

Berus-Lie Academic Spring Tournament (BLAST)

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Packet 15a Tiebreakers: . . .

Tossups

1. **In response to an article published about this event in *La Nacion*, rebels blew up a statue of George Washington in Buenos Aires. Governor Alvan T. Fuller gained notoriety for his refusal to pardon the defendants in this case, unswayed by arguments of Felix Frankfurter. This case was tried in Judge Webster Thayer's court. Celestino Medeiros admitted that he, and not the defendants, had committed the crimes in (*) Braintree that spurred this trial, which was one of the factors in Governor Michael Dukakis's post-mortem pardon of the defendants. For 10 points, name this controversial trial that resulted in the execution of two Italian anarchists.**
ANSWER: Trial of Nicola Sacco and Bartolomeo Vanzetti [do not prompt on partial answers] <AN, American History>

2. **War between King Tofa and the French began after a military unit with this name executed a village chieftain while wrapping his head in the *tricolour*. Francisco de Orellana's [**"ore-ay-anna"**] expedition to a body of water with this name dispelled the myth that it was home to a network of cinnamon trees. Muammar Gaddafi's personal guard, the "revolutionary nuns," was also described by this adjective. Dahomey had a force entirely made up of the (*) Fon ethnicity that was given this name. Comparisons between Piraha woman warriors and a Greek mythological force gave a body of water this present-day name. For 10 points, give this name of the largest rainforest in the world.**

ANSWER: Amazon [accept Amazonian Guard] <HP, World History>

3. **The 8.2 foot-long *Jaekelopterus* belonged to an ancient group of organisms in this phylum known as eurypterids [**"yer-IP-terr-ids"**]. The prothoracic glands of a class in this phylum secrete a hormone known as PTTH, which controls a key process in these organisms that begins with apolysis and sees the transition from one instar stage to another. Thousands of hexagonal units known as ommatidia comprise the (*) compound eyes found in members of this phylum. Members of this phylum possess excretory systems composed of Malpighian [**"mal-PIG-ian"**] tubules and have exoskeletons made of chitin. For 10 points, name this phylum which includes crustaceans, arachnids, and insects.**

ANSWER: Arthropoda [or arthropods, prompt on insects or crustaceans before mention by asking "What phylum are they in?"] <ARB, Biology>

4. **The rank-2 tensor which represents this quantity can be diagonalized to find its "principal" values. The radius of gyration is proportional to the square root of this quantity. Objects with three distinct values for this quantity will have unstable rotation about one axis according to the tennis racket theorem. For a planar object, three values for this quantity are related by the perpendicular (*) axis theorem. This value can be calculated by adding mass times distance squared to its value about the center of mass according to the parallel axis theorem. The ratio of torque to angular acceleration is this quantity in a rotational analogue of Newton's 2nd law.**

For 10 points, name this quantity denoted I , the rotational analogue to mass.

ANSWER: moment of inertia [prompt on I before mention] <SL, Physics>

5. In a novel set in this state, Dora Flood owns a restaurant named for this state's flag that doubles as a brothel. Another novel set in this state sees Pablo and Pilon fail to attend their friend's funeral. After returning as a mule driver in World War I, Danny inherits two houses in this state that he rents to his fellow *paisanos*. Mack and the boys throw a party for the Ed Ricketts-inspired marine biologist (*) Doc in this state. This state, which contains the locales of Tortilla Flat and Cannery Row, is home to a farm where Curley's wife is accidentally killed, forcing George and Lennie to flee to the Salinas River. For 10 points, name this state whose Monterey County provides the setting of many John Steinbeck works such as *Of Mice and Men*.

ANSWER: California <WZ, Long Fiction>

6. One of these characters named Cutie declares "I myself, exist, because I think" after establishing a religion based around a ship's power source. After Stephen Byerley punches a heckler during a speech, he is declared not to be one of these characters. One of these characters named Speedy staggers, seemingly drunkenly, around a pool until Powell risks his life by stepping outside in "Runaround." Susan (*) Calvin is a psychologist for these characters. These characters cannot allow themselves to come to harm, disobey orders, or allow humans to come to harm by their Three Laws. For 10 points, name these mechanical humanoids common to many Isaac Asimov short stories.

ANSWER: robots [accept reasonable equivalents, such as androids; prompt on "Asimov characters" or equivalents] <SL, Short Fiction>

7. An angel holds up a red, white, and blue-striped ladder in a drop curtain this artist painted for a ballet. This artist also created costumes of skyscrapers for that ballet, *Parade*. Crystal tears can be seen on the title figure's cheek in a painting from this artist's *Weeping Woman* series. A harlequin, pierrot, and monk each play an instrument in one of this artist's works, which exemplifies the (*) "synthetic" version of his primary style. In addition to the *Three Musicians*, this artist painted a work that depicts five prostitutes, whose faces resemble African masks. For 10 points, name this man who painted *Les Femmes d'Alger* and founded cubism with Georges Braques.

ANSWER: Pablo Picasso <HP, Visual Fine Arts>

8. Soprano Maria Malibran chose to pull two pistols, rather than one, on the villain of this opera in their Act 2 confrontation. Gustav Mahler began the practice of inserting an alternate overture to this opera in its second act. Four characters sing a canon in Act 1 of this opera that begins with the words "*mir ist so wunderbar*." This opera's composer wrote four overtures to it. This opera's title character sings the "Gravedigging Duet" with Rocco, a (*) jailor. The aria "*Ha, welch ein Augenblick*" is sung by the villain of this opera, Pizarro, as he reveals his plan to kill the husband of the protagonist. Florestan is freed at the end of this opera by the title character, who is really Leonore in disguise. For 10 points, name this only opera by Ludwig van Beethoven.

ANSWER: Fidelio <ML, Other Auditory Arts>

9. In 2015, the NIH announced they would no longer allow Stephen Suomi to continue his research on the babies of this animal. A controversial experiment run on these animals involved removing afferent ganglia from their arms to see if they could use limbs they could not feel. These animals, (*) who were subject to an illegal Edward Taub experiment in Silver Spring, were isolated in a "pit of despair" in another experiment. An experiment tested whether these animals would prefer fake mothers made of cloth or wire, and was conducted by Harry Harlow's experiments. For 10 points, name these non-human primates whose rhesus type is frequently used in experiments.

ANSWER: monkeys <AN, Social Science>

10. **The King James Group has hired singers such as YoungstaCPT to produce two-minute songs to stop a crisis involving this resource. Since 2015, distribution of this resource in Ireland has been run by a subsidiary of Bord Gáis. An anticyclone known as the “Ridiculously Resilient Ridge” has been attributed to cause a shortage of this resource. Former mayor Patricia de Lille believed that (*) Cape Town would experience a “Day Zero” when it comes to this resource. To combat a 2015 crisis, Governor Jerry Brown called on residents to cut usage of this resource by up to 25 percent. For 10 points, name this resource which has run out in California due to the drying up of local reservoirs.**

ANSWER: **water** <HP, Current Events>

Bonuses

1. This man's branch of diplomacy in achieving German unification is often described as *realpolitik*. For 10 points each:

[10] Name this Prussian chancellor. Amongst his accomplishments include gaining Schleswig and Holstein from Denmark for the German Confederation.

ANSWER: Otto von **Bismarck**

[10] In response to the Catholic Church's opposition to Prussia in wars such as the Franco-Prussian War, Bismarck promulgated an effort given this name, coined by Rudolph Virchow.

ANSWER: **Kulturkampf** [prompt on culture war or culture struggle]

[10] This general was responsible for modernizing the Prussian army under Bismarck's chancellorship. Amongst his victories were the Battle of Königgratz [**"kern-ig-gratz"**], and his nephew would command the German army in WWI.

ANSWER: Helmuth Karl Bernhard Graf von **Moltke** [accept **Moltke** the Elder, do NOT accept or prompt on "Moltke the Younger" or "Helmuth Johannes Ludwig Graf von Moltke"] <AN, European History>

2. Answer the following about the career of Brazilian diplomat Sérgio Vieira de Mello, for 10 points each:

[10] He served as the first Special Representative of the Secretary General to this country, which at the time had declared independence from Serbia. NATO conducted bombing campaigns in this country as part of Operation Noble Anvil.

ANSWER: Republic of **Kosovo**

[10] Vieira de Mello held positions during the tenure of this UN Secretary-General from Ghana. This Secretary-General won the 2001 Nobel Peace Prize, and he was succeeded by Ban Ki-Moon.

ANSWER: Kofi **Annan**

[10] While serving as Special Representative to Iraq, Vieira de Mello was killed in the 2003 Canal Hotel bombing in this city, Iraq's capital.

ANSWER: **Baghdad** <WZ, World History>

3. Towers named for Gay-Lussac and Glover increase efficiency of one method of producing this compound by recovering spent nitrogen oxides. For 10 points each:

[10] Name this compound that is produced in the lead chamber process, which has since been obsoleted by the contact process.

ANSWER: **sulfuric acid** [or **H₂SO₄**]

[10] Gay-Lussac's law gives the proportional relationship between temperature and this quantity. This quantity can be measured in atmospheres and is 1 atmosphere at standard conditions.

ANSWER: **pressure** [prompt on **P**]

[10] Gay-Lussac also discovered the empirical formula for cyanogen, which features this type of bond between carbon and nitrogen atoms. This type of bond is formed from one sigma and two pi bonds.

ANSWER: **triple** bond [prompt on covalent bond] <WZ, Chemistry>

4. Fast Fourier transform algorithms, or FFTs, compute discrete Fourier transforms in this time complexity. For 10 points each:

[10] Name this time complexity. In March 2019, Harvey and van der Hoeven found a multiplication algorithm with this complexity using the fast Fourier transform. It is also the fastest possible average runtime for comparison sorts.

ANSWER: $O(n \log n)$ [or big O of $n \log n$ or big O of n times the logarithm of n]

[10] The Cooley-Tukey FFT algorithm uses this technique, in which a function or algorithm calls itself in its own evaluation. When the function is only called at the end, it is the “tail” form of this technique.

ANSWER: **recursion** [accept **divide and conquer**]

[10] The quantum Fourier transform, an analogue to the inverse discrete Fourier transform, is most notably used in this quantum algorithm that factors integers in polynomial time.

ANSWER: **Shor**'s algorithm <SL, Computer Science>

5. In one poem, this author wrote that he would “arise and go now, for always night and day” he hears “lake water lapping with low sounds by the shore.” For 10 points each:

[10] Name this poet who wrote of a “small cabin” made “of clay and wattles“ in “The Lake Isle of Innisfree.”

ANSWER: William Butler **Yeats**

[10] This Yeats poem inspired the title of Things Fall Apart and asks “what rough beast, its hour come round at last, / Slouches towards Bethlehem to be born?”

ANSWER: “**The Second Coming**”

[10] “The Second Coming” states that “mere anarchy is loosed upon the world” before a tide described by this hyphenated phrase “is loosed.” This phrase may evoke imagery of the rampant violence of war.

ANSWER: **blood-dimmed** <KL, Non-Epic Poetry>

6. In the story “The Miracle of Moon Crescent,” this character refuses to sign a document stating that Warren Wynd’s hanging was a miracle. For 10 points each:

[10] Name this fictional priest created by G. K. Chesterton who eventually befriends his nemesis Flambeau.

ANSWER: Father **Brown**

[10] In addition to being a priest, Father Brown is also a detective, like this violin-playing character created by Arthur Conan Doyle. This character is aided by his friend Dr. Watson

ANSWER: **Sherlock Holmes** [accept either]

[10] The first story to feature Father Brown is named after a “Cross” of this color. In a Sherlock Holmes adventure, Holmes finds a carbuncle of this color inside a Christmas goose.

ANSWER: **blue** <AMB, Short Fiction/Other Literature>

7. This composer wrote the extremely difficult movement *Scarbo* for piano. For 10 points each:

[10] Name this French composer who was inspired by Aloysius Bertrand’s poetry to write *Gaspard de la nuit*. He also orchestrated Modest Mussorgsky’s *Pictures at an Exhibition*.

ANSWER: Maurice **Ravel** [accept Joseph Maurice **Ravel**]

[10] Ravel wrote this suite for piano in the memory of his friends who died in World War I. This suite references Baroque forms and includes the name of a French Baroque composer in its title.

ANSWER: *Le tombeau de Couperin* [“koop-RAN”], M. 68 [accept *The Tomb of Couperin*]

[10] Ravel also wrote an F-sharp minor three-movement work of this type for solo piano, which he submitted to a competition under a pseudonym. A C major work of this diminutive type by Clementi is frequently played by piano students.

ANSWER: **sonatine** [accept **sonatina**; do not accept or prompt on “sonata”] <ML, Auditory Fine Arts>

8. Answer some things about the family of David, for 10 points each:

[10] This son of David was known for his wisdom and most likely wrote the book of Ecclesiastes. His reign included a visit from the Queen of Sheba and the building of the First Temple of Jerusalem.

ANSWER: **Solomon** [accept **Shlomoh**, accept **Jedidiah**]

[10] Solomon was the son of David and this woman. David married this woman after he spotted her bathing and sent her previous husband, the soldier Uriah the Hittite, to the front lines to die.

ANSWER: **Bathsheba**

[10] The reign of this grandson of David saw the division of his lands into the northern Kingdom of Israel and the southern Kingdom of Judah. This king famously said, "Whereas my father chastised you with whips, so shall I chastise you with scorpions".

ANSWER: **Rehoboam** [accept **Rehav'am**, accept **Rovoam**, accept **Roboam**] <SZ, Religion>

9. Answer some things about the "wisest and justest of all the centaurs," Chiron. For 10 points each:

[10] Chiron was the son of this Titan and the Oceanid Philyra. This Titan ate all his other children except for Zeus, who eventually overthrew him in the Titanomachy.

ANSWER: **Kronos**

[10] Like the other centaurs, Chiron was eventually driven from his home of Mount Pelion in Thessaly by these people. These people fought the centaurs at Pirothous's wedding due to the drunk centaurs abducting the guests.

ANSWER: **lapiths** [accept **lapithae**]

[10] Chiron was killed by one of these objects. In the aftermath, the centaur Pholus picks up one of these objects and wonders how something so small could cause so much death, only to be killed when he drops it on his hoof.

ANSWER: **poisoned arrow** [prompt on **arrow**] <SZ, Mythology>

10. Sometimes, the time changes in unusual ways. For 10 points each:

[10] Due to changes in the Earth's rotation, leap seconds are periodically added to this time standard. It is sometimes conflated with the less precise GMT ["**G-M-T**"].

ANSWER: **Coordinated Universal Time** [accept **UTC**]

[10] The largest time difference across a land border in the world is a 3 and a half hour gap between China and this country, though in practice this country's mountainous Wakhan Corridor makes the border nearly impassable.

ANSWER: **Afghanistan**

[10] A more mundane example of changing time, at least in North America and Europe, is this practice in which clocks are set one hour forward during the summer.

ANSWER: **daylight savings** time [accept **DST**] <SL, Geography>