

TJIAT 2006 FINALS

TOSSUP 1

Although he receives a warning when the redcoats' plan goes awry, he dies defenseless because of a stableman's betrayal. A Scotsman, he carries three weapons and wears a velvet coat, French hat, and lace collar. FTP identify this roguish hero of an Alfred Noyes poem who comes "riding, riding" to meet his love, the landlord's daughter Bess.

The Highwayman

BONUS 1

FTPE identify these literary devices.

10: The speaker addresses an absent or inanimate subject.

Apostrophe

10: One entity represents another, or a person, with which it is closely associated.

Metonymy

10: Similar to metonymy [*met-ON-i-mee*], part of a subject is used to represent the whole.

Synecdoche [*sin-EK-do-kee*]

TOSSUP 2

Located in Argentina, it has a population of 50,000. In the early 20th century it was centered around a prison whose inmates became forced colonists. Its name was what the native Yamana people called the area. Near the border of Chile, it is a port on the southern coast of Tierra del Fuego. FTP, name this city which is the southernmost in the world.

Ushuaia (pronounced oo-shoo-AI-ah) (prompt on Tierra del Fuego)

BONUS 2

Identify these South American extremes, FTPE:

10: It is the highest navigable lake in the world and borders Peru and Bolivia.

Lake Titacaca

10: It is the highest mountain in South America, at 22,841 feet.

Mount Aconcagua

10: Located in eastern Argentina, it is the lowest point in South America.

Valdes Peninsula

TOSSUP 3

The main character originally comes from a town used in several of the author's other works, and many of the other characters are believed to be modeled after acquaintances of Paul de Kruif, who co-wrote the book and received one-fourth of the royalties although the book has always been printed as having one author. As the main character develops, the author makes several social commentaries on the state of medicine in America in the 1920s. FTP, identify this novel by Sinclair Lewis that tells the story of the titular doctor.

Arrowsmith

BONUS 3

Identify these other literary doctors, FTPE.

- 10: Often portrayed as a “black man,” this doctor torments the minister Arthur Dimmesdale as punishment for Dimmesdale’s affair with his wife.
Dr. Roger Chillingworth
- 10: The title character of a Pasternak novel, this doctor experiences many horrors of the Bolshevik revolution, including the loss of the love of his life, Lara.
Dr. Zhivago
- 10: The main character of a set of children’s books by Hugh Lofting, this doctor treats animals rather than humans, for he can communicate with them.
Dr. Dolittle

TOSSUP 4

Harry Truman, Doris Day, Red China, Johnie Ray, South Pacific, Walter Winchell, Joe DiMaggio. Joe McCarthy, Richard Nixon, Studebaker, television, North Korea, South Korea, Marilyn Monroe. Rosenbergs, H-bomb, Sugar Ray, Panmunjom, Brando, “The King and I,” and “The Catcher in the Rye.” Eisenhower, vaccine, England’s got a new queen, Marciano Liberace, Santayana, goodbye. FTP, thus begins what Billy Joel song in which the title object “has always been burning since the world’s been turning.”

We Didn’t Start the Fire

BONUS 4

Many other artists have also incorporated totally unrelated items into their songs. FTPE, given a line identify the song. You will receive five if you need the artist.

- 10: “Picture yourself in a boat on a river, with tangerine trees and marmalade skies.”
- 5: The Beatles
Lucy in the Sky With Diamonds
- 10: “Leonid Breshnev, Lenny Bruce and Lester Bangs. Birthday party, cheesecake, jelly bean, boom.”
- 5: R.E.M.
It’s The End of the World as We Know It and I Feel Fine (Prompt on End of the World)
- 10: “A mulatto. An albino. A mosquito. My libido.”
- 5: Nirvana
Smells Like Teen Spirit

TOSSUP 5

This man made an appearance in a 1988 episode of Sesame Street, where he sang “People in Your Neighborhood,” but has since been critical of some of the sponsors of the show. He generally opposes the power of large corporations and has worked for years for environmental and consumer rights, including the publication of his 1965 book attacking the unsafe engineering of many American cars, Unsafe at any Speed. FTP, identify this politician, who ran as the Green Party candidate in the 1996 and 2000 elections.

Ralph Nader

BONUS 5

Identify these third parties from American elections, FTPE.

- 10: Organized in 1840, this party was created with the goal of opposing extension of slavery into the territories, but eventually fizzled out in 1856 with the formation of the Republican Party.
Free-soil Party
- 10: It was named for the paper money issued during the Civil War and was founded to aid farmers after the Panic of 1873.
Greenback Party
- 10: Existing for only the 1912 election, this party ran Theodore Roosevelt as its candidate to oppose the incumbent Taft.
Progressive Party or Bull-Moose Party

TOSSUP 6

It was commemorated in 1875 with the completion of the Hermannsdenkmal, a statue in the city of Detmold. The commander of the Roman forces is said to have taken his own life, following the deaths of 20,000 of his legionnaires at the hands of a confederation of Germanic tribes led by Arminius. For ten points, name this battle that stopped Roman expansion into Germany and set the Rhine as the border between Germany and France.

Battle of Teutoburg Forest (accept Teutoburger Wald)

BONUS 6

FTPE, name these things related to the Battle of Teutoburg Forest.

- 10: The Roman emperor at the time of the battle.
Caesar Augustus (accept Octavian)
- 10: The commander of the Roman army at the battle.
Publius Quinctilius Varus
- 10: The Roman historian who recorded the battle in his /Annals/.
Gaius Cornelius Tacitus

TOSSUP 7

Pencil and paper ready. In a certain computer program, key commands are defined first by pressing two distinct numbers from 0 to 9 in a certain order. Additionally, any combination of control, alt and shift can be used as modifiers. To determine the number of commands possible, first consider the total number of modifiers available, then the total number of base keypresses. FTP, how many key commands are possible? You will have 10 seconds.

720 (8 modifiers, 90 base keypresses)

BONUS 7

FTPE solve the following related to combinatorics.

- 10: If a license plate is composed of four distinct digits, how many plates are possible? You will have 10 seconds.
5040
- 10: If a license plate is composed of two distinct letters, how many plates are possible? You will have 10 seconds.
650
- 10: If a license plate is composed of a letter and a digit in any order, how many plates are possible? You will have 10 seconds.
520

TOSSUP 8

She's not Athena, but in one version of her story she is born fully formed from the body of her father. She's not Aphrodite, but another account states that she arose from the sea foam and was considered the personification of beauty. A deity of light and good luck, she took a special interest in brides, and her avatars Radha and Sita were renowned for their faithfulness to Krishna and Rama, the avatars of her beloved. FTP, name this Indian goddess, the consort of Vishnu.

Lakshmi

BONUS 8

Identify these other Hindu Gods and Goddesses FTPE, or for five points if you need an easier clue.

- 10: His name means "one who purifies everyone by the utterance of his name."
5: He is commonly known in western texts as the destroyer.
Shiva or Siva
- 10: In Hinduism, he is usually depicted with four heads.
5: He is revered as the creator God.
Brahma
- 10: She is one of the consorts of Shiva, and her name means "Black Female."
5: She is often seen as the Hindu mother-goddess or the goddess of death.
Kali

TOSSUP 9

His most recent novel, Crabwalk, is about the sinking of the German liner Wilhelm Gustloff, which was evacuating his home city of Danzig during World War II, by a Soviet submarine. His work is characteristic of the modern German writing style of Vergangenheitsbewältigung [*fair-gang-en-HITES-be-VAILT-ig-ung*], or "coming to terms with the past" He was author of the Danzig Trilogy, written about the rise of Nazism in East Prussia. FTPE name this German author of post-World War II.

Gunter Grass

BONUS 9

FTPE name the three books in The Danziger Trilogy by Gunter Grass.

The Tin Drum
Cat and Mouse
Dog Years

TOSSUP 10

Pencil and paper ready. Decane is unique in that the total number of possible structural isomers for this compound is equal to the sum of the isomers of all alkanes with fewer carbons than itself. In order to find the number of structural isomers of decane, it may help to know that multiple isomers only occur in alkanes of four or more carbons, and that nonane has 35 isomers, octane has 18, and heptane has 9. FTP, how many structural isomers are there for decane? You will have 10 seconds.

75 isomers

BONUS 10

Answer the following about isomerism, FTSNOP:

- 10: Isomerism was first discovered in 1825 by Friedrich Wohler, in two compounds, both with chemical formula HCNO, but with vastly different properties. Name one of them.

Cyanic Acid or Fulminic Acid

- 5-5: For five points apiece, name the two most common forms of stereoisomerism. One means two like functional groups are on one side of a bond, while the other means opposite.

Cis and Trans (accept Z and E, but no mixing of the two combos)

- 10: Another subclass of stereoisomers, this type of isomer means that the two structures are mirror images of each other, and are also known as chiral molecules.

Optical Isomers; or Enantiomers

TOSSUP 11

He was born in Venice and spent much of his childhood touring the city with his father, a former barber and professional violinist. He suffered from asthma, which led to him ending his short-lived priesthood and becoming a Maestro at the Pio Ospedale della Pietà, an orphanage for illegitimate daughters of rich lords, and much of his work was inspired by his experiences there. FTP, identify this baroque composer known as the "Red Priest" and famous for his "The Four Seasons."

Antonio Vivaldi

BONUS 11

Another composer wrote a piece entitled "The Four Seasons," although four centuries later. FTPE:

- 10: Who is this composer, famous for his work in modernizing tango music?

Astor Piazzolla

- 10: Piazzolla's first major piece was a symphony named for what capital of Argentina?

Buenos Aires

- 10: Piazzolla was famous for his incorporation of what instrument, similar to the accordion, but having buttons on both sides, corresponding to different notes for opening and closing the bellows?

Bandonea

TOSSUP 12

The original article that described the effect of these was initially rejected because it did not actually mention the particles themselves. The best estimate for the mass of these particles is between 117 and 251 Giga-electron-volts, but current technology cannot measure particles so large, a problem that many anticipate will be solved by the construction of the Large Hadron Collider at CERN. FTP, name this theoretical elementary particle, which, as theorized by their namesake, give mass to other particles.

Higgs boson

BONUS 12

Tell whether each of the following is true for Bosons, Fermions, both, or neither, FTPE.

10: They are governed by the Pauli Exclusion Principle.

Fermions

10: They follow Maxwell-Boltzmann statistics.

Neither

10: Contains the particles that govern the electromagnetic and weak nuclear forces.

Bosons

TOSSUP 13

During the battle itself, both sides were caught with most of their forces away from the battlefield at the beginning due to the lack of intelligence about the enemy; one side thought the other was actually assembling at Aleppo. Both sides suffered serious losses, but claimed the battle as a success; Egypt lost its Ra and Amon divisions, and the Hittites lost nearly all their chariots. FTP, identify this early 13th century BCE battle where Pharaoh Rameses II of Egypt was almost killed by the Hittite King Muwatallis [*moo-wah-tah-liss*].

Battle of Kadesh

BONUS 13

FTPE, name these ancient Egyptian pharaohs.

10: This Pharaoh, also named Cheops, ordered the construction of the Great Pyramid which bears his name.

Khufu

10: He won the Battle of Megiddo, annihilating the tribes of Canaan, and also was the successor to his stepmother Hatshepsut.

Thutmose III

10: Building his capital at Amarna and changing the Egyptian state religion to reflect his personal worship of Aten were some of the major landmarks of this pharaoh's reign.

Akhenaten (accept Amenhotep IV)

TOSSUP 14

This Supreme Court case was perhaps more unusual than many others, in part because of an anonymous writer who noted that it could not be cited as precedent for future cases. Scalia, Thomas, and Rehnquist concurred, while four other justices dissented, leaving Kennedy and O'Connor the only writers of the "per curiam decision." FTP identify this heatedly controversial case, that resulted in the termination of the ballot counting in Florida after the 2000 election.

Bush v. Gore

BONUS 14

FTPE, name these chief justices of the Supreme Court.

- 10: Born on the same day as Jimmy Carter, he was preceded by Warren E. Burger, and served as the assistant attorney general under Nixon.

William Rehnquist

- 10: He was the only president to go on to serve on the Supreme Court.

William Howard Taft

- 10: He served as the Secretary of the Treasury under Lincoln, and was the only chief justice ever to be elected into the senate on the Free Soil party.

Salmon P. Chase

TOSSUP 15

The title comes from William Butler Yeats' poem "The Second Coming" Usually compared to a Greek tragedy in Western culture, it presents a counterpoint to the traditional view of African culture as unorganized and barbaric. In it, Okonkwo, a leader of his tribe, is exiled from his village and returns to face colonialism and Christianity. FTP, name this seminal novel by Chinua Achebe.

Things Fall Apart

BONUS 15

FTPE, answer the following related to Chinua Achebe.

- 10: This sequel to Things Fall Apart follows Okonkwo's grandson as he faces trial for accepting a bribe.

No Longer at Ease

- 10: Achebe took the title for No Longer At Ease from the closing lines of his T.S. Eliot poem, which chronicles the trek of the three wise men to see Jesus.

The Journey of the Magi

- 10: Achebe is a member of this African tribe, which broke away from Nigeria in 1967, forming the nation of Biafra.

Igbo or Ibo

TOSSUP 16

The turbulent sky mirrors the positions of the figures in the foreground, whose elongated bodies frame a supposedly mythological landscape. The city in the background, despite a proportionally inaccurate horse, is obviously not Troy, but rather the artist's beloved Toledo [*Tow-LAY-doe*]. FTP name this only surviving mythological painting of El Greco that depicts a doomed Trojan priest, his sons, and a couple of snakes.

Laocoon [*Lay-AWK-oo-on*] (Do not accept Laocoon and his Sons)

BONUS 16

Answer these questions about El Greco's era and works FTPE.

- 10: El Greco was the chief exponent of this transitional style of art that bridged the High Renaissance and Baroque periods.
Mannerism or Mannerist
- 10: El Greco's acknowledged masterwork is this altarpiece that juxtaposes a heavenly landscape with an earthly scene of mourning.
The Burial of Count Orgaz or El entieramiento del Conde de Orgaz
- 10: Many of El Greco's works can be found at this seminal art museum of Spain, along with the world's finest collections of Diego Velázquez and Francisco Goya.
El Museo del Prado

TOSSUP 17

At the beginning of his reign, he was forced to repel an attack on Greece made by Robert Guiscard and his son, Bohemund. Later in life, his main focus was the battle against the Seljuk Turks and the increasing heresy in his empire. His life is best known to the people of the 21st century because of the writings of his daughter, Anna Comnena. FTP name this Byzantine Emperor, who presided over the Byzantines during the First Crusade.

Emperor Alexius I Comnenus (prompt on Alexius Comnenus)

BONUS 17

Name these other Crusade-era Byzantine Emperors FTPE.

- 10: Alexius' son, he recaptured Antioch and was known as "the Beautiful"
Emperor John II Comnenus (accept John Comnenus)
- 10: John's son, he is best known for his Italian campaign and the defeat of the Byzantines at Myrioccephalum.
Emperor Manuel I Comnenus (accept Manuel Comnenus)
- 10: The last of the Comneni Emperors, he was Emperor during the Third Crusade.
Emperor Andronicus I Comnenus (accept Andronicus Comnenus)

TOSSUP 18

They were first discovered by James Gregory, and the theorem they share their name with describes the conditions where they exist. The error found in using one of these as an estimate is bounded by the Lagrange error, and these functions show that the value of a function at any point can be determined given only the value of the function and its derivatives at just one point. When they are centered on the origin, they are called Maclauren series. FTP identify these function expansions, which are used in math and physics as polynomial approximation for many functions.

Taylor Series

BONUS 18

FTPE given the first few terms of a Maclauren series, give the function most commonly associated with that series.

10: $\frac{1 + x + x^2 + x^3 + x^4}{1/(1-x)}$

10: $\frac{1 - x^2/2 + x^4/24 - x^6/720}{\cos(x)}$

10: $\frac{1 + x + x^2/2 + x^3/6 + x^4/24}{e^x}$

TOSSUP 19

In electric eels, its two components are split to produce electricity and then reformed with energy from ATP. In humans, it is released from the midbrain and stimulates the thalamus to produce feelings of wakefulness, even during REM sleep. Myasthenia gravis results when antibodies block its receptors, and it triggers the release of calcium ions upon crossing the synapse, where it is degraded by a namesake enzyme. FTP, identify this major neurotransmitter necessary for muscle contraction.

Acetylcholine

BONUS 19

FTPE answer the following about muscle cells.

10: What is the functional unit of a muscle cell?

Sarcomere

10: This thin protein filament is found in the I band of the sarcomere.

Actin

10: This thick protein filament is located in the A band and binds to its partner at the edges of the H zone.

Myosin

TOSSUP 20

The name was suggested by William Golding, and James Kirchner described five variations, including Influential, Teleological, and Optimizing. Though it was originally criticized as unscientific and mystical, its developer James Lovelock substantiated it with the quantitative Daisyworld model. FTP, identify this concept of a self-regulatory earth system influenced by the biota, named for a Greek goddess.

Gaia hypothesis (or Gaia theory)

BONUS 20

FTPE, answer the following about the formation of the solar system.

10: The solar system began as one of these, a flattened, rotating structure of gas and dust that gathers around a new star.

Accretion disk or solar nebula

10: This pattern, described by various German astronomers in the 1700s, describes the regular spacing of the planets and predicted the location of Neptune.

Bode's Rule or Bode's Law

10: These pieces of rock and metal coalesced to form protoplanets; some remain in the asteroid belt.

Planetesimals

