

# NEW TRIER VARSITY 2009

## EXTRA TOSSUPS



In this novel, two characters are affected by a performance of *Camille*, and Samson D'Arnault gives a piano concert. Earlier, Peter and Pavel recount how they threw a newlywed couple out of a sledge to escape some wolves. The Harling family lives next to the narrator, who works with Otto Fuchs and Jake Marpole and has a fling with Lena Lingard. Earlier, the narrator kills a rattlesnake, saving the title character, who is later rejected by Larry Donovan before marrying Anton Cuzak, another Bohemian immigrant living in Nebraska. Name this novel about the relationship of Jim Burden and a girl with surname Shimerda, a work by Willa Cather.

ANSWER: My *Antonia*

Landau's problems concern these numbers, and include Legendre's conjecture about them. A theorem concerning the modular arithmetic of these numbers is called Fermat's little theorem. It is believed that every even integer greater than two can be expressed as a sum of two of these numbers, a conjecture named for Goldbach. The theorem named for this type of number states that the number of these up to  $x$  can be approximated by the function  $x$  over the natural log of  $x$ , and these numbers remain after applying the Sieve of Erastosthenes. This subset of natural numbers is often contrasted with composite numbers. Name these numbers of which two is the only even one, numbers that are divisible only by one and themselves.

ANSWER: prime numbers [or primes; accept primality]

One character in this novel gets into a fight with Cuff, the school bully, after he has been made fun of since his father is a grocer, when another boy is being hit for breaking a bottle of milk. Two characters leave Miss Pinkerton's Academy with dictionaries in hand, though one character throws it out the window of the coach. That character goes on with the hope of wooing the other's brother Joseph with the hope he will ask her to marry him at Vauxhall, as she has no mother to arrange a marriage for her, Becky Sharp. Name this novel, declared to be "without a hero", by William Makepeace Thackeray.

ANSWER: *Vanity Fair*: *A Novel Without a Hero*

In an AC circuit, inductive reactance is proportional to the product of inductance and this quantity. The quality factor of a resonator is proportional to the product of this quantity with energy stored over power lost. For an inductor-capacitor circuit, one type of this quantity can be found by one over the square root of  $LC$ ; that is the ordinary version multiplied by two pi, which is known as the angular type. This quantity is perceived aurally as pitch, and like wavelength, its perceived value changes as a sound source approaches or recedes from an observer in the Doppler effect. Name this quantity often measured in hertz, the reciprocal of period.

ANSWER: frequency [prompt on lowercase/little f; accept angular frequency; prompt on lowercase/little omega]

The existence of this entity was first postulated by Matthew Maury, though most of it was not discovered until the voyage of the *Challenger*. This structure was likely created during the Triassic period, with its formation playing a role in the splitting of Pangaea. The most notable part of it normally visible today is the Reykjanes (ray-KAHN-es) Ridge, which bisects Iceland. About a thousand miles wide at its widest point, this location is significantly longer than the Andes. Identify this mountain range, most of which can be found about halfway between the Americas and Africa and Europe.

ANSWER: mid-Atlantic ridge

The enzyme that catalyzes this process consists of an iron component and a molybdenum-iron component around an iron-sulfur center. It often takes place in leghemoglobin-containing root nodules, and for every two output molecules, this process consumes sixteen ATPs. In addition to taking place in certain organisms, this reaction can be catalyzed by lightning. It is only able to be conducted by some prokaryotes, such as bacteria in the genus *rhizobium*. Name this reaction that adds hydrogen to produce ammonia from its namesake diatomic gas.

ANSWER: **nitrogen fixation**

This city built a large dike and two aqueducts in the fifteenth century to bring in fresh water, executing the head of a nearby city who objected to the construction. The city was divided into four zones called *campan*, which were further divided into twenty *calpullis* each. In the center of this city lay many of the public buildings, including its Great Temple, which was the site of a massacre in 1520 avenged on La Noche Triste. Eventually, the center of the city was named Traza after it was rebuilt by Spanish conquerors. Name this ancient city built in 1325 in the center of Lake Texcoco and destroyed in 1521 by Hernán Cortés, completing the fall of the Aztec empire.

ANSWER: **Tenochtitlan**

Two works by this man feature Marcel Duchamp in the title, while two literary journals founded by this man are *Taller* (ti-YER) and *El Hijo Pródigo* (el EE-hoh pro-DEE-hoh). He examined contemporary poetry in *The Pears of the Elm* and *The Bow and the Lyre* as well as penning *The Monkey Grammarian*. He also wrote a poem which mentions a river that comes full circle, forever arriving. That same poem includes one line for every day of the Aztec calendar. He is more famous for an essay collection relating to his national identity which claims that self-discovery is the realization that we are alone. Name this author of *Sun Stone* and *The Labyrinth of Solitude*, a Mexican.

ANSWER: Octavio **Paz** Lozano

This man's claim to the throne, based on the Treaty of Wallingford, ended a period sometimes referred to as the Nineteen-Year Winter. His large territory included Cumbria and Northumbria, which he retook from Malcolm IV, and his troops once captured William I of Scotland. His reign was characterized by rebellions against him by his sons, who were assisted by Philip II and Louis VII of France. He was the son of Matilda and the husband of Eleanor of Aquitaine, and two of his sons became Richard I and King John. Name this king under whom four knights in 1170 entered Canterbury Cathedral and murdered Thomas Becket.

ANSWER: **Henry II** Curtmantle

This man explained the relationship between real wages and real profit in his *Theory of Profit*. Robert J. Barro expounded upon this man's theory that it doesn't matter if a government increases taxes or borrows money, previously known as this man's namesake "equivalence". In another work, he formulated a law that concerns one's ability to produce a good at a lower cost than someone else, and he also posited a theory that salaries must meet subsistence levels. Name this Classical British economist whose work *On the Principles of Political Economy and Taxation* advanced the law of comparative advantage and the Iron Law of Wages.

ANSWER: David **Ricardo**

One work by this artist shows four Hebrew words written vertically instead of across; those words are "menei menei, teikel ufarseen". Another work of his was restored after being slashed; it depicts—and is called—*Danaë*. The work with the erroneous Hebrew depicts a scene from the Book of Daniel and is called *Belshazzar's Feast*. His most famous work, showing a group known as the *Arquebusiers*, received its nickname from a dark varnish coating it. Name this artist of *The Anatomy Lesson of Dr. Tulp* and a painting depicting *The Battle Company of Frans Cocq*, popularly known as *The Night Watch*.

ANSWER: **Rembrandt** Harmenszoon **van Rijn** [accept either or both parts]

This entity houses four deer which represent the four winds, and one other resident, Ratatosk, relays gossip between a dragon and a bird. This entity will be destroyed by Surt, and in order to obtain the runes, Odin wounded himself with a spear and hung from this entity for nine days. At the bottom of this lie Hvergelmir and the Well of Fate, and beneath it lie Niflheim, Jotunheim, and Asgard. Name this ash tree that in Norse mythology links and shelters all of the worlds.

ANSWER: Yggdrasil [or World Tree]

The natives of this locale enjoy casu marzu, a cheese riddled with live maggots, as a delicacy, even though consumption of it is banned by EU legislation. Mistrals blowing south from France sweep over this island every winter and spring. Occupied by the Byzantines after the fall of Rome, it became independent for a short time at the end of the sixth century, but was later occupied by the Aragonese in the fifteenth century. It has since become part of Italy, and is now one of Italy's five autonomous regions. Name this island south of Corsica with its capital at Cagliari.

ANSWER: Sardinia

This work's second movement was initially written for a fugato, and is a scherzo, marking a transition from dark to light that is completed in the third movement, which begins with the bassoons and clarinets. The most famous part of this composition is marked *allegro energico, sempre ben marcato*. That movement begins in six-four, going F-sharp F-sharp G A A G F-sharp E in the soprano line. Name this composition whose final movement sets to music a Friedrich Schiller poem that begins "Freude, schöner Götterfunken", called "Ode to Joy", the final symphony of Ludwig van Beethoven.

ANSWER: Ludwig van Beethoven's Symphony No. 9 in D minor, "Choral", Opus 125 [accept any underlined part or obvious equivalents thereof; do not require "Beethoven" after the end]

To prevent this process, objects can be treated with an oil and coated with magnetite, a process called bluing. Acids increase the rate of this process, which was explained by Joseph Priestley. Because aluminum has a higher reduction potential than the products of this process, aluminum foil can be used to remove them. A layer of chromium-three-oxide is responsible for preventing this process on stainless steel, and this process occurs much more rapidly in the presence of salt or water. A type of redox reaction that results in hydrated ferric oxides, name this corrosion process of iron.

ANSWER: rusting of iron [accept word forms; accept answers like "the formation of iron oxides" before the end]