

Berkeley Late Spring Tournament—I Know Kung Fu (2004)
Questions by editors for finals

1. There is a prophecy that the current rulers of this place will lose it when the real owner becomes too large to inhabit it. A dying hermit reveals the burial place of a gigantic sabre to Frederic, who comes to the title location to rescue his daughter Isabella. Frederic's arrival is heralded by wild agitation of the plumes on the gigantic helmet which crushed Conrad, the son of the villainous Manfred. FTP name this Gothic novel written by Horace Walpole.

Ans: The Castle of Otranto

2. The Beothuks, the native people of this island, were exterminated by 1829. Sir Humphrey Gilbert attempted to found an English colony on it in 1583, but his ships foundered in a storm. Permanent settlement came in 1610 at Conception Bay on the Avalon Peninsula in the southeast, which still contains the capital. The island's northern tip is desolate, which may explain the failure of the Viking settlement at L'Anse aux Meadows. FTP, name this easternmost Maritime province, the last to join Canada.

Ans: Newfoundland

3. The theorem of this name states that the Diophantine equation $x^2 + y^2 = p$ can be solved for p prime if and only if p is congruent to 1 mod 4, or p equals 2. Elliptic curves are defined by having a value of 1 for this quantity, and for a general surface, it's half the first Betti number, or the number of "holes". In biology, most paraphyletic taxa are at this level. The capitalized first name in binomial nomenclature corresponds to, FTP, what taxonomic level between family and species?

Ans: genus

4. The soil here exudes inflammable gas which is piped to lamps, in Hawthorne's *The Celestial Railroad*. According to Bunyan, this place is filled with a continual howling and yelling, and the path through here runs between a deep ditch and a bottomless quag. The giants Pope and Pagan dwell in a cave at one end of this region, surrounded by the bones of slaughtered pilgrims. FTP, name this fearsome place named in Psalm 23, followed by the phrase, "I will fear no evil" and preceded by "Yea though I walk through."

Ans: the Valley of the Shadow of Death

5. This battle neared its end when Redoubts No. 9 and No. 10 were successfully captured by Deux-Ponts and Hamilton, respectively. The defenders' position had been severely weakened by Admiral de Grasse being able to hold off the fleet of Admiral Graves at the Battle of Chesapeake Bay, cutting them off from reinforcements and escape. On October 17, facing heavy bombardment, General Cornwallis sent out messengers to negotiate a parley, and a surrender was concluded the following day. For ten points, what is this battle, the final victory for the Americans in the American Revolution?

Ans: Battle (or siege, or campaign, etc.) of Yorktown

6. He appears to one suppliant as a terrible beast with five arms, five legs, and five eyes in a rhinoceros-like head; to another suppliant he appears as a great ball of fire. He tells each of his suppliants to kill the ruler of the West. He was born in Omaha and trained under a master ventriloquist, then turned to ballooning. He tries to help his fourth suppliant go home, but his balloon takes off while she is searching for her dog. FTP name this first ruler of the Emerald City, the title character of an L. Frank Baum story.

Ans: The Wizard of Oz or The Great Wizard Oz

7. Lawrence Phillips is probably to blame for the end of this man's career, as a missed block on an Arizona blitz led to a concussion from which he never returned to football. In his only Super Bowl start, his 49 yards on five carries actually led his team in rushing; they didn't really need it, however, as his six touchdown passes set a new Super Bowl record. For ten points, who is this longtime 49ers quarterback, who led the 49ers to a 49-26 victory in Super Bowl XXIX (29), the successor to Joe Montana?

Ans: Steve Young

8. In Germany and Austria, these instruments use the Oehler system of fingering, as opposed to Hyacinthe Klose's adaptation to this instrument of the Boehm system prevalent everywhere else. This instrument came from the addition of a register key, which raises the pitch by a twelfth as opposed to the octave for most

woodwind instruments, to an earlier instrument known as the chalumeau. For ten points, what is this single-reeded woodwind whose name comes from its sounding like a "little trumpet"?

Answer: clarinet

9. The index of this name is equal to the isothermal compressibility over the isentropic compressibility. In the quantum mechanical approximation of this name, eigenvalues but not eigenstates change due to a sufficiently slow change in the Hamiltonian. The index has a value of $5/3$ for monatomic ideal gases, and can be expressed as the constant-pressure heat capacity over the constant-volume heat capacity. For a reversible process, this condition is equivalent to being isentropic. Two of the processes in the Carnot cycle are, FTP, what type of process characterized by zero heat flow?

Ans: adiabatic

10. Cardinal Granvelle's introduction of the Inquisition helped turn this man against his king, and during the ensuing independence struggle he presided over the formation of the Pacification of Ghent. He also found time to found the University of Leiden. He had earlier served Phillip II as stadholder of Zeeland, Utrecht, and Holland. FTP name this Prince of Orange who received his nickname for being unwilling to speak on religious issues.

Ans: William the Silent or William I of Orange or William de Zwijger or Willem I van Oranje

11. In the first chapter, the Song of the Family cries plaintively underneath the Song of Evil when danger threatens Coyotito. Juana puts on her wedding clothes for the visit to the buyers in La Paz, but they are in collusion and don't offer enough money. The doctor refuses to treat Coyotito's scorpion sting until he hears that the central character has found the title object, which is "as large as a sea-gull's egg," and "perfect as the moon." FTP, name this John Steinbeck novel in which Kino finds the valuable title object in a very large oyster.

Ans: The Pearl

12. He dreams of a star that falls to the ground and draws him like a woman, which he is unable to lift. He sends a temple prostitute out to civilize the man whose coming is symbolized in the dream, as interpreted by his mother, the Lady Wildcow Ninsun. He encounters the divine barmaid Siduri during his quest to find Utnapishtim and gain immortality, after his companion dies for helping to kill the Bull of Heaven sent by the sky-god Anu. FTP name this legendary king of Uruk whose companion is Enkidu.

Ans: Gilgamesh

13. Recent research suggests that in some bacteria, these enzymes use crossing geometry rather than the local twist to demonstrate sign-specificity, acting on positively coiled plectonemes until they uncoil to form negative supercoils. In eukaryotes, one type can separate two interlocked DNA circles. They form nicks by reversibly breaking phosphodiester bonds in a DNA strand. FTP, name these enzymes which prevent DNA tangling during replication by forming swivels in the DNA helix.

Ans: DNA topoisomerases

14. The muckraker Henry Lloyd Demarest attacked this man in "The Political Economy of Seventy-three Million Dollars." That article quotes him saying, "I do not remember whether I approved payment to William M. Tweed...He was a director of Erie." He and his allies gained control of the Erie Railroad after beating out Vanderbilt. FTP name this man whose gold speculations with Fisk led to the panic of Black Friday in 1869.

Ans: Jay Gould

15. This curve typically has a U shape, and the marginal cost curve will always intersect it at its lowest point. For a greater quantity than this lowest point, it rises because of increasing marginal costs, and for a lesser quantity it rises because the average fixed costs are higher. In a perfectly competitive market, the price will always settle to the lowest point on this curve. For ten points, what is this value, which is calculated by adding the fixed costs and the variable costs and dividing by the quantity?

Ans: average total cost (prompt on average cost)

16. He played Hakim, the final champion faced by Bruce Lee in *Game of Death*. He listens to Joey's father's allegations that he often doesn't even run down the court, and doesn't really try...except during the playoffs, while playing co-pilot Roger Murdock in *Airplane!* He also inspired the Pearl Jam song "Sweet Lew." The NBA career records for most minutes, field goals made and attempted, and points all belong to, FTP, what basketball player known for wearing goggles and using the sky hook shot?

Answer: **Kareem Abdul-Jabbar or Ferdinand Lewis Alcindor or Lew Alcindor**

17. One character cautions her sister by mentioning Jeanie, saying "to this day no grass will grow/ Where she lies low/ ...You should not loiter so." Later, Laura tells her sister, "Never mind my bruises,/ Hug me, kiss me, suck my juices," giving Lizzie a second chance to sample "fruits like honey to the throat/ But poison to the blood." Lizzie pays a "golden lock" of her hair for her first taste of the wares of "The wicked, quaint fruit-merchant men" of the title. FTP, name this Christina Rossetti poem about evil spirits who sell fruit to maids.

Ans: **Goblin Market**

18. A 306 BCE naval battle of this name saw Demetrius Poliorcetes defeat the fleet of Ptolemy I. In an earlier battle of this name, the Greeks were led by the Spartan Eurybiades, and the enemy commander was lured into attacking by the false informant Sicinnus. Also present was Artemisia, queen of Halicarnassus, who switched sides partway through and rammed a friendly ship to avoid capture. Themistocles generally gets the credit for, FTP, what 480 BCE Greek naval victory in which Xerxes I lost about 200 ships?

Ans: **Salamis**

19. The Ginzburg-Landau theory successfully describes the phenomenological properties of these materials, and Abrikosov showed that this theory predicts the division of them into two types, earning him a shared Nobel with Ginzburg in 2003. A microscopic explanation involving electron-phonon interaction resulted from the work of Maxwell and Reynolds, who found that the isotopic mass determines the critical temperature. For ten points, what are these materials in which the electrical resistance drops to zero?

Answer: **superconductors**

20. The oak leaf in one man's helmet, and the chicken claws looped through the belt of a young girl, are symbolic of the title group. A foreshortened partisan pointed out of this painting is held by Willem Van Ruytenburch, whose jacket lapel shows the three crosses of the coat of arms of Amsterdam. The girl's chicken is also a reference to the group's leader, Captain Frans Banning Cocq, who leads his men out on parade. FTP name this group portrait of militiamen by Rembrandt.

Ans: **The Night Watch or The Militia Company of Captain Frans Banning Cocq and Willem van Ruytenburch**

2004 Berkeley Late Spring
Finds

1. Answer these questions about an English king, FTPE.

10) The only surviving legitimate son of Henry VIII, he died in 1553 at age sixteen after reigning for only six years.

Ans: Edward VI

10) Edward's reign saw the printing of the first two editions of this book, still used by the Anglican church today.

Ans: Book of Common Prayer

10) Name either of the men who ruled England in Edward's name, one of whom deposed the other in October 1549.

Ans: Edward Seymour, Duke of Somerset or John Dudley, Duke of Northumberland

2. Name these writers from scientific accomplishments for 10, or from better-known works for 5.

10) His poem "Cosmic Gall" provides a mostly-correct summary of the properties of neutrinos.

5) He wrote *Rabbit, Run*.

Ans: John Updike

10) He wrote the treatise *On The Theory of Colors* and discovered the premaxillary bone.

5) He wrote *The Sorrows of Young Werther*.

Ans: Johann Wolfgang von Goethe

10) In his essay "Eureka: A Prose Poem," he was the first to hint at the correct resolution of Olbers' Paradox, proposing a finite horizon distance.

5) He wrote *The Pit and the Pendulum*.

Ans: Edgar Allan Poe

3. Identify the following things from optics FTPE.

10) Prisms operate by this effect, the variation of index of refraction with wavelength.

Answer: dispersion

10) If a glass hemisphere is placed on a table, the resulting reflections and interference will create circular light and dark patterns known by this name.

Answer: Newton's rings (or bands)

10) This term refers to materials which selectively absorb the electric field in one direction, resulting in polarized light.

Answer: dichroic

4. Name these songs with crashing sounds FTPE.

10) This hit by the Shangri-Las features the sound of the title character revving his motorcycle, followed by crashing glass.

Ans: Leader of the Pack

10) This Eminem song features the lyrics "Oh shit, I forgot, how am I supposed to send this shit out?" followed by a crash and a splash as the title character, an obsessed fan, drives his car off of a bridge.

Ans: Stan

10) This Pink Floyd song from *The Wall* ends, "Do you think it's time I stopped?/ Why are you running away?" In the movie, Pink smashes up his room, throws the TV through the window and screams "Next time, fuckers."

Ans: One Of My Turns

5. When planning the invasion of Poland In 1939, Adolf Hitler referred to this series of events, asking "Who still talks nowadays of" it. FTPE:

10) Name this 1915-20 series of events.

Answer: the extermination of the Armenians or Armenian genocide (accept "massacre" or other similar words that display clear knowledge)

10) From 1894-6, Turks and Kurds killed between 200 and 250 thousand Armenians under orders from this Sultan, who was overthrown in 1908 by the Young Turks.

Answer: Sultan Abdul-Hamid II

10) This Grand Vizier, a member of the ruling Young Turk triumverate with Enver Pasha and Ahmed Djemal Pasha, infamously boasted to U.S. ambassador Henry Morgenthau that he'd done in 3 months what Abdul-Hamid II had failed to do in 30 years.

Answer: **Mehmet Talaat Pasha**

6. Name these cellists FTPE.

10) Though equally famous as a performer in life, this Italian is best remembered as a prolific composer whose 125 string quintets, 26 chamber symphonies, and 91 string quartets are stylistically so similar to Haydn that he was said to be "Haydn's wife".

Ans: **Ridolfo Luigi Boccherini**

10) This Russian was blacklisted for a letter supporting Solzhenitsyn, and the Soviet Union even removed the dedication to him from Shostakovich's second cello concerto.

Ans: **Mstislav "Slava" Rostropovich**

10) This Catalan cellist famously contributed to the cultured image of Camelot by performing for JFK at the White House in 1961.

Ans: **Pablo Casals**

7. Name the writer from a morbid clue for 15; if you need an easier clue you'll get 5.

15) He engraved a poem beginning, "Start not—nor deem my spirit fled," on his cup made out of a skull.

5) He wrote the poems "Childe Harold's Pilgrimage" and "Don Juan."

Ans: **Lord Byron** or **George Gordon Noel Byron, 6th Baron Byron**

15) As a teen, this writer was shown a mummified hand by Charles Algernon Swinburne. The experience inspired his story "La Main Ecorchée."

5) He wrote the stories "Ball of Fat" and "The Necklace."

Ans: **Henry-René-Albert-Guy de Maupassant**

8. Answer the following on the atmosphere of the Sun, FTPE.

10) Photons in this layer above the convection zone transition from a random walk to free propagation, so this layer defines the visible surface of the Sun.

Ans: **photosphere**

10) This phenomenon is the observation that the center of the Sun appears brighter the edge, since a line of sight towards the center penetrates to deeper, hotter layers for the same optical path length.

Ans: **limb darkening**

10) The solar wind streams continuously off this outermost portion of the solar atmosphere, which can only be seen during a solar eclipse.

Ans: **corona**

9. Answer the following about Dark Age Spain, FTPE.

10) Post-Roman Spain was a kingdom led by this barbarian people, who had sacked Rome in AD 410.

Ans: the **Visigoths**

10) Until the conversion of King Reccared in 589, the Visigothic rulers of Spain subscribed to this heretical doctrine.

Ans: **Arianism**

10) One of Reccared's advisers was this bishop, whose twenty books of *Etymologies* became a standard textbook in medieval universities.

Ans: **Isidore of Seville**

10. Name these heroes from Celtic mythology on a 15-5 basis.

15) In *The Pursuit of Diarmuid and Gráinne*, this hero chases the protagonists for 16 years before making peace.

5) He gained wisdom from the Salmon of Knowledge.

Ans: **Finn Mac Cool** or **Fionn MacCumhail**

15) In the Welsh tale *Culhwch and Olwen*, he helps his kinsman Culhwch win the hand of Olwen, leading the hunt for the boar Trwch Trwth.

5) His wife was Guinevere.

Ans: **King Arthur**

11. Answer the following about option pricing FTSNOP.

5, 5) Two men won the Nobel Prize in Economics in 1997 for their work on the pricing of stock options. For five points each, name them.

Answer: Robert Merton and Myron Scholes

10) The most well-known equation for option pricing bears not Merton's name, but this economist, who died in 1995 before he could win the Nobel Prize.

Answer: Fischer Black

10) The Black-Scholes equation assumes that the price of the underlying instrument follows what pattern?

Answer: geometric Brownian motion

12. Answer the following on some Irish playwrights and their works, FTSNOP.

5) This playwright's works include *In the Shadow of the Glen* and *Riders to the Sea*.

Ans: John Millington Synge

10) In this Synge play, Pegeen Mike falls in love with Christy Mahon, supposing him a hardened, dangerous man since he supposedly killed his father, then rejects him when his father shows up alive.

Ans: The Playboy of the Western World

5) This playwright's works include *The Plough and the Stars* and *Juno and the Paycock*.

Ans: Sean O'Casey

10) In this play by O'Casey, Minnie Powell falls in love with and dies for poet Donal Davoren, mistakenly believing him to be a brave IRA fighter.

Ans: The Shadow of a Gunman

13. One should always consider not only mathematical structures, but the maps between them. For 10 points each--

10) This credo was emphasized by which inventor of modern algebraic geometry in the EGA and SGA volumes? Widely considered the greatest mathematician of the last half-century, he withdrew from public life in 1988 to live in isolation in the Pyrenees.

Ans: Alexander Grothendieck

10) What mathematical structures introduced by Eilenberg and Mac Lane and central to Grothendieck's work consist of a set of objects and for each pair of objects, a set of associative morphisms including an identity if the objects are the same?

Ans: small category

10) Because of the associativity and identity axioms, the set of morphisms of a one object category all of whose morphisms are invertible corresponds exactly to what more elementary algebraic structure?

Ans: group

14. Answer the following questions about Vietnam in the 1940s and 1950s FTPE.

10) In the 1940s, this group became the leading faction in Vietnam. They hid under a nationalist veil while espousing communism, causing a strain between them and the other nationalists.

Ans: Vietminh or Viet Nam Doc Lap Dong Minh Hoi or the Vietnamese Independence League

10) On May 7, 1954, the Vietminh forces were able to decisively defeat the French when they surrounded 12,000 French troops at this village.

Ans: Dien Bien Phu

10) The treaty made at this location would divide Vietnam into two separate states along the 17th parallel. The communist north would be ruled by Ho Chi Minh and the south by Bao Dai.

Ans: Geneva

15. Name these artists from paintings of clowns for 15, or from better-known works for 5.

15) *Gilles*

5) *Embarkation for Cythera*

Ans: Jean-Antoine Watteau

15) *Salimbanques*

5) *Guernica*

Ans: Pablo Ruiz Picasso

16. Name these aromatic compounds FTPE.

10) The ring structure of this molecule with formula C_6H_6 was first proposed by Kekulé.

Ans: benzene

10) This molecule with formula $C_{10}H_8$ consists of two fused benzene rings.

Ans: naphthalene or naphthalin or naphthaline or naphthene or tar camphor or white tar or albacarbon

10) This molecule with formula $C_{14}H_{10}$ consists of three fused benzene rings.

Ans: anthracene or paranaphthalene

17. Answer the following about everyone's favorite Frank, Charlemagne, FTSNOP.

5) Who was Charlemagne's father?

Answer: Pepin (or Pippin) III (or the Short)

10) What pope crowned Charlemagne king on Christmas Day, 800?

Answer: Leo III

5) In what city did Charlemagne establish a winter palace, where he is also buried?

Answer: Aachen or Aix-la-Chapelle

10) What Holy Roman Emperor opened Charlemagne's tomb in 1000 and allegedly found the remains well-preserved?

Answer: Otto III

18. Name these races and places from *Gulliver's Travels* FTSNOP.

10;10) FTPE, name the two island nations that appear in the first part of the novel. The inhabitants of both islands are tiny, and they are permanently at war over the proper way to eat boiled eggs.

Ans: Lilliput; Blefuscu

10) These intelligent horses are plagued by the Yahoos.

Ans: Houyhnhnms (be lenient with pronunciation)

19. Answer the following about the Grand Slam in golf FTPE:

10) Five for three, or ten for all four, name the four tournaments that have comprised the Grand Slam since 1934.

Answer: The Masters, the US Open, the British Open (accept "The Open Championship" from pretentious twits), and the PGA Championship

10) Prior to the establishment of the Masters, what tournament was often considered the fourth Grand Slam?

Answer: the US Amateur championship

10) The PGA hosts a tournament in December exclusively for the four winners of the Grand Slam tournaments. For a final ten, name its location.

Answer: Poipu Bay Golf Course, Kauai

20. Answer the following about the Battle of the Bulge FTSNOP.

5) In what month and year did the Battle of the Bulge commence?

Answer: December 1944

10) What Belgian forest did the offensive take place in, an alternate name for the battle?

Answer: Ardennes

10) The commander of this unit, Anthony McAuliffe, became famous in the battle for rejecting the German demand for surrender with a single word. What was his unit?

Answer: 101st Airborne Division (accept also "Screaming Eagles")

5) What critical town was the 101st Airborne defending?

Answer: Bastogne