Bulldog High School Academic Tournament XXI (2012): Oh God, Not the Spider Cows!
Written by Yale Student Academic Competitions
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Round 10 Tossups

1. This quantity can be computed as the sum over all particles of chemical potential times particle number. This quantity can be derived from the internal energy by adding a term corresponding to PV work and subtracting a term corresponding to energy obtained from the environment. It is related to the electrode potential by a factor equal to negative one times the amount of charge transferred. It is equal to enthalpy minus the product of temperature and entropy, and when the change in it is negative for a reaction, the reaction is spontaneous. For 10 points, name this quantity named for a Yale physicist, a measure of energy available to do work in a reaction at constant pressure.
ANSWER: **Gibbs** free energy [or **Gibbs function**; accept standard **Gibbs** free energy; prompt on "G"; prompt on "delta G"; prompt on "free energy"; prompt on "free enthalpy"] <MJ>

2. A substance of this type is used as an amplifier attached to the secondary antibody in ELISA. Adenosine derivatives like FAD are often necessary in order for "apo-" ones to function. The simplest expression for their rates of reaction contains a term with maximum reaction velocity in the numerator and the Michaelis constant in the denominator. They are believed to bind via induced fit. Heterotropic allostery entails regulation of these molecules by a non-substrate compound. For 10 points, name these proteins which accelerate biochemical reactions by lowering their activation energies.
ANSWER: **enzyme**s [prompt on "catalysts"; prompt on "proteins"] <AS>

3. Guillaume de Machaut's "Ma fin est mon commencement" is an example of the "crab" variety of this type of composition, which features a voice in retrograde. Along with two ricercars and a trio sonata, ten of these pieces make up Johann Sebastian Bach's *A Musical Offering*. Every third variation in Bach's *Goldberg Variations* is a piece of this type. The best-known composition of this type uses a repeated two-measure ground bass of D, A, B, F-sharp, G, D, G, A. and is scored for basso continuo and three violins, each of which plays the same music in sequence. For 10 points, name this type of composition similar to a round, exemplified by one in D by Johann Pachelbel.
ANSWER: **canon**s <KK>

4. In one story by this author, a blindfolded Maria picks a saucer full of clay in a fortune-telling game. One of this author's protagonists proves to Haines that Hamlet's grandson is Shakespeare's grandfather in a discussion with Buck Mulligan. In one of this author's short stories, Gretta Conroy recalls her sick lover Michael Furey traveling through the rain to see her. Blazes Boylan has an affair with Molly Bloom in his second novel to feature the character of Stephen Dedalus. For 10 points, name this Irish author of *Dubliners, Portrait of the Artist as a Young Man,* and *Ulysses*.
ANSWER: James Augustine Aloysius **Joyce** <JL>

5. During the regency of this ruler's tutor Adrian of Utrecht, his heavy taxation caused the Revolt of the Comuneros. He's not Charlemagne, but he kidnapped a rival after winning at Pavia. This victor at Muhlberg sent his brother Ferdinand to replace Louis II, who left the throne of Hungary vacant after being routed at Mohacs. After this king's wars against the Schmalkaldic League, he recognized Lutheran princes in the Peace of Augsburg. He had earlier convened the Diet of Worms, where he heard Martin Luther. For 10 points, name this Habsburg father of Philip II of Spain who also ruled the Holy Roman Empire.
ANSWER: **Charles V**, Holy Roman Emperor [accept **Charles I** of **Spain**] <MHH>

6. One of his works depicts Akio Matsumoto, a detained artist. Another shows two young aspen trees before a forest of mature aspen trunks. Another of his works shows a diffusely but directionally lit rose on dark wood. He was a founding member of Group f/64. In 1935, he published *Making a Photograph*, followed by a work in which he describes his "Zone System" of exposure, *The Negative*. During World War II, he photographed Manzanar, a Japanese-American internment camp. One of his recurring subjects is the national parks. For 10 points, name this American photographer of *Tetons and Snake River* and *Moon and Half Dome*.
ANSWER: Ansel **Adams** <Jacob>

7. This mythical locale's prince Androgeus was killed for his athletic prowess at several games. A later king of this place swore during a storm to sacrifice the first living thing he saw to Poseidon if he got home; that king, who had to kill his son, was Idomeneus. Rhadamanthus was exiled from this domain, whose queens included the zoophilic Pasiphae. Icarus flew away from this realm with his father, Daedalus, after the Labyrinth was built here. A journey from Athens took Theseus to, for 10 points, what place where the Minotaur was kept by King Minos, a long island south of mainland Greece?
ANSWER: **Crete** [or **Kriti**] <MJ>

8. This man's father of the same name lost his last election to William Brock III and joined his state's senior Senator, Estes Kefauver, in refusing to sign the segregationist Southern Manifesto. This man's wife helped found the PMRC to encourage the labeling of offensive music records. This man himself, who engaged with Admiral Stockdale and Jack Kemp in televised debates, was opposed by Katherine Harris in an election where his name was across from Pat Buchanan on "butterfly ballots". For 10 points, name this Tennessee Democrat who lost a Florida vote recount, and thus the 2000 election, while serving as Clinton's Vice President.
ANSWER: Albert **Gore**, Jr. [accept Albert **Gore**, Sr. until "wife" is read] <MJ>

9. A quote from Joseph McKenna in this case's majority opinion explained its mootness exemption. *Harris v. McRae* was a follow-up to this case which upheld the Hyde amendment. Linda Coffee and Sarah Weddington played important roles in this case, which was filed on behalf of Norma McCorvey. In this case, Blackmun's majority opinion described a "penumbra" within the right to privacy guaranteed by the Fourteenth Amendment, though its "trimester" framework was later removed. For 10 points, name this 1973 Supreme Court cse followed up by *Planned Parenthood v. Casey,* which protected a woman's right to abortion.
ANSWER: *__Roe__ v. Wade* [or *Wade v. __Roe__*] <IP>

10. This man compares justified modes of living to "new suns" in a work whose preface describes his "convalescence;" that work by this man proposes a demon who tells people they must live their lives over and over, which he termed "eternal recurrence." He described how meekness became a virtue among Christians in *The Genealogy of Morals,* which discussed the "slave morality." One of his title characters comes down from a mountain to hail the rising of the *übermensch*. For 10 points, name this German philosopher who authored *The Gay Science* and *Thus Spake Zarathustra,* which both claimed "God is dead," before he went mad.
ANSWER: Friedrich **Nietzsche** <SSp>

11. The protagonist of one story by this author asks if Whirly Wood, Connecticut is near Whirly Wood, Connecticut. One of his stories is a letter from a shell-shocked soldier to a precocious English girl he met in a restaurant after her church choir practice. In another story by this author of "For Esme – With Love and Squalor", Sybil Carpenter is told of creatures that swim into holes but eat so much fruit that they are trapped by Seymour Glass. This author of "A Perfect Day for Bananafish" created a character who spends time with his sister Phoebe after being expelled from Pencey Prep. For 10 points, name this author who created Holden Caulfield in *Catcher in the Rye*.
ANSWER: J[erome] D[avid] **Salinger** <JL>

12. A tensor which contains terms for this quantity, energy, and momentum is related to the Ricci tensor and the metric tensor by the Einstein field equations. For a fluid, the only term describing its response to this quantity is the bulk modulus, which describes the compressional form of this quantity. The shear form of this quantity is related by an expression involving Poisson's ratio and Young's modulus to the shear deformation. Plastic deformation begins when this quantity exceeds an object's yield point. For 10 points, name this quantity, a measure of the force per unit area that deforms a body, which is related in simple materials to strain by Hooke's law.
ANSWER: **stress** [accept **compressional stress**; accept **shear stress**; prompt on "strength"; prompt on "pressure"] <BH/AS>

13. A national park in this state is named for the author of *The Yearling,* Marjorie Kinnan Rawlings. Part of this state's northern border is along the St. Mary's River. Another national park in this state contains the Western Hemisphere's largest masonry structure, Fort Jefferson. Since 1565, this state's European settlement of Saint Augustine has been continuously occupied. This state, home to Dry Tortugas National Park, is also home to an 885-square-mile city on its eastern coast and to a freshwater lake, Okeechobee. For 10 points, name this state home to Jacksonville, the Everglades, and Walt Disney World.
ANSWER: **Florida** <MHH>

14. These numbers can be defined as the members of the only complete, ordered Archimedean field. One way of constructing them is by dividing a certain subset of these numbers that is dense in them into two disjoint subsets, one of which has no greatest element. The conjecture that there is no set with cardinality between that of these numbers and that of the integers is inconsistent with ZFC set theory. That conjecture is the continuum hypothesis. These numbers are not algebraically closed, since polynomials with these numbers as coefficients can have roots such as "i", the square root of negative one. For 10 points, name these numbers which have no imaginary part.
ANSWER: **real** numbers <AD>

15. In one of his paintings, a man on the left has a patch worn through the right elbow of his green jacket. On the right of that painting by this artist, a bearded man wears a scallop on his lapel and a beardless Christ, dressed in red and white, sits in the center. A boy in yellow with a feather in his hat sits to the right of the title figure of a painting by this artist, which is located in the Contarelli Chapel. In that painting by this aritst, a ray of light falls on a figure pointing to himself, the title tax collector. This painter made heavy use of chiaroscuro in his style, which was known as tenebrism. For 10 points, name this Italian Baroque of *The Supper at Emmaus* and *The Calling of Saint Matthew*.
ANSWER: **Caravaggio** [or Michelangelo **Merisi**] <Jacob/JL>

16. One of his poems concerns a conversation between a boy and the moon, who asks the boy to leave her alone to dance. That is "Romance de la luna, luna", from his collection, *Gypsy Ballads*. The title character of one play by this author desperately wants a baby by her husband Juan. The title widow of another play by him institutes an eight-year period of mourning over her house in Andalucía, leading the youngest of her five daughters, Adela, to commit suicide. For 10 points, name this Spanish poet and playwright, whose "rural trilogy" includes *Yerma*, *Blood Wedding,* and *The House of Bernarda Alba*.
ANSWER: Federico García **Lorca** <CSM>

17. One heir in this country used canes on the feet of its Olympic soccer team, which he controlled, and sent losing athletes to his private torture chamber. This country's 14 July Revolution was led by Abdul Karim Qasim against its king, Faisal I. This country's Ahmed Hasan al-Bakir led a party through its 1966 split from the Syrian faction, the Ba'ath Party. The "Green Zone" was established in its capital after the fall of a leader who used chemical weapons on its Kurd minority. For 10 points, name this country which Nouri al-Maliki has run in the aftermath of a 2003 invasion ousting Saddam Hussein.
ANSWER: Republic of **Iraq** <SL/MJ>

18. In one novel by this author, Kim Capran decides to rename herself "Hillela" before becoming first lady of her nation. In another novel by this author of *A Sport of Nature*, Jacobus finds an unidentified body on the farm belonging to James Mehring. In another novel by her, Rosa must deal with the legacy of her Communist activist father, Lionel. In her most famous novel, a civil war forces the Smales family to stay in the village of their title servant. For 10 points, name this South African author of *The Conservationist*, *Burger's Daughter*, and *July's People*.
ANSWER: Nadine **Gordimer** <JL>

19. This man was accused of falsifying papers about his adoption by Lucius Quietus. This leader, who withdrew the army from Mesopotamia, went on a grand tour away from his villa at Tivoli and deified a boy who drowned in the Nile named Antinous. Rabbi Akiva supported Simon Bar Kochba's Jewish revolt against this first bearded Roman emperor, who negotiated a peace with Parthia in AD 121 and had the Parthenon rebuilt before Antoninus Pius succeeded him. For 10 points, name this successor to Trajan, a so-called Good Emperor who had a ditch dug in front of his namesake defensive "wall" in Britain.
ANSWER: Publius Aelius **Hadrian**us <MPG/MJ>

20. In one of this man's songs, a solo guitar plucks out the bass line C, E, B-flat, F over four measures as he asks "Maybe I should wear some pink sidewinders / and a bright orange pair of pants?" A band plays this man's music in a Twyla Tharp-choreographed dance show featuring his characters Brenda and Eddie; that show is *Movin' Out*. He dubbed himself over to create an a cappella sound for "The Longest Time." Another of his songs says "the regular crowd shuffles in" after remarking that "It's nine o'clock on a Saturday" and is set in a night club. For 10 points, name this American singer who recorded "We Didn't Start the Fire" and "Piano Man."
ANSWER: Billy **Joel** [or William Martin **Joel**]

21. The presence of this phenomenon is identified by the measurement of exponential divergence, governed by the Lyapunov exponents. In continuous systems, it can only arise if the equations of motion are nonlinear and more than two-dimensional, as in the Sinai billiard. The double pendulum exhibits this phenomenon at intermediate energies. This phenomenon often gives rise to attractors with non-integer dimension known as "strange", such as the Lorenz attractor. For 10 points, name this deterministic yet unpredictable phenomenon in which systems are highly sensitive to initial conditions, which could result from a butterfly flapping its wings in Brazil.
ANSWER: **chaos** [or word forms] <AS>

Round 10 Bonuses

1. This composer wrote a "concert waltz" called "Bethena," and pieces in the genre he is best known for include "The Easy Winners" and "Weeping Willow." For 10 points each:
[10] Name this "King of Ragtime" who composed the opera *Treemonisha* and the rag "The Entertainer."
ANSWER: Scott **Joplin**
[10] Joplin's most popular rag in his lifetime was this one in A-flat major, possibly named after a club at which he played in Sedalia, Missouri.
ANSWER: "**Maple Leaf** Rag"
[10] Ragtime is characterized by extensive use of this rhythmic technique, the shifting of accents so that normally weak beats receive musical emphasis.
ANSWER: **syncopation** [or **syncopated**] <KK>

2. He remained in office until his death in 1642, when he was succeeded by Cardinal Mazarin. For 10 points each:
[10] Name this French cardinal who transformed France into a strong, centralized state under Louis the Thirteenth.
ANSWER: Cardinal **Richelieu** [or Armand Jean du **Plessis**, Cardinal-Duc de Richelieu et de Fronsac]
[10] Richelieu antagonized French Calvinists, who were known by this name by the 1560s. These targets of the Saint Bartholomew's Day Massacre had some rights protected on paper by the Edict of Nantes.
ANSWER: **Huguenot**s
[10] Fourteen months into a 1628 siege, Richelieu curtailed Huguenot influence after accepting an unconditional surrender from this Protestant stronghold city of western France. It suffered an earlier siege in 1572.
ANSWER: **La Rochelle** <CSM>

3. For 10 points each, answer these questions about the death of Baldur, a Norse god of light and beauty.
[10] Baldur died after this trickster god tricked his blind brother Hodr into firing an arrow tipped with mistletoe. His tricks got so evil that he became an enemy of the gods.
ANSWER: **Loki** [do not accept "Utgard-Loki"]
[10] In punishment, Loki was bound by his own intestines in a cave under this type of creature. Other examples include the "Midgard" one, a child of Loki which wrestles Thor.
ANSWER: **snake** [or **serpent**]
[10] Loki's wolf son Fenrir is also bound, but by this chain fashioned by dwarves out of ingredients which no longer exist, such as a cat's footfall, a woman's beard, and the roots of a mountain.
ANSWER: **Gleipnir** <AD>

4. The speaker of this poem asks the title creature "What immortal hand or eye / Dare frame thy fearful symmetry?". For 10 points each:
[10] Name this poem about a creature that is "burning bright, / in the forests of the night".
ANSWER: "The **Tyger**"
[10] "The Tyger" is one of the *Songs of Experience* of this English Romantic poet, who paired it with "The Lamb" in his *Songs of Innocence*.
ANSWER: William **Blake**
[10] Blake wrote two poems with this title. The one in *Songs of Experience* describes a child who cries "weep! weep!" at the neglect of his parents. The one in *Songs of Innocence* describes the dream of Tom Dacre.
ANSWER: "The **Chimney Sweeper**" <JL>

5. This culture built a network of roads along which messengers carried quantitative messages on lines of knotted string called *quipu*. For 10 points each:
[10] Name this Quechua-speaking South American civilization with a capital at Cusco, which built Machu Picchu. Conquistadors led by Francisco Pizarro toppled this civilization.
ANSWER: The **Inca** Empire [or *Tawantinsuyu*]
[10] This last ruler of the Inca Empire offered a room of gold and two of silver to the conquistadors if they would spare his life. It didn't work.
ANSWER: **Atahualpa** [or **Atabalipa**]
[10] Atahualpa was captured by the conquistadors at this battle, in which an ambush by the vastly outnumbered Spaniards defeated thousands of Incas.
ANSWER: Battle of **Cajamarca** <SJW>

6. Answer the following about bebop, for 10 points each.
[10] "Ornithology" was a song by bebop pioneer Charlie Parker, who played both alto and tenor varieties of this ubiquitous jazz instrument.
ANSWER: **sax**ophone
[10] This trumpeter and frequent collaborator with Charlie Parker wrote bebop classics like "Groovin' High" and "Salt Peanuts." His signature trumpet was bent upwards.
ANSWER: John "Dizzy" **Gillespie**
[10] Kenny Clarke and Max Roach helped develop the bebop style of playing this instrument. Other jazz performers who played this instrument include Elvin Jones and Buddy Rich.
ANSWER: **drum** set <KK>

7. It begins with Jonathan Harker's journey to Transylvania to provide legal support to a certain count. For 10 points each,
[10] Name this 1897 novel about a certain vampire.
ANSWER: ***Dracula***
[10] This author of *Dracula* wrote about Adam Salton, who inherits Castra Regis, in *The Lair of the White Worm*.
ANSWER: Bram **Stoker**
[10] This Texan helps Jonathan Harker track down Count Dracula, stabbing Dracula in the heart while Van Helsing kills his trio of brides.
ANSWER: **Quincey** P. **Morris** [accept either] <CSM>

8. These longitudinal waves propagate with a speed that is a function of the shear modulus, and can travel through liquids. For 10 points each:
[10] Name these seismic waves which are not detected in the shadow zone.
ANSWER: **P** waves [or **primary wave**s; accept **pressure wave**s]
[10] P-waves are caused by these geophysical phenomena, which are governed by elastic rebound theory. The modified Mercalli scale measures their intensity, and they are particularly prevalent in the Ring of Fire.
ANSWER: **earthquake**s
[10] When this location for a given earthquake is deep, it corresponds to internal deformation in a plate, whereas when it is shallow, it corresponds to interplate-deformation. The epicenter lies above this location.
ANSWER: **focus** [or **hypocenter**] <AS>

9. This principle states that the product of the standard deviations in position and momentum must be greater than or equal to a certain constant. For 10 points each:
[10] Name this principle, which limits the accuracy with which a particle can be measured.
ANSWER: Heisenberg **uncertainty** principle [or **Heisenberg** uncertainty principle]
[10] The above-mentioned constant, the minimal product of the uncertainties in position and momentum, is equal to half of this quantity. The constant that relates a photon's energy to its frequency is equal to two pi times this quantity.
ANSWER: **reduced Planck's constant** [or **Dirac's constant**; or **h-bar**; or **h divided by two pi**]
[10] The uncertainties in this quantity and time are also determined by the uncertainty principle. The change of it with respect to time is power, while the integral of it with respect to time is action.
ANSWER: **energy** [accept **Lagrangian**; accept **work**] <DSteinberg>

10. Answer some questions about people trying to kill Bugs Bunny, for 10 points.
[10] This bad-tempered, red-haired cowboy proclaims himself "hootinest, tootinest, shootinest bob-tailed wildcat in the west". He is tricked into falling off a cliff by repeated challenges to step over a line.
ANSWER: Yosemite **Sam**
[10] This bald, dimwitted hunter who has immense difficulty pronouncing his "R"s never seems to know what hunting season it is. He is often tricked into shooting Daffy Duck instead.
ANSWER: **Elmer** J. **Fudd** [accept either]
[10] Elmer sings about his spear and magic helmet and proclaims his love for a disguised Bugs Bunny in this short film. His cry of "Kill the wabbit! Kill the wabbit!" is sung to the tune of "The Ride of the Valkyries".
ANSWER: ***What's Opera, Doc?*** <JL>

11. Like Shakespeare, this man was both author and performer, actually suffering a hemorrhage and collapsing while onstage and dying a few hours later. For 10 points each,
[10] Name this French comedic playwright, who wrote *The Misanthrope* and *The Doctor In Spite of Himself*.
ANSWER: **Molière** [or Jean-Baptiste **Poquelin**]
[10] This Molière play sees the hypochondriac Argan scheme to have his daughter, Angelique, marry a doctor, so that he will always have access to the medical care he thinks he needs.
ANSWER: *The **Imaginary Invalid*** [or *The **Hypochondriac***; or *Le **Malade imaginaire***]
[10] In *The Imaginary Invalid*, Angelique wants to marry a non-doctor by this name. Molière's other characters with this name include Orgon's brother-in-law in *Tartuffe*, and the title character's spirited son in *The Miser*.
ANSWER: **Cléante** <SJW>

12. In one setup, this man used a teacher who told participants "You have no other choice, you must go on" after they asked to stop administering a memory test for the fourth time. For 10 points each:
[10] Name this Yale psychologist, who found that two-thirds of participants would eventually press a button to kill another person in his Obedience to Authority study.
ANSWER: Stanley **Milgram**
[10] Milgram's experiment made people think they were doing *this* to a "learner" behind the wall. In reality, this wasn't happening and Milgram had paid an actor to cry out with each button press.
ANSWER: giving electric **shock**s [accept any synonyms involving the use of harmful electric current]
[10] This Penn professor used real electric shocks on dogs to demonstrate his theory of "learned helplessness". He works in "positive psychology," which tries to correct the discipline's focus on abnormality.
ANSWER: Martin **Seligman** <MJ>

13. Name these Catholic saints who still have an impact on today's Catholics, for 10 points each. Common names are acceptable.
[10] The Jesuit order was founded by this Spanish saint, who wrote the meditative *Spiritual Exercises*. He shares his name with an earlier saint from Antioch who got mauled by Roman lions.
ANSWER: Saint **Ignatius** of **Loyola** [accept either underlined part]
[10] This Spanish-born patron of astronomers is the founder and common-namesake of the Order of Preachers, who wear black cloaks over white habits. The Rosary is attributed to a revelation he got from Mary.
ANSWER: Saint **Dominic** of Osma [or Dominic Felix de **Guzmán**; or Santo **Domingo** Félix de Guzmán]
[10] The Salesian order was named for St. Francis de Sales and founded by this 19th-century Italian saint, whose "preventive system" of youth education leads him to be the patron saint of editors and schoolchildren.
ANSWER: Saint **John Bosco**, Father and Teacher of Youth [or Saint **Don Bosco**; prompt "Saint John"] <MPG>

14. Time travel leads to several of these statements, including one in which a male traveler can kill his assumed grandfather, or marry his grandmother and become his own grandfather. For 10 points each:
[10] Name this contradictory or logically puzzling class of statements which includes the phrase "I always lie."
ANSWER: **paradox**es
[10] One ancient Greek of this name from Elea developed paradoxes involving an arrow in flight and a race between Achilles and the tortoise, which seem to prove that motion is impossible.
ANSWER: **Zeno**
[10] The ravens paradox, which implies that since all roses are red all ravens must *therefore* be black, questions this mode of reasoning which David Hume called into question for its often-false conclusions.
ANSWER: **induction** [or **inductive** reasoning] <MJ>

15. In distillation, mixtures are separated on the basis of this property of the components. For 10 points each:
[10] Name this property which is large for substances with high vapor pressures, the tendency of a substance to enter the gas phase.
ANSWER: **volatility** [accept word forms]
[10] When a substance undergoes a phase change, this amount of heat must be absorbed or released by the substance before the phase change is complete. While this amount of heat is being added or removed, temperature is constant.
ANSWER: specific **latent** heat (of vaporization) [or specific **latent** enthalpy (of vaporization)]
[10] On a 2-D phase diagram, these two variables are the axes. These variables are directly related by Gay-Lussac's law, and experiments are often carried out at "standard" values for them.
ANSWER: **temperature** and **pressure** [accept in either order; accept **STP**; accept standard **temperature** and **pressure** (in either order); prompt on "temperature"; prompt on "pressure"] <AS>

16. The novel opens with the Shelbys deciding to sell their slaves to pay their debts. For 10 points each:
[10] Name this novel whose title character is sold first to St. Clare and then by St. Clare's widow to the vicious Simon Legree.
ANSWER: *Uncle Tom's Cabin, or Life Among the Lowly*
[10] *Uncle Tom's Cabin* is by this American abolitionist.
ANSWER: Harriet Beecher **Stowe**
[10] This other character in *Uncle Tom's Cabin* flees the Shelby farm with her son Harry when told that Harry wil be sold. She and her husband George Harris are pursued by slave hunter Tom Loker.
ANSWER: **Eliza** <JL>

17. This substance is implicated in Minamata disease, and it is the metallic component of the preservative thimerosal. For 10 points each:
[10] Identify this substance which vaporizes easily and strongly bioaccumulates in aquatic environments.
ANSWER: **mercury** [or **Hg**; accept **methylmercury**]
[10] This symptom of mercury poisoning may also result from a loss of the vestibular sense. One cause of it is identified using Romberg's test, and this neurological symptom is characterized by a lack of motor coordination.
ANSWER: **ataxia** [or **dystaxia**; accept **sensory ataxia** or **vestibular ataxia**]
[10] Ataxia is a key symptom of damage to this region of the brain, which is responsible for maintaining motor control and balance. It is attached to the pons below the cerebrum, and is medially divided by the vermis.
ANSWER: **cerebellum** [do not accept "cerebrum"] <AS>

18. Answer more questions about everybody's favorite bloodthirsty sea-raiders, the Vikings, for 10 points each.
[10] Viking sagas claim that this explorer established Vinland, a settlement in what we call North America. This man's father explored Greenland.
ANSWER: Leif **Eriksson**
[10] Viking conquests used these vessels, of which archaeological remains were found at Oseberg and Gokstad. They may well have had striped sails, but none have been found with dragon heads at the prow.
ANSWER: **longship**s [or **longboats**; or **drekar**; or **karvi**; or **snekkja**; or **skei**; do not accept or prompt "knarr"]
[10] After Wessex failed to repel the Vikings by paying them *geld*, they conquered much of Britain and established this area under Viking self-rule.
ANSWER: **Danelaw** [or **Danelag**en; or **Dena lagu**] <SJW>

19. Answer these questions about Australian seas, for 10 points each.
[10] The name of this sea between Australia and New Zealand comes from a Dutch explorer, who also lent his name to an island across from Australia by way of Bass Strait.
ANSWER: **Tasman** Sea [do not accept "Tasmanian Sea"; be lenient and accept **Tasmania**; or Abel **Tasman**]
[10] The wreck of the Japanese aircraft carrier *Shoho* lies in this sea between Australia and New Guinea.
ANSWER: **Coral Sea**
[10] This shallow gulf is enclosed on three sides by the Northern Territory and Queensland.
ANSWER: Gulf of **Carpentaria** <SL>

20. The Cahokia mounds were built by a culture along this river, which Sieur de la Salle explored for the French. For 10 points each:

[10] Name this river whose steamboat culture was documented by Mark Twain. It was the western boundary of the United States until the Louisiana Purchase.

ANSWER: **Mississippi** River

[10] This French explorer built on the earlier work of Jacques Cartier by exploring the Saint Lawrence River for France and founding Quebec City along it.

ANSWER: Samuel de **Champlain**

[10] Sieur de la Salle established Fort Frontenac, and Champlain Quebec City, as posts to trade with the natives for these expensive items. Hudson's Bay Company was also started to trade for them.

ANSWER: **beaver fur**s [or **beaver pelt**s; prompt "furs" or "pelts" alone] <MJ>

21. Its painters left the studios to paint *en plein air*, but critics like Louis Leroy derided the movement for exhibiting what they termed "unfinished" works. For 10 points each,

[10] Identify this art movement, named for a Monet sunrise.

ANSWER: **Impressionism**

[10] Before the Impressionist movement, French art was dominated by the Académie des Beaux-Arts, which held this annual exhibition of works following its proscribed style.

ANSWER: Paris **Salon** (or **Salon de peinture et de sculpture**)

[10] Another Impressionist, Edouard Manet, painted this scene of a ruler of Mexico before a firing squad.

ANSWER: *The **Execution of Maximillian*** <JG>