

Bulldog High School Academic Tournament 2015 (XXIV): It's more than good...it's Grace!

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Edited by Jacob Reed, with Grace Liu

Packet 2 Tossups

1. [Note to moderator: please read the gray-highlighted text SLOWLY, with especially long pauses at the semicolons]

A sonata for this instrument begins by arpeggiating a C major triad up to G; then leaps down to B; then a rapid “C-D-C.” Concerti for this instrument have nicknames like “Jeunehomme,” “Coronation,” and “Elvira Madigan.” Clementi and Czerny [“churny”] wrote books of etudes for this instrument. A sonata for this instrument was supposedly inspired by *The* (*) *Tempest*, and the “Emperor” concerto and the “Hammerklavier” sonata were written for it. Mozart wrote 27 concertos to show off his skill on it, and Beethoven wrote 32 sonatas for it. For 10 points, name this instrument, for which Mozart wrote variations on the tune of “Twinkle, Twinkle Little Star,” as well as a “Rondo Alla Turca.”

ANSWER: pianofortes [or fortepianos] <JR>

2. The PAIGC fought for the independence of two of this country's possessions. The communist front FRELIMO fought a decade-long war of independence against this country. Another former colony of this country has been plagued by a separatist movement in oil-rich Cabinda. The MPLA in that former colony of this country fought against the FNLA and UNITA during a 26-year civil war. Many of its colonies became independent after (*) Marcelo Caetano, the successor of António Salazar, was overthrown in its Carnation Revolution. For 10 points, identify this country that once controlled Mozambique, Angola, and Brazil.

ANSWER: Portugal [or Portuguese Republic; or República Portuguesa] <MW>

3. A speaker with this characteristic asks his friend, “Is my team ploughing,” in an A.E. Housman poem. A woman who rails against “degenerate sons and daughters” possesses this characteristic, as do “the weak of will, the strong of arm, [and] the clown.” Those narrators of (*) *The Spoon River Anthology* share this trait with the taxable property purchased by a man who is mistaken for Captain Kopeikin. Unlike Chichikov's serfs in a Gogol novel, Madeline does not possess this characteristic when she is locked in the crypt by her brother, Roderick Usher. For 10 points, identify this state of being for everyone in Prince Prospero's castle at the end of Poe's *The Masque of the Red Death*.

ANSWER: being dead [or being deceased; or not being alive; accept equivalents; prompt on “being a ghost” or equivalents] <GL>

4. In cancer research, DMBA is often attached to this molecule. Two of this molecule's components form “spore” and cyclobutane dimers when exposed to UV light. Ethidium bromide intercalates itself into this molecule. This molecule can be repaired by glycosylases and endonucleases. This molecule's CpG sites can be (*) methylated to partially inactivate it. At the ends of this molecule, a “three prime” end is aligned with a “five prime” end, making its strands antiparallel. One component of this molecule is swapped with uracil during transcription. For 10 points, name this molecule made of the nucleotides thymine, guanine, adenine, and cytosine, which encodes genes.

ANSWER: DNA [or deoxyribonucleic acid] <JR>

5. A philosopher from this school taught Arrian, who wrote down his *Discourses* and *Handbook*. Another philosopher from this school wrote bloody tragedies like *Hercules Furens*. One philosopher from this school

urged readers to take a “cosmic” perspective on things and thought about twelve phases of his life while (*) campaigning on the Rhine frontier. This school included Epictetus and was founded by Zeno of Citium. Nero was taught this philosophy by Seneca, and it is espoused by the *Meditations* of Marcus Aurelius. For 10 points, name this ancient philosophical school that stressed virtue and freedom from emotions.

ANSWER: Stoicism <FM/JR>

6. The Serpent Column, now located in Istanbul, was built to commemorate the end of these conflicts. These conflicts were followed by the prosperous “Fifty Years.” During a battle in these conflicts, the losing commander watched from a throne on a nearby island as hundreds of his ships were destroyed after being crammed into the namesake straits. They ended after Mardonius was killed at (*) Plataea. These conflicts, which began with the Ionian Revolt, included naval battles at Artemisium and Salamis and land battles at Marathon and Thermopylae. For 10 points, name this series of conflicts between the Greeks and the Achaemenid forces of Darius and Xerxes.

ANSWER: Persian Wars [or Greco-Persian Wars; accept any answer involving Persian Invasions of Greece] <FM/JR>

7. This musician was featured on the highest-ranking American song on the 2014 Triple J Hottest 100 Countdown. In his first song to top the U.S. charts, this musician says, “Oh, her eyes, her eyes, make the stars look like they're not shinin'.” In another song on the same album, this artist offers to “Throw my hand on a blade for ya” and to “jump in front of a train for ya”; that song is (*) “Grenade.” In a recent hit, this man declares “I’m too hot, hot damn, called a police and a fireman” before repeating, “Don’t believe me just watch.” For 10 points name this Hawaiian musician whose vocals were featured on Mark Ronson’s “Uptown Funk”.

ANSWER: Bruno Mars [or Peter Gene Hernandez] <NW>

8. One of these structures is removed by Raney nickel in a hydrogenation reaction. One of these structures is formed in dehydrohalogenation by performing an elimination on an alkyl halide. Cis-trans isomerism occurs across these structures. Conjugation occurs when these structures are alternated with a weaker one. Imines, azides, and (*) carbonyl compounds like aldehydes have at least one of these structures. The resonance structures of benzene differ in the placement of these structures. In these structures, the overlap of two p-orbitals forms one pi bond. By definition, alkenes have at least one of these structures, and carbon dioxide only has this kind of bond. For 10 points, name this kind of bond often represented as two lines.

ANSWER: double bonds [accept any more specific kind of double bond, like “carbon-carbon double bonds”; accept triple bonds before “dehydrohalogenation”; accept pi bonds before “Cis-trans”; prompt on “pi bonds” after “Cis-trans”; prompt on “multiple bonds” or just “bonds”; if they answer with “alkenes,” prompt by saying “They want a specific structure.”] <JR>

9. A landscape painter from this nation painted cloud-covered landscapes like *The Jewish Cemetery*. This nation was home to artistic families like the Claesz [“clahss”], the Cuyp [“cowp”], and the Ruisdael [“ROWS-dahl”]. A painter from this country depicted rowdy household scenes like *The Feast of Saint Nicholas*, which centers on a little blonde girl in a golden dress. Another painter from this nation depicted a pregnant *Woman in Blue* (*) *Reading a Letter*, and a blue and yellow-dressed *Milkmaid*. That painter from this country depicted maps in *The Geographer* and *The Art of Painting*. For 10 points, name this nation home to Jan Steen [“yawn” “stain”], and the painter of *Girl With a Pearl Earring*, Jan Vermeer.

ANSWER: the Netherlands [or Nederland; prompt on “Holland”] <JR>

10. This region is home to the European Southern Observatory’s La Silla and Paranal outposts, including the Very Large Telescope. This region is the location of the Tamarugal Plateau and the Loa River. It is home to the largest open-pit copper mine in the world, Chuqui, which is owned by Codelco. This region is also home

to cities like Iquique in the Tarapacá Region, as well as the (*) Antofagasta Region. This desert south of the Altiplano has vast saltpeter reserves. It is primarily the result of a rain shadow from the Cordillera Domeyko, a range of the Andes Mountains. For 10 points, name this driest non-polar desert on Earth, located in Chile.

ANSWER: Atacama Desert <JM/JR>

11. Description acceptable. Abbé Breuil is best known for his studies of these works, and he attributed magical powers to them. The oldest known one of these works was the subject of a 2010 Werner Herzog documentary. Some of them, like those in Chauvet, France, contain dark triangles thought to represent (*) female fertility. These works are often decorated with finger flutings and sometimes depict humans through “hand stencils.” The ones in Altamira and Lascaux depict buffalo and other animals being hunted. For 10 points, name these Stone Age artworks that have survived because of their protected location.

ANSWER: cave painting [accept any answer describing art in a cave; prompt on “primitive,” “prehistoric,” or “Stone Age” art; prompt on “rock painting”] <FM>

12. One type of these events may be caused by recrystallization instabilities, or the propagation and linking-up of spinel-filled anticracks arising from olivine transformation. Wadati-Benioff zones are the site of many deep-focus types of these events. These events can be explained by the elastic (*) rebound theory, which posits that two sides of a strike-slip fault quickly snap back during these events. Triangulation with the difference between the arrival times of P and S waves can locate the epicenter of these events. For 10 points, name these natural disasters measured on the Richter scale.

ANSWER: earthquakes [or tremor; or temblor] <HX>

13. The third king of this name came to power with the help of the valiant knight William Marshal, and he won the battle of Evesham against Simon de Montfort, ending the Second Barons’ War. That king of this name was forced to sign the Provisions of Oxford and Westminster. An English king of this name wrestled a French king at the (*) Field of the Cloth of Gold. Another ruler with this name issued the Constitutions of Clarendon and was the first Angevin king of England. That king married Eleanor of Aquitaine and accidentally had Thomas à Becket killed. For 10 points, give this name of eight English kings, the last of whom had six wives.

ANSWER: Henry [accept any specific Henry] <LL>

14. This man tells of a goat with a horn that breaks off, to be replaced by four little horns. He also tells of a bear with ribs between its teeth and a leopard with wings. This man’s namesake book involves the discussion of a clay-footed statue of four metals. Apocryphal versions of his book contain the stories of Bel and the Dragon and (*) Susannah and the Elders. His friends Shadrach, Meshach, and Abednego were thrown into a fiery furnace but did not burn. He interpreted Nebuchadnezzar’s dreams and read the “writing on the wall” during Belshazzar’s Feast. For 10 points, name this Biblical prophet who was rescued by an angel from the lion’s den.

ANSWER: Daniel [or Daniyyel] <JM>

15. The protagonist of this novel has a vision of an idyllic seaside and then two witches ripping up kids while he is propped up against a cabin during a snowstorm. In its chapter “Walpurgis Night,” the protagonist hooks up with Claudia Chauchat. This novel contains debates over medieval philosophy between Naphta and the encyclopedist (*) Settembrini. Throughout this novel, characters die of tuberculosis, including the protagonist’s cousin Joachim Ziemssen. For 10 points, Hans Castorp stays at a sanatorium on the title Swiss location in what novel by Thomas Mann?

ANSWER: *The Magic Mountain* [or *Der Zauberberg*] <JR>

16. The testimony of John Peurifoy sparked a backlash against these people, whose mid-twentieth-century activists included Donald Webster Cory and Frank Kameny. The Mattachine Society and ACT UP were two

large organizations of these people, who were the primary participants in the White Night Riots. A large study on these people, whose rights were at issue in *Bowers v. Hardwick*, was conducted by Alfred (*) Kinsey. The Lavender Scare persecuted this group, whose namesake liberation movement was spurred by the Stonewall Riot and the career of Harvey Milk. For 10 points, name this group of people whose sexual orientation was blamed for the AIDS crisis.

ANSWER: gay people [or homosexuals; or LGBTQ people; or queer people; accept equivalents; if they answer with “lesbian(s),” “bisexual people,” “transgender people,” or equivalents, prompt by saying “they want something more general”] <JW>

17. This physical quantity is unchanged in certain situations, according to the Stretch Rule. This quantity for a uniform rod is four times as large when measured from the end instead of from the center. When measured through the center of a uniform sphere, this quantity is equal to two fifths times the (*) total mass times the radius squared. The parallel axis theorem can be useful for determining this quantity. It is equal to angular momentum over angular velocity or torque over angular acceleration. For 10 points, name this quantity equal to mass times distance squared, the rotational analog of mass.

ANSWER: mass moment of inertia [or angular mass; or rotational inertia; or second moment of the area; prompt on “I”] <NW>

18. This poet celebrates a two-day old infant that calls itself Joy, but that baby is mirrored by one which, “bound and weary...thought best to sulk upon [his] mother’s breast,” the “Infant Sorrow.” One poem by this author contrasts a malleable, cattle-trodden love that “seeketh not itself to please” with the kind of selfish love that “builds a Hell in Heaven’s despite.” Another work by this poet of “The (*) Clod and the Pebble” begins “And did those feet in ancient time.” He described the fearful symmetry” of an animal “burning bright in the forests of the night.” For 10 points, name this English poet whose “The Tyger” appears in his *Songs of Innocence and Experience*.

ANSWER: William Blake <GL>

19. This figure allegedly knelt and prayed before spring battles while encamped at the ironworks of Isaac Potts. This hero supposedly hurled a silver dollar across a mile-long river, but his nephew contends that this man actually threw a piece of slate across the Rappahannock. According to Parson (*) Weems, he wreaked havoc with his new hatchet, after which he declared, “I cannot tell a lie.” He did try hippopotamus ivory, but contrary to myth, this figure did not have wooden teeth, and he never chopped down his father’s cherry tree. For 10 points, name this hero who served as the first president of the United States.

ANSWER: George Washington <GL>

20. The narrator of this novel spends a chapter explaining why a certain color inspires “vague, nameless horror” in him. In this novel, a speech beginning “Your voraciousness, fellow-critters, I don’t blame ye so much for” is given by the cook Fleece. Its narrator watches his roommate’s strange, twenty-four-hour “Ramadan” with a small, black idol named Yojo. Sermons in this novel are given on the book of (*) Jonah and to the sharks. Its narrator signs up with a ship owned by Captains Bildad and Peleg in Nantucket. In this novel set on the Pequod, Queequeg serves with a man who says, “Call me Ishmael.” For 10 points, name this Herman Melville novel about Captain Ahab’s search for the title white whale.

ANSWER: Moby-Dick; or, *The Whale* <FM>

Tiebreaker

21. A work about this action notes that nobody ever benefited from its prolongation. That work states that this thing is based on “deception,” which involves making others think that we are far when we are near, and so on. That work about this action also includes discussions of “the Nine Situations” and was written during

the Spring and (*) Autumn Period. A “fascinating trinity” of it was discussed by an author who called the confusion inherent in it its “fog.” It was called “a continuation of politics by other means” by Carl von Clausewitz. For 10 points, name this action, the “art” of which was written about by Sun Tzu.

ANSWER: making war [or zhanzheng; or Krieg; accept *The Art of War*; accept *On War*; accept *Sunzi bingfa*; accept *Vom Kriege*; accept any reasonable equivalents that involve fighting of battle; accept strategy] <JR>

Packet 2 Bonuses

1. Agamemnon and Menelaus had many interesting ancestors. For 10 points each:

[10] This ancestor of Agamemnon chopped up his son and served him to the gods. He was punished in the underworld by temptations from an unreachable fruit tree and stream.

ANSWER: **Tantalus**

[10] This son of Tantalus got reassembled after the indignant gods noticed, but not before Demeter took a bite out of his shoulder.

ANSWER: **Pelops**

[10] This son of Pelops chopped up his brother's children and fed them to him. He gives his name to the ill-fated royal house of Mycenae.

ANSWER: **Atreus** <FM>

2. Answer some questions about the savings and loan crisis, for 10 points each.

[10] The crisis came to a head under this Republican president, whose administration bailed out the Federal Savings and Loan Insurance Corporation two years before his successor, George H. W. Bush, abolished it altogether.

ANSWER: Ronald [Wilson] **Reagan**

[10] An investigation into influence-buying by S&L entrepreneur Charles Keating ended up clearing both this senator and John McCain of ethics charges. This Ohio Democrat was one of the Mercury Seven, the first American astronauts.

ANSWER: John [Herschel] **Glenn**, [Junior]

[10] The anti-inflationary policies of *this* Chairman of the Federal Reserve under Reagan and Carter contributed to the savings and loan crisis. A 2010 regulation against certain speculative investments is named for him.

ANSWER: Paul [Adolph] **Volcker**, [Junior] <JW>

3. These things can be made out of two nested styrofoam cups. For 10 points each:

[10] Name these devices used in chemistry to measure the heat of a chemical reaction. They come in a "bomb" variety.

ANSWER: **calorimeter** [accept **bomb calorimeter**; accept **coffee-cup calorimeter**]

[10] Calorimeters can be used to measure this quantity, which is the amount of energy it takes to raise one gram of substance by one degree celsius. For water, this quantity is one calorie.

ANSWER: **specific heat** capacity [prompt on "heat capacity"]

[10] According to the Dulong-Petit law, the specific heat of solid at high temperatures is equal to this numerical value times the ideal gas constant.

ANSWER: **three** <JR>

4. Many American movies are shot here, but almost none of them actually depict this city. For 10 points each:

[10] Name this Canadian city known as "Hollywood North." It is home to a major yearly film festival as well as the TV show *Degrassi*.

ANSWER: **Toronto**

[10] *Videodrome*, a Toronto-set movie by *this* director, features a cable executive who finds a torture-depicting TV show that gives people tumors. This director's other films include *The Fly*.

ANSWER: David [Paul] **Cronenberg**

[10] A lot of movies are shot in Toronto because of tax credits. This state gives a big tax credit to *House of Cards* for filming in Baltimore.

ANSWER: **Maryland** <IKD>

5. This precocious composer wrote his *Octet* in E-flat when he was just 16. For 10 points each:

[10] Name this German Romantic composer of the “Scottish,” “Italian,” and “Reformation” symphonies. He wrote his Overture to *A Midsummer Night’s Dream* when he was 18 and later added a popular “Wedding March.”

ANSWER: [Jakob Ludwig] Felix **Mendelssohn** [Bartholdy]

[10] These short, lyrical piano pieces by Mendelssohn are certainly his most popular. They include pieces inspired by Venetian gondolas, and often sound like accompaniments missing a vocal melody.

ANSWER: **Songs Without Words** [or **Song Without Words**; or **Lieder ohne Worte**; or **Lied ohne Worte**; or **Romance sans paroles**; do **NOT** accept or prompt on just “songs” or “lieder”]

[10] Mendelssohn wrote a single “Song Without Words” for this instrument, as well as two sonatas for his brother Paul. Beethoven wrote five sonatas for this instrument, which was played by Jacqueline du Pre.

ANSWER: violon**cello**s <JR>

6. Answer some questions about wine, for 10 points each.

[10] As translated by Edward Fitzgerald, this volume of Persian quatrains by Omar Khayyam declares that wilderness would be paradise with “a book of verses under the bough, a jug of wine, a loaf of bread—and thou.”

ANSWER: *The **Rubaiyat** of Omar Khayyam*

[10] In this Chinese classic, Liu Bei quaffs wine to declare brotherhood with Zhang Fei and Guanyu in the Peach Garden Oath. In this novel, Liu Bei becomes king of Shu, which fights against the rival states of Wei and Wu.

ANSWER: ***Romance of the Three Kingdoms*** [or ***Sanguo Yanyi***]

[10] Homer frequently uses the dark shade of wine to describe *this* entity. The “[*this*] of Faith” was once “at the full...and lay like a bright girdle unfurled” in a Matthew Arnold poem.

ANSWER: the **sea** [prompt on “ocean;” do not accept any other kind of water body] <GL>

7. [Note to moderator: please read the gray-highlighted text SLOWLY]

The electric field of one of these things can be estimated as: 2 times charge times separation over the quantity: Coulomb’s constant times distance cubed. For 10 points each

[10] Name these systems of two equally, but oppositely charged particles. The separation of positive and negative charges is given by their namesake “moment.”

ANSWER: electric **dipoles**

[10] For an electric dipole moment in an external field, this quantity, the energy due to the configuration, is equal to the negative dot product of the moment and the field. Change in *this* quantity is equal to negative work.

ANSWER: **potential** energy [prompt on “*U*”]

[10] The *z* component of the spin magnetic dipole moment of an electron is this quantity, symbolized “mu sub *b*.” This quantity is equal to elementary charge times Planck’s constant over four *pi* times electron mass.

ANSWER: **Bohr**-Procopiu **magneton** <NW>

8. Name some characters from *A Thousand and One Nights*. For 10 points each:

[10] This storytelling queen from the frame story of *A Thousand and One Nights* would probably have been executed like all of the king’s other wives if not for her skill in dropping cliffhangers.

ANSWER: **Scheherazade** [or **Shahrazad**; or **Sahrzad**]

[10] One of Scheherazade’s stories deals with the seven voyages of this man, who finds a valley of diamonds and gets carted around by a giant bird.

ANSWER: **Sinbad** the Sailor [or **Sindbad**]

[10] This slave girl in Ali Baba’s household dumps boiling oil on thirty seven thieves and then kills their leader while she performs a sword dance. Earlier, she had saved Ali Baba by marking all the doors in town.

ANSWER: **Morgiana** [or **Morgana**; or **Marjanah**] <GL>

9. This organization gained a royal charter in 1600, and it was given the authority to mint its own money and conduct its own foreign affairs by Charles II in the 1670s. For 10 points each:

[10] Identify this powerful joint-stock trading company that eventually conquered most of the Indian subcontinent. It was nationalized by the British government in the aftermath of the 1857 Sepoy Mutiny.

ANSWER: **East India Company** [or British East India Company; or **BEIC**]

[10] This city was the center of the Company's Indian holdings and the capital of the British Raj until 1911. When the Nawab of Bengal captured this city in 1756, he placed British prisoners in the "Black Hole" of this city.

ANSWER: **Calcutta** [or **Kolkata**]

[10] This officer led Company troops at the 1757 Battle of Plassey, defeating the Nawab and recapturing Calcutta. In 1765, he secured a Mughal imperial edict that granted the lands of Bengal to the East India Company.

ANSWER: Robert **Clive**, 1st Baron Clive <MW>

10. In this play, the world's Oldest Living Bolshevik and Rabbi Isidor Chemelwitz both make scene-long monologues. For 10 points each:

[10] Name this play in which Louis Ironson has a homosexual relation with Joe Pit. In this play, Roy Cohn is visited by the ghost of Ethel Rosenberg.

ANSWER: **Angels in America**; *A Gay Fantasia on National Themes*

[10] Many characters in *Angels in America* are affected by *this* condition. It is also prominently addressed in the musical *Rent*.

ANSWER: **AIDS** [**A**quired **I**mmune **D**efficiency **S**yndrome; accept **HIV** or **H**uman **I**mmunodeficiency **V**irus; accept any combination of **AIDS** and **HIV**]

[10] *Angels in America* was written by an author with this first name. It also won an award with this name that is given for excellence in theater.

ANSWER: **Tony** [accept **Tony Kushner**] <LL>

11. This philosophy emphasizes the "Three Treasures," which are compassion, humility, and moderation. For 10 points each:

[10] Name this ancient Chinese philosophy. Its major text was written by Laozi.

ANSWER: **Taoism** [or **Daoism**]

[10] Description acceptable. In an oft-quoted section of the *Tao Te Ching*, Laozi notes that windows and doors are useful because they're the parts of the wall that have *this* property. Similarly, a bowl is usable so long as it is *this*.

ANSWER: they're **empty** [or **kong**; accept any reasonable equivalent emphasizing that there's **nothing** there]

[10] Taoism emphasizes this principle, which is roughly equivalent to "non-action." That is, one should try to live in a natural, easygoing manner.

ANSWER: **wu wei** <JR>

12. Answer some questions about the scientific revolution, for 10 points each.

[10] This Italian physicist massively improved the telescope and used it to discover four of Jupiter's moons. He was placed under house arrest for refuting the Church's ideas in *Dialogue Concerning the Two Chief World Systems*.

ANSWER: **Galileo Galilei** [accept either name]

[10] This Dutchman invented the pendulum clock and the word "centrifugal force." He also developed a wave theory of light, and explained how Saturn's rings were formed.

ANSWER: Christiaan **Huygens**

[10] Another Dutch scientist, Antonie van Leeuwenhoek ["**LAY**-ven-hurk"] made the first usable one of these devices. Robert Hooke, who coined the biological use of the word "cell," was another pioneer of their use.

ANSWER: **microscopes** <JR>

13. Answer some questions about the Andaman Islands, for 10 points each.

[10] Description acceptable. The Sentinelese of the Andamans are one of the few societies of the world to have this status. Because the Sentinelese are this kind of people, ascertaining their casualties from the 2004 tsunami was difficult.

ANSWER: uncontacted tribe [or isolated people; or pre-modern people; accept any answer involving a people who lack interaction with the outside world and/or remain isolated from modern lifeways]

[10] The Andamans and other islands along the Bay of Bengal comprise a union territory of this South Asian country. Its other union territories include the National Capital Territory of Delhi.

ANSWER: Republic of India [or Bharat Ganarajya]

[10] This other archipelago lies south of the Andaman Islands and co-names their union territory. Once a colony of the Danish East India Company, this home of the Car and Shompen languages includes the southernmost point in India.

ANSWER: Nicobar Islands [or the Nicobars; or Nikobara Dvipa Samuha] <JW>

14. This Impressionist's painting *Impression, Sunrise* gave the name to the whole movement. For 10 points each:

[10] Name this 19th-century French painter of series depicting *Haystacks*, *Poplars*, and *Water Lilies*.

ANSWER: [Oscar-]Claude Monet

[10] Monet's series of paintings of this French religious building shows it at many different times of day to demonstrate the play of light on it.

ANSWER: Rouen Cathedral [accept descriptions like "the Cathedral in Rouen"; it's in France, so of course it's called "Notre-Dame"—prompt on just that; similarly, prompt on just "cathedral"]

[10] Throughout his life, Monet did many paintings of this structure in his garden in Giverny, often along with some water-lilies. His later paintings of this structure demonstrate his massive cataracts.

ANSWER: a Japanese footbridge [or pont] <JR>

15. Suppose that you are on the Monty Hall game show. For 10 points each.

[10] There are three doors: one conceals a car, and the other two conceal goats. You pick a door, and I open one of the *other* doors to reveal a goat. If you switch doors to the one I *didn't* open, what's the probability you see the car?

ANSWER: two thirds [accept equivalents]

[10] The probability is two thirds because the final switching choice does not have this property relative to the original door selection. Two events have this property if the outcome of one does not affect the probability of the other.

ANSWER: independence [or independent]

[10] If you enter a lottery, you can calculate *this* quantity by multiplying the probability that you win by the amount of money in the pot. For a million-dollar jackpot that you win with probability 1 in 250 million, this quantity is only 0.25 cents.

ANSWER: expected value [or EV; or expectation; or first moment; accept average value; accept mean] <HX>

16. Answer some questions about one of the stranger cases of mutual fandom in British literature, for 10 points each.

[10] The title character of this novel considers becoming a missionary with St. John Rivers, but she ultimately marries Adele's guardian after that man's first wife burns down Thornfield Hall.

ANSWER: Jane Eyre; *An Autobiography*

[10] The second edition of *Jane Eyre* was incongruously dedicated to this satirical novelist of *Vanity Fair*. This creator of Becky Sharp was very moved by the earnestness of *Jane Eyre*, perhaps because he had his own mad wife.

ANSWER: William Makepeace Thackeray

[10] Although Becky Sharp is married to Rawdon Crawley, her indiscretions with this aristocrat earn her husband the governorship of Coventry Island. This man eventually threatens to murder Becky, forcing her to leave Rome.

ANSWER: the Marquis of Steyne [or Lord Steyne; or George Gustavus (accept either underlined part); prompt on "the Marquis"] <GL>

17. St. Hilda led one of these institutions in Whitby. For 10 points each:

[10] Name these institutions that Henry VIII dissolved after splitting from the Catholic church. Before that, they held monks and nuns.

ANSWER: monastery [accept abbey; accept convent; accept nunnery]

[10] An account of the life of Cuthbert was written in this monastery off the coast of Northumberland, the target of a horrific 793 Viking raid. A namesake illuminated manuscript gospel with a “Chi-Rho” monogram was written here.

ANSWER: Lindisfarne

[10] This “venerable” saint spent most of his eighth-century life at a monastery in Monkwearmouth. He wrote an *Ecclesiastical History of the English People*.

ANSWER: Bede [or Baeda] <LL/JR>

18. Tradition holds that this book was written by Saint Luke. For 10 points each:

[10] Name this fifth book of the New Testament. It describes the events celebrated on Pentecost, as well as the most detailed account of the Ascension.

ANSWER: The Acts of the Apostles [or Praxeis ton Apostolon; or Actus Apostolorum]

[10] This woman, strangely, does not appear at all in Acts. Tradition holds that she repented of her sins and anointed the feet of Jesus, which she held during the deposition.

ANSWER: Mary Magdalene [or Mary of Magdala; prompt on just “Mary”]

[10] Acts includes a sermon delivered by Paul at *this* location, imploring Greeks to stop worshipping idols and the pagan gods.

ANSWER: the Areopagus [accept Areopagus sermon] <NW/JR>

19. Answer some questions about modern dance, for 10 points each.

[10] Name this ballet by Aaron Copland, which incorporates Shaker melodies like “Simple Gifts.” It depicts pioneer life on a Pennsylvania farmstead in the title season.

ANSWER: Appalachian Spring

[10] As choreographed by this American modern dance maven, *Appalachian Spring* involves a lot of spiritual hopping-around on the part of the Bride.

ANSWER: Martha Graham

[10] Choreographer Twyla Tharp created her best-known “crossover ballet” to the music of Joseph Lamb for this superstar ballet Russian dancer. Less gloriously, he played Carrie’s Russian lover in the last season of *Sex and the City*.

ANSWER: Mikhail [Nikolaevich] Baryshnikov <GL>

20. Answer some questions about gel electrophoresis, for 10 points each.

[10] Name *either* of the two quantities by which molecules are separated in gel electrophoresis.

ANSWER: size OR charge [or mass or molecular weight instead of size]

[10] A common form of gel electrophoresis with proteins uses sodium dodecyl sulfate and *this* type of gel. Alternatively, give the acronym for that kind of electrophoresis.

ANSWER: polyacrylamide gel [or SDS-PAGE]

[10] After doing electrophoresis, one can use a Northern blot to study this type of molecule. This nucleic acid contains uracil, but is otherwise very much like a single strand of DNA.

ANSWER: RNA [or ribonucleic acid] <JR>

Tiebreaker

21. This process most often proceeds by forming vesicles out of coated pits. For 10 points each:

[10] Name this process in which a cell engulfs, or “eats” large molecules like proteins.

ANSWER: endocytosis [if they answer with “phagocytosis,” prompt by saying, “they want something more general.”]

[10] Endocytosis occurs when the desired molecules are too big to pass through this outer structure of the cell, and the vesicles used in it are formed from this structure. This structure is formed from a flexible phospholipid bilayer.

ANSWER: cell membrane [or plasma membrane; or cytoplasmic membrane]

[10] The most important kind of endocytosis depends on this protein, which coats coated pits. This protein supports the inside of the vesicle.

ANSWER: clathrin <JR>