

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 12- Tossups

**1. At the end of one poem by this author, the speaker proclaims “I shall laugh the worst laugh I ever laughed/I’m cursed.” The speaker of another of this poet’s works declares ‘The work of hunters is another thing.’ This author of “Home Burial” remarks that “spring is the mischief in me” in a poem asserting that “he is all (\*) pine and I am apple orchard” and that “good fences make good neighbors.” In another poem, this author wrote that his choice has made all the difference after picking one of two roads that “diverged in a yellow wood.” For ten points, name this American poet of “Mending Wall” and “The Road Not Taken.”**

ANSWER: Robert Lee Frost

**2. One leader of this empire established administrators known as faamas after conquering the city of Kangaba. It’s not the Ottoman Empire, but a building in this empire’s capital was rebuilt by Sulayman after an invasion and was designed by el-Saheli. Much of the available information about this kingdom comes from the 1352 memoirs of (\*) Ibn Battuta. It was founded by the legendary boy-king Sundiata and had capital at Niani. Its most famous leader caused massive inflation after spending excessive amounts of gold on his hajj. For ten points, name this West African empire governed from Timbuktu and led by Mansa Musa**

ANSWER: Mali Empire

**3. The change of these substances to an intermediate form is expressed in the Ping-pong diagram. The most used formula regarding the dynamics of these substances is the subject of the Michaelis-Menten mechanism. The existence of two or more subunits on these substances causes conformational change due to cooperativity. A (\*) groove-like area on the surfaces of these substances is called the active site and can change for induced fit. These substances bind to reactants called substrates and work by lowering activation energy. For ten points, name these catalytic proteins which increase the rate of a reaction without being consumed.**

ANSWER: enzymes (prompt on “catalyst”)

**4. The leftmost figure in this painting uses a caduceus staff to push away some clouds and stands with his left hand on his left hip. One figure in this painting stands on her toes with her left foot and holds hands with a woman in red hair as she dances a rondo. The extreme right of this work shows a blue-skinned figure (\*) abducting the frightened nymph Chloris, who stands next to Flora. In the center of this painting, Cupid flies over a figure clutching a red robe. For ten points, name this Sandro Botticelli painting of Venus in a forest whose title refers to spring.**

ANSWER: *La* Primavera

**5. One of this author’s short stories ends with a dentist stating “It’s the same damn thing” after being asked by the town mayor where he should send the bill for his tooth operation. This author of “One of These Days” also wrote about schoolgirl America Vicuna’s affair with a man who has 621 other affairs. This creator of (\*) Florentino Ariza wrote about the massacre undertaken by a banana company and of the generations of the Buendia family. For ten points, name this Colombian author of *Love in the Time of Cholera* and *One Hundred Years of Solitude*.**

ANSWER: Gabriel José de la Concordia García Márquez (prompt on “Marquez”)

**6. One landmark in this city resembles a pile of music disks on a turntable and is topped by a large spike; that building was designed by Welton Becket. Claes Oldenburg co-designed the entrance to the Chiat/Day Building in this city to resemble a pair of binoculars. Another landmark in this city improved upon the acoustics of the Dorothy Chandler Pavilion and was designed by (\*) Frank Gehry. This city is home to the aforementioned Walt Disney Concert Hall. For ten points, name this California city home to a large nine-letter white word marking the entrance to Hollywood.**

ANSWER: Los Angeles, California

**7. Alex S. Gonzalez booted a potential double play grounder from this player during Game 6 of the 2003 NLCS, allowing his team to score 8 runs against the Chicago Cubs and eventually win the series. In his rookie season, he helped lead the (\*) Florida Marlins to a World Series over the Yankees. When Prince Fielder left the Milwaukee Brewers to join his team, he moved back to 3rd base, where he had begun his career. Carl Yastrzemski was the last person to lead the league in batting average, home runs, and RBI in the same season before this player did it in 2012. This player struck out to end the 2012 World Series. For ten points, name this Detroit Tiger who won the Triple Crown in 2012.**

ANSWER: Miguel Cabrera

**8. During this emperor's reign, one of his opponents married a princess named Thusnelda after betraying Segestes. One of this man's closest generals won the Battle of Naulochus after a rival commander named Sextus Pompey led the Sicilian Revolt. The Cherusci leader Arminius defeated this man's general Varus at Teutoburg Forest. Another general under this victor at (\*) Philippi was named Agrippa and defeated Marc Anthony at the 31 BCE Battle of Actium. This man's rule ushered in a time of relative peace called the Pax Romana. For ten points, name this first ruler of the Roman Empire who was also Julius Caesar's adopted son.**

ANSWER: Gaius Julius Caesar Augustus (or Gaius Julius Caesar Octavianus)

**9. The results of this experiment can be described with an equation which sets cross section to be inversely proportional to the fourth power of sine theta over two, times kinetic energy squared. Its namesake used it to predict the atomic masses of copper and platinum. This experiment used the radioactive decay of radon gas to produce helium (\*) nuclei. In it, Geiger and Marsden counted spots on a zinc sulfide screen, prompting its namesake to exclaim that it was as if tissue paper had deflected a 15-inch shell. For ten points, name this experiment which disproved the plum pudding model and discovered the nucleus, conducted by Ernest Rutherford.**

ANSWER: Rutherford gold foil experiment (accept Rutherford experiment before mention; accept Geiger-Marsden experiment before mention)

**10. In one of this author's stories, an old man repeats the word "nada" while saying the Lord's Prayer. In another story by this author, a barmaid brings the two main characters beer called *Anis del Toro* while they talk about a potential abortion in a train station. This author of "(\*) A Clean Well-Lighted Place" and "Hills Like White Elephants" also wrote a novel in which the protagonist walks out into the rain after his lover, Catherine Barkley, has a stillborn child. For ten points, name this American author who wrote about Frederic Henry in *A Farewell to Arms*.**

ANSWER: Ernest Miller Hemingway

HALFTIME. SCORECHECK. ASK IF THERE ARE ANY PLAYER SUBSTITUTIONS

**11. This city is located on the western shore of Guanabara Bay, and this city's Pedro Ernesto Palace now houses its city council rather than a parliament. The majority of this city's slums, which are called favelas, are located in the Tijuca zone. The mountain Corcovado near this city overlooks (\*) Sugarloaf Mountain and is home to this city's Christ the Redeemer statue. This city is home to the world's largest soccer stadium, Maracanã Stadium, the likely host of the 2014 FIFA World Cup final. For ten points name this second largest city of Brazil, the host for the 2016 Olympic Games.**

ANSWER: Rio de Janeiro

**12. This work asserts that the origin of knowledge can be traced to the influence of "external bodies." The four abuses of speech are presented in this work's first book, which is presented like a geometric proof. This book also compares the influences of imagination to a "decaying sense." An idea central to this text is that people constantly strive to (\*) harm one another during the "war of every man against every man." This political work claims that life is "nasty, brutish, and short." For ten points, name this work of political philosophy which pushes for governments to be like a certain Biblical sea monster, written by Thomas Hobbes.**

ANSWER: Leviathan or *The Matter, Forme and Power of a Common Wealth Ecclesiasticall and Civil*

**13. This city was occupied by Gustavus Adolphus in 1632, even though Maximilian I was technically still in power. The Michaelskirche (michaels-keer-sha) in this city became a center for the Counter-Reformation. Operation Wrath of God was executed against (\*) Black September in response to an event in this city. A failed coup in this city resulted in its leader being sent to Landsberg (lands-bearg) prison. In this city, Palestinian terrorists murdered eleven Israeli athletes at the 1972 Olympics. For ten points, name this Bavarian capital in which the attempted overthrow of the Weimar Republic by Adolf Hitler was carried out in the Beer Hall Putsch.**

ANSWER: Munich (or München)

**14. One character in this novel is followed by a blind beggar who sings of sunshine and green leaves and demands that her love remove a wedding bouquet from a bed. The protagonist of this novel receives a basket of apricots that contains a letter stating that the relationship between her and (\*) Rodolphe must end. One character in this novel is unable to perform a surgery on Hippolyte's club-foot, and becomes depressed after his wife commits suicide by drinking arsenic. For ten points, name this novel about a doctor's wife named Emma, written by Gustave Flaubert.**

ANSWER: Madame Bovary

**15. One quantity associated with these compounds is given by "B-sub-s" over the product of Boltzmann's constant and temperature. One of them can be formed by the radical addition of ethene molecules, and retains an "ene" suffix although it's not an alkene. These substances' stereochemistries are described by their tacticity, but they are also described by the persistence length. They are formed in "step-growth" and "chain-growth" processes. In vulcanization, sulfur forms (\*) cross-links between two of them. For ten points, name these compounds including nylon and polyethylene, which consist of thousands of repeated monomers bonded together.**

ANSWER: polymers

**16. One of the characters in this work angrily destroys a mirror while another is shaving. In this book, the townspeople of Whitby find a dead captain lashed to the helm with a rosary in his hand when the *Demeter* runs aground. In one chapter in this novel, (\*) Dr. Seward observes the insane patient Renfield, who has an obsession with consuming animals. The title character of this work is killed when Quincey Morris stabs him in the heart. For ten points, name this book by Bram Stoker about a Transylvanian vampire.**

ANSWER: Dracula

**17. An operation carried out by this organization was prompted by mortaring at the Markale marketplace and ended the “out-of-area” debate. That operation, codenamed Deliberate Force, was soon followed by this organization bringing about the Dayton Agreement, ending conflict in (\*) Bosnia. The creation of this body was followed by the appointment of Dwight Eisenhower as the head of SHAPE. The response to the establishment of this organization included the formation of the Warsaw Pact. For ten points, name this international organization centered in Brussels that was partly formed in response to Soviet expansion.**

ANSWER: North Atlantic Treaty Organization

**18. The principal player of this instrument for the Philadelphia Orchestra during the mid 20th century was Marcel Tabuteau. This instrument’s medieval equivalent was called the shawm. A concerto for this instrument in C major was composed for Giuseppe Ferlendis by Mozart. A dissonant chord played by French horns indicates that an animal represented by this instrument has been (\*) eaten in Prokofiev’s *Peter and the Wolf*. Bands usually tune to an A natural played by this instrument before concerts. For ten points, name this double-reed woodwind instrument related to the bassoon.**

ANSWER: oboe

**19. In Norse mythology, one of these objects named Hringhorni was used after the giantess Hyrrokkin started a fire on a funeral pyre during the funeral of Balder. The best of this kind of item was created by the sons of Ivaldi and was said to have the ability to be (\*) folded so small that it could fit into a pocket. The presence of one of these objects built with toenails signals the beginning of Ragnarok. In Greek mythology, one of these objects contained a talking piece of wood and helped in the Argonauts’ journey for the Golden Fleece. For ten points, name these transportation vehicles, a thousand of which were “launched” after the abduction of Helen.**

ANSWER: boats (or ships or arks or any other synonym of boat)

**20. Most of these organisms possess a stretch of nucleotides at the start site of translation called the Shine-Dalgarno sequence. The comparison of these organisms’ nucleic acid sequences found that the SSU-rRNA regions of these organisms’ genes contain so-called “signature sequences,” discovered by (\*) Carl Woese. Unlike their counterparts, these organisms possess single-stranded DNA and not-as-developed organelles. For ten points, name this group of organisms which consists of Bacteria and Archaea and possess no nuclei, distinguishing them from the eukaryotes.**

ANSWER: prokaryotes (accept “Bacteria” or “Archaea” at any point before they are mentioned)

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

**21. In one novel written by this author, the protagonist consoles herself by looking through the window at an oak tree and uses her shawl to cover a boar’s skull after her son’s requests. In another work by this writer, a boy periodically plays with his pocketknife and a veteran of WWI jumps out his window in order to avoid going to an asylum. This author wrote about (\*) Septimus Smith and she also wrote about a painter named Lily Briscoe who finishes a portrait of Mrs. Ramsay at the title location. For ten points, name this English female author of *Mrs. Dalloway* and *To the Lighthouse*.**

ANSWER: Virginia Woolf

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### Round 12- Bonuses

1. It has the second-highest electronegativity of any element and is found in a triatomic allotrope as ozone. For ten points each:

[10] Name this element usually found in a -2 oxidation state in compounds.

ANSWER: oxygen

[10] Oxygen is found in a -1 oxidation state in this polyatomic ion. This anion contains only oxygen.

ANSWER: peroxide (accept O22-; this is read “O two two minus”)

[10] Liquid oxygen demonstrates this phenomenon because molecular orbital theory shows that it has two unpaired electrons. In general, this physical phenomenon occurs when susceptibility is greater than one.

ANSWER: paramagnetism (accept word forms, prompt on just magnetism, don’t accept other forms of magnetism)

2. For ten points each, name these South African cities:

[10] This most populous city in South Africa is also home to the soccer club Kaizer Chiefs and Soccer City Stadium. It is the most populous city in the world not situated on a river, lake, or coastline.

ANSWER: Johannesburg

[10] This predominantly-Black African city is part of the Johannesburg Municipality and borders the city’s mining belt to the south. This city was also the site of a 1976 uprising.

ANSWER: Soweto

[10] In spite of not being Cape Town, this coastal city is South Africa’s busiest port. It also provides a gateway to the Drakensberg mountain range.

ANSWER: Durban

3. For ten points each, name these Edgar Allan Poe short stories:

[10] In this short story, Roderick recites “The Haunted Palace” and has the narrator help him bury his seemingly-dead sister outside a dark building before it crumbles.

ANSWER: “Fall of the House of Usher”

[10] In this other Poe story, detective Auguste Dupin switches an object in question with a duplicate in order to trick the Minister “D” and is left a note about Atreus and Thyestes.

ANSWER: “The Purloined Letter”

[10] This Poe short story begins with a narrator finding shelter in the mountains of Italy before coming across odd artwork in a building. The narrator of this work learns that an artist had rejected his bride in favor of his artwork.

ANSWER: “The Oval Portrait”

4. The attack on this site was nicknamed Operation Judgment by one side. For ten points each:

[10] Name this French garrison town which during World War I was the site of a nearly ten month long attack by the Germans in 1916. The attack on this site was the longest single battle of World War I.

ANSWER: Verdun

[10] At the Battle of Verdun, the French forces were led by this general, who also set up his forces along the Meuse to delay the Germans.

ANSWER: Henri Philippe Benoni Omer Joseph Pétain

[10] This commander-in-chief for the German side during the battle wanted to “bleed the French white” by taking control of Verdun.

ANSWER: Erich von Falkenhayn

5. One opera by this composer ends with the singer Elina becoming old after drinking a potion. For ten points each:  
[10] Name this mid 19th-century composer of *The Makropulos Affair* who also composed a five-movement work dedicated to his country's troops called *Sinfonietta*.

ANSWER: Leos Eugen **Janáček** (pr. Le-os Ya-NA-check)

[10] Leos Janáček was a composer of this nationality. Another composer of this nationality used Bohemian instrumentation for *Slavonic Dances*.

ANSWER: **Czech**

[10] The aforementioned *Slavonic Dances* is by this other Czech composer, who may be best known for his *From the New World* symphony.

ANSWER: Antonín Leopold **Dvořák** (pr. da-vor-JAK)

6. This figure killed a thousand enemy soldiers with the jawbone of a donkey. For ten points each:

[10] Name this hero from the Bible whose strength came from his long hair and was the lover of Delilah.

ANSWER: **Samson** (or **Shimshon** or **Shamshoun**)

[10] After being captured and blinded by these people, he was brought to the Temple of Dagon where he brought down the pillars of the temple, killing many of these people.

ANSWER: **Philistines**

[10] In Judges 14:5, Samson goes to the vineyards of this place with his father and mother before a young lion confronts them. It is from this place that Samson finds a Philistine woman whom he desired to marry.

ANSWER: **Timnah**

7. Hess' Law states that the change in this quantity for a reaction is path-independent. For ten points each:

[10] Name this measure of a system's energy, symbolized H. In endothermic reactions, the change in this quantity is positive.

ANSWER: **enthalpy**

[10] According to this law, change in enthalpy equals the sum of internal energy and the work done by a system. This re-formulation of the law of conservation of energy is often stated that  $U = Q - W$ .

ANSWER: **First** Law of Thermodynamics

[10] Enthalpy only equals heat transfer if this quantity is held constant. According to the Clausius-Clapeyron equation, its derivative with respect to temperature is proportional to the enthalpy of a phase change.

ANSWER: **pressure** (accept **vapor pressure**)

8. Supporters of this cause held up banners outside the White House in 1917 and were known as the "Silent Sentinels." For ten points each:

[10] Name this cause espoused by activists like Lucretia Mott. The passage of the Nineteenth Amendment guaranteed it.

ANSWER: **women's suffrage** (or equivalents like "women's right to vote"; prompt on "women's rights")

[10] At an 1848 meeting in New York, this women's rights activist led the members of the Seneca Falls Convention to publish the *Declaration of Sentiments*.

ANSWER: Elizabeth Cady **Stanton**

[10] In 1972, this landmark piece of legislation passed with the Educational Amendments banned sex discrimination in schools for all educational activities.

ANSWER: **Title IX**

9. The subjects of this poem “Flashed all their sabres bare/Flashed as they turn’d in the air.” For ten points each:  
[10] Name this poem about a group of six hundred soldiers who rode “half a league, half a league” into the “valley of death.”

ANSWER: “The **Charge of the Light Brigade**”

[10] “The Charge of the Light Brigade” is a work by this English poet who commemorated the death of his friend Arthur Henry Hallam in his poem “In Memoriam.”

ANSWER: Alfred **Tennyson**, 1st Baron Tennyson

[10] Alfred Tennyson’s poem “Crossing the Bar” ends with narrator hoping that he can see *this* figure “face to face” when he has “crost the bar.”

ANSWER: my **Pilot** (or “his **Pilot**”; prompt on “God”)

10. This clause was applied to the states after *Benton v. Maryland*. For ten points each:

[10] Name this clause of a certain Constitutional amendment which prevents a defendant from being prosecuted multiple times for the same offense.

ANSWER: **Double Jeopardy** Clause

[10] Double jeopardy is prohibited by this amendment to the US Constitution. This amendment also ensures that no one will be “deprived of life, liberty, or property, without due process of the law.”

ANSWER: **Fifth** Amendment

[10] The Fifth Amendment’s establishment of due process also strengthened the power of this rule. It ensures that unlawfully obtained evidence cannot be used against a defendant.

ANSWER: **exclusionary rule**

11. The Knudson two-hit hypothesis states that this disease is brought about by a series of mutations in the retinoblastoma. For ten points each:

[10] Name this disease caused by malign tumors. This disease of the bone marrow occurs often in young children and is called leukemia.

ANSWER: **cancer**

[10] These genes have the ability to proliferate the spread of cancer after a point-mutation in the “proto” type of these genes occurs.

ANSWER: **oncogenes**

[10] A mutation in this key tumor-suppressor gene has about a 50% chance of leading to cancer. It is often called the “guardian angel of the genome” and causes irreparable cells to undergo apoptosis.

ANSWER: **p53**

12. The first mention of this character is heard by Eddie Willers. For ten points each:

[10] Name this fictional character who is said to have looked for Atlantis. His identity is constantly asked about in a book that features Dagny Taggart.

ANSWER: **John Galt** (accept either)

[10] The question “Who is John Galt” appears in the dystopian novel *Atlas Shrugged*, which is by this Russian-American author and founder of Objectivism.

ANSWER: Ayn **Rand** [or Alisa Zinov'yevna **Rosenbaum**]

[10] This novella by Ayn Rand follows Equality 7-2521 and his constant use of collective pronouns like “we.” In this book, Equality falls in love with Liberty 5-3000 only to end up getting caught.

ANSWER: **Anthem**

13. For ten points each, name these things about serpents in Greek mythology:

[10] This mortal Gorgon had a head of snake hair which could turn the unfortunate into stone. Fortunately, her head was chopped off by Perseus.

ANSWER: **Medusa**

[10] A part-snake, part-nymph figure named Echidna was the mother of this beast, who could not be killed by normal weapons. Killing this beast was Hercules's first labor.

ANSWER: **Nemean lion** (prompt on "lion")

[10] Echidna was the mother of the Nemean lion, but this one hundred-headed figure was his father. He was trapped under Mount Aetna by Zeus.

ANSWER: **Typhon**

14. In Act I of this opera, one character sings about songbirds in her aria "Stridono lassu." For ten points each:

[10] Name this commedia dell'arte opera in which Nedda's infidelity culminates in her being stabbed by Canio, who dresses up as a clown.

ANSWER: **Pagliacci**

[10] At the end of Act I of *Pagliacci*, Canio dresses up as a clown and realizes that he cannot yet confront Nedda while he sings this aria.

ANSWER: **"Vesti, la giubba"**

[10] *Pagliacci* is considered a prime example of the *verismo* style. Many *verismo* operatic composers were inspired by this earlier German composer of the *Ring of the Nibelung* cycle.

ANSWER: Wilhelm Richard **Wagner**

15. The p squared term in the Hardy-Weinberg equation is the frequency of an allele being described by these two words. For ten points each:

[10] Give the two words that describe this kind of genotype. In general, a genotype denoted with two capital letters is described by these two words.

ANSWER: **homozygous-dominant** (accept "dominant-homozygous"; prompt on partial answer)

[10] The chances of an offspring possessing a homozygous-dominant genotype can be calculated by using these squares.

ANSWER: **Punnett** square

[10] Punnett squares can also be used for this procedure, which involves mating two heterozygous individuals. The ratio involved in this process is usually 9:3:3:1.

ANSWER: **dihybrid** cross

16. For ten points each, answer the following about societal changes during the "Roaring Twenties:"

[10] The usual characterization of a woman during the 1920s changed after dances like the Charleston were performed by this new type of women. The clothes they wore were often considered shocking.

ANSWER: **flappers**

[10] In 1927, these two Italian anarchists were executed after being accused of murder near Boston after World War One.

ANSWER: Nicola **Sacco** and Bartolomeo **Vanzetti** (prompt on partial answer)

[10] The 1920s also included the rise of this nationalist organization which promoted a "Back to Africa" movement. It was founded and led by Marcus Garvey before he was deported to Jamaica.

ANSWER: **UNIA** (or **Universal Negro Improvement Association**)



17. The charity *The Second Mile* announced it would end its work because of the trial against this man. For ten points each:

[10] Name this former assistant coach of Penn State who was recently sentenced to life in prison for the sexual abuse of underage males.

ANSWER: Jerry **Sandusky**

[10] This former assistant coach for Penn State was a key witness during the scandal. He recently filed a suit against Penn State after he was fired.

ANSWER: Mike **McQueary**

[10] The actions taken by Mike McQueary were said to be inadequate by this current Republican governor of Pennsylvania.

ANSWER: Thomas W. **Corbett**

18. For ten points each, name these sieges that took place around the world:

[10] This Russian city near Lake Ladoga was besieged by Nazi forces from September 1941 to January 1944.

ANSWER: **Leningrad** or **St. Petersburg**

[10] After sepoy rebels captured this city in June 1857, British forces surrounded the city and laid siege until the British bombarded the city walls and infantry was able to recapture the city in September 1857.

ANSWER: **Delhi**

[10] In 1993, the FBI besieged the Mount Carmel Center in Waco, Texas after gunfire from this group was directed at ATF agents. The siege resulted in the death of this sect's leader, David Koresh.

ANSWER: **Branch Davidian**

19. The subject of this work is buried at the Basilica of Saint Anthony in the same city as the sculpture. For ten points each:

[10] Name this statue located in Padua, Italy which depicts the condottiero Erasmo de Narni riding a horse that has its front left-leg raised. Its name roughly translates as "speckled cat."

ANSWER: **Gattamelata**

[10] The *Gattamelata* is an equestrian work by this early Renaissance artist, who is also known for a contrapposto bronze sculpture of David.

ANSWER: **Donatello** (or Donato di Niccolò di Betto **Bardi**)

[10] Copies of Donatello's *Saint Mark* and *Saint George* stand in niches outside this Florence church which originally functioned as a granary.

ANSWER: **Orsanmichele**

20. This novel opens with a description of the protagonist's infatuation with Annabel Leigh. For ten points each:

[10] Name this 20th century work of Russian literature about the pedophilic Humbert Humbert, who has an obsession with "nymphets."

ANSWER: **Lolita**

[10] *Lolita* is a novel by this butterfly-loving Russian author.

ANSWER: Vladimir Vladimirovich **Nabokov**

[10] *Lolita* begins with a foreword narrated by this man, who received Humbert's manuscript after he died of a heart condition.

ANSWER: John **Ray**, Jr. , PhD

21. This experiment used radioactive isotopes of sulfur and phosphorus to tag proteins and DNA, respectively. For ten points each:

[10] Name this 1952 experiment which proved that the nucleic acids of bacteriophages serve as the molecules that carry viral genetic information.

ANSWER: **Hershey-Chase** Experiment

[10] The original Hershey-Chase experiment used nonradioactive samples of these Gram-negative bacteria, in which it was infected with the T2 phage. It is naturally found in human intestines.

ANSWER: **Escherichia coli**

[10] Other evidence that DNA carries genetic information came from the observations of this German scientist. He also realized that the amount of adenine is equal to thymine's, and that the amount of cytosine is equal to guanine's.

ANSWER: Erwin **Chargaff**