

Michigan Fall Tournament (Written by Will Nediger, Kurtis Droge, Cody Voight, Saul Hankin, Ben Forster, Siddhant Dogra, and Peter Jiang)

## Editors Round 11

### Warm-Up Tossup (Optional)

This character turned Charlotte Witter into the fourth, *villainous* Spider-Woman. During the Clone Saga, he was assisted by his girlfriend Stunner, and Carolyn Trainer replaced him after Kaine seemingly killed him. In one incredibly stupid story arc, he attempted to gain possession of a nuclear reactor by marrying Aunt May as part of his gang war with Hammerhead. In an earlier and far cooler story arc, he stole the experimental ISO-36 using the alias of “Master Planner.” After losing control of his primary weapon, he knocked loose the bricks that killed Captain George Stacy. He also convened the original Sinister Six. For 10 points, name this enemy of Spider-Man whose real name is Otto Octavius and who wields four mechanical arms.

ANSWER: **Doctor Octopus** [or **Doc Ock**; accept Otto **Octavius** before mentioned; prompt on “Alfred Molina”]

### Tossups

**1. Two answers required. A photograph taken during a war between these two countries shows a baby in a railroad station and is named *Bloody Saturday*. These two countries were at the heart of the January 28 Incident. A war between these two countries included the capture of the Pescadores Islands and was touched off by one side’s military support of a neighboring country’s Donghak Rebellion. The Twenty-One Demands were imposed by one of these two countries on the other. One war between these two countries was ignited by the Marco Polo Bridge Incident, while another was ended by the Treaty of Shimonoseki. These two countries disputed the ownership of Manchuria and were involved in a war that included the Rape of Nanking. For 10 points, name these two Asian countries whose 20th-century leaders included Mao Zedong and Hirohito.**

ANSWER: **Japan** and **China** [accept in either order; accept **Sino-Japanese** Wars; prompt on partial answer]

**2. This novel takes the form of a memoir written by the narrator when he was living in a cave, and the narrator alludes to *Moby-Dick* in its opening line. One character in this novel leaves the corporate world and builds a hospital using the money he had made as the owner of the Castle Sugar Cooperation. Some characters in this novel say “Now I will destroy the whole world” before committing suicide, and belong to spiritually-linked groups of people called *karasses*. This novel’s narrator visits an island ruled by the dictator Papa Monzano; that island, San Lorenzo, is home to the religion of Bokononism. One of its characters is a scientist named Felix Hoenikker who works on the atomic bomb and discovers a deadly substance called ice-nine. For 10 points, name this Kurt Vonnegut novel named after a children’s game.**

ANSWER: **Cat’s Cradle**

**3. A classic study of the reduction of these entities in Swedish was written by Bjorn Lindblom. Daniel Jones created a list of eight cardinal ones. Some languages have vertical systems in which these entities are distinguished in only one dimension. When two of them occur next to each other, they sometimes form a hiatus. In languages like Hungarian and Turkish, these entities influence each other over long distances in an assimilatory process known as their namesake “harmony.” The first and second formants of these entities are influenced by their height and backness, respectively. In English, these sounds underwent a significant shift from the 14th to 17th centuries. For 10 points, name these speech sounds which are contrasted with consonants.**

ANSWER: **vowels**

**4. The Indian subcontinent is home to a reformist movement within this denomination called Deobandi, as well as a more traditional movement within this denomination called Barelvi. An important set of texts in this denomination is known as “The Six Books.” Most members of this denomination pray with their hands folded, as opposed to at their sides. The name of this denomination comes from a word referring to the sayings and actions of Muhammad. This denomination recognizes Abu Bakr, rather than Ali, as the first caliph. Branches of this denomination include Salafism and the ultra-conservative Wahhabism. For 10 points, name this largest branch of Islam, contrasted with Shia.**

ANSWER: Sunni Islam

**5. The insertion of AQP2 into the apical membrane is caused by this hormone's GPCR stimulating the production of cAMP through the Gs protein. With CRH, this hormone is produced in parvocellular neurons and, also with it, stimulates the secretion of ACTH. The movement of this hormone is facilitated by neurophysin II. Deficiency of this hormone causes central diabetes insipidus. A syndrome of inappropriate secretion of this hormone normally results in hyponatremia. This nonapeptide is released from the posterior pituitary and is structurally similar to oxytocin. When bound to its V1 receptor, this hormone promotes vasoconstriction, and it increases the permeability of the distal convoluted tubules. For 10 points, identify this hormone that is downregulated by ethanol, thus making you have to pee a lot.**

ANSWER: ADH [or arginine vasopressin; or anti-diuretic hormone; or AVP]

**6. In one movement of this piece, written in 6/8 time, the left hand plays G-sharp in a quarter note-eighth note-quarter note-eighth note rhythm for most of the movement. The final movement of this piece includes a “Meno mosso, sempre maestoso” section in 2/2 time whose melody is triplet half-note chords in both hands, and a descending E-flat major scale played in octaves passed from the right hand to the left. This piece was famously performed in Sofia in 1958 by Sviatoslav Richter. A recurring movement in this piece, written in 5/4 and 6/4 time, is the “Promenade.” The aforementioned movements of this piece are “The Old Castle” and “The Great Gate of Kiev.” For 10 points, name this piano suite inspired by the art of Viktor Hartmann and orchestrated by Maurice Ravel, a work of Modest Mussorgsky.**

ANSWER: Pictures at an Exhibition: A Remembrance of Viktor Hartmann [or Pictures from an Exhibition or Kartinki s vystavki]

**7. This leader’s regime suppressed the trade union SLOMR, which was supported by the dissident Paul Goma. This leader’s Decree 770 placed restrictions on abortion and contraception in order to increase birth rates. This man made a speech on the day of the invasion of Czechoslovakia by the Warsaw Pact countries, declaring his opposition to the invasion, and he also made a propagandistic speech called the July Theses. A revolution against this leader started after an attempt to evict the pastor László Tőkés from his church in Timisoara. This man, who succeeded Gheorghe Gheorghiu-Dej as leader of his party, was succeeded as president by Ion Iliescu. He was executed by firing squad along with his wife Elena in 1989. For 10 points, name this last Communist leader of Romania.**

ANSWER: Nicolae Ceausescu

**8. In an epic poem by this author, an innkeeper’s son falls in love with a girl who helps a woman in childbirth while fleeing an occupied village. He wrote a poem whose first line is “Only he who knows longing,” which is one of the songs sung by Mignon in a novel by this author. He wrote a poem in which a child is killed by the title creature while clasped in his father’s arms. In another of his poems, the title character enchants a broom to do his work for him. This author of *Hermann und Dorothea* wrote an epistolary novel whose title characters reads Ossian to his beloved Lotte and commits suicide using pistols given to him by his friend Albert. For 10 points, name this author of “The Erl-King” and “The Sorcerer’s Apprentice,” as well as *The Sorrows of Young Werther*.**

ANSWER: Johann Wolfgang von Goethe

**9. A function that defines these things can be found by taking the Radon-Nykodym derivative of the induced measure with respect to a counting or a Lebesgue measure. The properties of these things can be defined by taking the first and second derivatives of the moment-generating function and evaluating them at zero. The joint CDF for these things is given by the convolution of each one's CDF. For one of these denoted capital X, the expected value of X squared minus the expected value of X, all squared is equal to the variance. For 10 points, identify these "variables" that assign a numerical value to events in a sample space and are used to calculate probabilities.**

ANSWER: random variables [or r.v.'s; or stochastic variables; or probability distributions; prompt on measure spaces]

**10. In one speech, this man claimed, "The opportunity to earn a dollar in a factory...is worth infinitely more than to spend a dollar in an opera house." In that same speech, he said, "In all things purely social we can be as separate as the finger yet one as the hand," and told his audience "Cast down your bucket where you are." That speech, given at the Cotton States and International Exposition, is known as this man's "Atlanta Compromise." This alumnus of the Hampton Institute and founder of the National Negro Business League also advised presidents Theodore Roosevelt and William Howard Taft and founded the Tuskegee Institute. For 10 points, name this man whose ghostwritten autobiography was *Up From Slavery* and who was criticized by W. E. B. Du Bois for prioritizing black economic development over civil rights.**

ANSWER: Booker Taliaferro Washington

**11. In one artwork from this country, a white dog and a brown dog frolic in front of a group of travelers crossing a bridge named after this country. An artist from this country created a series of works called *Oceans of Wisdom*, as well as a work in which a green tree-covered landscape in the bottom gives way to a red coloration higher up, beneath a blue sky with clouds. A contemporary artist from this country created the "superflat" aesthetic. One artist from this country created a series depicting fifty-three stations on a road in this country. An artistic genre from this country has a name meaning "pictures of the floating world." One artist in that genre created a series of thirty-six views of a mountain in this country. For 10 points, name this country whose painters include Hiroshige and Hokusai.**

ANSWER: Japan

**12. Combinations of at least four of these entities can be used to create butterfly spreads. Cox, Ross, and Rubinstein created a model to evaluate these using backward induction. That method involves calculating the value of these at each instant in time and comparing them to their expected future value, and is called the binomial pricing model. Robert Merton won a Nobel in economics for his work on an equation that models these entities, which are separated into American and European types. The most common method of calculating them involves simulating a stochastic process with a differential equation named for Black and Scholes. For 10 points, name these financial constructs, which can be "put" or "call," that gives their holder the right to buy and sell a stock at a certain price.**

ANSWER: options

**13. An author from this country wrote about Grant, who finds that his wife Fiona has forgotten who he is when he visits her at the Meadowlake assisted living home, in the story "The Bear Came Over the Mountain," which was adapted into the movie *Away from Her*. That author from this country wrote about a handicapped girl performing at a piano recital in the story "Dance of the Happy Shades." A novelist from this country recently published *MaddAddam*, the third in a trilogy of novels beginning with a post-apocalyptic novel about a man named Snowman. That author of *Oryx & Crake* also wrote a novel set in the Republic of Gilead, in which The Commander**

keeps a concubine named Offred; that novel is *The Handmaid's Tale*. For 10 points, name this country home to Alice Munro and Margaret Atwood.

ANSWER: Canada

**14. The Strehl ratio of intensities is used when these things are present. The function for these things can be expanded in terms of a complete set of polynomials orthogonal over the interior of the unit circle; that set of polynomials is named for Zernike. One of these things is eliminated when the tangential and sagittal surfaces lie on the Petzval surface. For a rotationally symmetric system, five of these things, of third-order, are described by the Seidel coefficients. These things arise because the basic trigonometric functions are truncated after one term in their Taylor series in the paraxial approximation, which is not valid. Those third-order ones include coma and astigmatism. For 10 points, identify these departures from ideal optics that come in spherical and chromatic types.**

ANSWER: optical aberrations [or geometrical aberrations]

**15. A prince of this name was referred to as “the Young” and defeated the Tatars at the Great Standoff on the Ugra River. A monarch of this name won the Battle of Chelton and married Zoe Paleologus. The first ruler of this name had the nickname Kalita, or “moneybags,” either due to his kindness to beggars or because he acquired so much territory via purchasing. The forces of a different monarch of this name were defeated at the Siege of Pskov, thereby sealing his country’s defeat in the Livonian War. That monarch used a police corps called the Oprichnina to institute a reign of terror in his country and beat his son of the same name to death. For 10 points, give this name of four Rurik czars of Russia, the third of whom was called “the Great” and the last of whom was called “the Terrible.”**

ANSWER: Ivan [accept more specific answers]

**16. Donald Davidson’s argument that there is only one thing with this property is known as the slingshot argument. The prosentential theory of this concept is similar to disquotational theories such as Frank P. Ramsey’s redundancy theory. In logic, a formula is valid if and only if it has this property under any interpretation. A paper by Alfred Tarski about this concept “in formalized languages” introduced a deflationary theory of it. Other theories of this concept include the coherence theory and the correspondence theory. A tautology necessarily has this property, which can be computed for expressions using namesake “tables.” For 10 points, name this property which is contrasted with falsity.**

ANSWER: truth [accept word forms]

**17. One of this musician’s early recordings, which is named after a slang term for marijuana popular among jazz musicians, was “Muggles.” In honor of the Karnofsky family, who gave him money that allowed him to buy his first instrument, he always wore a Star of David. Ensembles led by this man include his All Stars, his Hot Seven, and his Hot Five, and he collaborated on the single “Weatherbird” with pianist Earl Hines. An apocryphal story claims that he dropped the lyric sheet while recording his version of “Heebie Jeebies,” so he invented scat singing. He made the first recording of a song whose singer reflects on “the colors of the rainbow so pretty in the sky” and “trees of green, red roses too,” “What a Wonderful World.” For 10 points, name this jazz trumpeter and singer nicknamed “Satchmo.”**

ANSWER: Louis Armstrong [prompt on Satchmo]

**18. In the Fischer indole synthesis, a hydrazine with this moiety in place of one of the hydrogens is reacted with an aldehyde or ketone. A byproduct of the Wittig reaction is a compound with three of these moieties. Two of these moieties bound together are the basis for PCBs. This compound is bound to ethene in styrene, the monomer of polystyrene. A mutation in the enzyme that hydroxylates the amino acid with this cyclic group bound to another amino acid, to tyrosine is the cause of PKU. That amino acid consists of this moiety attached to an**

alanine instead of its normal methyl group. For 10 points, identify this aryl group that is a benzene lacking a hydrogen, giving it formula C<sub>6</sub>H<sub>5</sub> and often abbreviated Ph.

ANSWER: **phenyl** (FEE-nil) group [or **Ph** until it is read; do not accept "phenol" (fee-GNOLL) - if in doubt, have the player spell it]

**19. This author's only play is a farce about her great-aunt Julia Margaret Cameron, entitled *Freshwater*. She wrote a novel in which Ralph Denham proposes to Mary Datchet, who rejects the proposal because she knows he loves Katharine Hilbery. A poet makes the faux pas of asking for a second helping of soup at a dinner party in "The Window," the first section of a novel by this author whose second section is called "Time Passes." In that novel, Lily Briscoe attempts to paint members of the Ramsay family. This author of *Night and Day* also wrote a novel in which Septimus Smith jumps out of a window, greatly affecting a character who recalls the lovers of her youth, Peter Walsh and Sally Seton. For 10 points, name this author of *To the Lighthouse* and *Mrs Dalloway*.**

ANSWER: Virginia **Woolf**

**20. Using a horoscope, an astrologer calculated that this figure was born during an eclipse and died during another eclipse. According to some stories, this figure employed a builder named Celer, who was the namesake of his personal guard. This figure's wife was deified as the goddess Hora, while this figure himself is said to have been deified as the god Quirinus. In some accounts, he killed his brother for jumping over a wall he built. This figure claimed that since he saw twelve birds, instead of just six, he had the right to build a city on the Palatine Hill, rather than the Aventine Hill. After building that city, he ordered the rape of the Sabine women. For 10 points, name this mythological founder of Rome, the twin brother of Remus.**

ANSWER: **Romulus**

**21. One author with this surname wrote about the eccentric Mortmain family in *I Capture the Castle*, and also wrote the book that *One Hundred and One Dalmatians* is based on. Another author with this surname wrote about Professor Dr von Igelfeld, the author of a 1200-page tome called *Portuguese Irregular Verbs*. Yet another author with this surname wrote a novel about Archie Jones and Samad Iqbal. This is the surname of the author of the *No. 1 Ladies' Detective Agency* series, as well as the author of *White Teeth*. A character with this surname works in the Ministry of Truth and is tortured in Room 101 until he accepts the truth of the statement "two plus two equals five." For 10 points, name this surname of the authors Dodie, Alexander McCall, and Zadie, as well as Winston, the protagonist of *Nineteen Eighty-Four*.**

ANSWER: **Smith**

## Bonuses

1. NOTE TO MODERATOR: Do not reveal the promptable answer for the first part if it is not given.

Four dwarves, who agreed to give it up if a certain goddess slept with each of them on consecutive nights, originally possessed this object. For 10 points each:

[10] Name this object, which was stolen at one point by Loki but recovered by Heimdall, who fought with Loki in the form of a seal.

ANSWER: **Brisingamen** [prompt on Freya's necklace]

[10] Brisingamen is a necklace owned by this Norse goddess of love. She rides a chariot pulled by cats and owns a cloak made of falcon feathers.

ANSWER: **Freya** [or **Freyja**]

[10] Hephaestus gave this woman a cursed necklace as a gift to celebrate her marriage to Cadmus.

ANSWER: **Harmonia**

2. Answer some questions about famous photographs of women, for 10 points each.

[10] Steve McCurry's photograph of Sharbat Gula, a green-eyed girl with a red scarf wrapped around her head, is best known by this two-word name.

ANSWER: **"Afghan Girl"**

[10] "Afghan Girl" was published on the cover of a 1985 issue of this magazine, whose photographs of topless women from tribal societies are sometimes controversially censored.

ANSWER: **National Geographic Magazine**

[10] One of the most iconic photographs by this fashion and portrait photographer shows Nastassja Kinski with a serpent wrapped around her.

ANSWER: Richard **Avedon**

3. This book calls Robert Lincoln Poston, Henrietta Vinton Davis, and Marcus Garvey the three apostles. For 10 points each:

[10] Name this religious text written by the Anguillan pastor Robert Athlyi Rogers.

ANSWER: the **Holy Piby**

[10] The *Holy Piby* greatly influenced this Jamaican religion, which worships Haile Selassie.

ANSWER: **Rastafarianism**

[10] Rastafarians refer to the corrupt, materialistic Western culture by the name of this city, whose destruction is foretold in the Book of Revelation.

ANSWER: **Babylon**

4. This woman promulgated an early set of maritime laws known as the Rolls of Oleron. For 10 points each:

[10] Name this mother of Richard I and wife of both Louis VII and Henry II, a woman from Aquitaine.

ANSWER: Eleanor of Aquitaine

[10] This abbot helped arrange Eleanor of Aquitaine's first marriage. A patron of Gothic architecture, he rebuilt the Basilica of Saint-Denis.

ANSWER: Abbot Suger

[10] Eleanor of Aquitaine also had a daughter of this name who married Henry the Lion. An empress of this name fought with Stephen of Blois for the English throne during a period called the Anarchy.

ANSWER: Matilda [or Maud]

5. This author wrote a long poem based on the Aztec calendar that begins with the image of "a crystal willow, a poplar of water." For 10 points each:

[10] Name this author whose time as his country's ambassador to India inspired his book *The Monkey Grammarian*. He also wrote a collection of nine essays including "The Sons of La Malinche."

ANSWER: Octavio Paz

[10] In addition to the poem "Sunstone," Paz wrote this aforementioned collection, perhaps his best known work, that also contains "Conquest and Colonialism."

ANSWER: *The Labyrinth of Solitude* [or *El laberinto de la soledad*]

[10] In this work, Paz presents an analysis of poetry, claiming that poetry is a contrast in language between tension and resolution, which represent this book's two title concepts, borrowed from Heraclitus.

ANSWER: *The Bow and the Lyre* [or *El arco y la lira*]

6. This author attacked Jean de Meun in the proto-feminist treatise "Letter to the God of Love." For 10 points each:

[10] Name this medieval French poet who also responded to Jean de Meun's misogyny in her most famous work, *The Book of the City of Ladies*.

ANSWER: Christine de Pizan

[10] Jean de Meun completed a poem begun by Guillaume de Lorris named after this type of flower. In *Romeo and Juliet*, Juliet says that this flower "by any other name would smell as sweet."

ANSWER: rose

[10] One influence on Christine de Pizan was this Italian author of *On Famous Women*, a collection of biographies of women.

ANSWER: Giovanni Boccaccio

7. DNA damage caused by the ultraviolet form of this phenomenon can be repaired by photolyases. For 10 points each:

[10] Name this phenomenon that supplies the photons absorbed by chlorophyll a in Photosystem II of photosynthesis. Auxins cause plants to move toward sources of this phenomenon in phototropism.

ANSWER: light

[10] UV light can cause the formation of dimers between cytosine and thymine, which like uracil are examples of these six-membered single-ring heterocycles. Adenine and guanine are not examples of these bases.

ANSWER: pyrimidines

[10] Pyrimidine dimers can usually be fixed by nucleotide excision repair, but extensive damage may trigger the SOS response, which is mediated by this *E. coli* protein's cleavage of LexA. This protein catalyzes the pairing of single-stranded DNA with complementary regions of double-stranded DNA, which allows homologous recombination, and is homologous to Rad51.

ANSWER: RecA

8. Catalysts do not affect the equilibrium, so this statement does not apply to them. For 10 points each:

[10] Identify this statement which says that a change in conditions results in a shift in equilibrium.

ANSWER: Le Châtelier's principle

[10] These tables are used to keep track of the equilibrium amounts of reactants and products in reversible equilibrium reactions. When the reaction is written at the top, they can be prepended with "R".

ANSWER: **RICE** chart [or **RICE** table; or **RICE** box; or obvious equivalents such as a table of **initial** concentrations, **change** in concentrations, and **equilibrium** concentrations]

[10] One version of this effect, which is rooted in Le Châtelier's principle, is applied to buffers states that addition of the conjugate ion of a weak base or acid suppresses its ionization and thus increases or decreases the pH.

ANSWER: **common ion** effect [or **CIE**]

9. The second section of this book, "The High Tide of Prophecy," blames Hegel and Marx for the rise of 20th-century totalitarianism. For 10 points each:

[10] Name this 1945 book which criticizes historicist political philosophy.

ANSWER: *The **Open Society and Its Enemies***

[10] *The Open Society and Its Enemies* was written by this philosopher, who also wrote *The Poverty of Historicism*. As a philosopher of science, he supported falsifiability as a scientific criterion.

ANSWER: Karl Raimund **Popper**

[10] In the first section of *The Open Society and Its Enemies*, titled "The Spell of" this philosopher, Popper accused this philosopher of betraying his teacher Socrates.

ANSWER: **Plato**

10. Computation in this system takes place by variable substitution, which has two forms: alpha- and beta-reduction. For 10 points each:

[10] Identify this system introduced by Alonzo Church to formalize the notion of effective computability.

ANSWER: **lambda calculus**

[10] With this computer scientist, Church names a thesis which states that every effective computation can be carried out by a universal one of his namesake machines, which consists of a tape and a read-write head.

ANSWER: Alan **Turing**

[10] Of course, the Church-Turing thesis actually applies to many other theoretical computation systems, including the "canonical" system of this computer scientist that consists of signs that form an alphabet, variables, and a finite set of productions. His undecidable "correspondence problem" is often used in proofs of undecidability since it is simpler than the halting problem.

ANSWER: Emil **Post**

11. Sir Walter Scott organized this king's visit to Scotland. For 10 points each:

[10] Name this British king who was the first king to visit Scotland since the 1600s. He tried to pass the Pains and Penalties Bill so he could divorce his wife.

ANSWER: **George IV**

[10] George's visit to Scotland is credited with helping establish the Scottish national identity, particularly the wearing of this item of clothing made out of tartan cloth.

ANSWER: **kilts**

[10] George IV became king in 1820, but he also ruled in proxy from 1811 to 1820 because of George III's mental illness. That period is known by this name, and it gives its name to a style of furniture.

ANSWER: **Regency** era

12. John Ross was one chief of this tribe, whose writing system was created by Sequoyah. For 10 points each:

[10] Name this Native American tribe deported to Oklahoma on the Trail of Tears.

ANSWER: **Cherokee**

[10] Missionary Samuel Worcester was convicted of residing in Cherokee land without the proper license in this state. Worcester brought suit against this state in an 1832 Supreme Court case.



ANSWER: *Worcester v. Georgia*

[10] A group of Cherokees claiming to speak for the entire tribe signed this 1835 treaty promising that the tribe would relocate west of the Mississippi. Chief John Ross's letter protesting this treaty was ignored.

ANSWER: Treaty of New Echota

13. On September 21, a group of gunmen attacked the Westgate shopping mall in this city. For 10 points each:

[10] Name this capital of Kenya.

ANSWER: Nairobi

[10] The attack was perpetrated by this militant Islamist group, whose name means "the youth."

ANSWER: Harakat al-Shabaab al-Mujahideen [or HSM]

[10] One of the victims of the attack was this Ghanaian poet who wrote *This Earth, My Brother*.

ANSWER: Kofi Awoonor

14. For 10 points each, name the following about notable historical nights, and not the ones in shining armor.

[10] In the Night of Broken Glass, or Kristallnacht, members of the SA coordinated a series of attack, deportations, and lootings that targeted members of this faith.

ANSWER: Judaism [accept word forms]

[10] The Night of the Pencils, which saw the disappearance of a group of students, occurred in this country during its so-called Dirty War.

ANSWER: Argentina

[10] This term refers to the bloodbath that ensued when Hernan Cortes and his soldiers fought their way out of Tenochtitlan, trying to carry plunder with them out of the city over the Tlacopan causeway.

ANSWER: La Noche Triste [or Night of the Sorrows]

15. For a block on a ramp, this force is calculated as the mass of the block times acceleration due to gravity times the cosine of the angle of the ramp. For 10 points each:

[10] Identify this force exerted on an object that is perpendicular to plane the object is resting on.

ANSWER: normal force

[10] When attempting to move a block from rest, parallel on a flat (i.e. non-inclined) surface, one must exert more force than this quantity times the normal force in order to get the block to move.

ANSWER: coefficient of static friction [or mu]

[10] For a block on an inclined surface, the coefficient of static friction can be found as this function of the angle at which the block starts sliding with no external forces except for gravity.

ANSWER: tangent

16. Two of the founders of this art movement broke over the use of diagonal lines in painting. For 10 points each:

[10] Name this abstract art movement co-founded by Theo van Doesburg, which emphasized the use of primary colors.

ANSWER: De Stijl [or neoplasticism]

[10] Another co-founder of De Stijl was this Dutch painter of *Gray Tree*, *Broadway Boogie-Woogie*, and the diamond-shaped "lozenge" paintings.

ANSWER: Pieter Cornelis Mondrian

[10] Mondrian's last work, which he left unfinished, is named for this word followed by "boogie-woogie."

ANSWER: victory

17. Most instruments are pitched in this key. For 10 points each:

[10] Name this major key that has no sharps or flats.

ANSWER: C major

[10] C major's dominant scale degree is this note. Like all dominant degrees, it can be abbreviated as V [five].

ANSWER: **G** [accept **G major**]

[10] The relative minor of C major is A minor. A minor's natural scale is equivalent to this mode of A.

ANSWER: **Aeolian** mode

18. For 10 points each, name some stuff about child psychology.

[10] This Swiss psychologist was a proponent of the constructivist theory of learning. He also theorized a theory of cognitive development in which children pass through four stages, including the sensorimotor and preoperational.

ANSWER: Jean **Piaget**

[10] According to Piaget, this concept arises in children at the end of the sensorimotor stage and progresses in six stages in which circular reactions are developed. When absent, it can explain A-not-B errors.

ANSWER: **object permanence**

[10] This psychologist created a model of eight stages of psychosocial development in which the desirable results in each step are referred to as "virtues."

ANSWER: Erik **Erikson**

19. Name some British historical novelists, for 10 points each.

[10] The first major British historical novelist was this author of *Rob Roy* and *Ivanhoe*. Like Manzoni, he wrote a novel called *The Betrothed*.

ANSWER: Sir Walter **Scott**

[10] This author won the 2012 Booker Prize for her novel *Bring Up the Bodies*, the second novel in her trilogy about Thomas Cromwell.

ANSWER: Hilary **Mantel**

[10] This author is famous for his nautical adventure tales, including *The African Queen* and the Horatio Hornblower series.

ANSWER: Cecil Scott **Forester**

20. Horace Vandergelder is the title character of this author's play *The Merchant of Yonkers*. For 10 points each:

[10] Name this playwright, who wrote about Emily Webb's brief return to life in Grover's Corners in *Our Town*.

ANSWER: Thornton **Wilder**

[10] This is the name of the horse-owning local milkman in *Our Town*.

ANSWER: **Howie Newsome** [accept either name]

[10] This Wilder play is about the Antrobus family, and its first act takes place at the dawn of a new Ice Age.

ANSWER: *The* **Skin of Our Teeth**

21. Occurring just over a week before the 9/11 terrorist attacks, the acquisition of this company initially caused HP shares to drop dramatically. For 10 points each:

[10] Name this company that was part of a controversial 2001 deal with HP, that effectively ended the independence of this computer company that was the largest PC maker before Dell's rise to prominence.

ANSWER: **Compaq**

[10] The CEO of Hewlett-Packard, at the time, was this woman who would go on to unsuccessfully challenge Barbara Boxer in a 2010 senate race.

ANSWER: Carly **Fiorina**

[10] Fiorina and Boxer ran for the senate in this state that was once governed by Arnold Schwarzenegger.

ANSWER: **California**