

# PARFAIT III Round 4

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November 17, 2007

# 1 Princeton University Tossups, Round 4

1. One battle with this name was lost by the nominal ruler of Cyprus and her brother, who had gained control of a rebel army after Achilles was killed by Ganymede, Arsinoe IV's tutor. In addition to the 47 BCE victory of Julius Caesar, the victory at the better known battle of this name was brought about by Thomas Foley observing that the defensive chains were low enough for the *Goliath* to pass over, flanking the *Guerrir*. The *Culloden* ran aground on the shoals that were thought to protect the French fleet under Brueys, who died when the *L'Orient* exploded. Securing British control of the Mediterranean and isolating Napoleon's army, for ten points, name this 1798 victory of Nelson in Egypt named after a primary river there.

**Answer: Battle of the Nile or Aboukir Bay (presumably there is some Egyptian name or Latin name that should be acceptable, but I didn't find it)**

2. In one of his works, the translator of *Sepher Yezirah* and scholar of Jakob Böhme is sentenced to death after Julius Rothe's examination of two Gothic adjectives. In addition to Jaromir Hladik's extra year to finish *The Enemies* in this author's *The Secret Miracle*, *The Anglo-American Cyclopedia* prints an article on *Uqbar* to advance the *Orbis Tertius* conspiracy to create a new world called Tlön. *Pierre Menard, Author of Don Quixote* involves a man trying to rewrite Don Quixote spontaneously. For some time he was the head of the National Library of his country, which may have inspired *The Library of Babel*. For ten points name the author of *The Aleph* and *The Book of Imaginary Beings*.

**Answer: Jorge Luis Borges**

3. He so angered the people under his command that they purposefully set an ammunition shed ablaze to incapacitate him. He led a coup against Edward Maria Wingfield that caused him be sent to the gallows, shortly after he claims that a woman later captured by Captain Argall and Thomas Dale saved his life. After receiving instruction from Alexander Whitaker, hat woman, although allegedly married to him, later married John Rolfe. For ten points, name this explorer whose attempt to stabilize Jamestown is less famous than his encounter with Chief Powhatan and his daughter.

**Answer: John Smith**

4. This author tells the story of the brother of a veterinarian who buys an estate downstream of a gelatin plant so he can get a fat red dog and a fat cook and grow the titular fruit in *Gooseberries*, and Raymond Carver imagined his death from tuberculosis in *Errand*. Tennessee Williams adapted *The Notebook of Trigorin* from his play where Treplyov shoots himself in the last act, *The Seagull*. For ten points name this author of *The Lady with the Dog*, *A Tragedian in Spite of himself*, *The Steppes*, and *Uncle Vanya*.

**Answer: Anton Pavlovich Chekhov**

5. A legend surrounding his childhood has him almost killing the son of Artembaris, at which point the child was brought before the man who had ordered Harpagus to kill him. He succeeded his father as king of Anshan, causing his grandfather Astyages to attack him in 550 BC. Victorious, he took control of the Median empire, which angered neighboring states and led to the Battle of Thymbra, which he won along with the Lydian empire

when he defeated Croesus. The son of Cambyses, he made his most famous conquest by diverting the Euphrates river so as to lower the canals surrounding Babylon, thus capturing the city and also ending the Babylonian Captivity. For ten points, name the “great” king and founder of the Achaemenid dynasty in Persia.

**Answer:** Cyrus II or the Great or Elder

6. Gustav Müller argues that the trinity with which this philosopher is best known sprang not from the philosopher himself but from Chalybäus, whose 1837 treatment of philosophy from Kant to this philosopher caused *Das Elend der Philosophie*’s author to approach this man’s work in economic terms. Likewise, the biography by his student and friend, Karl Rosenkranz omits what is called the “geistloses Schema” in both *History of Philosophy* and *Phänomenologie of Mind*. For ten points, the trinity of “thesis, antithesis, and synthesis” is perhaps too closely associated with what philosopher who influenced Marx with his dialectic?

**Answer:** Georg Friedrich Hegel

7. He was in charge of the survey of the border between Russia and Wallachia and Moldavia after the Crimean War, and he met his end at a battle where he kept the steamship *Ismailia* running waiting for Wolsely’s Nile Expedition to relieve him in Khartoum. Before becoming governor of Sudan, he had taken the post for which he is best known after the death of Frederick Townsend Ward; for ten points, name this general whose leadership of the Ever Victorious Army against the Taiping rebellion earned him the nickname “Chinese.”

**Answer:** George Gordon

8. Berezine drew up the first Western maps of this city in 1842, which were followed by that of Augustus Krziz fifteen years later. Tahmasp I built walls around the city which were torn down in 1867, somewhat superfluous given this city’s position at the foot of the Alborz mountains, which house the Tochal ski resort. The suburb of Rayy is home to major oil refinery operations, and its international airport is at Mehrabad, which was the destination of a 1984 hijacking. The city’s metro line, first announced in 1970 but abandoned with the 1979 revolution, only became operational in 1999, although it has been ambitiously planned to extend to the new Ayatollah Kohmeni airport. For ten points, name this capital and largest city of Iran.

**Answer:** Tehran

9. It begins with the offering by one character of a lock of hair to Inachus, after he invokes Hermes as “messenger to the dead.” That character has returned from Phocis with his friend Pylades, and is later symbolized in a dream as a newborn snake which draws blood from his mother’s breast. A tomb is the place of work for the title characters, and where much of the dialogue occurs, though the final actions take place at the Palace of Argos. For ten points, Orestes kills both Aegisthus and Clytaemnestra in what middle section of Aeschylus’s *Oresteia* trilogy, falling between *Agamemnon* and *The Eumenides* about drink deliverers?

**Answer:** The Libation Bearers or Choephoroe

10. His novel that takes its name from a John Donne poem has the alcoholic Cass facing evil in the form of Mason Flagg in *Set This House on Fire*. Falling into depression after giving up his “senior partner to his intellect,” alcohol, he wrote his last book, *Darkness Visible*. One of his best known works juxtaposes the tattoo of a barbed wire fence of orderly ciphers with a single “seven, bisected with the meticulous European slash” as a southern writer sniffed in the herbal perfume a Nazi concentration camp survivor wore and wondered if he should make a pass in *Sophie’s Choice*. For ten points, name this author best known for his fictionalized account of an alienated slave she leads a revolt as recounted in the Pulitzer winning *The Confessions of Nat Turner*.

**Answer: William Styron**

11. In a 1978 article, Whalley argued that edge chipping in them were indicative of modification by water. In conjunction with fresh grains, edge chipping suggests transport in the high energy environment of the basal zone. The Strathspey lobe created one of the largest terminal ones, and lateral ones develop when rock falls on the side of the body that deposits them as it melts. For ten points, name this accumulation of rock debris left by a melting glacier.

**Answer: Moraine**

12. He could be no more surprised if his horse had talked to him when a man in a boat warned him not to move too quickly. He was led there by Sagan-Cuisco, who developed a nosebleed. This time in Michigan was recounted in *A Fortnight in the Wilderness*, and led him to write that the Indians are doomed because education brings with it corruption and that blacks are doomed because even as legal boundaries fade, prejudice remains. With his traveling partner Beaumont, he also wrote a treatise on the jails in the US describing the doomed whites. For ten points, name this Frenchman who wrote about *Democracy in America*.

**Answer: Alexis de Tocqueville**

13. In metal hit by waves with low frequency  $\omega$ , its square is given by  $\frac{-i\sigma}{\epsilon_0\omega}$  (“negative i sigma over epsilon nought omega”), where  $\sigma$  is the conductivity. Thus, its imaginary part is large and metals are opaque to visible light but many are transparent to X-Rays. Taking the arctangent of the second over the first at a boundary gives an angle where all reflected light is polarized, Brewster’s Angle. Taking the arc sine of the second over the first gives the angle at which total internal reflection occurs, the critical angle. The ratio of phase velocity out of a medium over the phase velocity in a medium and the square root of the relative permittivity and permeability gives, for ten points, what quantity symbolized by  $n$  in Snell’s law?

**Answer: index of refraction (accept variants including these two parts)**

14. In this book of the Bible, Ananias, and his wife Sapphira are killed for misrepresenting a donation and King Herod Agrippa I is eaten by worms as a punishment for his own pride. It begins with a prologue addressed to Theophilus, and chapter nine details how St. Ananias caused the scales to fall from the eyes of man who was converted on the road to Damascus. It has a vote replacing Judas with Matthias, has Philip apparently being teleported by the Spirit of God to Gaza after baptizing the Ethiopian eunuch and Paul being bitten by a viper on Malta but not dying, thus being revered as a god by

the Maltese. For ten points, name this New Testament book probably written by Luke recounting evangelism after Christ's death.

**Answer:** The Acts of the Apostles

15. Lieberman showed that methionine was converted to in the presence of copper and ascorbic acid, but Yang and Adams elucidated the biosynthetic pathway wherein 1-aminocyclopropane-1-carboxylic acid was an intermediate converted to it from methionine. Cousins demonstrated that it could be produced by one organism and affect another, and Dimitry Neljubov showed that it was the active component of Illuminating gas. Inhibiting growth and promoting abscission, it's best known as a ripening hormone in plants. For ten points, name this simplest alkene with chemical formula  $\text{CH}_2\text{CH}_2$ .

**Answer:** ethylene or ethene

16. Some credit this song with inventing the name of a new genre with its inclusion of the phrase "heavy metal thunder," and a different line asks you to "take the world in a love embrace." The speaker "like[s] smoke and lighting" and wants you to "fire all of your guns at once." The title phrase is true because we are "a true nature's child" and thus can "climb so high." Originally written by Mars Bonfire in 1968 and famous for its inclusion in the movie Easy Rider, this is for ten points, what rock anthem by Steppenwolf?

**Answer:** Born to be Wild

17. One of the depictions of this figure is ringed by birds and flowers with a pink a red background in a tapestry by Boucher. Boucher also painted this recumbent figure clasping a white dove while presented with red coral by naiads. If you remove "and triumph" from that title, you have the English translation of a painting with this figure with her weight entirely on one foot and equal measurement between the breasts, between the breasts and the navel, and between the navel and the crotch. Blown ashore by Zephyrs to the left and handed a robe by a woman on the right, for ten points, name this figure whose "birth" upon a half-shell was painted by Sandro Boticelli.

**Answer:** Venus or Vernere or Vénus (accept "upon the Waves," "the Birth and Triumph of," "the Birth of," etc.)

18. A steward to Count Kinsky, his uncle gave him a home in Zlonice and access to teacher Atonin Leihmann, thus stopping him from taking up an apprenticeship to a butcher. Johannes Brahms got him in touch with publisher Fritz Simrock, who published two sets of duets, one for soprano and contralto and the other for two pianos. In addition to The Overture *In Nature's Realm*, Moravian Duets, and *Slavonic Dances*, he's best known for a work written while director of the National Conservatory of Music in New York. For ten points, identify this Czech composer of *Symphony from the New World*.

**Answer:** Antonin Dvorak

19. In a BBC interview Nathaniel Branden reported that this steel-industry analyst who favored dark suits was nicknamed "the undertaker" after riding in an elevator with Ayn Rand. Joining her circle, he made connections with Republicans, which got him a job as Chief Economic Spokesman for Richard Nixon. His "chinese water torture" is sometimes blamed for ending the first Bush administration, and he was described as "the Committee to Save the Word" with Larry Summers and Richard Rubin. Coining the term "irrational

exuberance” to combat surging asset values, for ten points name this successor to Paul Volker and predecessor of Ben Bernake, the chairman of the Fed from 1987 to 2006.

**Answer:** Alan Greenspan

20. The experiment had to be restarted because the samples were inadvertently flipped, but faint signal of a half-heavy band showed the investigators were on the right track. E. coli was grown using ammonium chloride as the only source of nitrogen. The bacteria were then transferred to an environment containing only  $N_{14}$  and allowed to replicate. The key result of this experiment was that half of the DNA of the second generation of e. coli had densities higher than the other half. For ten points, name this doubly eponymous experiment that concluded that DNA replication occurs in a semi-conservative fashion.

**Answer:** Meselson-Stahl experiment

21. The Galois group of a finite field extension of a finite field is finite and has this property. For  $n$  greater than 5, the multiplicative group of integers mod  $n$  has this property only if  $n$  is a prime power or twice a prime power. Every finitely generated abelian group is the direct product of finitely many of these groups. According to their fundamental theorem, subgroups of groups with this property also have this property. For ten points, what is this term, which refers to groups which are generated by a single element as well as ringed chemical compounds?

**Answer:** cyclic

## 2 Princeton University Bonuses, Round 4

1. Mason Liang is a mad Potter, but let's see if you can name these works with other Potters for 10 points each.

10 Because asking just "Harry Potter," would be too easy, what Harry Potter book has Sirius showing off the Black Family Tree which shows he's related to the Malfoys, Lestrangle, and a one Charles Potter?

**Answer:** Harry Potter and the Order of the Phoenix

10 Harry Morgan played the gruff replacement of Henry Blake, Sherman T. Potter, who was born in Hannibal, Missouri, on this television show.

**Answer:** M\*A\*S\*H

10 Bedford Falls gets renamed Pottersville when the Bailey-run savings and loan goes under in an alternate universe as revealed by Clarence in this movie.

**Answer:** It's a Wonderful Life

2. Unfortunately for you, your packet contributor has a one-track mind right now. For ten points each, answer some questions pertaining to her thesis.

10 This term refers to "heritable traits that are not due to underlying DNA sequences changes".

**Answer:** Epigenetics

10 Epigenetic modifications, such as acetylation and methylation, often occur on these small, highly basic proteins that are part of nucleosomes.

**Answer:** Histones

10 Methylation and acetylation often take place on this highly basic amino acid, whose R group has an amine group at the end of a four-carbon chain.

**Answer:** Lysine or K

3. Answer some questions about the "switch in time that saved nine" for ten points each.

10 The phrase refers to Franklin Roosevelt's attempt to increase the membership of what body?

**Answer:** Supreme Court of the United States

10 Conservative justices McReynolds, Sutherland, Van Deanter, and Butler who controlled the court before 1937 were popularly known as this biblical group.

**Answer:** the Four Horsemen (of the Apocalypse)

10 The switch happened with Justice Owen Roberts changed his vote in response to FDR's court packing plan in what 1937 case upholding the constitutionality of Washington state's minimum wage law?

**Answer:** West Coast Hotel v. Parrish (accept either)

4. He dies from a wound inflicted by falling plank, but he still manages to reveal that it was he who wrote a letter to Roxanne at the siege of Arras. For ten points each. . .

10 Name this man with a big nose who helped fellow cadet Christian, the subject of a 1897 verse drama.

**Answer: Cyrano de Bergerac**

10 Cyrano de Bergerac was written by this author of *The Last Night of Don Juan* and *The Faraway Princess*.

**Answer: Edmond Rostand**

10 Rostand also wrote a play about Chaunticleer, who was this type of animal.

**Answer: chicken, accept rooster, prompt on "poulet"**

5. For ten points each, answer these questions related to materials science.

10 This is the lattice structure of many metals, including gold and copper. It is equivalent to an ABCA close packing.

**Answer: face centered**

10 The face centered cubic is but one of 14 of these types of 34 lattices, which appear the same when viewed from any point on the lattice.

**Answer: Bravais Lattice**

10 Each atom in a face centered cubic lattice has this many nearest neighbors. Equivalently, this is also the largest number of spheres of some radius that can be simultaneously tangent to a central sphere of the same radius.

**Answer: 12**

6. The title character steals into the palace, where a girl whose tongue has been torn off will be raped by the priests before her ritual sacrifice the next day. For ten points each. . .

10 Name this Booker-prize winning work.

**Answer: The Blind Assassin**

10 This author wrote *The Blind Assassin*.

**Answer: Margret Atwood**

10 The story mostly takes place in Port Ticonderoga, a city in this nation.

**Answer: Canada**

7. Answer these questions about disagreements about leadership in Islam for ten points each.

10 This branch of Islam views Ali as the first legitimate caliph. Differences with the majority denomination of Islam include an additional line in their declaration of faith, and the use of a piece of dried clay from Karbala when praying.

**Answer: Shia (Shiite)**



10 Instead of Ali, this man became the first Caliph.

**Answer: Abu Bakr**

10 In 1959, the head of this university in Egypt issued an eponymous fatwa which declared that the Shia school is thought is not incorrect to follow.

**Answer: Al-Azhar**

8. The title character seeks the title locale under the direction of a “hoary cripple, with malicious eye” and, after searching through a dark wasteland, finds it. For ten points each...

10 What is this 1855 poem, whose hero may or may not be the same as that of an eleventh century epic.

**Answer: Childe Roland to the Dark Tower Came**

10 What British poet was the author of “Childe Roland to the Dark Tower Came?”

**Answer: Robert Browning**

10 The poem’s title is taken from a nonsense line spoken by Edgar, disguised as Tom O’Bedlam, in this Shakespeare play.

**Answer: King Lear**

9. For ten points each, answer the following about the interplay between dramatists and philosophers in ancient Greece.

10 In Plato’s symposium, this playwright of *Lysistrata* claims that there were once three sexes: men, women, and the androgenous.

**Answer: Aristophanes**

10 Aristophanes included Socrates in this play, where he argued that title entities were the true arbiters of wisdom to Chaerephon.

**Answer: The Clouds or Nephelae**

10 Chaerephon greets Socrates at the start of this Platonic dialog, in which a young boy is instructed about sophrosune.

**Answer: Charmides**

10. Identify some important theorems and conjectures from Graph Theory for ten points each.

10 This theorem exploits the duality of the problem of finding the optimal route from a source to a sink on which to send units with the problem of finding a partition of the graph into two sets so that the weight of edges between the two sets is as small as possible. It was famously proved by Ford and Fulkerson.

**Answer: max-flow min-cut theorem (accept either order, just make sure they put max-flow together and min-cut together)**

10 Appel and Haaken proved that for a graph that is neither isomorphic to  $K_{3,3}$  or  $K_5$ , this many colors suffice to color the vertices.

**Answer: 4**

- 10 This conjecture, a generalization of the 4-color theorem, gives an upper bound on the number of colors needed to color a graph embedded on a surface of arbitrary genus. This bound is tight for all graphs other than the Klein bottle.  
**Answer:** Heawood's Conjecture
11. Answer these questions about Cortes's doings in Mexico, for ten points each.
- 10 On November 8, 1519, Cortes arrived in this capital Aztec city and was greeted as a god.  
**Answer:** Tenochtitlan
- 10 Cortes then managed, after initial hostilities, to ally himself with the Tlaxcala, a confederacy which had been almost continuously fighting this cheerfully named set of wars with the Aztecs.  
**Answer:** the Flower wars
- 10 Not only did Cortes ally with natives, he also fought and defeated fellow Spaniards under the command of this general, dispatched by Governor Velazquez to arrest Cortes.  
**Answer:** Panfilo de Narvaez
12. Starting in 1957, he was the manager of a hydroelectric plant in Kazakhstan because of his association with Beria. For ten points each...
- 10 Name this short-lived Soviet premier.  
**Answer:** Georgy Maximilianovich Malenkov
- 10 Malenkov opposed the state farm plans of his successor and also tried to oust this man with this help of Molotov and Bulganin but failed, leading to his exile.  
**Answer:** Nikita Sergeyeovich Krushchev
- 10 Krushchev and Malenkov's struggle for power began after the death of this Soviet dictator in 1953.  
**Answer:** Joseph Stalin or Iosif Vissarionovich Dzhugashvili
13. For ten points each– name these figures associated with the prophet Samuel:
- 10 This woman sings a namesake "song" in First Samuel after she gives birth to Samuel.  
**Answer:** Hannah
- 10 Samuel first hears the voice of God while working in a temple under this corrupt high prophet.  
**Answer:** Eli
- 10 Samuel anoints this man king when he finds him searching for his family's she-asses.  
**Answer:** Saul
14. The most common axiomatic form of set theory used today is known as ZFC. for ten points each...

- 10 The Z and F in ZFC stand for the mathematicians Zermelo and Fraenkel. The C doesn't stand for a mathematician, but rather for what statement, independent of the original axioms of Zermelo and Fraenkel?  
**Answer:** The Axiom of Choice
- 10 Even if you include the axiom of choice and use ZFC, you get some undecidable statements. For example, this problem, posed by Cantor, which states that there is no set whose size is strictly between that of the integers and that of the reals.  
**Answer:** the Continuum hypothesis
- 10 To show that the Continuum hypothesis cannot be proven in ZFC, Paul Cohen invented what technique, now used to prove similar undecidability results about other statements?  
**Answer:** forcing
15. Its mythological origins are the Asura king Hiranyakashipu, who could not be killed "during day or night; inside the home or outside, not on earth or on sky; neither by a man nor an animal; neither by astra nor by shastra." For ten points each. . .
- 10 On what Hindu holiday, associated with color, did Hiranyakashipu's son Prahlad survive while his sister was burned instead?  
**Answer:** Holi
- 10 Hiranyakashipu's power was given to him by what god of the trimurti?  
**Answer:** Brahma
- 10 What god later kills off Hiranyakashipu in the form of Narasimha?  
**Answer:** Vishnu
16. Answer these questions about models of biological systems for ten points each. . .
- 10 This pair of differential equations, discovered independently in the 1920's by an American and an Italian, is one of the most famous pair of equations in population dynamics. In them, the growth of one species would be exponential independent of the other species.  
**Answer:** Lotka-Volterra equations
- 10 The Lotka-Volterra equations model what general form of species interaction?  
**Answer:** predator-prey effect
- 10 In this effect from population dynamics, growth rate declines as population density declines for small populations. It is often used to model populations that engage in helpful social behavior such as herding.  
**Answer:** the Allee effect
17. It's surrounded by the South China, Sulu, and Celebes seas. For ten points each. . .
- 10 Name this island.  
**Answer:** Borneo

- 10 James Brooke established the state of Sarawak on the island of Borneo that later became part of the British empire before joining this nation.  
**Answer:** Malaysia or Persekutuan Tanah Melayu
- 10 Borneo is separated from this island of Indonesia by the Makasar strait.  
**Answer:** Sulawesi
18. Name these works of Hector Berlioz for ten points each.
- 10 Berlioz composed this “episode form the life of an artist” after falling in love with Harriet Smithson; its first movement is “Dreams - Passions” and its fifth and final is “Dream of a Witches” Sabbath.  
**Answer:** Symphonie Fantastique
- 10 Berlioz wrote this work that begins with a Hungarian March and ends with Margarita being delivered into heaven.  
**Answer:** La damnation de Faust
- 10 Clement the seventh and Pompeo are characters in this Berlioz opera.  
**Answer:** Benvenuto Cellini
19. Answer these related questions about linguistics for ten points each. . .
- 10 This term, from the German words for “down” and “sound,” refers to a type of apophony in a certain class of languages, in which vowels change with grammatical function. An example in English would be the changing vowels in “sing,” “sang,” “sung.”  
**Answer:** ablaut
- 10 The term “ablaut” was coined by what German linguist?  
**Answer:** Jakob Grimm
- 10 Though parallels exist in other language families, ”ablaut” specifically refers to a vowel system in what family?  
**Answer:** Indo-European
20. Answer some questions about the brightest of the bright stars for ten points each.
- 10 This hypergiant in the Southern Hemisphere is between 100 and 150 solar masses, and underwent a supernova impostor in 1843. The center of the Homunculus Nebula, which it ejected at that time, this star is the best candidate for most luminous star known.  
**Answer:** Eta Carinae (prompt on partial answer, I guess)
- 10 Eta Carinae is roughly at or above this theoretical stellar limit, which sets an upper bound on the luminosity of a star that can be held together by gravity despite the outward radiation pressure.  
**Answer:** Eddington Limit

10 Eta Carinae belongs to this class of hypergiant stars, so-named because of their characteristic color and their tendency toward fairly rapid fluctuations in luminosity.

***Answer:* LBVs or Luminous Blue Variables**

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