze” of the title creature in *The Chambered Nautilus*. He is also noted for works like *The Autocrat of the Breakfast Table* and *Old Ironsides*.

ANSWER: **Oliver Wendell Holmes, Sr.** (prompt for “Sr.”)

[10] This author of *Three Stories by Clarice Lispector* wrote a famous poem about recently ex-marine life, *The Fish*, but is better known for publishing the Modernist *North and South* and “Sestina” and being poet laureate in 1950.

ANSWER: **Elizabeth Bishop**

[10] This author of *Hexameters* and *The Knight's Tomb* wrote about the title albatross-killer's experiences with a variety of unpleasant sea creatures in *The Rime of the Ancient Mariner*.

ANSWER: **Samuel Taylor Coleridge**

10. Bonus: Identify these values that follow predictable patterns on the periodic table, FTPE:

[10] This value unsurprisingly increases moving up to down, and decreases left to right. It is very simply defined as the size of the atom.

ANSWER: **Atomic Radius** (prompt on “Ionic Radius”)

[10] This quantity measures the energy required to detach an electron from a singly charged negative ion. It tends to increase left to right and decrease moving down a group.

ANSWER: **Electron Affinity**

[10] Florine has the highest value for this quantity, the power of an atom to attract electrons to itself. It increases left to right and was measured by Mulliken and Pauling.

ANSWER: **Electronegativity**

11. Bonus: Answer these questions about baseball's Triple Crown, FTSNOP:

[5,5] When used to describe batting achievements, the Triple Crown refers to a player who leads the league in three statistical categories. Name any two, F5PE.

ANSWER: **Home Runs, Runs Batted In, and Batting Average**

[5,5] Identify any two of the three statistics used to determine the pitching Triple Crown.

ANSWER: **Earned Run Average, Wins, and Strikeouts**

[10] Along with Roger Hornsby, this is the only man to have won the batting Triple Crown twice. This long-time Red Sox left fielder had his career interrupted twice by military service, during which he served as a pilot in the Marine Corps.

ANSWER: **Theodore Samuel “Ted” Williams**

12. Bonus: Pencil and paper ready. Assume that in a single-elimination tournament of 16 team, every match is decided unambiguously – that is, the winner of a match is the better team. FTPE:

[10] How many total matches must be played to determine the best team?

ANSWER: **15**

[10] How many of the 15 other teams could have been second best?

ANSWER: **4 [under these rules, the second best player must have directly lost to the overall winner]**

[10] In 1883, this mathematician published *Lawn Tennis Tournament*, which used these assumptions to calculate how many matches are needed to fairly determine the second place prize winner. He is better known for authoring *Through the Looking Glass*.

ANSWER: **Lewis Carroll**

13. Bonus: Identify these works by Ludwig van Beethoven, FTPE:

[10] This final symphony features a poem by Friedrich Schiller set to music, the *Ode to Joy*.

ANSWER: **9th or Choral Symphony**

[10] Jaquino's love Marzelline has fallen in love with Leonore disguised as the title character as she attempts to rescue her husband Florestan from prison in this only Beethoven opera.

ANSWER: **Fidelio**

[10] Along with the *Appassionata* and *Les Adieux*, this piano Sonata, opus 53, is considered a hallmark of Beethoven's middle period. It is named for its dedicatee, the titular Austrian count.

ANSWER: **Waldstein Sonata or Piano Sonata No. 21**

14. Bonus: Identify these figures from Hinduism, FTPE:

[10] This king of Ayodhya fights the demon Ravana with help from everyone's favorite monkey god, Hanuman. He rescues his wife Sita in his eponymous epic.

ANSWER: **Rama**

[10] This brother of Balarma was born to Devaki and Vasudeva as part of the Mathura line. He famously dialogues with Arjuna in the Bhagavad Gita.

ANSWER: **Krishna**

[10] Both Rama and Krishna are avatars of this member of the Trimurti along with Brahma and Shiva. He is known as the Preserver.

ANSWER: **Vishnu**

15. Bonus: Following the death of Edward the Confessor, this man defeated his own brother Tostig at Stamford Bridge. FTPE:

[10] Identify this English king who shortly thereafter took an arrow to the eye while losing to William the Conquerer.

ANSWER: **Harold II**

[10] This 1066 battle, fought on Senlac Hill, saw Harold's death and allowed the Norman conquest of England.

ANSWER: **Battle of Hastings**

[10] Harold II fought the Battle of Stamford Bridge against Tostig and this Norwegian king, who had earlier shared the throne with Magnus before Magnus "accidentally" fell off a horse. Repeatedly.

ANSWER: **Harald (III Sigurdson) Hardrade (accept either name)**

16. Bonus: Identify these geographic passes, FTPE:

[10] It cuts through the Safed Koh mountains in the Hindu Kush range. This strategically critical pass featured prominently in the "Great Game."

ANSWER: **Khyber Pass**

[10] This pass in the Sierra Nevada bears the name of the unfortunate wagon party that became stranded within it and started eating each other.

ANSWER: **Donner Pass**

[10] This pass in Greece was the scene of several battles, the most famous occurring between Leonidas's Spartans and Xerxes's Persians in 480 BCE.

ANSWER: **Thermopylae (Pass)**

17. Bonus: Identify the authors of these reddish works of literature, FTPE:

[10] *The Scarlett Pimpernel*.

ANSWER: **Baroness Emma Orczy**

[10] *The Red Pony*, as well as *East of Eden* and *Of Mice and Men*.

ANSWER: **John Steinbeck**

[10] *Red Oleanders*, as well as the better known *Gitanjali*.

ANSWER: **Rabindranath Tagore**

18. Bonus: The first of this man's eponymous laws of planetary motion states that orbits follow an elliptical path. FTSNOP:

[10] Identify this German astronomer.

ANSWER: **Johannes Kepler**

[10] Kepler's third law states that the cube of this aspect of an ellipse is proportional to the square of its orbital period.

ANSWER: **Semi-major axis**

[5, 5] FFPE, name the variables used in polar coordinates used when mapping ellipses.

ANSWER: **r and theta**

19. Bonus: Identify these Ancient Greek historians, FTPE:

[10] This "father of history" more or less invented the genre with his writings on the Persian Wars, although he failed to see a distinction between actual historical accounts and stories he just made up.

ANSWER: **Herodotus**

[10] This man's first-hand experiences during the Peloponnesian War, including an incident in which he contracted the Plague of Athens, helped him write his famous history of that conflict, which notably describes the Funeral Oration of Pericles.

ANSWER: **Thucydides**

[10] The death of Cyrus the Young after he engaged Artaxerxes II at Cunaxa may have prompted this man to lead ten thousand mercenaries on a long retreat march, which he recounted in his *Anabasis*.

ANSWER: **Xenophon**

20. Bonus: Questions about unsolved problems in computer science, FTPE:

[10] Formal definitions of computability problems use the concept of this abstract machine, named for a famous British computer scientist.

ANSWER: **Turing Machine**

[10] This problem, which probably cannot be solved in deterministic polynomial time, finds the optimum value constrained by a certain size, given a list of items with integer values and sizes.

ANSWER: **Knapsack Problem (accept equivalents, e.g. Backpack)**

[10] This is the minimal number of colors needed to color an arbitrary graph or map. The theorem proving this was the first major theorem proved by a computer.

ANSWER: **Four Colors**