

**Tiebreakers and Extra Bonuses
Penn Bowl 2016**

Tossups:

LIT: One character in this work takes to living in the woods as a paranoid hermit after his roommate threatens to slit his throat in the middle of the night; that roommate was forced to move around constantly because oil would be discovered wherever he lived. A man in this novel with a transparent eyepatch orders, "Gimme eat" instead of signing a paper, and thus ends the Glorious (*) Loyalty Oath Crusade. The protagonist of this novel censors a letter to read, "I yearn for you tragically. A.T. Tappman," and during a gruesome death in this novel, he says "there, there" as Snowden whispers, "I'm cold." The title clause of this novel states that while only crazy men can get out of flying missions, a man who is afraid to fly a mission is obviously sane. For 10 points, name this novel about Yossarian, by Joseph Heller.

ANSWER: Catch-22

LIT: In one work by this author, Mrs. Ballinger and Miss Van Vluyck try to impress Osric Dane with their knowledge of a concept that Mrs. Roby seems to think is a river. In another work, this author wrote about "two American ladies of ripe but well-cared-for middle age" who talk about their daughters and think about their dead husbands while sitting on a terrace; in that story, a woman who treasures the only letter she ever received from an old lover tries to use (*) knitting to distract herself from memories of an old love triangle. This author wrote about Jenny's mother, Mrs. Slade, who tried to trick Barbara's mother into going to the Colosseum at night in order to catch the title disease. For 10 points, name this author of "Roman Fever" who wrote about Lily Bart's suicide in *The House of Mirth*.

ANSWER: Edith Wharton

HISTORY: The twentieth century Kumul Uprising involved an alliance of the Kuomintang and locals to overthrow the governor of this region, which was immediately followed by an invasion which divided this region in two during the Warlord Era. The Qianlong Emperor's Ten Great Campaigns included military action to "pacify" this region. Those campaigns also included two against the (*) Dzungars for which the northern part of this region is named, while the southern part of this region is notable for containing red-haired Caucasian mummies which spoke Tocharian. This region which contains the Tarim Basin is directly North of Tibet. For 10 points, name this autonomous region of China which contains Urumqi and has recently seen ethnic tensions between the Chinese government and ethnic Uyghurs.

ANSWER: Xinjiang

HISTORY: A 1941 census found the human population of this place to be concentrated almost entirely in its western village, while the rest of the island was overtaken by sheep. The lack of bottle gourd plants in Fiji, Samoa, and Tonga led scholars to revise their working and model and posit that the natives of this place had contact with South Americans. The winner of a competition to collect a sooty tern egg and swim back to this place is called the tangata manu, or (*) "bird man" and has been depicted in this place's "Cannibal Cave". The undecipherable script Rongorongo was included on the contract which supposedly handed this place, which contains Hanga Roa, over to Spain in the eighteenth century. For 10 points, name this island administered by Chile which notably contains moai, or monolithic stone heads.

ANSWER: Easter Island [or Rapa Nui]

SCIENCE: The corkscrew model of these was described in a paper which aimed to discredit the histogen theory and was subtitled "lessons from the crypt". That population of these cells are surrounded by Paneth cells and intercalated columnar cells. Lineages of these cells can be traced by visualizing the polarity of the spectrosome or centrosome in *Drosophila* models. A theory of one type of these stem cells involves migration across an ovary while still retaining ring-canals between the lineage and is followed by a competitive selection mechanism. A series of high profile papers from the (*) Spradling lab brought into question the definition of these cells, especially their supposedly dependent role on niche cells. Populations of these cells undergo asymmetric or symmetric divisions and can be replenished when transit amplifying cells dedifferentiate. For 10 points each, name these undifferentiated progenitor cells which include the embryonic and induced pluripotent types.

ANSWER: stem cells

SCIENCE: The hyperpolarized isotope of this element is used as a contrast agent in magnetic resonance imaging to visualize gas flow through the lung. The trioxide of this element undergoes violent decomposition at only 77 degrees Fahrenheit, making it a highly explosive oxidizing agent in the +6 oxidation state of this element. In fast atom bombardment, atoms of this element are used to create (*) ions in preparation for mass spectrometry. One structure involving this element has two axial unbound electron pairs when this element bonds to four fluorines to form a square planar compound. Discovered only weeks after krypton and neon, this element has an atomic mass of 131 and was named for being “strange”. For 10 points, name this noble gas below krypton on the periodic table, an element with symbol Xe.

ANSWER: xenon

This artist created a parody of *Saturn Devouring His Son* with George W. Bush’s head in place of Saturn’s, and William Gaddis satirized this artist as Mr. Szyrk, whose sculpture trapped a dog inside it, in the novel *A Frolic of His Own*. This sculptor’s wife requested that “people not step on me” due to a public habit of placing footprints on a sculpture dedicated to her, which is shaped like two inverted C’s. This sculptor of an 80-foot-tall heptagon in Qatar named “7” was inspired by a Borromini church to create a sculpture which used computer modeling to design (*) “topological deformations” of curved, oblong walls. This sculptor of *Clara*, *Clara* and *Torqued Ellipses* is more famous for a piece removed from Federal Plaza in New York City after being declared extremely rusted and disruptive to pedestrians. For ten points, name this American minimalist sculptor, known for working with large pieces of sheet metal in pieces like *Tilted Arc*.

ANSWER: Richard Serra

Bonuses:

This character of this work takes it upon herself to act as a matchmaker, but is stymied by her apparent inability to realize when people are actually interested in each other. For 10 points each:

[10] Name this enterprising heroine who convinces her friend Harriet to refuse Robert Martin and tries to push her to marry a clergyman who isn't interested; she eventually acquiesces to Harriet's marriage to Robert after several failed matchmaking attempts and the realization that she herself is in love with an old friend.

ANSWER: Emma Woodhouse [or Miss Woodhouse]

[10] Emma is the eponymous protagonist of a novel by this British author, who also wrote the novels *Persuasion* and *Mansfield Park*.

ANSWER: Jane Austen

[10] This other Austen protagonist is sent to live with her wealthy cousins, and falls in love with the oldest, the only one to treat her well. After the man her uncle wants her to marry has a scandalous affair and the woman her cousin wants to marry turns out to be self-interested and mercenary, the two marry each other at the end of the novel.

ANSWER: Fanny Price (easier hard)

[10] In *Mansfield Park*, Fanny Price's uncle Sir Thomas urges her to marry this man. Fanny's doubts turn out to be justified when his affair with Sir Thomas's married daughter Maria is revealed.

ANSWER: Henry Crawford [accept either underlined part]

This novel's protagonist is marooned on the way to search for her kidnapped daughter, and she ends up on an island with an Englishman and his slave. For 10 points each:

[10] Name this novel about Susan Barton, who encounters the characters Cruso and Friday. Cruso dies during their return trip to England, where Barton searches for a writer to help her write an account of her time on the island.

ANSWER: Foe

[10] *Foe* is by this South African author of *Waiting for the Barbarians*, who wrote about the professor David Lurie in *Disgrace*.

ANSWER: John Matthew Coetzee

[10] This other Coetzee protagonist is an Australian author who wrote a retelling of *Ulysses* from the perspective of Molly Bloom. Characters with this first and last name appear in Coetzee's other works *The Lives of Animals* and *Slow Man*.

ANSWER: Elizabeth Costello

Clauses in this act notably accounted for abolition, education, and transportation infrastructure in its area. For 10 points each:

[10] Name this congressional act, revised in 1789, that created the first organized territory of the United States that spanned from the Great Lakes to the Ohio River.

ANSWER: Northwest Ordinance [or Ordinance of 1787]

[10] Southern states voted in favor of abolition in the Northwest Territory because they did not want economic competition in the realm of this commodity.

ANSWER: tobacco

[10] The Northwest Ordinance was upheld in this Supreme Court case which ruled that three fugitive slaves would be considered under Kentucky law instead of Ohio law.

ANSWER: Strader v. Graham

A political cartoon from this era called the US a "black business". For 10 points each:

[10] Name this era of American history following the Civil War administered under President Grant.

ANSWER: Reconstruction Era

[10] A series of race riots in this state towards the end of Reconstruction in 1876 involved Martin Gary's strategy of suppressing black voters and reclaiming the governor's office from the Republicans.

ANSWER: South Carolina

[10] Reconstruction Era racial violence in Memphis and New Orleans strengthened evidence presented by this faction within the Republican party led by Charles Sumner and Thaddeus Stevens.

ANSWER: Radical Republicans

This chemical element has the highest representative in the Earth's crust in terms of weight. For 10 points each:

[10] Name this 16 atomic mass unit element, which has a namesake evolution reaction that researchers use to understand water splitting.

ANSWER: oxygen

[10] Oxygen-containing minerals include this sheet silicate of black mica which is sometimes called “iron mica” and has elemental sheets bound together by potassium ions, which can be used for potassium-argon dating.

ANSWER: biotite

[10] This other silicate is the most abundant mineral in the crust and consists of aluminosilicates containing potassium, sodium, and calcium.

ANSWER: feldspar

Quantal dose-response curves use histogram-generated data to plot these. For 10 points each:

[10] Name these functions which express the probability that a therapeutic or toxic response is achieved *less than or equal to* a given dosage.

ANSWER: cumulative distribution function

[10] This “total exposure” measure in pharmacology can be approximated by the trapezoid rule since it is the integral of the plasma drug concentration-time curve.

ANSWER: AUC [or area under the curve]

[10] This pharmacological example of diminishing returns can be demonstrated by the ineffective administration of certain mixed agonist-antagonist opioids once the effect reaches this point.

ANSWER: ceiling effect