

Berkeley Late Spring Tournament—I Know Kung Fu (2004)
Packet for Caltech A: Jordan Boyd-Graber, Parag Bhayani

1. To her, a bough of cherries or a white mule she rode with round the terrace were as important as the gift of a 900 year name. She smiled whenever her husband passed, but who didn't get such a smile? Eventually, her husband started making demands and giving commands; then the smiles stopped altogether. Now, thanks to Fra Pandolf, she stands in a staircase just as if she were alive, looking on while her husband conducts a marriage negotiation with the Count of Tyrol. For ten points, identify this titular subject of a painting in a Robert Browning poem.

ANSWER: My Last Duchess or The Duchess of Ferrara

2. This theory is supported by recent fossil findings of subspecies *idaltu*, which undermine the rival multiregional model. Also known as the replacement model or single-origin hypothesis, it is supported by Y-chromosome lineage studies. The *idaltu* fossils, found in Herto, Ethiopia, were dated to about 160,000 years ago, consistent with the mitochondrial Eve hypothesis. FTP name this model which holds that *Homo sapiens* spread throughout the world and replaced earlier hominids after evolving in the namesake continent.

Ans: out of Africa 2 (accept replacement or single-origin before mention in the question)

3. This prefix is used to denote an excited state of helium with a symmetric singlet spin state. This locator prefix is given to molecules such as 1-Chloro-4-ethylbenzene, in which two substituents are located diametrically opposite each other on a benzene ring, as opposed to the prefixes ortho and meta. FTP name this prefix also used to describe magnetic behavior in which magnetic fields are slightly strengthened, as opposed to diamagnetism.

Ans: para

4. It features a dozen women in army uniforms dancing on point while brandishing rifles in "The Red Detachment of Women". Adrienne Lobel's set for the original production featured a giant replica of a 747, which played off intimate scenes where Pat and Chang Ch'ing desire to roll back time before they were attached to powerful men. The title character and Chou En-lai are both basses in, FTP, what John Adams opera concerning an American president's visit to a Communist nation?

ANSWER: Nixon in China

5. Upon his execution, he urged those watching to punish their children rather than cursing him; he blamed his cruel death on a curse placed upon him by his mother. He was pursued by García de Loyola, who was helped along the Masahuay River by Mamari guides. After his capture, he and his pregnant wife were converted to Christianity and then convicted of the murder of Friar Diego Ortiz in Cuzco. The half-brother of Titu Cusi and legitimate heir of Manco Capac, FTP name this last ruler of the Incas, the namesake of a Peruvian revolutionary group and slain rapper.

ANSWER: Tupac Amaru (prompt on Tupac; do not accept any answer including Shakur)✓

6. Her first story, "Come Again Tomorrow," appeared in the magazine *Forum* when she was only fourteen. Mehring is the title character in one of her best-known novels, a kind of sequel to Olive Schreiner's *The Story of an African Farm*. Her novel *Burger's Daughter* was written in the aftermath of the Soweto uprising, and she depicted a white family fleeing war-torn Johannesburg in *July's People*. FTP, name this Nobel laureate best known for her depictions of apartheid in novels like *The Conservationist*.

ANSWER: Nadine Gordimer

7. This baseball team had the best record in league history in 1954, but got swept in the World Series. In 1960, they traded away star hitter Rocky Colavito, bringing about a curse from which this team has still not escaped. As if that weren't enough, they were three outs away from winning the World Series in 1997 when pitcher Jose Mesa blew the lead and the rest of the series. For ten points, name this team that ESPN.com ranked number two in the Major Leagues for bringing misery to its fans, a rival of the Chicago White Sox in the AL Central division.

ANSWER: Cleveland Indians (accept either)

8. One is Monte Carlo if at least half of the possible results for all x in a language it says "yes" and "no" otherwise. One is called unambiguous if for any x there is at most one accepting computation. One is called oblivious if the position of the cursor at the t^{th} step depends only on the t and the length of the input. One is non-deterministic if its sets of next states may contain more than one element. For ten points, identify this model of computation named for an English computer scientist.

ANSWER: Turing Machine (prompt on TM)

9. Henry Halleck failed to deliver pontoon bridges on time, delaying the start of this battle. The attacking side was confident that guns placed on Stafford Heights would prevent any counterattack. James Longstreet, however, held the left flank and repulsed the efforts of a general eager to contrast McClellan's cautious style and lead the Army of the Potomac to Richmond. For ten points, identify this 1862 battle that saw Robert E. Lee defeat the soon to be sacked Ambrose Burnside.

ANSWER: Battle of Fredericksburg

10. This historian borrows the words of Shelly to describe his suffering, saying "I fall upon the thorns of life, I bleed." His suffering is caused by his wife, who detests their Emersonian existence in Ludeyville, a remote village in the Berkshires, and falls in love with his best friend, Valentine Gersbach. To aid in his recovery, he writes. His wife's adultery is the subject of his letters to colleagues, enemies, college chums, dead philosophers, and ex-presidents; none of them are ever sent. For ten points, identify this title character of a Saul Bellow novel.

ANSWER: Moses Herzog

11. Nicholas Mayhew described the relationship between this and the Chancery in England, noting that a rise in credit was more likely to correlate with an increase in money supply than with this concept. The sum of this with the supply of money is equal to the sum of inflation and real GDP growth, making it an uncertain predictor of economic health. For ten points, identify this term that describes the rate of money turn-over.

ANSWER: velocity

12. Uncoupling proteins in brown adipose fat cells and certain other tissues convert this organelle from its typical function to thermogenesis. Its outer membrane contains porin channels permeable to all molecules of 5000 daltons or less. During fertilization, the egg destroys these organelles in the sperm. The inner membrane is folded into cristae projecting into the matrix, and is the site of the proton pumping and electron transport used in ATP synthesis. For ten points, name this organelle, the source of a cell's energy.

ANSWER: mitochondrion

13. This city was founded by Narmer down-river from his powerbase at Hierakonopolis. Herodotus described this city's one hundred gates, from each of which issued two hundred horsemen. The pharaohs of the New Kingdom placed their tombs in the Valley of the Kings near this city. FTP name this capital of the Old Kingdom near the temple complex at Karnak, which shared its name with a Greek city of Boeotia.

ANSWER: Thebes or Apet or Apet

14. Chapters in this book include "Brute Neighbors," "Higher Laws," and "Winter Animals." The original title page contains a quote from the book: "I do not propose to write an ode to dejection, but to brag as lustily as chanticleer in the morning, standing on his roost, if only to wake my neighbors up," although very few neighbors are mentioned the work. For ten points, identify this 1854 journal of living a humble life near a small body of water, written by Thoreau.

ANSWER: Walden (prompt on Life in the Woods)

15. Apollo killed the original ones in revenge for the death of Asclepius. Ovid described the most famous one combing with a rake and shaving with a scythe in an attempt to win the love of Galatea. The original ones were born after the Hundred-Handed Ones, and created the helmet of invisibility of Hades, the trident of Poseidon, and Zeus's lightning bolts, but their better-known descendants were a race of giant, surly, man-eating shepherds. FTP, Polyphemus was a member of what race of one-eyed giants?

ANSWER: Cyclops or Cyclopes

16. It is based on a novel by Heinrich Mann whose title literally translates as "Doctor Garbage" and was the first film to be shot in two languages simultaneously. It was the first talkie made by silent film star Emil Jannings, who plays Immanuel Rath, a professor at a high school who discovers a postcard on one of his students that promotes a local cabaret act. He walks in on the song "*Ich bin die fesche Lola*," and goes back stage, beginning a tragic romance. For ten points, name this German film by Josef von Sternberg featuring Marlene Dietrich.

ANSWER: The Blue Angel or Der blaue Engel

17. Its largest tributary is the Suck river; other tributaries are the Brosna, Little Brosna, and the Grand Canal. It has a hydroelectric facility at Ardnacrusha, which was built by German workers using about 20% of a new nation's 1925 budget. From its source in County Cavan, it enters the Atlantic and forms a 70-mile estuary, a large amount of which has been reclaimed to build an international airport of the same name to service Limerick. For ten points, identify this longest river of Ireland.

ANSWER: Shannon River

18. During the Dreyfus Affair, he was busy conquering Timbuktu, which made him a reassuringly apolitical candidate for Chief of the General Staff in 1911. His resignation after the Battle of Verdun in December 1916 came as a shock to his troops, who called him "Papa" even though heavy casualties resulted from all of his battles since his decision to adopt Marshal Foch's "Plan 17." FTP, name this victor at the First Battle of the Marne, commander of French forces at the outbreak of World War I.

Ans.: Joseph Jacques Cesaire Joffre

19. Thomas Hobbes borrowed this man's proverb *Homo homini lupus*, used in reference to a woman who bites her sister's jugular in his *Asinaria*. His works inspired a musical whose characters include the virgin Philia and a slave named Pseudolus, with music and lyrics by Stephen Sondheim. That musical, *A Funny Thing Happened on the Way to the Forum*, also features a braggart named Miles Gloriosus. FTP, name this Roman playwright of the *Menaechmi* who preceded Terence.

Ans: Titus Maccius Plautus

20. Complex and almost-complex manifolds have natural ones, which yields intersection positivity. It can be defined by a globally compatible choice of generators for the local homology at each point on a manifold, or a choice of a top degree differential form or homology class up to sign, or simply a choice of a frame of mutually perpendicular vectors. It is preserved by a map if the sign of the Jacobian determinant is positive. For 10 points--what structure, which cannot exist on a Klein bottle or Mobius band, tells you things like which side of a surface you are on or which direction is counterclockwise?

Ans: orientations

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Caltech A

1. Given a work of art depicting someone's death, identify the artist for five points each and a bonus five for all correct.

[5] 1562's *Death of Actaeon*

ANSWER: Titian or Tiziano Vecellio (accept either name)

[5] 1827's *Death of Sardanapalus*

ANSWER: Eugene Delacroix

[5] 1786's *The Death of General Warren at the Battle of Bunker Hill on 17 June 1775*

ANSWER: John Trumbull

[5] 1787's *The Death of Socrates*

ANSWER: Jacques-Louis David

[5] 1770's *The Death of General Wolfe*

ANSWER: Benjamin West

2. Identify these things from protein production and destruction for ten points each.

[10] This organelle reads messenger RNA to produce a protein.

ANSWER: Ribosome

[10] The amount of protein in the cell is controlled by this class of enzymes that hydrolyze the bonds between amino acids.

ANSWER: Proteases or peptidases

[10] In the cytosol of eucaryotic cells, proteasomes digest proteins that have been marked by the covalent attachment of this small protein to a lysine residue.

ANSWER: ubiquitin

3. Answer the following related literature questions FTPE.

[10] In this one-act Chekhov comedy, Smirnov falls in love with the widow Popova after challenging her to a duel.

ANSWER: The Bear or Medved

[10] Sam Fathers, Boon Hogganbeck, and a dog named Lion hunt this title character of Faulkner's *The Bear*.

ANSWER: Old Ben

[10] In *A Winter's Tale*, this character is torn to pieces after his exit, pursued by a bear. He shares his name with a one-eyed general who served under Alexander the Great.

ANSWER: Antigonus

4. It said that if one of them went to war with a great power outside the treaty, the other two would remain neutral. For ten points each:

[10] Name this 1873 treaty between Prussia, Russia, and Austria to formalize spheres of influence in the Balkans.

ANSWER: Three Emperor's League or Dreikaiserbund or Dreikaiservertrag

[10] It was engineered by what first Chancellor of the German Empire?

ANSWER: Otto von Bismarck

[10] Tensions between Russia and Austria forced Bismarck to renegotiate what 1887 bilateral agreement with Russia that quickly fell apart, leading to the Franco-Russia alliance?

ANSWER: Reinsurance Treaty or Rückversicherungsvertrag

5. Given the form of a simple, physically important partial differential equation, name it for ten points each. (Moderator: Read out capital letters)

[10] $D U D T$ equals K times D squared $U D X$ squared, where K is a constant with units of length squared over time.

ANSWER: heat or thermal conduction equation or diffusion equation

[10] ΔU squared U plus K squared U equals zero, where K is constant. This elliptic differential equation reduces to Laplace's equation when K is zero.

ANSWER: Helmholtz equation

[10] ΔU squared U equals one over V squared times D squared u over $D T$ squared, where V is the associated propagation speed.

ANSWER: wave equation

6. There were three important battles fought at Panipat. Identify the following victors of Panipat for ten points each.

[10] The first battle of Panipat was fought between Ibrahim Lodi of Delhi and this man; this 1526 battle marked the beginning of the Mughal Dynasty in India.

ANSWER: Babur or Zahir-ud-din Muhammad

[10] The second battle, instigated by a Hindu claimant, was a victory for Bayram Khan, who fended off a claim against the throne of this third Mughal emperor in 1556.

ANSWER: Abu-ul-fath Jalal-ud-din Muhammad Akbar

[10] In 1761, this Afghan chieftain and founder of the Sadozai dynasty crushed a Maratha army, ushering in decades of anarchy the English used to their advantage.

ANSWER: Ahmad Shah Durrani

7. Name these literary works focusing on the Holocaust, FTPE.

10) Marga Minco's debut novel, its title refers to one of the foods in the Passover Seder, referred to as *maror* and eaten as a symbol of former slavery.

Ans: Bitter Herbs: A Little Chronicle or Het bittere kruid: een kleine kroniek

10) This Primo Levi work tells of his time in the title Polish concentration camp.

Ans: Survival in Auschwitz or If This Is a Man or Se Questo È Un Uomo

10) This mostly autobiographical Elie Wiesel novel focuses on a teenager in Auschwitz. It is the first in a trilogy with *Dawn* and *The Accident*.

Ans: Night or And the World Remained Silent or Un di velt hot geshvign

8. Answer these loosely related questions, FTPE.

10) One solution to the nine coins problem claims that all men are the same person in the story *Tlön, Uqbar, Orbis Tertius* from this author's story collection *Ficciones*.

Ans: Jorge Louis Borges

10) This Joseph Campbell work, the subject of the 1988 PBS special *The Power of Myth*, is a study of the journey of the archetypal hero, with examples from many mythologies.

Ans: The Hero With a Thousand Faces

10) Jay tells comic book artist Holden "there's one bitch in the world—one bitch with many faces" in this Kevin Smith film.

Ans: Chasing Amy

9. FTPE, given stops on an American city's subway system, name the city.

[10] Charles/MGH, Haymarket, Ruggles, Wonderland

ANSWER: Boston

[10] Skokie, Belmont, Fullerton, Wabash

ANSWER: Chicago

[10] Indian Creek, Lindbergh Center, Peachtree Center

ANSWER: Atlanta

10. Answer the following about US Supreme court justices FTSNOP.

[5] Which president, with three, has appointed the most chief justices during his time in office?

ANSWER: George Washington

[5] For five points, this former president was appointed chief justice by Warren G. Harding.

ANSWER: William Howard Taft

[5/10/20] Only 3 men have been elevated to chief justice from associate justice. One was elevated by Taft, one by FDR, and one by Reagan. 5 for one, 10 for two, or 20 for all three, name them.

ANSWER: Edward Douglass White; Harlan Fiske Stone; William Rehnquist

11. Answer the following questions about the development of a theorem of statistics FTPE.

[10] What theorem states that for a set of N independent random variables with an arbitrary distribution, the sum of the variables obeys a normal distribution as N goes to infinity?

ANSWER: Central Limit Theorem (prompt on CLT, don't accept or prompt on Law of Large Numbers)

[10] What French mathematician extended De Moivre's result for the binomial distribution to all distributions of random variables in 1812?

ANSWER: Pierre-Simon marquis de Laplace

[10] What nineteenth-century British naturalist developed the idea of regression to the mean and invented a device known as a quincunx to demonstrate the convolution of two normal distributions?

ANSWER: Sir Francis Galton

12. Hemp makes good literature. Answer the following about literature and hemp for ten points each.

[10] This mischievous character from *A Midsummer Night's Dream* says "What hempen home-spuns have we swaggering here, / so near the cradle of the fairy queen? / What! A play toward; I'll be an auditor, / an actor too perhaps, if I see cause."

ANSWER: Puck or Robin Goodfellow

[10] The Swiss patriots who meet in Ruetli use a hemp ladder to gain entrance to a castle under the control of Gessler in this work.

ANSWER: William Tell or Wilhelm Tell

[10] This poet mentions hemp in several of his poems, including *Epistle from Esopus to Maria*, *Halloween*, and *The Death and Dying Words of Poor Mailie, the Author's Only Pet Yowe*.

ANSWER: Robert Burns

13. Name these classical music pieces FTSNOP.

[5] This final symphony by Brahms, Opus 98, was composed in 1884-85, and was the last performance he ever heard.

ANSWER: Fourth Symphony (accept No. 4, etc.)

[5] This Dvorak symphony, Opus 95, was written in 1893 upon his arrival to the United States.

ANSWER: Ninth Symphony (accept No. 9, etc.) or Symphony From the New World

[10] This composer's violin concerto was completed in 1844 and breaks from tradition by connecting all three movements without a break. The first is tied to the second by a sustained note in the bassoon, while the second is tied to the third by a brief unaccompanied violin recitative.

ANSWER: Jakob Ludwig Felix Mendelssohn-Bartholdy

[10] For a final ten points: Brahms' Fourth Symphony, Dvorak's Ninth Symphony, and Mendelssohn's violin concerto were all written in this key.

ANSWER: E minor

14. Given a long-reigning, current monarch of Europe, supply the dynasty for ten points each.

[10] Hans Adam II of Liechtenstein

ANSWER: Habsburg

[10] Juan Carlos I of Spain

ANSWER: Bourbon

[10] Prince Rainier III of Monaco

ANSWER: Grimaldi

15. "If God didn't want us to eat in church, he would have made gluttony a sin." Identify these foods from the Simpsons FTSNOP.

[5,5] Name the substandard foodstuffs given to Chester J. Lampwick to paint a chicken coop and to paint a fence by Krusty and Grampa Simpson, respectively, for five points each.

ANSWER: Corn Muffins and Blintzes

[10] For ten points, Skinner claims that this is an Albany expression for hamburgers.

ANSWER: Steamed Hams

[5,5] For five points each, name the two men who have succeeded in the Sir Loin-A-Lot challenge; one is a professional truck driver and the other--who died 5 days ago--portrayed a member of the Odd Couple.

ANSWER: Red Barclay and Tony Randall

16. A spaceship is moving at three fifths the speed of light due north. Given a quantity measured on the spaceship, give the value measured for that quantity by a stationary observer for ten points each.

[10] A rod pointed due north, parallel to the direction of motion, is measured to be 1.25 meters.

ANSWER: 1 meter

[10] The charge contained on the rod is measured to be 125 Coulomb

ANSWER: 125 Coulomb

[10] The time it takes for an astronaut to use the rod to shock another astronaut is measured to be 1 second.

ANSWER: 1.25 seconds

17. Given clues, name the characters from *The Two Gentlemen of Verona* for the stated number of points.

[5,5] For five each, these are the two gentlemen.

ANSWER: Valentine, Proteus

[10] For ten, this lady of Verona is Proteus' lover at the outset of the play.

ANSWER: Julia

[10] For a final ten, Proteus and Valentine both pine after this daughter of the Duke of Milan.

ANSWER: Sylvia

18. Identify these thinkers who helped build models of learning FTPE.

[10] This developer of "client-centered" psychotherapy argued that teachers can only act as facilitators and guides to learning in his *Freedom to Learn*.

ANSWER: Carl Rodgers

[10] This Swiss psychologist hypothesized four stages of development for young children - sensorimotor, preoperational, concrete operational, and formal operational - that he argued must guide curriculum selection.

ANSWER: Jean Piaget

[10] This Brazilian educationalist and advocate of literacy programs criticized the "Banking" education model that perpetuates elites in his *Pedagogy of the Oppressed*.

ANSWER: Pablo Freire

19. Name the following philosophers from works on a 15-5 basis.

15) Counterrevolution and Revolt, An Essay on Liberation.

5) Eros and Civilization, One-dimensional Man.

Ans: Herbert Marcuse

15) *The Refutation of Idealism, A Proof of the External World*

5) *Principia Ethica*

Ans: George Edward Moore

20. Identify these Japanese islands with historical importance for ten points each.

[10] This island's name was often used to refer to firearms, since they were introduced by Mendez Pinto, who landed on this island south of Kyushu.

ANSWER: Tanegashima

[10] The islands of Kami and Shimo are collectively given this name, which is shared by the strait separating the archipelago from Kyushu and Honshu where a 1905 battle occurred.

ANSWER: Tsushima

[10] Japan gained the half of this island south of the 50th parallel in the treaty of Portsmouth and occupied the entire island during the Russian Revolution.

ANSWER: Sakhalin or Karafuto