

Cardinal Classic XIII: The Legend of Zwarte Piet
Round 9

Tossups by Texas A&M

1. Originally written as the second movement of a 1936 quartet, it is constructed out of a single theme. The violins open playing lyrically and emotionally until other groups of strings gradually take the theme into a stirring climax. After a brief pause, the theme returns quietly to conclude the work. Played at the funerals of JFK and FDR, FTP, identify this piece, whose choral version, *Agnus Dei*, was featured in the movie *Platoon*, a poetic orchestral work by Samuel Barber.

Answer: Adagio for Strings

2. Although developed by Harvard doctors Rick and Pincus, the 1956 clinical trials of what would eventually be marketed as Enovid were conducted in Puerto Rico because the drug was illegal in Massachusetts. Based on Rock's observation that women given progesterone for infertility became pregnant only after treatment was stopped, this is, FTP, what form of therapy which almost led to Rock's excommunication from the Roman Catholic church for developing a discrete, non-surgical form of contraception?

Answer: birth control pills or oral contraceptive pills or simply the pill

3. When certain chemical signals bind to the surface of a cell, the production of this molecule may be stimulated. It then diffuses into the cytoplasm and activates enzymes, such as those that increase protein synthesis. Like calcium ions, its effect is rapid and short, as it is quickly degraded. Its isolation secured the 1971 Nobel Prize in Physiology or Medicine for Earl Sutherland. FTP, identify this secondary messenger, produced from ATP by adenylyl cyclase.

Answer: cyclic Adenosine MonoPhosphate

4. The critical temperatures of this phenomenon are found at two-sevenths the quotient of bandgap and coherence length, and in August 2002, magnesium diboride was found to have the highest critical temperature yet observed for the second variety of this property. Occurring when electrons close to the Fermi level couple with the crystal lattice of the substance, this second type is characterized by a Vortex state and a mixed-Meissner effect. Explained by the BCS theory and originally observed by Kemmerlingh-Onnes, FTP name this effect in which a substance loses all electric resistivity.

Answer: Superconductivity

5. The narrator would rather take apart dolls than play with them. The protagonist is continually taunted by her classmates and is considered ugly by her mother Pauline. Later in the novel, the protagonist is raped by her father, Cholly, and is ostracized after she miscarries the resulting pregnancy. Only in the psychosis brought on by abuse does she believe she has acquired the physical trait for which she longs. Centering on Pecola Breedlove, FTP identify this 1970 novel by Toni Morrison.

Answer: The Bluest Eye

6. Its unique animal life includes the nerpa seal, omul salmon, and golomyanka fish. An 1862 earthquake created the Proval Bay and its only outflow is the Angara River, a tributary of the Yenisey. Rivers that flow into it include the Chikoy, Uda, and Selenga and cities on its shorelines include Listvyanka and Goryachinsk. Located in the republic of Buryatia and Irkutsk oblast, FTP, name this lake located 50 miles from Mongolia, the world's deepest and largest.

Answer: Lake Baykal [BUY-call]

7. It includes learning the "rule of conservation": that a material does not change in quantity when its shape is changed. It includes the ability to think in terms of abstract concepts such as relationships and numbers, allowing one to deal with the observable world. Although some never proceed beyond it, it normally ends at age twelve. For 10 points, name this third of Piaget's stages of cognitive development.

Answer: concrete operational stage (or concrete operations)

8. Also known as Kottavei, she has four arms; her left hands hold a bloody sword and the severed head of a demon. Dismembered arms form her belt, children's corpses her earrings, and human skulls her necklace. Worshipped by an infamous cult, eliminated by William Sleeman, that was known for murdering by strangulation, FTP, name this black Hindu mother goddess, the consort of Shiva.

Answer: Kali

9. Commemorated by eating dairy products, often the temple is decorated for the "Day of the First Fruits." Celebrated with a vigil to compensate for the negligence of the Jews who overslept the day God visited Mount Sinai, it is associated with the giving of the Ten Commandments and the Book of Ruth is traditionally read. Celebrated on 6 Sivan, 7 weeks after the Passover sheaf offering. FTP, name this Jewish holiday that is alternately called the Festival of the Weeks.

Answer: Hag Shavuot (Prompt: Festival of the weeks)

10. Based on the James Thompson poem, "The Seasons," and an incident about which the artist read, this work was completed and is currently held in the Boston Museum of Fine Arts, though it was once owned by John Ruskin. Ruskin, in part, describes it: "Purple and blue, the lurid shadows of the hollow breakers are cast upon the mist of night" as the title object "labours amidst the lightning of the sea." Sunlight peeks through intense cloudiness in the center while in the bottom-left sharks devour jetsam. FTP, name this J.M.W. Turner work about a troubled ship with cargo from Africa.

Answer: The Slave Ship or Slaves Throwing Overboard the Dead and Dying—Typhoon Coming On

11. A corporate attorney, he became president of the Pullman Car Company after Pullman's death and also served as director for the Commonwealth Edison Company and the Chicago Telephone Company. A commissioned captain under General Grant, he was present at the Appomattox Courthouse surrender. He served as minister to Britain under Benjamin Harrison and as Secretary of War under James A. Garfield and Chester A. Arthur. Present at three presidential assassinations, FTP, name this man, the only one of his brothers to live to adulthood, son of Abraham Lincoln.

Answer: Robert Todd Lincoln

12. Objects within it can be divided into Hirayama Families by observing the object distribution as a function of major semiaxis and orbital inclination. Because of the relative closeness of other stellar objects and resonance, regions of empty space called Kirkwood gaps, are found within it and its initial discovery was seen as confirmation of Bode's law. Home to objects such as Juno, Pallas, and Ceres, FTP, identify this region between Mars and Jupiter.

Answer: asteroid belt

13. Given a specific case, congruence methods may be used to determine its number of solutions, but a method to determine a general solution, as was sought in the tenth Hilbert problem, is not available. Proved to be not solvable in the general case by Julia Robinson, these are, FTP, what set of equations in which only integer solutions are allowed and which are named for ancient mathematician?

Answer: Diophantine equations

14. First published in such magazines as *Others*, *Poetry*, and *The Egoist*, her first book of poetry, *Poems*, was published without her knowledge by H.D. and Bryher. She called her poems "imaginary gardens with real toads in them," and her 1951 collection *Collected Poems* won a Pulitzer. Often using quotation marks and footnotes in her poems, she wrote in regular lines where rhymes often occurred in the middle of words or on unstressed syllables. FTP, identify this American poet famous for saying that "I, too, dislike it" in her famous poem "Poetry."

Answer: Marianne Moore

15. He got his first start at Kyle Field in 1999 and finished his career in 2003 with a lifetime record of 40-12, placing him second in victories in school history behind Bobby Layne. A product of Ramapo High School, his reputation as a choker was only enhanced during a 2001 loss to Colorado in which he committed four turnovers in the first half. Embroiled in a quarterback controversy for much of his career with Major Applewhite, FTP name this University of Texas quarterback and son of a Giants Super bowl MVP.

Answer: Chris Simms

16. The protagonist's mother wants him to become a priest, but his father wants him to become a cowboy. The father is a friend of Narciso, the town drunk, whose death the young Antonio witnesses. Antonio struggles to reconcile his Catholic beliefs with the world and the powers of his friend the curandera. After the curandera comes to live with his family, he learns how she heals people with herbs and folklore. FTP, name this coming of age novel by Rudolpho Anaya.

Answer: Bless Me Ultima

17. There were supposedly forty of them, but only a handful were preserved in Aristotle's *Physics*. A notable use of *reductio ad absurdum*, they were used against opponents of Parmenides. One involves a stadium, and another uses an arrow, but Achilles and the tortoise is the most famous example of, FTP, what arguments against motion by a certain Eleatic philosopher?

Answer: Zeno's paradoxes

18. The Duchess of Berwick goes to warn her friend Margaret that her husband may be having an affair. Later that evening at a ball, Margaret is lavished with attention by Lord Darlington, who persuades her to leave her seemingly unfaithful husband. Mrs. Erlynne discovers this from her fiancé, Lord Augustus Lorton, and reveals herself as Margaret's long-lost mother who made the same mistake years earlier. A possession of Margaret's which she left in Darlington's apartments is the title object of, FTP, what Oscar Wilde play?

Answer: Lady Windermere's Fan

19. The subject of a failed parliamentary act submitted by Thomas Attwood, it was the inspiration for riots in Birmingham and an armed uprising in Newport. Began in response to 1834's Poor Act, in 1842 three million signatures were collected by Feargus O'Connor for its failed second parliamentary petition. Named for a bill drafted by William Lovett, FTP name this 19th-century British movement that called for electoral and parliamentary reforms.

Answer: Chartism or Chartist

20. The issue over which Hildebrand was called to settle a dispute over appropriateness of Patarine action in Milan, the Roman Synod of 1075 addressed the issue, but it was not formally settled until the 4th Lateran Council. At the Concordat of Worms, Holy Roman Emperor Henry V, unlike his predecessor, was able to reach a lasting compromise over the issue with Pope Calixtus II. Concerning the question of who has the right to fill clerical appointments, FTP name this controversy over which Henry IV repented in the snow at Canossa.

Answer: Lay Investiture

21. Founded in 1941, in 1966 a military junta purged its founders. In 1963 its members came to power in neighboring Arab nations, but the party was characterized by factionalism between "progressives" and "nationalists" until 1970. By that year Abd al-Salem Arif and Hafiz al-Assad had gained control of the nations and stabilized the party. Translating from the Arabic as Renaissance FTP name this political party that controls both Syria and Iraq.

Answer: Ba'ath or Arab Socialist Ba'th Party

22. At the end of this novel, Colonel Julyan agrees with the coroner's verdict of suicide. Doctor Baker further confirms this by explaining he had diagnosed a "Mrs. Danvers" with advanced stage cancer on the day of the title character's death. The narrator is not upset by the revelation by her husband that he had actually killed his first wife and arranged it to appear as a suicide. FTP, identify this novel which ends with Manderley burning down, a work by Daphne du Maurier which revolves around Mr. de Winter and his titular dead wife.

Answer: Rebecca

23. Formed in 1967 when the lead singer of the Enemies enlisted help from a former member of the Rondells, they took their name from an Australian expression. Scoring hits from songs written by Randy Newman and Hoyt Axton, "One" from the band's self-titled 1969 album became its first Top Ten hit and their final hit was 1974's "The Show Must Go On." A trio consisting of Danny Hutton, Chuck Negron, and Cory Wells, FTP name this band whose hits include: "Mama Told Me Not to Come" and "Joy to the World."

Answer: Three Dog Night

Bonuses by Texas A&M

1. As each of four possible molecules of oxygen binds to hemoglobin, it changes from the taut to the relaxed conformation and the affinity for each additional molecule increases. Name the following:

[10] 1. What is the name for this phenomenon, in which conformational changes in one subunit of a molecule are transmitted to other subunits and affect their affinity for a substrate?

Answer: cooperativity

[10] 2. What is the name given to agents such as protons, CO₂, and 2,3-DPG that change hemoglobin's affinity for oxygen?

Answer: allosteric effectors (prompt on "effectors")

[10] 3. Unlike myoglobin, the tetrameric structure of hemoglobin means hemoglobin will have an oxygen dissociation curve of this shape.

Answer: sigmoidal

2. Answer the following concerning the Four Noble Truths of Buddhism:

[10] 1. The first noble truth is the recognition of the universality of this doctrine, caused by tanha or thirst according to the second noble truth; it holds that all life is suffering.

Answer: Dukka

[10] 2. According to the third noble truth, suffering and thirst only end with the attainment of this state.

Answer: Nirvana

[10] 3. The fourth noble truth, it is the means to the attainment of nirvana.

Answer: the eightfold-path or astangika-marga

3. Answer the following concerning a scientific effect:

[10] 1. This effect occurs when an atom with an electron vacancy in the innermost shell moves to a more stable state by ejecting one or more electrons.

Answer: Auger Effect

[10] 2. A colleague of Otto Hahn, this woman was actually the first to describe the Auger effect. She won the Fermi award in 1966 for work that led to the discovery of uranium fission.

Answer: Lise Meitner

[10] 3. A process in which the vacancy is in the innermost electron shell and the relaxing and ejected electron come from the second-innermost shell is named by these three letters, representing those layers.

Answer: KLL process

4. Answer these questions about mythical weddings:

[05,05] 1. This bride and groom, whose wedding was attended by all the gods, received armor from Hephaestus and immortal horses from Poseidon. They later became the parents of Achilles.

Answer: Peleus and Thetis

[10] 2. The wedding of Peleus and Thetis was interrupted when this goddess, angry at not being invited, tossed in an apple with the inscription "for the fairest," inciting a jealous riot among the goddesses.

Answer: Eris

[05,05] 3. The god Hymen attended this couple's wedding, but he could bring them only tears, not good omens—perhaps because she was soon to die by snakebite.

Answer: Orpheus and Eurydice

5. Identify each of the following types of chemical bonds.

[05] 1. A weak attracting force, not actually a bond, that forms when certain very electronegative atoms associate. Water's high surface tension is in part because of these bonds.

Answer: hydrogen bonds

[05] 2. Formed by a dehydration synthesis reaction, these bonds link amino acids.

Answer: peptide bonds

[10] 3. A type of covalent bond, this is the link that forms between two monosaccharides.

Answer: glycoside bond

[10] 4. A bond where the involved valence electrons are free to move around and be shared by the atoms through a lattice.

Answer: metallic bond

6. Answer the following concerning history and geography:

[10] 1. This Italian region lies along the Tyrrhenian and Ligurian Seas and includes the cities of Pisa and Siena. It takes its name from the pre-Roman civilization that ruled the area.

Answer: Tuscany

[10] 2. The capital of Tuscany is this city. Historically it was the site of the Ciompi Revolt and Pazzi Conspiracy.

Answer: Florence

[10] 3. The Duke of Lorraine, the future Holy Roman Emperor Francis I, was promised the succession to the Grand Duchy of Tuscany after the death of its last Medici ruler via the Treaty of Vienna, which ended this war.

Answer: War of Polish Succession

7. FTPE, answer the following concerning minimum spanning tree algorithms:

[10] 1. This algorithm to find a minimum spanning tree starts with the cheapest edge and sequentially adds the cheapest available edge until each vertex is visited.

Answer: Kruskal's Algorithm

[10] 2. This algorithm starts with any vertex and chooses the cheapest edge off that vertex. It then considers all available edges off the two vertices and continues until all vertices have been visited.

Answer: Prim's Algorithm

[10] 3. Assuming a graph of n edges and vertices, both Kruskal's and Prim's algorithm have this time complexity.

Answer: $O(n \log n)$

8. Answer the following concerning the Persian Wars:

[10] 1. The Greco-Persian hostilities began with the first Persian invasion of 490 BC that was thwarted at the battle of Marathon and ended by this treaty of 449 BC.

Answer: Peace of Callias

[10] 2. Encouraged by his brother-in-law Mardonis, this Persian emperor invaded Greece before being driven out following the Battle of Plataea. He was eventually murdered by his minister Artabanus.

Answer: Xerxes I

[10] 3. The fall of Xerxes began the decline of this Persian dynasty which was originally founded by Cambyses II.

Answer: Achaemenid

9. FTPE, name the following concerning a legislative act:

[10] 1. Passed in 1867 over presidential veto, it was ruled unconstitutional by the Supreme Court in 1926 in *Meyers v. US*.

Answer: Tenure of Office Act

[10] 2. In defiance of the Tenure of Office Act, the dismissal of this Secretary of War led to impeachment of President Andrew Johnson.

Answer: Edwin M. Stanton

[10] 3. Johnson was defended in the senate by this former Supreme Court Justice who had dissented in the *Dred Scott* decision. He resigned from the court due to an argument with Taney over the merits of *Dred Scott*.

Answer: Benjamin Curtis

10. Name the following portraits:

[10] 1. This 1884 work by John Singer Sargent features a lady with a purplish complexion in a black evening gown.

Answer: Madame X (Madame Pierre Gautreau)

[10] 2. A 1770 work by Thomas Gainsborough, the subject of this colorful portrait is thought to be Jonathan Buttall.

Answer: Blue Boy

[10] 3. By Joshua Reynolds, this portrait's subject is suspected to be Reynold's niece Theophila Gwatkin or Lady Anne Spencer. The portrait shows a young girl clutching a cloth container of the titular food.

Answer: Strawberry Girl

11. FTPE, identify each of the following Sean O'Casey plays.

[10] 1. This play, O'Casey's masterpiece, concerns Captain Jack Boyle and his wife, who desperately tries to keep the family together despite poverty, war, and the Captain's perpetual drunkenness.

Answer: *Juno and the Paycock*

[10] 2. This play, set in the Dublin slums, concerns Donal Davoren, whose neighbors think him to be an IRA hero.

Answer: The Shadow of a Gunman

[10] 3. This play, whose second act includes chants and a dance movement, concerns the horrors of World War I.

Answer: The Silver Tassie

12. Identify each of the following about recently erupting volcanoes.

[10] 1. The Soufriere Hills volcano on this island began erupting in 1995 and forced the evacuation of its capital, Plymouth. The island is now promoting the volcano as an adventure tourist attraction.

Answer: Montserrat

[10] 2. The volcano on this Italian island north of Sicily caused a tidal wave that forced a third of the island's residents to evacuate in late December 2002.

Answer: Stromboli

[10] 3. A volcano near Antigua in this Central American country erupted in 1999. It began erupting again in January 2002.

Answer: Guatemala

13. Given a pair of roles, identify the actor who won Oscars for the two portrayals, 5 point bonus for all correct.

[05] 1. Alonzo Harris, Private Trip

Answer: Denzel Washington (accept either name)

[05] 2. Vito Corleone, Jake La Motta

Answer: Robert DeNiro

[05] 3. Garrett Breedlove, Melvin Udall

Answer: Jack Nicholson

[05] 4. Verbal Kint, Lester Burnham

Answer: Kevin Spacey

[05] 5. Jimmy Doyle, Bill Daggett

Answer: Gene Hackman

14. Identify each of the following works of Norman Mailer

[10] 1. He drew upon his combat experience in the Philippines for this, his first novel.

Answer: The Naked and the Dead

[10] 2. His second novel drew upon his civilian work experience and depicted the corruption of values in Hollywood. Name it.

Answer: The Deer Park

[10] 3. Mailer wrote this work, about the life and death of convicted killer Gary Gilmore, in 1979.

Answer: The Executioner's Song

15. Identify each of the following Nathaniel Hawthorne short stories:

[05] 1. The title character, Beatrice, is killed by the antidote designed to counteract the poison flowing through her veins.

Answer: Rappaccini's Daughter

[05] 2. The title character kisses his wife, Faith, and then embarks on a strange journey through a haunted forest, which ends at a witches' meeting.

Answer: Young Goodman Brown

[10] 3. The title object, worn by Father Hooper, represents the sin we try to hide from God.

Answer: The Minister's Black Veil

[10] 4. After the two are wounded and left as the sole survivors in an Indian battle, the title character in this story begs his future son-in-law, Reuben, to leave him to die in the wilderness so that Reuben, himself, may live.

Answer: Roger Malvin's Burial

16. Identify each of the following about George Eliot female characters.

[10] 1. This novel contrasts Mirah Cohen, a poor Jewish girl, with upper-class Gwendolen Harleth.

Answer: Daniel Deronda

[10] 2. Wooed by Adam Bede, she gets pregnant by Captain Arthur Donnithorne. She later kills her child.

Answer: Hetty Sorrel (accept either name)

[10] 3. This Middlemarch character marries the cold scholar Edward Casaubon but falls in love with Will Landislaw after Casaubon's death.

Answer: Dorothea Brooke (accept either name)

17. Name the following concerning a British general:

[10] 1. A member of the Corps of Royal Engineers, he volunteered in the Second Opium War, and earned his nickname for his exploits while in the Orient. He was later in the al-Mahdi's Siege of Khartoum.

Answer: Charles George "Chinese" Gordon

[10] 2. "Chinese" Gordon organized the Ever Victorious Army to defend Nanking against this rebellion against the Manchu dynasty, led by Hong Xu Quan (hung shu chwan).

Answer: Taiping Rebellion

[10] 3. "Chinese" Gordon first distinguished himself for his bravery in the 11-month siege of this Russian-controlled port on the Black Sea during the Crimean War.

Answer: Sevastopol

18. Answer the following about the Italian Unification movement:

[10] 1. This man's newspaper, *Il Risorgimento*, was the champion of Italian unification and reform. In 1861 he became the first prime minister of the new nation.

Answer: Camillo Benso, count of Cavour

[10] 2. The king of Sardinia-Piedmont following a return from exile, Cavour convinced him in 1848 to wage war against Austria. Following his defeat, he exiled himself to Portugal and abdicated in favor of his son, Victor Emmanuel II.

Answer: Charles Albert

[10] 3. In this battle, Napoleon III and Victor Emmanuel defeated Austria under Franz Joseph. The heavy casualties led Austria to cede Lombardy and further the move towards unification.

Answer: Battle of Solferino

19. Identify each of the following about a writer.

[10] 1. This Swedish writer's first play was *Master Olof*, but he is also known for *To Damascus* and *The Ghost Sonata*.

Answer: August Strindberg

[10] 2. This play's only minor character is Kirsten, the cook. At the end the title character commits suicide rather than face up to the consequences of her strange evening.

Answer: Miss Julie

[10] 3. This play of short scenes traces the daughter of the Indian god Indra and her search for happiness.

Answer: *The (or A) Dream Play*

20. Answer the following about desegregation crises in the South:

[05] 1. This army veteran won the right in court in 1961 to register at Ole Miss; President Kennedy ordered Federal Marshals to protect him.

Answer: James Meredith

[05] 2. President Eisenhower had to send federal troops to escort the Little Rock Nine who had won the right to attend this high school.

Answer: Central High School

[10,10] 3. These two men, governors of Mississippi and Arkansas, attempted to prevent Meredith and the Little Rock Nine from attending classes.

Answer: Ross Barnet, Orval Faubus

21. For 10 points each-name these things concerning Giffen goods:

[10] A Giffen good is a special case of this type of good whose demand falls as income rises.

Answer: inferior good

[10] Demand for Giffen goods increases as *price* increases because this effect outweighs the income effect.

Answer: substitution effect

[10] The idea of a Giffen good was first introduced in this standard text by Alfred Marshall.

Answer: Principles of Economics

22. Answer the following concerning TV themes that hit the pop charts:

[10] 1. In 1981 the theme song to this William Katt show, performed by Joey Scarbury, hit #2.

Answer: Greatest American Hero

[10] 2. In 1985 the instrumental theme from Miami Vice, performed by this Czechoslovakian jazz fusion artist, hit #1.

Answer: Jan Hammer

[10] 3. In 1995, the Rembrandts extended the original 42-second theme clip into this full-length song. It hit #1 seven weeks after its show's pilot premiered.

Answer: I'll be there for you

23. Answer the following concerning a meteorological phenomenon:

[10] 1. A strong localized downdraft less than 4 km wide that occurs beneath a thunderstorm, this phenomenon was discovered in 1974 by Fujita.

Answer: Microburst

[10] 2. Microbursts typically occur at this boundary that separates the cold air of a thunderstorm from warm surface air. It resembles a cold front.

Answer: Gust Front

[10] 3. Microbursts are often accompanied by this other phenomenon, a sudden change in the speed and direction of wind. It has been responsible for several aircraft crashes.

Answer: Windshear

24. 30-20-10 Name the Composer from Works:

30: The cantata *Velléda*; The tribute *la Plainte, au loin, du faune*

20: The Ballet *La Péri*; The opera *Ariadne and Bluebeard*

10: *Sorcerer's Apprentice*

Answer: Paul Dukas