

Blue Devil Academic Tournament II

Written and edited by the Norcross Academic Team (Mostafa Bhuiyan, Hernan Morales, Joey Reifenberger, Michael Sokolow), Tanay Kothari, Adam Silverman, and Brady Weiler

Round 9- Tossups

**1. One man in this musical sings “Is it simply a game for rich young boys to play” before a chorus describes the “blood of angry men” and “the dark of ages past.” That song, “Red and Black,” remarks that General Lamarque is dead. Another character in this musical sings of having no “floors to sweep” in the song “(\*) Castle on a Cloud.” Another character in this musical recalls a time “when hope was high/And life worth living” in the song “I Dreamed a Dream.” For ten points, name this musical based on a Victor Hugo novel about Jean Valjean.**  
ANSWER: Les Miserables

**2. A 1990 court case about this practice supported selective funding by the federal government, and was *Rust v. Sullivan*. Another court case about this practice declared a Nebraska law incriminating Leroy Carhart unconstitutional because of undue burden. Federal funds to support it were limited in the (\*) Hyde Amendment. A 1992 court case about this practice was brought about due to Pennsylvania politician Robert Casey, and it was the subject of a 1973 case about a Texas woman named Norma McCorvey. For ten points, name this practice declared legal in *Roe v. Wade* and supported by Planned Parenthood.**  
ANSWER: abortion (prompt on “birth control”)

**3. These substances follow an isotope effect which has the square root of the isotope’s mass inversely proportional to critical temperature. Two of these materials freely transfer electrons in the Josephson Effect. The two types of them are distinguished by if they have one or two critical fields. One theory governing them suggests an interaction between (\*) phonons and Cooper pairs. They generate screening currents to counteract the magnetic flux which passes through them in the Meissner effect. Ceramic ones can form at higher temperatures. For ten points, name these substances governed by BCS theory which have zero electric resistance.**  
ANSWER: superconductors

**4. After reading a warning, this figure hits an apple tree that holds dozens of shields in its leaves and is surprised to learn that his ash wood spear cannot dismount the Sable Knight. This man killed 940 enemies at the Battle of Badon Hill and is treated by three maidens after killing one of his enemies at the Battle of (\*) Camlann. A murder plot against this man was devised by his treacherous son, Mordred. For ten points, name this first son of Uther Pendragon and husband of Guinevere who wielded the sword Excalibur and led the Knights of the Round Table.**  
ANSWER: King Arthur Pendragon

**5. One character in this play calls himself the “Flaming Spear” while he is drunk and pretends to be a descendant of Chaka. Another character in this work is referred to by the nickname “Alaiyo” and remarks that she would never marry George Murchison. This play features the intellectual (\*) Joseph Asagai, who courts Beneatha. The protagonist of this play is swindled by Willy Harris out of a \$10,000 insurance check meant to buy a new house in Chicago. For ten points, name this play about the struggles of Walter Lee Younger, the first work of Lorraine Hansberry.**  
ANSWER: A Raisin in the Sun

**6. This organization was a part in a lawsuit against Ray Nagin for unlawful property seizures after Hurricane Katrina. At the 2012 Republican National Convention, one member of this organization said to “chop” off some heads come November. Members of this organization include David Keene and (\*) Ted Nugent. It unsuccessfully fought against the Brady Bill, and its lobbying was partially responsible for the Supreme Court decisions in *McDonald v. Chicago* and *DC v. Heller*. For ten points, name this civil rights lobbying group led by Wayne LaPierre which supports the Second Amendment’s guarantee of the right to bear arms.**

ANSWER: NRA (or National Rifle Association)

**7. In one novel by this author, a doctor in Plassans works to invent a potion that will cure any disease before he dies of a heart-attack and has a son with his lover Clotilde. This novelist also wrote about a man that meets a Russian anarchist that traps his love interest Catherine in a pit. This author of *Doctor Pascal* addressed his most famous work to (\*) Felix Faure. That work by this author of the *Rougon-Macquart Cycle* was written after the release of Ferdinand Esterhazy amidst the Dreyfus affair. For ten points, name this 19th century French author of *Germinal* and *J'accuse*.**

ANSWER: Emile Francois Zola

**8. One artifact recovered from a city of this empire by Heinrich Dressel is notable for its indiscernible letters and is named the Duenos Inscription. A service in this empire was based on the use of tiles called pilae stacks in order to allow air to flow freely for the hypocaust. This empire commissioned a structure in (\*) Segovia important for its transport of water. The capital of this empire contained the botanical Farnese Gardens in its namesake “forum.” For ten points, name this empire whose capital was nicknamed the city of “seven hills” and is the site of famous aqueducts and baths, as well as the Coliseum.**

ANSWER: Roman Empire

**9. The percentage of this substance that is glycated can be found with the A1C test. The affinity of this substance for a certain molecule can be found by plotting that molecule’s partial pressure and saturation to form a dissociation curve. A drop in the affinity of this substance due to a decrease in pH is called the Bohr shift. This substance’s cofactor is composed of a cyclic ring called (\*) porphyrin. A mutation involving valine causes the formation of this protein’s “S” type, leading to increased resistance to malaria but also susceptibility to sickle-cell anemia. For ten points, name this iron-rich protein which carries oxygen on red blood cells.**

ANSWER: hemoglobin (accept Hb or Hgb)

**10. This leader’s government was targeted by F-4 Phantom planes during Operation Rimón 20, which was launched in response to the “Three No’s.” This man also allied with Salah Salem and Hussein el-Shafei during an event in which he became head of the (\*) Free Officers Movement. This leader helped overthrow King Farouk I in 1952 before founding the United Arab Republic in 1958. Before failing to lead his country to victory in the Six-Day War, he prompted a crisis for nationalizing the Suez Canal. For ten points, name this President of Egypt and predecessor of Anwar Sadat.**

ANSWER: Gamal Abdel Nasser

HALFTIME. SCORECHECK. ASK IF THERE ARE ANY PLAYER SUBSTITUTIONS

**11. The hydrogenation of alkynes to trans alkenes adds lithium in this substance, which solvates alkali metals’ electrons. Wohler added two molar equivalents of this compound to carbon dioxide, disproving vitalism by synthesizing urea. This compound has the highest specific heat of any known substance and is oxidized with a platinum-rhodium catalyst to synthesize nitric acid in the (\*) Ostwald Process. This simplest amine has trigonal pyramidal molecular geometry and a lone pair, making it a common Lewis base, and it is synthesized in the Haber process. For ten points, name this compound with formula NH<sub>3</sub>.**

ANSWER: ammonia (or NH<sub>3</sub> before mention)

**12. In one opera by this composer, the main tenor voice washes up on the island of Buyan and rescues a swan from a kite, and one character sings “The Three Wonders.” The first movement of one symphonic suite by this composer is titled “The Sea and Sinbad’s Ship” and was inspired by a (\*) Persian story teller. One excerpt for violin and flute written by this composer is a series of slurred chromatically descending sixteenth notes meant to portray the Tsar Sultan’s transformation into an insect. For ten points, name this Russian composer of *Scheherazade* and “The Flight of the Bumblebee.”**

ANSWER: Nikolai Andreyevich Rimsky-Korsakov

**13. A western division of this nation is known for its mangoes and is the namesake of its most populous city, Rajshahi. This country contains the majority of the Sundarbans, the world’s largest mangrove forest, which is home to a unique species of (\*) “tiger.” One region in this country contains hill tracts named for the port city of Chittagong. The majority of this nation consists of a delta formed by the confluence of the Padma and Meghna Rivers, which meet at the bay directly south of this nation. For ten points, name this South-Asian nation with capital at Dhaka that is located to the east of India.**

ANSWER: People’s Republic of Bangladesh

**14. In this modern-day nation, an ambassador named Dwight Morrow helped to quell tensions during the Maximato period, during which a dissenting group named the Feminine Brigades of Saint Joan of Arc was formed. In this nation, Plutarco Calles fought against his dissenters during the Cristero War. This nation was the site of the (\*) Ten Tragic Days, in which the president was overthrown in a coup d’état. That president earlier issued the Plan of San Luis Potosi to criticize Porfirio Diaz. For ten points, name this country in which a revolution resulted in the installment of Francisco Madero as president.**

ANSWER: Mexico

**15. The protagonist of this book covers his head with his hands after talking to a woman who calls all of her lovers “husbands.” One character in this novel is frequently referred to as an *umfundisi*. At a colony for the blind, the protagonist receives condolences from Father Vincent and learns that his sister (\*) Gertrude has fallen ill. The main character fails to help his son in a trial regarding the murder of Arthur Jarvis by Absalom. For ten points, name this novel about Pastor Stephen Kumalo, written by anti-apartheid South-African author Alan Paton.**

ANSWER: *Cry, the Beloved Country*

**16. One figure in this work points out that, since he does not charge money for his services, he is not a member of the Sophists. In this work, the speaker compares himself to a gadfly stinging the skin of society and recounts a day on which Charephon asked the Oracle of Delphi about the wisest man in the land. After that episode in this work, the speaker asks men questions in order to (\*) test their wisdom. At the end of this work, a group is told that the person in question should be rewarded instead of being subjected to drinking hemlock. For ten points, name this Platonic dialogue in which Socrates defends himself at his trial.**

ANSWER: *The* Apology (or Apologia)

**17. One building designed by this architect located in the Kulterforum is nicknamed the “temple of light and glass” and contains a ceiling with LCD lighting designed by Jenny Holzer. This designer of the New National Gallery in Berlin included W-shaped columns for a building that contains floor to ceiling glass. This architect of the (\*) Farnsworth House included a bronze curtain wall in another building located on Park Avenue. That building was designed with Philip Johnson and contains the Four Seasons Restaurant. For ten points, name this German International Style architect who designed a New York skyscraper named the Seagram Building.**

ANSWER: Ludwig Mies van der Rohe

**18. The quantum eraser and Wheeler's delayed choice are variations on this experiment, which demonstrated the principle of complementarity. The Fraunhofer equation can be used to describe the results of this experiment, which can also be described with the simpler equation " $d \sin \theta = n \lambda$ ". Evenly spaced, alternating light and dark (\*) bands were formed on the far-field screen in it, demonstrating that the wavefronts interfered even though the photons also acted as particles. For ten points, name this experiment which illustrated wave-particle duality by diffracting light through two small holes, which was conducted by Thomas Young.**

ANSWER: Thomas Young's double-slit experiment

**19. In one story by this author, Cambuscan gives his daughter a ring that allows her to talk with a falcon. One of his characters meets a giant after dreaming about an Elf Queen, and is named Sir Topas. In another story, this author wrote about Nicholas, who flatulates in his friend's face. Another of this author's characters tells of what (\*) women truly desire, while his characters Palamon and Arcite fight over the beautiful Emile. All those stories by this author are told by pilgrims at the Tabard Inn. For ten points, name this English author who wrote about the Squire, the Miller, the Wife of Bath, and the Knight in his *Canterbury Tales*.**

ANSWER: Geoffrey Chaucer

**20. One leader of this nation fought against the requirement of supporting the Church at the Battle of Carrickshock during the larger Tithe War. Another leader of this country gathered many Kildare troops and was supported by Wolfe Tone before an 1803 rebellion. This country was home to a police force named the (\*) Black and Tans. A political rift in this nation took place after Éamon de Valera formed the Fianna Fáil. Its first "Dáil" was the revolutionary Michael Collins, who first gained prominence during the bloody 1916 Easter Uprising. For ten points, name this country of the Sinn Féin Party which was the site of a disastrous potato famine.**

ANSWER: Republic of Ireland

YOU HAVE REACHED THE END OF THE ROUND. DO NOT GO ON TO TOSSUP 21 UNLESS THERE IS A TIE

**21. Tension during this event began when crowds climbed on the Logan Monument and an American flag was lowered in Grant Park. After this event, the Puerto-Rican Young Lords advocated for the release of activist Rennie Davis. Abraham Ribicoff criticized one leader in this event for "(\*) Gestapo tactics in the streets." An iconic scene from this incident was a crowd in front of the Hilton Hotel chanting "The whole world is watching!" During it, Richard Daley announced that "Law and order will be maintained." For ten points, name this event where anti-war protesters clashed with Chicago police as Hubert Humphrey received the nomination for president.**

ANSWER: 1968 Democratic National Convention (accept 1968 DNC; prompt on "1968 Convention")

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### Round 9- Bonuses

1. This character dreams about a group of mean children who beat up an old horse. For ten points each:

[10] Name this character from an 1866 novel. He is a student in St. Petersburg and becomes overwhelmed by guilt over his murder of a pawnbroker.

ANSWER: Rodion Romanovich **Raskolnikov**

[10] Raskolnikov appears in *Crime and Punishment*, a book by this Russian author.

ANSWER: Fyodor Mikhailovich **Dostoyevsky**

[10] In *Crime and Punishment*, Raskolnikov learns that Lizaveta was a friend of the prostitute Sonya before asking Sonya to tell him about the story of this Biblical figure.

ANSWER: **Lazarus**

2. For ten points each, name these regions given clues about their demilitarized zones:

[10] The most famous DMZ is probably the one separating the northern and southern parts of this Asian country at the 38th parallel.

ANSWER: **Korea**

[10] A buffer zone was created in 1974 by the UN after a Turkish invasion of this European island nation. This nation's capital is split by the Green Line.

ANSWER: Republic of **Cyprus**

[10] A demilitarized zone was created in a 1920 treaty over this archipelago located in the northern part of Norway. This archipelago consists of islands like Spitsbergen and its settlement began as a source for whaling.

ANSWER: **Svalbard**

3. For ten points each, name these documents which limited the power of the British monarchy:

[10] After the Battle of Bouvines, the powerful King John I was forced by his barons to sign this agreement in 1215. It was important for limiting the power of the king.

ANSWER: **Magna Carta**

[10] The 1688 Glorious Revolution, which installed William and Mary as dual-monarchs, allowed for the introduction of this act. It guaranteed no taxation by the Royal Prerogative.

ANSWER: English **Bill of Rights**

[10] In 1628, Edward Coke and the British Parliament passed this document in response to Charles I's spending to finance the Thirty Year's War. This document was a large cause of the English Civil War.

ANSWER: **Petition of Right** (do NOT accept "Petition of Rights")

4. The "Dies Irae" from one of these compositions by Verdi features the brass and bass drum playing powerful alternating short notes. For ten points each:

[10] Name these types of musical works which are masses for the dead. The "Lacrimosa" ends one of these works left uncompleted at Mozart's death.

ANSWER: **requiem** mass

[10] This 20th century English composer borrowed Wilfred Owen's poetry and included the lines "requiescat in pace" in his *War Requiem*.

ANSWER: Benjamin **Britten**

[10] This French composer is known for the *Pie Jesu* that makes up part of his *Requiem in D-minor*. He is also known for the "Berceuse" in his set of piano duets entitled the *Dolly Suite*.

ANSWER: Gabriel Urbain **Fauré**

5. It increases about 0.606 meters per second for each degree Celsius increase in temperature. For ten points each:

[10] Name this measurement approximately equal to 330 meters per second at 0 degrees Celsius.

ANSWER: speed of sound (accept, but do not mention, Mach 1)

[10] This eponymous dimensionless constant is the ratio of an object's speed to the speed of sound.

ANSWER: Mach number

[10] One way of calculating the speed of sound in a material is by taking the square root of this modulus divided by density. It is a measure of how much an object resists changes in its volume, and is the inverse of compressibility.

ANSWER: bulk modulus

6. For ten points each, name these film composers:

[10] This American Academy-Award winning composer is famous for the music to *Jaws* as well as the first three *Harry Potter* movies.

ANSWER: John Towner Williams

[10] This German film composer is well known for including electronic music in his scores. His recent work has included the music for *Inception* as well as Christopher Nolan's *The Dark Knight*.

ANSWER: Hans Florian Zimmer

[10] This Italian film composer is known for his music to *Death on the Nile*, but is more famous for the "Love Theme" from the first two *Godfather* movies.

ANSWER: Nino Rota

7. One conflict within this modern day nation featured one side using Encirclement Campaigns to stop the Red Army. For ten points each:

[10] Name this mainland Asian nation which in the mid 20th century featured a civil war between Chiang Kai-shek's Kuomintang and Mao Zedong's Communist forces.

ANSWER: People's Republic of China (do NOT accept "Republic of China" or "Taiwan")

[10] This leader of Kuomintang forces before Chiang Kai-shek is considered the father of Taiwan. He authored the tract that called democracy, nationalism, and livelihood the "three people's principles."

ANSWER: Sun Yat-sen

[10] Sun Yat-sen criticized the participants of a 1919 Beijing student demonstration against Japanese control of the Shandong Peninsula. That demonstration is named after the fourth of this month.

ANSWER: May (Fourth) Movement

8. The protagonist of this work becomes involved in a conflict over whether he will wed Lavinia. For ten points each:

[10] Name this epic poem about the son of Anchises who travels from a besieged Troy to Italy. The protagonist of this work also falls in love with Dido.

ANSWER: *The* Aeneid (or Aeneis)

[10] The *Aeneid* is the best known work by this Latin Augustan poet, who also collected his thoughts on agriculture in the *Georgics*.

ANSWER: Virgil (or Vergil or Publius Vergilius Maro)

[10] This son of Evander in the *Aeneid* is killed by Turnus and has his belt stolen, prompting Aeneas to in turn kill Turnus instead of letting him go.

ANSWER: Pallas

9. These structures are supplied with blood by the afferent arteriole. For ten points each:

[10] Identify these structures consisting of a jumble of capillaries called glomeruli. They can be “cortical” or “juxtamedullary” and serve as the functional unit of the kidney.

ANSWER: **nephrons**

[10] Nephrons are classified as “cortical” or “juxtamedullary” depending on the length of this other part of the kidney, a hairpin turn with descending and ascending limbs. It leads to the distal tubule.

ANSWER: **loop of Henle**

[10] The long side of the loop of Henle is served by these hairpin-shaped capillaries. Blood within the ascending part of this structure flows opposite to the corresponding descending portion of the loop of Henle.

ANSWER: **vasa recta**

10. This region began as a site for Christian missionaries until its potential for a viable sugar market was discovered.

For ten points each:

[10] Name this island region in which King David Kalakaua was overthrown by the US government in order to install Queen Liliuokalani.

ANSWER: **Hawaii**

[10] This lawyer helped create the Bayonet Constitution and served as Hawaii’s only president. He is also known for increasing the production of pineapples in Hawaii.

ANSWER: Sanford Ballard **Dole**

[10] The Kingdom of Hawaii was founded by this late 18th century military leader, who gained the island of Maui after the Battle of Kawela.

ANSWER: **Kamehameha I** (or **Kamehameha the Great**; prompt on “Kamehameha”)

11. For ten points each, name these aspects of Jewish prayer:

[10] Most Jewish people go to these buildings to pray in a group. These buildings may also contain places for Torah study called Beth Midrash.

ANSWER: **synagogue** (accept **shul**)

[10] This Jewish prayer is said with a grouping of ten people called the *minyan* and opens with the word “yitgadal.” It is the Jewish prayer for the dead.

ANSWER: **Kaddish**

[10] The words “Shema Yisrael” appears in this most commonly used book of Jewish prayer. It also contains a poem called Adon Olam.

ANSWER: **siddur** (or **siddurim**)

12. Answer the following about NMR spectroscopy, for ten points each:

[10] The most common form of NMR is named for these particles, which have a plus one charge and are found in the nucleus.

ANSWER: **protons** (or **H<sup>+</sup>**, or **1H**)

[10] At certain field strengths, hydrogen atoms in proton NMR spectroscopy will demonstrate this phenomenon and align with the field; in an unrelated type of chemistry, it occurs when delocalized electrons can form multiple Lewis structures.

ANSWER: **resonance** (accept word forms)

[10] Acetylenic or aromatic protons often show chemical shifts upfield due to this phenomenon. The lanthanide contraction is caused due to the poor ability of f electrons to participate in this phenomenon.

ANSWER: electron **shielding** (accept word forms)

13. This goddess caused the Giant brothers Otus and Ephialtes to kill each other after they both threw spears at an ethereal hind. For ten points each:

[10] Name this Greek deity who, as well as being the twin sister of Apollo, served as the goddess of the hunt.

ANSWER: Artemis

[10] This hunter caught a glimpse of Artemis taking a bath one day and consequently was transformed into a stag before being mauled by his own hunting dogs.

ANSWER: Actaeon

[10] During the Trojan War, Artemis would only allow the Mycenaeans to pass on to Troy after she was offered this daughter of Agamemnon.

ANSWER: Iphigenia

14. The narrator of this book meets a woman named Lena Lingard at a university. For ten points each:

[10] Name this 1918 novel narrated by Jim Burden about his love for a Bohemian woman who later marries Cuzak in Blackhawk, Nebraska.

ANSWER: My Ántonia

[10] *My Ántonia* is a novel by this American author, who also wrote about an immigrant named Alexandra Bergson in *O Pioneers!*

ANSWER: Willa Sibert Cather

[10] This Willa Cather character is charged with fixing the Catholic inconsistencies brought about by the Santa Fe priests in the New Mexico territory. This archbishop eventually meets the elusive Padre Martinez.

ANSWER: Jean-Marie Latour (accept either underlined part)

15. This subject wears a wreath and holds a stone slab in a Jean-Jacques Feuchere's depiction in front of the Palais-Bourbon. For ten points each:

[10] Name this blind subject who is often sculpted carrying a book, a staff, and, most notably, a set of scales. This subject's name reflects her appearances in front of courthouses.

ANSWER: Lady Justice

[10] An artist with this surname depicted Lady Justice standing with wisdom and George Washington. The more famous sculptor with this surname is known for his mobiles like *Lobster Trap and Fish Tail*.

ANSWER: Calder (accept "Alexander Calder" or "Alexander Stirling Calder")

[10] Lady Justice sits with her hand on her chin on the right of Pope Urban VIII's tomb, which was designed by this artist. In another sculpture, this artist depicted Pluto's kidnapping of a goddess in *The Rape of Proserpina*.

ANSWER: Gian Lorenzo Bernini

16. In this play, one character responds to the names Cain and Abel. For ten points each:

[10] Name this play about two men named Vladimir and Estragon who sit and talk about hanging themselves from a tree while passing time to meet the title figure.

ANSWER: Waiting for Godot (accept En attendant Godot)

[10] *Waiting for Godot* is a drama by this 20th century Irish author.

ANSWER: Samuel Barclay Beckett

[10] Throughout *Waiting for Godot*, Vladimir gives Estragon one of these items whenever he says he is hungry. In Act II, Scene I, Vladimir tells Estragon that he will give him one of these items, but does not move afterwards.

ANSWER: carrot (prompt on "food" or "vegetable")



17. For ten points each, name these things important to British imperialism in Africa:

[10] This businessman pushed for British imperialism from “the Cape to Cairo.” He is also known for founding the De Beers Diamond Company and for being the namesake of a scholarship.

ANSWER: Cecil John **Rhodes**

[10] Cecil Rhodes’s push for diamonds was mainly focused in this region of South Africa. It was in this region that Paul Kruger faced the failed 1895-1896 Jameson Raid.

ANSWER: **Transvaal** Republic

[10] In 1898, British officer Herbert Kitchener won the Battle of Omdurman and subsequently met France’s General Marchand during the Fashoda incident, which took place in *this* country.

ANSWER: Republic of **Sudan**

18. This composer quoted the “Grandfather’s Dance” in his work *Papillons*. For ten points each:

[10] Name this 19th century German composer who included the F-major “Traumerei” in his piano piece collection *Scenes from Childhood*. He was the husband of Clara Wieck.

ANSWER: Robert **Schumann**

[10] This symphony in B-flat major was Robert Schumann’s first. Its first section ends “Allegro molto vivace” and it was inspired by the *Liebesfrühling* [pr. Lee-bes-froo-ling] cycle.

ANSWER: **Spring** Symphony (or **Opus 38**)

[10] This third movement of the *Spring Symphony* is set in G-minor and begins “molto vivace.” In general, a movement of this name, which translates to “joke” in English, is playful but intense.

ANSWER: **scherzo**

19. The energy stored in one of these devices is equal to one-half times the charge times the voltage drop across it. For ten points each:

[10] Name these devices which store charge in electrical circuits. They are represented with equal parallel lines in circuit diagrams.

ANSWER: **capacitors**

[10] Parallel plate capacitors have a capacitance equal to area of the plates divided by plate separation distance, times this quantity. Electric flux is the quotient of enclosed charge and this constant.

ANSWER: **permittivity** of free space (or **vacuum permittivity**; be careful not to accept “permissivity” or “permeability”)

[10] The permittivity of free space is multiplied by four pi in the denominator of this physicist’s namesake constant. His constant is multiplied by two charges and divided by the distance between them in a law of electrostatics.

ANSWER: Charles-Augustin de **Coulomb**

20. This man created a political cartoon depicting a snake broken into thirteen sections with the words “Join or Die!” on the bottom. For ten points each:

[10] Name this American politician and diplomat who served as the sixth President of Pennsylvania. During his career, he published the *Poor Richard’s Almanack*.

ANSWER: Benjamin **Franklin**

[10] While serving as Britain’s deputy postmaster, Franklin proposed a “Plan of Union” to connect the colonies at this 1754 meeting in New York.

ANSWER: **Albany Conference** of 1754 (or **Albany Congress** of 1754)

[10] Benjamin Franklin succeeded this man as the President of Pennsylvania. He is known for criticizing British taxation in his *Letters from a Farmer in Pennsylvania*.

ANSWER: John **Dickinson**

21. Work is the change in this quantity. For ten points each:

[10] Name this quantity which classically is equal to one-half times the mass times the velocity squared.

ANSWER: **kinetic** energy

[10] Kinetic energy is conserved in one of these collisions. Billiard balls and Newton's cradle demonstrate this sort of collision.

ANSWER: **elastic** collisions

[10] A branch of modern mechanics is named for this operator, which is the sum of potential and kinetic energies for a system. It is named for the physicist who also invented quaternions.

ANSWER: **Hamiltonian**