

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

## Editors Round 4

### Warm-Up Tossup (Optional)

One candidate for this position is the boss of Butch and Cassidy, because it was revealed he dated Delia. Another candidate for this position inadvertently travels forty years in the future with Celebi to escape a Houndoom; that man is the grandfather of Gary and worked with the companion of a Mr. Mime. Perhaps the most likely candidate for this position saw a legendary bird as a child, similar to a boy who saw a Ho-Ho. That man also somehow knows of that boy, whom wears a distinctive cap and was turned to stone after he got between Mew and Mewtwo's duel. For 10 points, who is this unknown progenitor of the trainer of Pikachu?

ANSWER: Ash's father

### Tossups

**1. One work of this type shows a naked woman with her back to the viewer wading in shallow water and holding a sphere-like object in front of her face; that work, *Dawn*, was created by Alice Boughton. A set of works of this type was known as "The Magnificent Eleven." Robert Demachy was part of the movement of pictorialism, whose members produced works of this type. Robert Frank collected some of his works of this type in *The Americans*. The exhibit *The Family of Man* showcased this type of work and was organized by Edward Steichen. The Farm Security Administration sponsored artists such as Walker Evans, whose work of this type was used in *Let Us Now Praise Famous Men*, and Dorothea Lange, who created a work of this type called *Migrant Mother*. For 10 points, name this type of work created by the members of f/64, such as Ansel Adams.**

ANSWER: photographs [accept equivalents]

**2. Buys-Ballot's law is a consequence of this phenomenon. The beta plane approximation is used to estimate this phenomenon's associated parameter, which is proportional to the sine of latitude. When the pressure gradient force is balanced by this phenomenon for a flow, it is termed geostrophic. When the Rossby number is one, gravitational and centrifugal accelerations cancel and this phenomenon can be observed with Foucault's pendulum. In the Northern and Southern Hemispheres, this phenomenon deflects moving objects to the left, and right, respectively, creating clockwise and counterclockwise rotation. For 10 points, identify this fictitious force that results from the Earth's rotation.**

ANSWER: Coriolis effect [or Coriolis force]

**3. In one legend, this man founded the city of Ephyra, which was filled with people created from mushrooms, although in another, he was given the city by Medea. This man fathered two sons with Tyro, and then blamed their death on his brother, Salmoneus. After branding the hooves of his cows, this man discovered they were being stolen by Autolycus. Following the death of his nephew Melicertes, this man founded the Isthmian games. This figure's demise started when he told the river god Asopus about Zeus's abduction of Aegina. This man managed to handcuff either Hades or Thanatos, and later told his wife Merope to leave him unburied, allowing him to come back to the world of the living. For 10 points, name this figure from Greek myth who was punished to eternally roll a boulder up a hill.**

ANSWER: Sisyphus

**4. One character in this story repeatedly says “The damned little cuss!” after the title character grabs his finger. A sailor in this story named Man O’ War Jack sings a lugubrious song about the adventures of the *Arethusa*. The setting of this story is forty miles away from a place called Red Dog, and Sandy Tipton suggests that the title character should be sent there. At the end of this story, the North Fork River floods, killing Stumpy and Kentuck. The title character of this story is Cherokee Sal’s baby son, who is thought to bring good fortune to a group of gold prospectors. A minor character in this story also appears as the main character of the author’s story “The Outcasts of Poker Flat.” For 10 points, name this short story by Bret Harte.**

ANSWER: “The Luck of Roaring Camp”

**5. Mihac and Bunic helped build some of these objects at Ston, which are in the same country as ones near Fort Bokar and Minceta at Dubrovnik. A trench and one of these structures at the foot of Kalkriese Hill resulted in a massacre during the Battle of the Teutoburg Forest. Aristides wanted to use the silver found at Laurium to build one of these, instead of the triremes proposed by Themistocles during the Greco-Persian Wars. Ones built by Constantine and Theodosius were the forerunners of a system of these at Constantinople which were eventually defeated by forces under Mehmed II. The ones that connected Piraeus and Athens during the Peloponnesian War were known as the “long” ones. For 10 points, name these structures, one of which was built by Hadrian.**

ANSWER: walls [accept more specific answers]

**6. Herr Klesmer and Catherine Arrowpoint’s courtship is fueled by their mutual enjoyment of this type of object in *Daniel Deronda*. William Dobbin acquires this type of object at an estate auction from Mr. Hammerdown in *Vanity Fair*. This type of object is central to the professions of Erika Kohut, the sexually repressed protagonist of a novel by Elfriede Jelinek, of Samson D’Arnault, who visits Black Hawk in *My Antonia*, and of Mademoiselle Reisz, the independent friend of Edna Pontellier in *The Awakening*. Jane Fairfax receives one of these objects as a gift from an unknown admirer in Jane Austen’s *Emma*. Boy Willie wants to sell one of these objects to buy the Sutters’ land in a play by August Wilson. For 10 points, name this type of musical instrument, a lesson of which titles that August Wilson play.**

ANSWER: piano [prompt on “musical instrument” or similar answers]

**7. The beta subunit of this enzyme features the highly conserved DELSEED motif. Neutralization of aspartate residues in this enzyme allows the movement of its c-ring. Inhibitors of it include DCCD and oligomycin. One subunit of this enzyme transitions between loose, tight and open conformations, according to the binding change mechanism of Paul Boyer. The two components of this enzyme are connected by a stator. Those two components are F-sub-zero and F-sub-one, rotary motors whose direction is controlled by the flow of protons across a membrane. For 10 points, name this enzyme that produces the major energy storing molecule in cells.**

ANSWER: phosphorylation factor-ATP synthase [or F-type ATPase]

**8. Along with Mariano Arista, this man disguised his forces as bellringing monks to fortify a convent. A business partnership between Thomas Adams and this man sought to develop a cheap rubber substitute, but instead introduced chewing gum to the United States. In one campaign, this man besieged the expedition of Isidro Barradas in Tampico. He sparked a series of rebellions by instituting the Seven Laws, and he was placed in charge of military forces in response to a French invasion in the Pastry War. His army unsuccessfully assaulted forces under Zachary Taylor at the Battle of Buena Vista. On a different front, he ordered the execution of enemy prisoners held in Fort Defiance in the Goliad Massacre before losing to Sam Houston’s surprise attack at the Battle of San Jacinto. For 10 points, name this Mexican general and president who commanded the army that captured the Alamo.**

ANSWER: Antonio Lopez de Santa Anna

**9. According to a paper by Roderick Chisholm, methodism, particularism and this position are the three possible responses to the problem of the criterion. An early proponent of this position was Agrippa, who sometimes gives his name to an argument which points out that that it is impossible to avoid invoking the circular argument, the regressive argument, or the axiomatic argument. This philosophical position is opposed by a form of externalism known as reliabilism. The writings of Sextus Empiricus are the main source for information about the Pyrrhonian variety of this school of thought. Thought experiments supporting this position include the hypothesis that the world came into existence five minutes ago and the “brain in a vat” hypothesis. For 10 points, name this philosophical position which denies the possibility of being certain about anything.**

ANSWER: skepticism

**10. In a book subtitled *Art in Metamorphosis*, Dorothy Johnson claimed that this artist was one of the first to express the attitudes of his subjects in their entire bodies. Two horn players appear behind a tree trunk on the right hand side of one canvas by this artist, in which three men hold outstretched wreaths behind a Spartan king. This painter of *Leonidas at Thermopylae* depicted a divan perched on some clouds in *Mars Being Disarmed by Venus*, while a divan is again the seat of the primary subject of his portrait of Madame Recamier. One of his paintings shows a stairway through a stone archway on the left and features a man in a toga being passed a cup of hemlock. In a different painting by him, three brothers gesture towards their father, who holds their swords. For 10 points, name this French Neoclassical painter of *The Death of Socrates* and *The Oath of the Horatii*.**

ANSWER: Jacques-Louis David

**11. Edward Bulwer-Lytton urged the author of this novel to change its ending, resulting in an episode set eleven years after the main action in which two characters join hands in a garden. In one scene from this novel, the protagonist’s sister is viciously attacked by Dolge Orlick. One location in this novel takes its name from a Latin word meaning “enough” and is called Satis House; the resident of that house wears only one shoe and keeps all the clocks at eight forty in memory of her abandonment at the altar by Compeyson. This novel’s protagonist befriends Herbert Pocket in London, but he is disappointed when he discovers that Bentley Drummle has married his beloved Estella. This novel’s main character is surprised to discover that his benefactor is the convict Abel Magwitch. For 10 points, name this novel about Pip by Charles Dickens.**

ANSWER: Great Expectations

**12. A paper by Lalive, Luechinger, and Schmutzler about the changes to the German railway system uses traffic accident and infant mortality rates as examples of these concepts. Katz and Shapiro wrote a paper that claims that fax machines and telephones possess the network type of them. They were notably illustrated with the example of a train that makes sparks by Ronald Coase, whose namesake theorem states that, so long as transaction costs are minimal, they can be resolved through private deliberations. Pigouvian taxes seek to alleviate them, and they are usually represented graphically by adjusting a cost curve. Waste dumping and other forms of pollution are classic examples of the negative type. For 10 points, name the economic term for a cost or a benefit that was not caused by the party whom it impacts.**

ANSWER: externalities [accept word forms; accept spillover]

**13. The fissure type of this process tends to form spatter ramparts. A namesake column due to this process results from volatiles, such as water, forming bubbles. Rapid ascent through a diatreme in this process can create a "neck." The magnitude of this process is measured on the VEI scale. When the product of this process is majorly andesitic, it forms a discontinuous or blocky surface; that product of this process has its viscosity affected by temperature and silica and gas content. Types of this process include Hawaiian, Strombolian, and Plinian. This process involves structures that can come in shield, strato- and cinder cone varieties. For 10 points, what is this process in which molten rock is spewed out on the surface of the Earth?**

ANSWER: volcanic **eruptions** [or **volcanism**; or fissure **eruptions**; prompt on obvious equivalents, such as **lava** coming **out of volcanos** onto the surface of the Earth]

**14. A phenomenological school of thought within this tradition was founded by the half-brothers Asanga and Vasubandhu, and posits a list of eight primary consciousnesses. In this tradition, expedient means used to achieve enlightenment are known as *upayas*, which are commonly illustrated using the parable of the burning house or the image of an empty fist. The Madhyamaka school of this tradition was founded by the philosopher Nagarjuna. Texts in this tradition include the “Heart” and “Diamond” ones, which discuss the perfection of wisdom, and the Lotus Sutra. For 10 points, name this “Great Vehicle” which is one of the two major branches of Buddhism along with Theravada.**

ANSWER: **Mahayana** Buddhism [prompt on **Buddhism**; anti-prompt on **Pure Land**, **Zen**, **Nichiren**, and **Tiantai**, which are all Mahayana schools]

**15. This company was the defendant in the court case that established that a company’s board of directors must prioritize shareholder value. This company won a key patent lawsuit against George Selden, and it tried to set up a planned town near Santarem as part of its plans to acquire rubber production resources in Brazil. After serving in a group of military men under Charles Thornton who ran this company as the Whiz Kids, Robert McNamara served as president of this country. The Battle of the Overpass was fought between this company and its unionized employees, and its founder wrote *The International Jew* and published *The Dearborn Independent*. Its founder quipped that people could have one of its products in any color they wished, so long as it was black. For 10 points, name this auto manufacturer that pioneered the assembly line in producing the Model T.**

ANSWER: **Ford** Motor Company

**16. This play’s second act takes place in a bakeshop owned by Ragueneau. Fifteen years pass between its fourth act and its fifth act, which takes place in a convent where the dying protagonist visits his beloved. Just before the title character dies at the end of this play, he declares that the one thing he still has is his panache. In this play, the Comte de Guiche tries to marry another character to the Vicomte de Valvert so that he can be her clandestine lover, and then sends two of his rivals to fight in the Siege of Arras, at which one of them is killed. The title character of this play uses his literary talents to help Christian woo the woman they are both in love with, Roxane. For 10 points, name this play by Edmond Rostand about a large-nosed poet.**

ANSWER: **Cyrano de Bergerac**

**17. While occupying this position, one person announced that two disks full of information about his country’s population had been stolen in the Child Benefit Data Scandal. One former holder of this position launched the so-called Big Bang initiative and is the father of celebrity chef Nigella. The current holder of this position was accused of illegally soliciting campaign money from Oleg Deripaska and announced Project Merlin, whereby banks including Barclays would provide funding to businesses. While serving in this position, David Lloyd George promulgated the People’s Budget. For 10 points, name this highest position in the Treasury of the United Kingdom, now held by George Osborne, which has been held by many before becoming Prime Minister.**

ANSWER: **Chancellor of the Exchequer**

**18. This element's sulfide names a crystal lattice that is identical to diamond except for containing alternating atoms at adjacent lattice sites. Using this element and an acid as reagents, alpha-halo esters and aldehydes or ketones are converted to beta-hydroxyesters in the Reformatsky reaction. A "couple" of copper and this element is used in the cyclopropanation of alkenes called the Simmons-Smith reaction. An amalgam of this element and mercury is used with hydrochloric acid to reduce aldehydes and ketones to alkanes in the Clemmensen reduction. To prevent rusting or corrosion, a surface coating of this metal is applied to steel or iron in the process of galvanization. For 10 points, name this metal with symbol Zn.**

ANSWER: zinc

**19. A legend holds that Aimee du Buc de Rivery was the consort of one ruler of this empire, and that she hid her son from assassins in a furnace. This empire used a legal system in which each region had a kanunname, and, in the later parts of its existence, it operated under the Mecelle code. The best known letters of Lady Mary Wortley Montagu were written while her husband was a British ambassador to this empire. This empire's cavalry forces were called Sipahi. Christians in this empire were recruited to Enderun Schools via the process of Devsirme. During the 19th century, this empire underwent the Tanzimat reform era after the Auspicious Incident ended the prevalence of its Janissary infantry corps. For 10 points, name this empire ruled by Suleiman the Magnificent that supplanted the Byzantines to control Anatolia until World War One.**

ANSWER: Ottoman Empire

**20. The first piece from this collection begins in 6/8 with an E-major chord played by bassoons and A-clarinets under an eighth-note pentatonic flute melody that descends from B to E, then ascends back; that melody is passed several times between the flute and oboe before the strings take it up. That piece in this collection is followed by an "Andante doloroso" one for muted strings, "Aase's Death," and is entitled "Morning Mood." The melody of another piece in this collection is introduced by pizzicato basses and celli, and begins with eighth notes ascending partway up the B-minor scale; that is "In the Hall of the Mountain King." "Anitra's Dance" and "Solveig's Song" are other movements of, for 10 points, what two suites by Edvard Grieg derived from his incidental music for a Henrik Ibsen play?**

ANSWER: Peer Gynt suites [accept Peer Gynt Suite No. 1 before "Solveig," but not after; at no point accept just Peer Gynt Suite No. 2]

**21. A compound with a high affinity for this element named yersiniabactin is produced by *Yersinia pestis*. In core-collapse supernovae, the r- and s- processes are used to produce nuclei heavier than this element. One solution used to purify waste water consists of hydrogen peroxide and a catalyst of this element, known as Fenton's reagent. Though not aluminum, a chloride of this element is commonly used as a catalyst for Friedel-Crafts reactions. The gene HAMP expresses the protein that regulates the homeostasis of this element in mammals, known as hepcidin. One alloy of this element can undergo martensite, bainite and pearlite phase transitions. Meat's red color and our blood's ability to transport oxygen are both mediated by proteins containing this element. For 10 points, what is this transition element with symbol Fe?**

ANSWER: iron [accept Fe until mentioned]

## Bonuses

1. This composer's last opera was *Iolanta*. For 10 points each:

[10] Name this Russian composer who adapted a Pushkin novel into the opera *Eugene Onegin*. His ballets include *The Nutcracker* and *Swan Lake*.

ANSWER: Pyotr Ilyich **Tchaikovsky**

[10] Pushkin's poem *Poltava* is the basis for this Tchaikovsky opera whose title character falls in love with Kochubey's daughter Mariya.

ANSWER: **Mazeppa**

[10] A Pushkin short story about a gambler named Hermann is the basis for this Tchaikovsky opera.

ANSWER: *The **Queen of Spades*** [or **Pikovaya dama**]

2. For 10 points each, give the following about Ireland in the 19<sup>th</sup> century.

[10] A blight of this staple food in the mid-1840s resulted in a million deaths and even more emigration.

ANSWER: **potatoes** [accept Great **Potato Famine**]

[10] The campaign for Irish autonomy within the British Empire was given this name, the slogan of a movement founded by Isaac Butt. William Gladstone introduced several failed bills of this type.

ANSWER: Irish **Home Rule** [do not accept "Home Government"]

[10] One of the first major Irish nationalist leaders was this proponent of Catholic emancipation who co-founded the Catholic Association with Richard Sheil. He was nicknamed "The Liberator."

ANSWER: Daniel **O'Connell**

3. A member of the Kit-Cat Club, this man wrote a lengthy response to Jeremy Collier's critique *A Short View of the Immorality and Profaneness of the English Stage*. For 10 points each:

[10] Who is this English playwright, who wrote *The Old Bachelor* and *Love for Love*?

ANSWER: William **Congreve**

[10] Congreve is probably best known for this play, whose characters include Foible, Fainall, Mirabell and Millamant.

ANSWER: *The **Way of the World***

[10] Congreve was friends with this author of *Gulliver's Travels* and *A Modest Proposal*.

ANSWER: Jonathan **Swift**

4. In this play, the central character claims she will meet her lover Ranjan. For 10 points each:

[10] Name this play centering on Nandini, who eventually encourages a revolt in the mining town of Yakshapuri, supposedly ruled by a king who hides behind an iron curtain, but really run by the Governor.

ANSWER: **Red Oleanders**

[10] *Red Oleanders* was written by this author, who also wrote a collection of 103 poems called *Gitanjali*.

ANSWER: Rabindranath **Tagore**

[10] Tagore also wrote two works of this type, "Jana Gana Mana" and "Amar Shonar Bangla."

ANSWER: national **anthems**

5. In one story, this figure was created by Twashta after the death of his son Vishwarupa. For 10 points each:

[10] Name this dragon that resided in one of 100 fortresses and swallowed all the water in the world, but was killed with a thunderbolt called the Vajra.

ANSWER: **Vritra** [accept **Ahi**]

[10] Vritra was ultimately slain by this leader of the Devas, the Hindu god of thunder. He rode on the elephant Airavata.

ANSWER: **Indra**

[10] According to one legend, Vishnu told Indra that Vritra could not be defeated unless Indra had a weapon made from these objects taken from the body of sage Dadhichi. These objects were then used to make the Vajra.

ANSWER: **bones** [accept more specifically something related to the **spine**]

6. In a method developed by Lee Cronbach, this letter represents the level of reliability of a measurement tool, such as a survey. For 10 points each:

[10] Name this letter that denotes the probability of committing a type I error, which means it can be used to represent the level of significance of a test.

ANSWER: **alpha**

[10] While Cronbach's alpha can measure reliability, it does not measure this concept, the degree to which a measurement reflects reality. Sometimes used interchangeably with accuracy, when used with regard to experiments it comes in internal and external forms.

ANSWER: **validity**

[10] In statistical testing, type I and type II errors occur when one incorrectly rejects or incorrectly fails to reject this "default position".

ANSWER: **null hypothesis** [prompt on partial answer]

7. For 10 points, give some influential French anthropologists:

[10] This man espoused his structuralist view that mental structures and human characteristics are constant across societies in several books, *The Savage Mind* and *Tristes Tropiques* being a few examples.

ANSWER: Claude **Levi-Strauss**

[10] This nephew of Emile Durkheim wrote extensively on the Kula Ring in his *The Gift*.

ANSWER: Marcel **Mauss**

[10] This proponent of actor-network theory wrote *Aramis, or the Love of Technology*, but is probably better known for *We Have Never Been Modern*.

ANSWER: Bruno **Latour**

8. These organisms can be found in black smokers and acid lakes, and PCR uses a polymerase that is derived from one of these organisms. For 10 points each:

[10] Identify this term for organisms that live in conditions in which most other organisms would perish.

ANSWER: **extremophiles** [anti-prompt on **thermophiles** or **acidophiles**]

[10] These extremophiles can withstand incredibly high doses of radiation, have survived in outer space, and can go without food for like one hundred and twenty years. You might know them better as water bears or moss piglets.

ANSWER: **tardigrades** [or **Tardigrada**]

[10] Tardigrades are in the same superphylum as arthropods because they undergo this process, in which exoskeletons are sloughed off and new ones grown in the old one's place.

ANSWER: **ecdysis** [or **moulting**]

9. For 10 points each, give some details surrounding some U.S. disappearances.

[10] This merchant brigantine originally set off for the Strait of Gibraltar when it was later found on December 4, 1872 unmanned with its cargo untouched.

ANSWER: **Mary Celeste**

[10] This U.S. ship was declared lost at sea for over 100 years after fighting at Hampton Roads and foundering in a storm. It was designed by John Ericsson.

ANSWER: USS **Monitor**

[10] This aviator disappeared with Fred Noonan while on her attempt to fly across the globe. She never made it to a refueling station in the South Pacific, causing some to think that she crashed and died.

ANSWER: Amelia **Earhart**

10. Despite the fact their constituents can often rotate plane-polarized light, these mixtures do not. For ten points each:

[10] Name these mixtures discovered by Louis Pasteur when he created a mixture of equal parts right- and left-handed enantiomers of tartaric acid.

ANSWER: **racemic** mixtures

[10] Enantiomers are examples of the "stereo" kind of these molecules, which can also be "structural". They generally have the same molecular formula but not the same shape and/or bonds.

ANSWER: **isomers**

[10] These two letters are used to denote enantiomers based on whether the direction of lowest to highest priority is clockwise or counterclockwise.

ANSWER: **R** and **S**

11. For 10 points each, name some characters created by Fyodor Dostoevsky.

[10] This central character of *The Possessed* hangs himself at the end of the novel. A chapter called "At Tikhon's" in which he confesses to seducing a 14-year-old girl was originally censored.

ANSWER: **Nikolai Stavrogin** [accept either name]

[10] In another novel, Fyodor is the murdered father of the brothers Dmitri, Ivan, and Alexei, who are all members of this family.

ANSWER: **Karamazov** family

[10] This saintly but naive prince is the title character of Dostoevsky's *The Idiot*.

ANSWER: Prince **Lev** Nikolayevich **Myshkin** [accept either name]

12. Name some philosophers who have advocated for animal rights, for 10 points each.

[10] This philosopher argued that animals should be given moral consideration because of their sentience in his *Discourse on Inequality*. He also wrote a treatise on education in the form of a novel.

ANSWER: Jean-Jacques **Rousseau**

[10] This pessimistic philosopher owned a succession of poodles, all named Atma, and was another early supporter of animal rights. He wrote *The World as Will and Representation*.

ANSWER: Arthur **Schopenhauer**

[10] This Australian, who controversially argued for the morality of consensual bestiality in his article "Heavy Petting," wrote *Animal Liberation*, a key text in the modern animal rights movement.

ANSWER: Peter **Singer**

13. For 10 points each, name some stuff about the Battles of Panipat.

[10] The first Battle of Panipat saw Babur defeat the forces of Ibrahim Lodi, thus paving the way for Babur to found this empire that would also include the reign of his grandson, Akbar.

ANSWER: **Mughal** Empire

[10] At the third Battle of Panipat, one side was led by Ahmad Shah Durrani, a king of this country. In more recent times, this country's Northern Alliance opposed the rule of Mullah Omar.

ANSWER: **Afghanistan**

[10] The opponent of Ahmad Shah Durrani at Third Panipat was this empire. In the wake of the battle, Madhav Rao I became the fourth Peshwa of this empire that would go on to fight three wars against the British East India Company.

ANSWER: **Maratha** Empire



14. He referred to his fifth symphony as “a Soviet artist’s creative response to justified criticism.” For 10 points each:

[10] Name this Soviet composer of that *Symphony No. 5 in D minor*, along with symphonies titled *Leningrad* and *Babi-Yar*.

ANSWER: Dmitri **Shostakovich**

[10] At the end of Shostakovich’s fifth symphony, the violins repeat this note 252 times. Orchestras generally tune to this pitch, whose major key has three sharps.

ANSWER: **A**’s [accept **A** major]

[10] Shostakovich’s symphony of this number unusually consists of eleven linked movements, each of which is a setting of a poem.

ANSWER: Symphony No. **14**

15. The time-averaged form of this quantity is divided by the speed of light to calculate radiation pressure. For 10 points each:

[10] Identify this vector that points in the direction of propagation for an EM wave and is equal to the cross product of the electric and magnetic fields.

ANSWER: **Poynting** vector

[10] Because the Poynting vector is obtained by taking the cross product of the electric and magnetic fields, it has this property in relation to them. When two vectors with this property are dotted, their product is zero.

ANSWER: **orthogonal** [or **normal**; or obvious equivalents]

[10] Using complex phasor representation, one can derive the time-averaged Poynting vector as this numerical factor times the real part of the cross product of electric field and the complex conjugate of the magnetic H field. It appears because the real part of the phasor is equal to this factor times the phasor plus its complex conjugate, which eliminates the sine term in Euler’s formula.

ANSWER: **one-half**

16. He was originally a fisherman at the Sea of Galilee with his brother Andrew. For 10 points each:

[10] Name this apostle whom Jesus referred to as the rock on which he would build his church. In Roman Catholic tradition, he was the first pope.

ANSWER: Simon (or Simeon) **Peter** or Saint **Peter** [prompt on “Simon” or “Simeon,” prompt on “Kepha(s)”]

[10] Peter heals a lame man at the entrance to this location, known as the Beautiful Gate.

ANSWER: the **Temple** in Jerusalem [accept **Second Temple** or **Herod’s Temple**; do not accept “First Temple”]

[10] In the Book of Mark, Jesus informs Peter that he will deny Jesus three times before he twice hears one of these animals.

ANSWER: **rooster** [accept **cock** from people who think they’re cute or clever]

17. Edward I of England established a reputation as a ferocious warrior. For 10 points each, name some of his enemies in battle.

[10] Before he was crowned, Edward defeated this Duke of Leicester in the Battle of Evesham after this man opposed Henry III in the Second Baron's War.

ANSWER: Simon de **Montfort**

[10] Another one of Edward's foes is this one who originally fought for Edward, but later was defeated by Edward's troop at Methven. He got revenge by defeating Edward's son at Bannockburn.

ANSWER: **Robert** the **Bruce**

[10] William Wallace fought for the independence of this country, for whose conquest Edward gained fame. Robert the Bruce later led this country in another wave of opposition against the king.

ANSWER: **Scotland**

18. This poem notes that “Beauty is momentary in the mind ... but in the flesh it is immortal.” For 10 points each:  
[10] Name this poem whose speaker declares that “Music is feeling, then, not sound.” It is an adaptation of the story of Susanna and the Elders.

ANSWER: “Peter Quince at the Clavier”

[10] This poem includes the cryptic line “Let be be finale of seem” and commands, “Call the roller of big cigars ... and bid him whip in kitchen cups concupiscent curds.”

ANSWER: “The Emperor of Ice-Cream”

[10] “Peter Quince at the Clavier” and “The Emperor of Ice-Cream” both appear in *Harmonium*, a collection by this poet.

ANSWER: Wallace Stevens

19. This painting, now housed in the MoMA, shows a man with a goatee who holds both a top hat and a flower. For 10 points each:

[10] Name this painting, where the title figure stands in front of several fields of color that spiral out from the center.

ANSWER: Portrait of Félix Fénéon

[10] Paul Signac, the painter of *Portrait of Félix Fénéon*, helped start this art movement, along with Georges Seurat. It uses several small dots of color that together form an image.

ANSWER: pointillism

[10] This painting by Seurat shows several men reclining along the banks of a river, including one who wears only red trunks and another with a red hat on his head.

ANSWER: Bathers at Asnières [accept *Une Baignade, Asnières*]

20. One lake in this country is so named because of a swamp fortress Prince Pribina built. For 10 points each :

[10] What is this European country that contains the Zala River, which feeds its Lake Balaton? It also includes Lake Heviz, the largest thermal lake in the world

ANSWER: Hungary

[10] The White branch of this Hungarian river descends the Chornohora Mountains. The Baia Mare cyanide spill on Romania’s Someș River also affected this river.

ANSWER: Tisza River

[10] The Tisza feeds this river, which is second in length only to the Volga in Europe. It flows through Ulm, Linz, Budapest and Belgrade.

ANSWER: Danube River

21. This crop of the genus *Zea* has a namesake smut which is considered a delicacy in many Mesoamerican countries. For 10 points each:

[10] What golden crop can also be used to produce biofuels like ethanol?

ANSWER: corn [accept maize]

[10] This woman spent a lot of time studying corn. This Nobel Prize laureate is also noted for elucidating various meiotic mechanisms, including crossing over.

ANSWER: Barbara McClintock

[10] Barbara McClintock also discovered transposition, which is utilized by this Disney-inspired system to splice DNA sequences into animal chromosomes.

ANSWER: Sleeping Beauty transposon system