

### Tossups

1. The opening season of the Lyric Opera of Chicago featured a prominent performance of this opera by Maria Callas, who gave a defining performance of the cabaletta "Ah! bello a me ritorna." The protagonist pleads with her husband to forsake his love for another woman in this opera's duet "In mia man alfin tu sei", which is followed by that husband's love for that woman reawakening in the duet "Qual cor tradisti". The title character of this opera raises mistletoe while praying for peace in an aria featuring a "rhapsodic" depiction of the (\*) moon, "Casta Diva". The title character's subordinate Adalgisa abandons her plans to elope with the Roman proconsul, Pollione, who fathered two children by the title character and eventually roasts on a pyre with her. For 10 points, name this bel canto opera about a Druid priestess by Vincenzo Bellini.

ANSWER: Norma <CV>

2. In this novel, "A Word With You On Your Cap-Ribbons" and "Hush, for Heaven's Sake!" are among the tracts passed out by a constantly-digressing member of the Mothers'-Small-Clothes-Conversion-Society. A servant in this novel named Rosana commits suicide by throwing herself into the Shivering Sands. One of its characters practices a variant of Virgilian Lots using a copy of *Robinson Crusoe* and comments on the unusual rose-cultivating hobby of the (\*) detective Sergeant Cuff. Gabriel Betteredge is the first of this novel's many narrators. Ezra Jennings figures out that this novel's protagonist had been slipped some opium by a man who is eventually killed by a trio of Indians and revealed to be Godfrey Ablewhite. Franklin Blake and Rachel Verinder get married at the end of, for 10 points, which Wilkie Collins novel about the theft of the title jewel?

ANSWER: *The Moonstone* <RC>

3. During a debate over a related law, Virginia Foxx called this event "a hoax". Romaine Patterson founded the "angels" in the wake of this event. One law passed due to this event was compared to *Animal Farm* by Representative Todd Tiahrt and was co-named for James Byrd, Jr. Stephen Jimenez claimed that the victim of this event was actually a methamphetamine dealer. The victim of this event had earlier visited the Fireside Lounge and was discovered by cyclist Aaron Kreifels. The victim of this event was tied to a fence after being (\*) tortured and pistol-whipped by Aaron McKinney and Russell Henderson, who later pleaded temporary insanity due to the victim supposedly making sexual advances. Taking place near Laramie, Wyoming, for 10 points, name this 1998 hate crime in which a 21-year-old gay man was robbed and left to die.

ANSWER: the murder of Matthew Shepard [or obvious equivalents] <EM>

4. The mesoporous material MCM-41 is created using a template of rod-like ones of these structures. They are treated as a "microphase" in Tanford's phase-separation model. PS-P4VP in toluene forms an inverse, "hairy" form of these structures. The number of carbon atoms in the constituents of these structure is related by the Sauff-Klevens equation to a parameter key to their formation. CTAB forms these structures in one form of DNA extraction, and they are formed around denatured proteins by (\*) SDS. Their constituents tend to hang out at the air-water interface until they reach their namesake critical concentration. They can only form above the Krafft temperature, and their substituents are typically amphiphilic, like detergents, or phospholipids. For 10 points, name these roughly spherical particles that form in solutions of surfactant molecules.

ANSWER: micelle [prompt on "detergents" or "surfactants" until they are read] <EM>

5. In the Black-Scholes PDE, this quantity multiplies stock price times the partial derivative of option price with respect to stock price. "Delphic" and "Odyssean" are two types of "Forward guidance", a policy that uses forecasting to affect expectations of this quantity. This quantity is the dependent variable of the LM curve and appears on the (\*) y-axis in the IS-LM model. This quantity is difficult to change in liquidity traps, where it is usually close to zero. The risk free return is commonly equated with this quantity. Inflation is approximately equal to the difference between two types of this quantity that are related by the Fisher equation. Dividing by one plus this quantity gives the discounted price. For 10 points, name this quantity that is paid on the principal of a loan.

ANSWER: interest rate [accept nominal interest rate or real interest rate; prompt on "r" or "i"] <WA>

6. A people from this modern-day country believed the storm god became chief god after passing a test of fire. Warriors who died in this modern-day country were thought to accompany the rising sun in the east. In a legend originating in this country, a woman must wander the world searching for her drowned children forever, constantly weeping. Worshippers from this modern-day country wore flayed skins in honor of a god of fertility. Blue (\*) paint was applied to the foreheads of victims of waterborne disease and drowning in this modern-day country, since they were bound south for the realm of a storm god who married a goddess with a jade skirt. This country is the origin of the rain god Cocijó, as well as the underworlds of Mictlan and Tlalocan. For 10 points, name this country, the home of legends about La Llorona, La Malinche, and the conquest of the Aztecs.

ANSWER: Mexico [or United Mexican States; or Estados Unidos Mexicanos] <WA>

7. The Great Powers nearly went to war after this city's garrison was put under Liman von Sanders' command. An "ancient rule" on transportation in this city was subverted by the Treaty of Unkiar Skelessi, which was itself overturned in an 1841 London Convention. After declarations of war, this city's Fortress of the Seven Towers often served as a prison for enemy ambassadors. This was the largest city in an international zone created by the Treaty of (\*) Sèvres. A 1915 agreement named for this city committed the Western Entente Powers to hand it over to its eastern ally if the Gallipoli Campaign was successful; that handing over of this city was intended to ensure an economic lifeline from the Black to the Mediterranean Seas. For 10 points, name this city that Russia wanted to control because of its strategic position on the Bosphorus, the Ottoman capital.

ANSWER: Constantinople [accept Istanbul; do not accept "Byzantium"] <PL>

8. One of this author's plays calls for a septet of mannequins, including a bride and a widow who face each other "as if in violent argument". The protagonist of that play by this man hears a rumor about her husband having had an affair with Estelle Hohengarten and is put off when a condom falls from a man's pocket. In another play by this man, the nicknames "Sister Woman" and "Brother Man" are used for a pair of characters whose children are referred to as (\*) "no-neck monsters". In one of his plays, Alvaro Mangiacavallo begins a relationship with the Sicilian woman Serafina after revealing a copy of the title entity on his chest. In another, a character who drinks until he hears a "click" and complains about "mendacity" has his relationship with Skipper questioned by both Big Daddy Pollitt and his own wife Maggie. For 10 points, name this author of *The Rose Tattoo* and *Cat on a Hot Tin Roof*.

ANSWER: Tennessee Williams [or Thomas Lanier Williams III] <RC>

9. A scientist studying this phenomenon analogized a component of it as a de Laval Nozzle, and extended a hydrostatic model of Eugene Chapman. Measuring this phenomenon via the ACE satellite is used to predict the Dst index and the AL. Gamma Velorum and other (\*) Wolf-Rayet stars exhibit this phenomenon very strongly, and this phenomenon is twisted into a ballerina skirt shape by the influence of magnetic fields. The existence of this phenomenon, which drops below the speed of sound at the termination shock, is the reason why comet tails always point away from the sun. For 10 points, name this phenomenon in which a stream of charged particles are ejected from the atmosphere of a star.

ANSWER: stellar wind [or solar wind] <EM>

10. This painting was originally purchased to be hung in the Luxembourg Palace, but it was later "hidden in an attic" due to its provocative content according to Champfleury. Theories that one figure in this painting is a self-portrait are generally discredited in favor of theories that the model was engraver Frédéric Villot or director Étienne Arago. A figure at the left of this painting wearing a white sash raises an (\*) infantry saber. As this painting's artist wrote to his brother, since he didn't "fight for my country," he chose the subject of a barricade, over which a boy carrying pistols leaps. A musket is in the left hand of this painting's central figure, whose yellow dress has slipped to bare her breasts. For 10 points, name this painting by Eugene Delacroix in which feminized freedom raises the *tricolore*.

ANSWER: Liberty Leading the People [or *La Liberté guidant le peuple*] <SJ, ed.>

11. Experimental realization of this effect was realized by Rowell and Anderson using a thin film of tin oxide. The phase of this phenomenon in one system can be calculated from the perturbed sine-Gordon equation. The arm of the quantum metrology triangle linking the variable U with the frequency is bridged by this effect, while the other two arms bridged by the single electron transport effect and the Hall effect. Analogizing this effect to a damped pendulum gives a damping equal to the Stewart-McComber parameter. The value  $\hbar$  (\*) over  $2e$  is the namesake constant of this phenomenon, and two devices using this effect are placed in a loop to form a highly sensitive magnetometer called a SQUID. In this effect, a supercurrent tunnels through an insulator. For 10 points, name this effect, a form of tunneling between two superconductors named for a Welsh physicist.

ANSWER: Josephson effect <EM>

12. The leader of one of these organizations caused outrage by distributing 59 free Hummers to members. One of these organizations led by Tom Vogel endorsed Tom Torlakson in a runoff against Marshall Tuck. Elba Esther Gordillo, the leader of one of these organizations called the NSTE, was arrested in September 2013 in Mexico. An alleged brain tumor has prevented a leader of one of these organizations from challenging (\*) Rahm Emanuel for mayor in Chicago. Two of these groups joined California in defense of a “last-in, first-out” law in the case *Vergara v. California*. These organizations, such as ones led by Karen Lewis and Randi Weingarten, consistently oppose merit pay systems like those introduced by Michelle Rhee. For 10 points, name these organizations which, in the United States, include the AFT and the National Education Association.

ANSWER: teachers’ unions [prompt on “unions” or “public-sector unions” or “government worker unions” or anything less specific] <WA>

13. A *sura* named for this event describes man’s creation as a discharge of semen and asks whether he assumes that his bones cannot be assembled. An individual is held in *barzakh* until the occurrence of this event, which the third verse of *sura al-Fatihah* calls God the Lord of. In the lead-up to this event, questioning by two figures called Munkar and Nakir takes place. A man of reddish complexion in saffron garments descends on a white minaret in eastern Damascus during this event, whose beginning is signalled by (\*) Israfil. The Dajjal’s predominance is brought to an end when Isa stabs him with a spear during this event, which marks the final separation of souls into Jannah and Jahannam. For 10 points, name this event during which the Mahdi appears, an occurrence that marks the end of time in Islam.

ANSWER: Day of Judgment [or Day of Resurrection; or The Hour; or Yawm ad-Din; or al-Sa’ah; or Yawm al-Qiyamah; prompt on things like “end of the world” or “apocalypse”; anti-prompt on “Second Coming”] <SJ, ed.>

14. In one of this author’s short stories, a couple on vacation to the title edifice encounter a man and his son hunting for grasshoppers. In another of his stories, the narrator encounters a sad girl on crutches after finding no one interested in his tale of nearly drowning. This author of “The Temple” and “The Cramp” wrote a play in which Hothead wants to eat trendy yogurt, while Glasses realizes that “ten years have swept by!”, causing the cast to chant “go” before finally (\*) leaving the title location. His most famous novel splits its time between a writer misdiagnosed with lung cancer who travels to Sichuan and a backpacker who encounters a woman known as “she” while searching for Lingshan; those two characters are known only as “I” and “You”. For 10 points, name this Paris-dwelling Chinese author of *Buying a Fishing Rod for My Grandpa*, *Bus Stop*, and *Soul Mountain*.

ANSWER: Gao Xingjian [or, I suppose, Kao Hsing-chien] <RC>

15. This leader set up the Sunderlal Committee to investigate a police action called Operation Polo. This man famously told Homi Bhabha to take care of physics while he took care of international relations. This man appointed Faizal Ali to head up the States Reorganization Commission, and he sacked VK Menon and set up 43 forts along a disputed territory as part of his Forward Policy. This man, whose birthday is celebrated as “Children’s’ Day”, famously opined that (\*) “the light has gone out of our lives” after the assassination of one of his allies, and began another speech by stating that his nation would “redeem our pledge” after making a “tryst with destiny”. This leader lost favor over a 1962 war with China and failed to reach a compromise with Muhammad Ali Jinnah, leading to the 1947 Partition. For 10 points, name this father of Indira Gandhi and first Prime Minister of India.

ANSWER: Jawaharlal Nehru <EM>

16. An entry in this collection written in memory of its author’s late cousin asks “What in that world was real?” and immediately answers “Nothing. Only the balls.” Another of these poems describes how “the mere possibility of being” created “the animal that never was”, namely a unicorn. The second entry in this collection tells of a girl who “made herself a bed inside my ear” and “slept in me”. The first of these poems opens “A tree ascended there. O pure transcendence!”, while the fifth advises (\*) “Erect no gravestone to his memory” and says of the title figure “Where there is poetry, it is” him singing. Most of this collection was written during the same “savage creative storm” that allowed the completion of the *Duino Elegies*. For 10 points, name this 55-poem collection about a certain “god with the lyre”, by Rainer Maria Rilke.

ANSWER: *The* Sonnets to Orpheus [or *Die Sonette an Orpheus*] <RC>

17. Pawel Lukow drew parallels between Immanuel Kant's references to *Achtung* and to the "fact sui generis" that is the "fact" of this concept. It's not action, but this concept is divided into three different "formal" realms in Jürgen Habermas' "communicative" theory of it. Max Horkheimer argued that *this* collapses when it emphasizes the means to a goal in his critique of its "instrumental" variety. The soul, the world, and God constitute Kant's three (\*) transcendental ideas derived from the highest form of this concept, which Hume said should be a "slave of the passions." Moral commands that result from the categorical imperative are derived solely through the "pure practical" variety of this concept. For 10 points, name this capacity of applying logic and verifying facts, which the Enlightenment is sometimes described as the "Age of."

ANSWER: reason [or rationality] <WA>

18. The activity of this enzyme is terminated by a complex that is mutated in cerebroretinal microangiopathy with calcifications and cysts; that is the CST complex. One component of this enzyme complex is Nop10, which can be mutated in dyskeratosis congenita. One component of this enzyme is encoded by a gene next to semaphorin F and delta-catenin on the p arm of chromosome 5, and is therefore deleted in (\*) Cri-du-chat syndrome. This complex was originally discovered using extracts of Tetrahymena by Greider and Blackburn. Aberrant activation of this complex allows cells to bypass the Hayflick limit, and this reverse transcriptase enzyme adds the sequence TTAGGG to its substrate. For 10 points, name this enzyme that lengthens the ends of chromosomes, and is often over-activated in cancer cells.

ANSWER: telomerase <EM>

19. In Herodotus, this statesman cites the story of Cleobis and Biton, who died with great renown after pulling their mother on a cart to reach a festival at Argos, and Tellus, who died in battle for his prospering *polis* as examples of men who were happier than his conversation partner, Croesus. This statesman came to prominence by publicly reciting one of his inspirational poems after his city lost a battle to (\*) Megara. This man left his city for a decade due to public disapproval of his policies, which included "the shaking off of the burdens" or *seisachtheia* that ended debt-slavery, creation of the Council of Four Hundred, and revision of Draco's law code. This man may have been the *erastes* of his tyrannical successor, Pisistratus. For 10 points, name this member of the Seven Sages of Greece, an Athenian reformer who preceded Cleisthenes.

ANSWER: Solon <PL>

20. Camille Saint-Saëns described this piece as "no more a piece of music than the palette on which a painter has been working is a picture." This piece's only percussion instruments are two crotales, which do not play until the first theme returns in its original rhythm and original key of E major. This piece's first chord is played in measure 4 after the opening solo and is accompanied by a glissando in the first harp. Its composer intended it as part of a three-part composition with a Final Paraphrase and (\*) Interlude, but never finished the other two parts. This piece opens with a chromatic descent by a flute soloist that spans a tritone. This piece was the basis for a ballet by Vaslav Nijinsky and was inspired by a poem by Stéphane Mallarmé. For 10 points, name this symphonic poem by Debussy which depicts a satyr playing the pan-pipes.

ANSWER: Prelude to the Afternoon of a Faun [or Prélude à l'après-midi d'un faune] <WA>

## Bonuses

1. Recent analysis of film footage suggests that Emily Davison meant to attach a WSPU scarf to a bridle instead of performing this fatal action. For 10 points each:

[10] Name this 4 June 1913 action at the Epsom Derby that resulted in Herbert Jones getting concussed and Emily Davison getting killed. Descriptive answers are acceptable.

ANSWER: Davison **threw herself under** the king's **horse** [or anything meaning that she was **trampled by a horse** such as **Anmer fractures her skull**]

[10] Emily Davison and Emmeline Pankhurst were advocates for this civil right for British women. This civil right was partially granted in the last year of the First World War, just in time for the 1918 elections.

ANSWER: female **suffrage** in the United Kingdom [or women have the right to **vote** and equivalents; or the female **franchise**]

[10] This woman succeeded Lydia Becker as leader of the NUWSS and she led suffragists in the 1907 Mud March. She was also the head of an all-women's committee to study concentration camp abuses in the Boer War.

ANSWER: Millicent Garrett **Fawcett** <PL>

2. Spiegler partly generalized this result to even dimensions using the Arnold energy-Casimir method. For 10 points each:

[10] Name this result which states that rotating around the axis with the largest or smallest moment of inertia results in stable rotation, but rotating around the other one results in tumbling.

ANSWER: **tennis racket** theorem

[10] The tennis racket theorem can be proven using Euler's equation in the absence of this quantity. This quantity, symbolized tau, is the rotational analogue of force and is divided by moment of inertia to give angular acceleration.

ANSWER: **torque**

[10] This other result states that the difference of the moment of inertia between two axes that don't intersect is equal to the mass of the object times the distance between the two axes squared.

ANSWER: **parallel axis** theorem [or Huygens-**Steiner** theorem] <EM>

3. An APA study by Dieter et al. found that, as of 2013, this man was by far the most cited living psychologist. For 10 points each:

[10] Name this ***Canadian*** psychologist who had adult assistants shout things like "sockeroo!" and display aggression towards a large inflatable toy in his bobo doll experiment.

ANSWER: Albert **Bandura**

[10] The bobo doll experiment demonstrated this kind of non-reinforcement-based learning, in which a person takes cues from the habits of the people around them.

ANSWER: **social** learning [or **social** learning theory; or **observational** learning]

[10] Bandura's self-efficacy theory involves distinguishing "internal" or "external" types of this concept, the zone which a person believes to be most relevant to determining outcomes in their lives.

ANSWER: **locus of control** [or internal **locus of control**; or external **locus of control**; prompt on partial answers] <MJ>

4. A "glass" named for this artist was often used by connoisseurs of landscapes. For 10 points each:

[10] Name this French landscapist, who painted the queen of Sheba being escorted off a balcony onto a boat. He showed a son of Aeneas provoking a war with Latium in *Ascanius Shooting the Stag of Sylvia*.

ANSWER: **Claude Lorrain** [accept either]

[10] Claude Lorrain revisited Aeneas when he depicted him together with Dido looking out upon the port of this classical city, which Dido founded.

ANSWER: **Carthage** [or **Karthago**; or **Karchedon**; or **Qart-Hadast**]

[10] This other artist originally planned on being buried in a canvas of his *Dido Building Carthage*. Carthaginians also make a cameo in this artist's painting of a menacing, curving black cloud over an army.

ANSWER: J.M.W. **Turner** [or Joseph Mallord William **Turner**] <WA>

5. The third section of a poem about one of these people begins with the lines “Stone is a forehead where dreams grieve / without curving waters and frozen cypresses” and repeats the phrase “All is finished.” For 10 points each:

[10] Identify this occupation of Ignacio Sánchez Mejías, whose death was lamented in a 1937 poem that includes several other recurring phrases, such as “I will not see it!” and “At five in the afternoon”.

ANSWER: a **bullfighter** [or **torero**; or **toreador**]

[10] “Lament for the Death of a Bullfighter” was written by this Spaniard, a member of the Generation of ‘27 who also wrote the plays *Blood Wedding* and *The House of Bernarda Alba*.

ANSWER: Federico **García Lorca** [or Federico García **Lorca**; or Federico del Sagrado Corazón de Jesús **García Lorca**]

[10] García Lorca’s own death, at the hands of Nationalist militia, was the subject of this Generation of ‘98 poet’s “El Crimen Fue en Granada”. This man’s other works included the *Soledades* and *Castilian Fields*.

ANSWER: Antonio **Machado** [or Antonio Cipriano José María y Francisco de Santa Ana **Machado** y Ruiz] <RC>

6. Answer some questions about Christianity in Africa, for 10 points each.

[10] This country is the most Catholic country in English-speaking East Africa. Joseph Kony, leader of the Christian fundamentalist Lord’s Resistance Army, is from this nation.

ANSWER: Republic of **Uganda** [or Jamhuri ya **Uganda**]

[10] A plurality of members of this Charismatic Christian denomination are found in Africa. This movement, which takes its name from the Feast of Weeks, experienced the Azusa Street Revival in the United States.

ANSWER: **Pentecostalism**

[10] Some argue that this African ethnic group’s expansionist political aspirations originate with their ancestors’ fervent Calvinism. The influence of the Freemasons is often compared to a “Brotherhood” of this ethnic group.

ANSWER: **Afrikaners** [prompt on “Boers;” prompt on “Dutch”] <WA>

7. A breakaway faction of the Mormons called the Strangites created a colony on Beaver Island in this state, which lost control of the Toledo Strip to Ohio. For 10 points each:

[10] Name this state, whose governor George Romney once called in the National Guard to stop the 12<sup>th</sup> Street Riots. This state is also home to the headquarters of the Ford Motor Company

ANSWER: **Michigan** [or **MI**]

[10] This city in Michigan is the birthplace of General Motors and suffered a depression when GM closed its plant there. The UAW was brought into the national spotlight by a sit-down strike organized in this city.

ANSWER: **Flint**, Michigan

[10] This president of the UAW was one of the participants in the Flint Sit-Down Strike. While posing for a picture, this man was attacked by Ford’s security forces in the Battle of the Overpass.

ANSWER: Walter Philip **Reuther** <EM>

8. A couple of living composers of this ethnicity got thrown in concentration camps after their music was labelled *Entartete Musik*, including Viktor Ullmann and Erwin Schulhoff. For 10 points each:

[10] Name this ethnicity whose music was labelled “degenerate” by the Nazis. It included Felix Mendelssohn.

ANSWER: **Jews** [or **Jewish**]

[10] This titan among classical labels has been releasing albums in its *Entartete Musik* series for about twenty years, to bring back forgotten works of “degenerate” composers. This British label got huge after developing full frequency range recording and is instantly recognizable by their two-tone blue and red logo.

ANSWER: **Decca** Classics [or **Decca** Records]

[10] This degenerate composer came to the United States just before the Anschluss and revolutionized film scores. His violin concerto was the first classical work he wrote after vowing to only compose film music until Hitler was defeated.

ANSWER: Erich Wolfgang **Korngold** <CV>

9. This novel ends at a party hosted by Belle Radclyffe, where Laura Trevelyan meets Mr. Judd, the only surviving companion of the title character. For 10 points each:

[10] Identify this Patrick White novel whose title character, a German explorer, disappears while leading an expedition into the Australian outback.

ANSWER: **Voss**

[10] This other Australian author fictionalized Charles Dickens as Tobias Oates in his *Great Expectations* reworking *Jack Maggs*, and wrote of a bet involving the transportation of a glass church in his novel *Oscar and Lucinda*.

ANSWER: Peter **Carey** [or Peter Philip **Carey**]

[10] All three of the aforementioned novels have won an Australian literary award named for this early-20th-century female author of *All That Swagger* and *My Brilliant Career*.

ANSWER: Miles **Franklin** [or Stella Maria Sarah Miles **Franklin**] <RC>

10. Like PI3-kinase, this class of kinases is inhibited by Perifosine. For 10 points each:

[10] Name this family of serine-threonine protein kinases, also known as protein kinase B. Its second member, which is cytosolic, is found in the insulin signalling pathway, where it indirectly activates mTOR

ANSWER: Akt

[10] Insulin is released from the islet cells of this organ, which contains both endocrine and exocrine sections.

ANSWER: pancreas

[10] In the Islets of Langerhans' cells, ATP-gated channels of this ion are inhibited by sulfonylureas. Mutations in channels that conduct this ion can cause the "shaker" phenotype.

ANSWER: potassium [or K<sup>+</sup>] <EM>

11. Film adaptations have been made of this author's novel *The Magic Toyshop* and her short story "The Company of Wolves", the latter of which comes from her collection of fairy-tale adaptations, *The Bloody Chamber*. For 10 points each:

[10] Name this English author of novels like *The Passion of New Eve* and *Nights at the Circus*, known especially for feminist reinterpretations of other works.

ANSWER: Angela Carter [or Angela Olive Stalker]

[10] Carter wrote a libretto based on this Virginia Woolf novel, whose protagonist has affairs with Queen Elizabeth I and the princess Sasha and is mentored by Nicholas Greene while writing a long poem called *The Oak Tree*.

ANSWER: Orlando: A Biography

[10] At her death, Carter left incomplete a sequel to this Charlotte Bronte novel. Carter's sequel would've been about Adele Varens, the adopted daughter of Mr. Rochester and this novel's title character.

ANSWER: Jane Eyre <RC>

12. This spirit dislodges six eggs of gold and one of iron with her legs, causing them to crack and bringing about creation from the eggs' shells and yolk. For 10 points each:

[10] Name this virgin air spirit who gives birth to a hero after being impregnated by the sea.

ANSWER: Ilmatar

[10] Ilmatar gives birth to Vainamoinen, the first man and primary hero of this country's national epic, the *Kalevala*.

ANSWER: Republic of Finland [or Suomi; or Suomen tasavalta; or Republiken Finland; or Grand Duchy of Finland]

[10] Väinämöinen fashions a *kantele* from the bones of a giant type of this kind of animal. Another example of this kind of animal burns a hero's thumb when he touches it.

ANSWER: fish [or pike; or salmon; or Salmon of Knowledge] <WA>

13. The Guangdong Coalition was formed to fight this man's Xiliang Army. For 10 points each:

[10] Name this man who deposed Emperor Shao for Emperor Lian and moved the capital from Luoyang to Chang'an. He was killed after Wang Yun ostracized him from his adopted son, Lu Bu.

ANSWER: Dong Zhuo [or Dong Zhongying; or Dong Zei]

[10] Dong Zhuo came to power after being asked by Yuan Shao and He Jin to fight the Ten Attendants, a group of these powerful court officials. Sima Qian and Zheng He were both forcibly turned into this type of official.

ANSWER: eunuchs [or huan guan; prompt on answers mentioning "castration" and equivalents; prompt on "chang shi"]

[10] Dong Zhuo's tyranny led to the decline of this dynasty and the advent of the Three Kingdoms, when it was controlled by the state of Cao Wei. This dynasty shares its name with China's largest ethnic group.

ANSWER: Han dynasty [or Han Chao; or Da Han] <PL>

14. This man personally administered chloroform to Queen Victoria while she was giving birth and wrote an early treatise on anaesthetics titled *On the Inhalation of the Vapor of Ether*. For 10 points each:

[10] Name this man, who traced the source of an 1854 cholera outbreak in Soho, London to the Broad Street Pump.

ANSWER: John Snow

[10] John Snow's work on stopping the spread of cholera was foundational for this field, which studies the causes and effects of the spread of disease among human populations.

ANSWER: epidemiology

[10] This specific geographic information systems software, created by Esri, is frequently used in spatial epidemiology to show the spread of diseases.

ANSWER: ArcGIS Desktop [prompt on "GIS"] <WA>

15. The NanoDrop is an instrument used in this technique which eschews cuvettes in favor of pipetting a droplet of the solution directly onto a pedestal. For 10 points each:

[10] Name this technique in which a solution's absorbance or transmittance at various wavelengths is measured. This technique is governed by the Beer-Lambert law.

ANSWER: spectrophotometry

[10] Spectrophotometry is commonly used to measure this quantity of a solution. It is often expressed in molarity, and the absorbance divided by the product of extinction coefficient and path length gives it.

ANSWER: concentration

[10] This assay, which is used to measure protein concentration, uses the dye Coomassie brilliant blue G-250 and a spectrophotometer.

ANSWER: Bradford assay <EM>

16. The *Agricola* series by this artist repurposes old farm machinery to depict farmers. For 10 points each:

[10] Name this modernist American sculptor who welded stainless steel cubes and cylinders together in his *Cubi* series. The eleventh and twenty-sixth entries in that series can be found in the National Gallery of Art.

ANSWER: David Smith

[10] The "Cubes and Anarchy" exhibition of David Smith's work occurred in the Whitney Museum in this city. This city is also home to the Guggenheim and the Museum of Modern Art.

ANSWER: New York City [or NYC]

[10] The Whitney also contains a sculpture of a giant BLT sandwich by this artist, whose other works include *Lipstick (Ascending) on Caterpillar Tracks* at Yale.

ANSWER: Claes Oldenburg <EM>

17. This novel begins with the flashback-prompting discovery of a body with its hands cuffed behind its back, floating in the Gowanus Canal. For 10 points each:

[10] Identify this 2008 novel by Joseph O'Neill in which Hans van den Broek, a Dutch immigrant to New York City, befriends the Trinidadian Chuck Ramkissoon while playing cricket.

ANSWER: Netherland

[10] James Wood's review of *Netherland* notes that it "opens where [this other novel] ends, with its forlorn dreamer dead in the water". This F. Scott Fitzgerald novel is set mostly on West Egg and is narrated by Nick Carraway.

ANSWER: *The* Great Gatsby

[10] Wood also compares Chuck Ramkissoon to the character of Dr. Tamkin in this CANADIAN-American author's novel *Seize the Day*.

ANSWER: Saul Bellow <RC>

18. Answer some questions about sequential logic circuit parts, for 10 points each.

[10] This logic gate produces a "1" if either of its inputs is a "1", unlike the AND where only both inputs being "1" outputs a "1". Its inverted form thus gives an output of "1" only when both inputs are "0".

ANSWER: OR gate

[10] The "set-reset" variety of these circuits are easily constructed from two cross-coupled NOR gates or NAND gates. These circuits are prominent examples of bistable multivibrators and are the building blocks of sequential logic.

ANSWER: SR latch [or SR flip-flop]

[10] The SR NOR latch is active in this state, in which case a voltage of like 3.3 – 5 volts corresponds to "1", while the SR NAND latch is active in this other state, in which case tying it to ground corresponds to "1". Name either state.

ANSWER: high-output state or low-output state [accept either underlined portion] <DX>

19. This paper prompted the development of virtue ethics as an approach to morality. For 10 points each:

[10] Name this article, which argues that secular approaches to moral theory lack foundation. It states that thick ideas like "untruthful" and "unjust" are far more useful concepts than the thin idea of "morally wrong."

ANSWER: "Modern Moral Philosophy"

[10] G. E. M. Anscombe's "Modern Moral Philosophy" was the first text to define this term. This moral philosophy holds that the outcomes of conduct are the ultimate basis for judging whether the conduct was right or wrong.

ANSWER: consequentialism

[10] This example of consequentialist philosophy has the maximization of pleasure, or "the greatest good for the greatest number" as its goal. It was advocated by Jeremy Bentham and John Stuart Mill.

ANSWER: utilitarianism <WA>



20. Two kings of West Francia belonged to the Robertian branch of the family that produced this dynasty. For 10 points each:

[10] Name this dynasty whose direct line was ended with the death of Philip the Fair. Less famous cadet branches of this house include the House of Artois.

ANSWER: Direct **Capetian** Dynasty [or House of **Capet**; or the **Capets**; or Les **Capétiens**; or la Maison **capétien**; prompt on the “House of France” or “la maison de France”]

[10] This first king of West Francia from the House of Capet was the older brother of Robert I. He succeeded his inept predecessor Charles the Fat.

ANSWER: **Odo** of France [or **Eudes** of France]

[10] Odo established the Capetian dynasty as counts of this city, which he had earlier defended from Viking raiders under Rollo. With the exception of Vichy, it's been the capital ever since.

ANSWER: **Paris** <PL>