Ladue Invitational Spring Tournament IV

Written and edited by Ben Zhang, Jialin Ding, Kisan Thakkar, Enze Chen, Michael Prablek, and Sam Crowder

Round 12

Tossups

1. This author wrote a play in which a character performing calisthenics reveals to his half-buried Grandma that he is the angel of death. In another of his plays, a Western Union representative informs a central character that his son died trying to avoid hitting a porcupine with his car. Yet another of his plays ends with Jerry committing suicide with a knife held by (*) Peter after sitting on a bench in Central Park. In the most famous work by this author of *The Sandbox* and *The Zoo Story*, Nick and Honey play games like "Get the Guest" at the house of George and Martha. For ten points, identify this American playwright of *Who's Afraid of Virginia Woolf?*.
ANSWER: Edward Franklin **Albee** III
<KT>

2. This thinker differentiated the Greek word "hypostasis" from the Latin word "personae" to show how two languages can convey the same meaning. He also refuted the claim made by Averroes, whom he called "The Commentator," that people share an intellect. One of this man's works was legendarily inspired by Raymond of Penafort, while another work by this author of (*) *Summa contra Gentiles* lays out the principles of just war and includes "degree," "contingency," and "the unmoved mover" among his five arguments for the existence of God. For ten points, name this 13th-century theologian who wrote *Summa Theologica*.
ANSWER: Thomas **Aquinas** [accept Thomas of **Aquin** or **Aquino**; prompt on "Doctor Angelicus", "Doctor Communis" and "Doctor Universalis"]
<KT>

3. This property exists for a square matrix over a commutative ring if its determinant is a unit in the ring. It exists for a vector-valued function when the Jacobian does not equal zero, and by a namesake theorem, the derivative of this is equal to one over the derivative of its corresponding function. A function is (*) bijective if this property of the function is also a function. Composition of this function of "f of x," denoted by a superscript of negative one, with f itself returns x. The reciprocal is the multiplicative type of this property, and subtraction is *this* type of operation for addition. For ten points, identify this function that undoes the effect of another function.
ANSWER: **inverse** [accept specifics like **inverse** functions, multiplicative **inverse**, etc]
<EC>

4. This artist created an oak monument called "King of Kings" for his "Temple of Meditation," which was never built. This artist's other creations include an oval-shaped head lying on its side and a phallic depiction of a woman. *The Sleeping Muse* and *Princess X* were created by this artist, who also sculpted twelve chairs surrounding a limestone disk and a stack of 17 (*) rhomboidal modules as parts of an ensemble he created to commemorate World War I heroes at Targu-Jiu. This sculptor of *The Table of Silence* and *The Endless Column* created a series of works that portrays the nature of flight. For ten points, identify this Romanian sculptor of *Bird in Space*.
ANSWER: Constantin **Brancusi**
<JD>

5. One story from this religion tells of a man who continually tries to run away from his shadow, yet never thinks to sit under the shade of a tree. A key figure from this religion once wondered whether he dreamt of a butterfly or the butterfly dreamt of him. Practitioners of this religion attempt to attain the concept of non-action, or (*) "*wu wei*." This religion, whose deities include the Immortal Eight and the Jade Emperor, describes the interconnectedness of opposite forces through the concepts of yin and yang. For ten points, identify this Chinese religion which advocates "the way" and was founded by Laozi.
ANSWER: **Dao**ism [or **Tao**ism]
<JD>

6. The Allais effect occurs when pendulums undergo anomalous precession during these events, which are mapped by Besselian elements. One of these events in 1919 allowed Arthur Eddington to measure the deflection of light rays due to gravitational lensing, thus confirming general relativity. Bailey's beads are exposed during this phenomenon and are best observed along the edge of the (*) umbra. Shadow bands are seen before and after these events, which expose the corona, but can only occur during a new moon. For ten points, identify this phenomenon in which the moon blocks out the Sun.
ANSWER: **solar eclipse** [prompt on "eclipse"; do NOT accept "lunar eclipse"]
<EC>

7. This figure's son defeated Psamtik III at the Battle of Pelusium but later lost his army to a sandstorm while attempting to capture the Siwa Oasis. This figure was killed by the Massagetae under Queen Tomyris. His victory at the Battle of Thymbra led to his capture of Croesus of (*) Lydia. His namesake cylinder, which was excavated from a temple dedicated to Marduk, tells of his defeat of Nabonidus, which ended the Babylonian Captivity. He established his capital at Pasargadae after defeating his grandfather Astyages, who was the leader of the Medes. For ten points, identify this founder of the Achaemenid Persian Empire.
ANSWER: **Cyrus the Great** [or **Cyrus II**; or **Cyrus the Elder**; prompt on Cyrus]
<JD>

8. One musical composition of this kind presented an A, B-flat, A motif in its seventh movement, which ends with the "Hostias." In addition to that one by Hector Berlioz, another composition of this type by Gabriel Faure has a solo soprano in its fourth movement. One written by another composer honored Alessandro Manzoni and ends with a (*) "Libera me" segment. Franz Sussmayr completed a D-minor composition of this kind, which commonly includes sections like "Pie Jesu," "Kyrie," and "Dies Irae." For ten points, identify this "mass for the dead," an unfinished one of which was written by Mozart.
ANSWER: **requiem** mass [prompt on "mass," "mass for the dead," and "mass of the dead"]
<KT>

9. The Murano Glass Museum is located in this city, which is served by buses called vaporettos. One structure in this city was so named because it provided criminals their last sight of the city before their death, while another structure consists of two inclined ramps leading to a portico. This city home to the Bridge of Sighs and the (*) Rialto has a primary traffic throughway with a reverse S-shape. Its most famous public square actually has the shape of a trapezoid. That square connects St. Mark's Basilica to the Doge's Palace. It is located on a lagoon where the Po River empties into the Adriatic. For ten points, identify this Italian city famous for its gondolas and canals.
ANSWER: **Venice** [or **Venezia**]
<JD>

10. This man was challenged to a duel involving *Trichinella*-infested sausages by Rudolf Virchow, which he declined. Sickness and old age insurance laws were passed under his "practical Christianity" program. Adalbert Falk administered several restrictions on the clergy that Virchow termed the May Laws, which were part of this man's (*) *Kulturkampf* against the Catholic Church. He gave the "Blood and Iron" speech in support of a larger war budget, which was used for conflicts that he instigated through a dispute over Schleswig Holstein and by editing the Ems dispatch. For ten points, name this "Iron Chancellor" who helped unify Germany in the 19th century.
ANSWER: Otto Eduard Leopold von **Bismarck**
<BZ>

11. Dr. Shiping Bao changed his mind several times when talking about this person, who spoke with Rachel Jeantel last. Obama stated that this person "could have been [him] 35 years ago," while others showed their support for this person by wearing hoodies. After buying (*) skittles and iced tea at a 7-Eleven, this person was involved in a confrontation with a member of the local Neighborhood Watch, which eventually led to a July 2013 trial in Sanford, Florida. For ten points, identify this African-American teenager who was fatally shot by George Zimmerman.
ANSWER: Trayvon **Martin**
<JD>

12. After his half-brother Androgeus was killed in Athens, this figure received a yearly tribute. This creature was sometimes known as Asterion due to his connection with Aldebaran, and Aegeus committed suicide after this figure was slain because its killer forgot to put up (*) white sails after accomplishing the feat. Daedalus built a wooden contraption that allowed Pasiphae to conceive this creature after Minos refused to sacrifice a white bull. Ariadne helped a hero kill this monster by giving him a ball of string that allowed him to navigate the Labyrinth. For ten points, name this half-bull, half-man creature that was killed by Theseus.
ANSWER: **Minotaur** [accept **Asterion** before mentioned]
 <BZ>

13. A speech given after this man's death quoted the speaker's favorite poet Aeschylus and was delivered in Indianapolis, which as a result avoided participating in the Holy Week Uprising. This man drew on the work of Martin Buber in a letter addressed to clergymen who thought he was too radical, which was written while he was imprisoned in (*) Birmingham. The unsuccessful Poor People's Campaign was carried out by the Southern Christian Leadership Conference after this man's death at the hands of James Earl Ray. For ten points, name this black civil rights activist who organized the March on Washington and delivered the "I Have a Dream" speech.
ANSWER: Martin Luther **King**, Jr [or **MLK**; accept Michael **King**]
<BZ>

14. In one of this author's works, Josef Schwarz exchanges passports with the narrator before joining the French Foreign Legion, allowing the narrator to travel to America with his wife Ruth. This author of *The Night in Lisbon* also wrote about Ludwig feeling "pure" love for Genevieve Terhoven in the novel, *The Black Obelisk*. The protagonist of his most famous novel stabs (*) Gerard Duval and acquires the boots of Kemmerich. In that work, the schoolmaster Kantorek encourages his students to enlist in war. For ten points, identify this author who wrote about Paul Baumer's experiences in World War I in *All Quiet on the Western Front*.
ANSWER: Erich Maria **Remarque** [accept Erich Paul **Remark**]
<KT>

15. This player was drafted in the hopes of replacing All-Star Tracy McGrady, and in his rookie season, this man became the youngest player to average a double-double. He ousted Gerald Green in the 2008 slam dunk contest while wearing a superman costume. After getting back surgery, this player was dealt to the Lakers for a short stint, although friction with (*) Kobe Bryant led to another trade, where he currently plays alongside Omer Asik, Jeremy Lin, and James Harden. For ten points, name this basketball player, a power forward for the Houston Rockets, who was first drafted in 2004 by the Orlando Magic.
ANSWER: Dwight David **Howard**
<EC>

16. During one conflict, a group of fifteen ships known as the Yellow Fleet was trapped in this structure's Great Bitter Lake. The Convention of Constantinople established a neutral zone around this structure. The United States' refusal to carry out a promise to fund the construction of the (*) Aswan High Dam led to this structure's namesake "crisis," which led to the issuance of the Eisenhower Doctrine and began after Gamal Abdel Nasser nationalized it. For ten points, identify this man-made Egyptian waterway that connects the Mediterranean to the Red Sea.
ANSWER: **Suez Canal**
<JD>

17. This poem asks how one character could "not lament her fate" when "the light broke on her murdered dears" in one of its "four funerals," the last of which is named after the "Last Survivor." In this work, which appears in the Nowell Codex, another character accuses the protagonist of losing a swimming race against Breca. It begins with a description of the death of king (*) Shield Sheafson. Wiglaf fights a dragon alongside this poem's protagonist, to whom Unferth lends his sword Hrunting before he fights the mother of the antagonist. For ten points, identify this Old English epic in which the title Geatish protagonist kills Grendel.
ANSWER: ***Beowulf***
<KT>

18. The Casparian strip enables the endodermis to filter out harmful substances that would otherwise enter this tissue. Guttation results when increases in pressure cause the contents of this tissue to be exuded. The function of these structures is explained by the cohesion-tension theory, which involves (*) transpirational pull. This tissue is composed of tracheids and vessel elements, and dead cells that were formerly part of this tissue form wood. For ten points, name this tissue which transports water and, along with phloem, forms the plant vascular system.
ANSWER: **xylem**
<BZ>

19. This element is oxidized in the preparation of Rieke magnesium, and this metal also forms an extremely sterically hindered strong base known as its *tert*-butoxide. One compound containing this metal, known as Condy's crystals, can detect unsaturated bonds when it is in solution as Baeyer's reagent; that compound is its (*) permanganate. It is found naturally along with aluminum in muscovite. Electron capture allows one of its species to form argon-40, which is useful for radioactive dating. Like sodium, this element was isolated using electrolysis from its hydroxide, and it is found with nitrogen and phosphorus in many fertilizers. For ten points, identify this alkali metal, with chemical symbol K, found in potash.
ANSWER: **potassium**
<EC>

20. In one of this author's works, a knight who serves Love tells the poet how he lost his queen in a game of chess against Fortuna. In addition to that poem, which begins by retelling Ovid's story about Ceyx and Alcyone, this author wrote a poem in which Scipio Africanus guides the narrator to Venus's temple. This author of *The Book of the Duchess* and "The (*)** Parlement of Foules" wrote a more famous work which features the story of Arcite and Palamon, as told by a knight, set against the frame narrative of a pilgrimage to the grave of Thomas Becket. For ten points, name this author who included tales from people like the Nun's Priest and the Wife of Bath in his collection, *The Canterbury Tales*.
ANSWER: Geoffrey **Chaucer**
<KT>

21. The Frank-Tamm formula explains why this type of emission is most common when an electron traveling faster than the phase velocity of light emits Cherenkov radiation. Wien's approximation favors this type of emission, which was predicted to lead to infinitely powerful black body radiation according to the Rayleigh-Jeans law; that dilemma is its namesake (*)** "catastrophe." People with aphakia are able to witness this phenomenon, which occurs in a range between 10 and 400 nanometers in wavelength. For ten points, name this part of the electromagnetic spectrum with wavelength longer than x-rays but shorter than visible light.
ANSWER: **ultraviolet** or **UV** light
<EC>

22. This deity owns the fourth Ratna, which is believed to be the most valuable stone. Bheeshma recites all of this god's thousand names, and Antaryami and Vibhava are among the five different forms this deity takes. He kills Hiranyaksha in the form of a boar. This deity is depicted holding a (*)** lotus flower and conch shell, and he rides the bird Garuda. This god's ninth incarnation is considered to be either Balarama or the Buddha. His tenth incarnation, called Kalki, will destroy the world. Lord Rama and Krishna are avatars of, for ten points, what preserver god and wife of Lakshmi who composes the Hindu trimurti along with Brahma and Shiva?
ANSWER: **Vishnu** [accept **Narayan**a and **Hari**]
<KT>

Bonuses

1. Bonus: He dies when Roger drops a boulder on him. For ten points each:
[10] Name this asthmatic and rather vulnerable character who acts as an adviser to Ralph and whose spectacles are used by Jack's tribe to make a fire.
ANSWER: **Piggy**
[10] Piggy is a character in this novel, in which a group of children split into tribes lead by Ralph and Jack, who are stranded on an island. Later in this novel, a plane crash brings a mysterious figure known as the "beast" to the island.
ANSWER: *The **Lord of the Flies***
[10] This English author of *The Lord of the Flies* also wrote a book that reconstructs Neanderthal culture, *The Inheritors*.
ANSWER: Sir William Gerald **Golding**
<KT>

2. Bonus: One of its leaders complained that his illiterate constituents could see Nast cartoons. For ten points each:
[10] Name this Democratic political machine famous for the graft and corruption it experienced under the leadership of Boss Tweed.
ANSWER: **Tammany** Hall [or **Tammany** Society; or Society of St. **Tammany**]
[10] Tweed was particularly influential in the politics of this city, where a courthouse project in Manhattan wound up costing $12 million due to graft and embezzlement.
ANSWER: **New York** City or **NYC**
[10] This Democratic faction opposed Tammany Hall and advocated a laissez-faire economic policy. It gained its name when supporters lit candles after Tammany members shut off the gaslights to drive them away.
ANSWER: **Locofocos**
<BZ>

3. Bonus: Despite contracting a stomach virus, this man scored 38 points in Game 5 of the 1997 NBA Finals en route to his fifth NBA Championship. For ten points each:
[10] Identify this former player for the Chicago Bulls, now owner of the Charlotte Bobcats, who has won six NBA Championships and is generally considered the greatest basketball player of all time.
ANSWER: Michael Jeffrey **Jordan** [prompt on "MJ" or "Air Jordan" or "His Airness"]
[10] This man, known for his staunch defense and rebounding, won three championships with Michael Jordan after leaving the Pistons. He recently visited Kim Jong-un, his "friend for life," and plans to train the North Korean team.
ANSWER: Dennis Keith **Rodman** [prompt on "The Worm"]
[10] The Bulls clashed in the 1997 Eastern Conference Finals against a Pacers team led by this man, known for his 3-point shooting and miracle feat of scoring 8 points in 8.9 seconds, leading to a 107-105 win over the Knicks.
ANSWER: Reginald Wayne "Reggie" **Miller**
<EC>

4. Bonus: He tells Robert Cohn that Brett is sleeping with a bullfighter in his Montoya Hotel room. For ten points each:
[10] Identify this American newspaperman and protagonist of *The Sun Also Rises*, whose wounds from World War I prevent him from marrying Lady Ashley, who later asks him to visit her in the Hotel Montana in Madrid.
ANSWER: **Jake** **Barnes** [accept either underlined portion]
[10] This author created the character of Jake Barnes in his novel, *The Sun Also Rises*. He also wrote about a fisherman named Santiago in *The Old Man and the Sea*.
ANSWER: Ernest Miller **Hemingway**
[10] In this novel written by Ernest Hemingway, Lieutenant Frederic Henry, an ambulance driver during World War I, falls in love with and impregnates Catherine Barkley, who dies while giving birth to a stillborn son.
ANSWER: *A Farewell to Arms*
<KT>

5. Bonus: Answer some questions about ancient treaties, for ten points each:
[10] The earliest known peace treaty was signed after the Battle of Kadesh by the Hittites under Hattusili III and the Egyptians under this pharaoh whose other accomplishments include the construction of Abu Simbel.
ANSWER: **Ramesses II** [or **Ramesses the Great**; prompt on "Ramesses"]
[10] The Treaty of Brundisium established this political alliance. Its two most famous members fought each other at the Battle of Actium.
ANSWER: **Second Triumvirate** [prompt on "triumvirate"]
[10] This 843 treaty divided the Carolingian Empire amongst the three sons of Louis the Pious. It was followed by the Treaty of Meerssen after one of its original signatories, Lothair, died.
ANSWER: Treaty of **Verdun**
<JD>

6. Bonus: for ten points each: answer some question related to Pascal's triangle.
[10] One can generate the terms in a row of Pascal's triangle by applying this operation to two adjacent entries in the previous row. A capital sigma denotes repeated applications of this operation.
ANSWER: **add**ition [accept words forms; accept **sum**mation]
[10] Another way to generate the nth row of Pascal's triangle applies this function to n for the integers from 0 up to n, which creates the binomial coefficients. This function selects elements without regard to order.
ANSWER: n **choose** r [or **combination**; accept any letter in place for r such as i or k]
[10] The sum of all the elements in the nth row of Pascal's triangle is equal to this function of n, accounting for the fact that each element in a set can either be included or not included in each combination.
ANSWER: 2^n [read "**two** raised **to the** power of **n**;" accept equivalents]
<EC>

7. Bonus: In one of his works, Koichi Tamuka prophesizes that the protagonist will meet his mother and sister. For ten points each:
[10] Name this author of *Kafka on the Shore* who also wrote a story in which Toru searches for a cat named Noburu Wataya and later divorces his wife Kumiko. That novel is *The Wind-Up Bird Chronicle*.
ANSWER: Haruki **Murakami**
[10] Murakami's novel, *Pinball, 1973* is a parody of this other author's novel, *The Silent Cry*, which features the brothers Mitsusaburo and Takashi. His other novels include *A Personal Matter* and *Nip the Buds, Shoot the Kids*.
ANSWER: Kenzaburō **Ōe**
[10] Both Murakami and Oe are authors from this Asian nation. Another author from this nation, Kawabata, wrote about a kimono business set in Kyoto and owned by Takichiro and Shige in the novel *The Old Capital*.
ANSWER: **Japan** [accept **Nippon**, **Nihon**, **Nippon-koku**, and **Nihon-koku**]
<KT>

8. Bonus: This pirate held Samuel Wragg hostage during his blockade of Charleston harbor. For ten points each:
[10] Name this captain of the *Queen Anne's Revenge* who lit fuses in his namesake facial feature to terrify his enemies while raiding the Atlantic seacoast in the 1710s.
ANSWER: **Blackbeard** [or Edward **Teach**]
[10] This pirate sailed the Barbary Coast with his brother Aruj before becoming an admiral in the Ottoman navy and defeating the Holy League at the Battle of Preveza. He shares his name with a Holy Roman Emperor killed in the Third Crusade.
ANSWER: Hayreddin **Barbarossa** [or **Redbeard**]
[10] This Scottish pirate may not have been a pirate at all. Despite claiming that he was privateering in the Indian Ocean under a British commission, he was hung and then re-hung in a botched execution in 1701.
ANSWER: Captain William **Kidd**
<JD>

9. Bonus: The protein fibrillarin helps with its most important role. For ten points each:

[10] Name this non-membrane-bound structure that synthesizes ribosomal RNA and the subunits of ribosomes.

ANSWER: **nucleolus** [do not accept or prompt on "nucleus"]

[10] This process occurs in ribosomes and results in the formation of a polypeptide. During it, the codons in mRNA match up with the anticodon on a tRNA molecule attached to the appropriate amino acid.

ANSWER: **translation**

[10] Ribosomes stud the interiors of the "rough" form of this membranous organelle, which is the site of protein folding. Its "smooth" type helps synthesize steroids and other lipids.

ANSWER: **endoplasmic reticulum** [or **ER**]

<BZ>

10. Bonus: Jorge of Burgos poisons a copy of Aristotle's *Poetics* in this work. For ten points each:

[10] Identify this novel in which William of Baskerville and his novice Adso of Melk investigate a series of murders at an Italian monastery.

ANSWER: *The **Name of the Rose*** [or *Il **Nome della Rosa***]

[10] *The Name of the Rose* is a novel by this Italian author who also wrote about three Milanese editors who invent a conspiracy theory known as "the Plan" in *Foucault's Pendulum*.

ANSWER: Umberto **Eco**

[10] That aforementioned conspiracy theory in *Foucault's Pendulum* concerns an order of people with this profession. The Pearl Poet wrote a story about Gawain and a green-clad one of these people named Bertilak.

ANSWER: **knight**s [accept **Knights Templar**]

<JD>

11. Bonus: It began when William Adelin's death resulted in Stephen's accession to the throne. For ten points each:

[10] Name this period of conflict in medieval English history, in which Matilda fought against her cousin Stephen for the monarchy.

ANSWER: the **Anarchy**

[10] The Anarchy was ended by the Treaty of Wallingford, which permitted Stephen to remain as king but established one man of this name as his successor. Another king of this name had six wives and split with the Pope.

ANSWER: **Henry**

[10] This wife of Henry II was once the Duchess of Aquitaine and eventually became the mother of two monarchs, Richard I and John.

ANSWER: **Eleanor** of Aquitaine

<BZ>

12. Bonus: Although permafrost is present in parts of this biome, periodic fires are also necessary to aid seed dispersal and maintain biodiversity. For ten points each:

[10] Identify this largest terrestrial biome, which features bogs known as muskeg, and is otherwise known as the boreal forest.

ANSWER: **taiga**

[10] These large mammals, exemplified by their black and brown varieties, live in the taiga where they feed on spawning salmon and plant matter. The grizzly species of these animals is instrumental in controlling the population of deer.

ANSWER: **bear**s [accept any specific species]

[10] The acidic soils of the taiga induce podzolization, in which soluble minerals undergo this process and leave the topsoil. This process can also be harnessed to extract minerals and metals from liquids.

ANSWER: **leach**ing [accept word forms]

<EC>

13. Bonus: In one story, he scares the giant Cuhullin when he eats a griddle cake. For ten points each:
[10] Name this leader of the Fianna who received the knowledge contained in the Salmon of Wisdom after he sucked his thumb.
ANSWER: **Fionn mac Cumhaill** [pronounced "Finn McCool"]
[10] The story of Fionn mac Cumhaill is collected in the Fenian Cycle of this island country to the west of Britain. Other stories in its mythology can be found in its Ulster Cycle.
ANSWER: **Ireland** [or **Eire**]
[10] Fionn mac Cumhaill stuck a spear in this body part in order to be able to kill the fairy Aillen. Diarmuid, who possessed a love spot on this body part, eloped with Fionn's bride Grainne.
ANSWER: **forehead** [prompt on "head"]
<BZ>

14. Bonus: A pig dressed as a nun kisses a man on the cheek on the right side of this painting. For ten points each:
[10] Identify this triptych whose left panel depicts the pleasures of Paradise, whose right panel depicts the horrors of hell, and whose center panel depicts the title location.
ANSWER: The *Garden of Earthly Delights*
[10] *The Garden of Earthly Delights* was painted by this artist, who also depicted the title saint meditating under a tree in his *The Temptation of St. Anthony*.
ANSWER: Hieronymus **Bosch**
[10] A woman playing a lute appears in this Hieronymus Bosch painting, which depicts revelers merrily eating and drinking on a sinking boat. It is a part of a triptych that also includes *Allegory of Gluttony* and *Death and the Miser*.
ANSWER: *Ship of Fools*
<JD>

15. Bonus: The Rayleigh type of this phenomenon is responsible for making the sky appear blue. For ten points each:
[10] Identify this phenomenon by which light is dispersed as it travels through a medium, observed when you shine a flashlight through thick fog.
ANSWER: **scattering** [accept Rayleigh **scattering**]
[10] This term describes scattering in which the kinetic energy of a particle is not conserved.
ANSWER: **inelastic** scattering
[10] This type of inelastic scattering, named after an Indian scientist, occurs when photons change frequency. Its "surface-enhanced" variety employs metal nanoparticles to increase the enhancement factor for spectroscopy.
ANSWER: **Raman** scattering [accept **Raman** effect or **Raman** spectroscopy or **SERS**]
<EC>

16. Bonus: "The Book of Certitude" is among this religion's central texts. For ten points each:
[10] Identify this monotheistic religion founded by Baha'u'llah, which contends that religious history has unfolded through a series of divine messengers, including Krishna, Jesus, and Muhammad.
ANSWER: **Baha'i** Faith
[10] The Baha'i Faith was founded by Baha'u'llah in this Middle Eastern country, which in ancient times was also the birthplace of Zoroastrianism. Today its population consists mostly of Sh'ia Muslims.
ANSWER: **Iran** [or **Persia**]
[10] The highest-ranking governing body of the Baha'i Faith is this institution headquartered in Haifa, Israel.
ANSWER: **Universal House of Justice**
<JD>

17. Bonus: Answer the following about advances in space programs, for ten points each:
[10] In December 2013, this Chinese lunar exploration mission landed China's first rover on the Moon.
ANSWER: **Chang'e 3** [prompt on "Chang'e"]
[10] This Mars rover landed in Gale Crater in 2012 after "Seven Minutes of Terror". Its current mission involves investigating the Martian climate and any signs of possible life on the planet.
ANSWER: Mars *Curiosity* Rover
[10] In July 2013, the *New Horizons* spacecraft photographed Charon, a moon of this dwarf planet, for the first time. *New Horizons* will pass Neptune's orbit in 2015 and reach this dwarf planet in 2016.
ANSWER: **Pluto**
<BZ>

18. Bonus: Wotan and Loge seize one character after he transforms into a toad in its first opera. For ten points each:
[10] Name this collection of four operas including "The Rhine Gold," "The Valkyrie" and "Siegfried." Its title object was created by Alberich after he stole gold from the Rhine maidens.
ANSWER: *The **Ring** of the Nibelung* [accept *The **Ring Cycle*** and *Der **Ring des Nibelungen***]
[10] This German composer of *The Ring of the Nibelung* also composed *The Mastersingers of Nuremberg* and *The Flying Dutchman*.
ANSWER: Wilhelm Richard **Wagner**
[10] The "Bridal Chorus" is featured in this Wagner opera in which the Elsa's curse transforms Duke Gottfried of Brabant into the swan that drives the title character to the bank.
ANSWER: *Lohengrin*
<KT>

19. Bonus: Its section "Of Miracles" provides reasons for why human testimony might be reliable. For ten points each:
[10] Name this philosophical book about epistemology which discusses the "missing shade of blue" in its section "Of the Origin of Ideas." It is a revision of its author's earlier work, *A Treatise of Human Nature*.
ANSWER: *An **Enquiry Concerning Human Understanding***
[10] This Scottish philosopher wrote *An Enquiry Concerning Human Understanding* and discussed the "is-ought" problem.
ANSWER: David **Hume**
[10] David Hume also wrote a *Natural History of* and *Dialogues Concerning* the "natural" form of these systems of beliefs and practices, "organized" examples of which include Judaism and Islam.
ANSWER: **religion**s
<KT>

20. Bonus: A set of three volcanic peaks in this range is called the Three Sisters. For ten points each:
[10] Identify this mountain range extending from Lassen Peak in Northern California through the Pacific Northwest and into Canada. It features such peaks as Mount St. Helens.
ANSWER: **Cascade** Range [or the **Cascades**]
[10] The Cascades are divided in the middle by this river that runs on the border between Oregon and Washington. It begins in Canada and accepts tributaries like the Snake and Willamette Rivers before flowing into the Pacific.
ANSWER: **Columbia** River
[10] East of the Cascade Range lies this agricultural region encompassing southeastern Washington and northern Idaho. It is a center for wheat and legume farming and contains its namesake river.
ANSWER: the **Palouse**
<JD>

21. Bonus: The "ideal" variety of this undergoes random motion and experiences no intermolecular forces. For ten points each:

[10] Identify this state of matter formed upon boiling a liquid.

ANSWER: **gas**

[10] This law states that for a gas at constant temperature, the pressure and volume are inversely proportional.

ANSWER: **Boyle**-Mariotte law

[10] This other gas law states that at constant temperature, the amount of gas dissolved is directly proportional to the partial pressure. It explains the properties of carbonated beverages and why divers get decompression sickness.

ANSWER: **Henry's** law

<EC>

22. Bonus: This work contains a series of "Idols" that criticize the many ways humans have impeded objective reasoning. For ten points each:

[10] Name this work by Francis Bacon that advocates using inductive reasoning and experimental procedures to reach a conclusion.

ANSWER: ***Novum Organum*** *Scientiarum*

[10] Bacon pioneered this mode of inquiry followed by researchers, whose steps include making observations, formulating hypotheses, designing experiments, and validating results.

ANSWER: **scientific method**

[10] Contrary to the rules of the scientific method, this man notably left out several data points when he measured the charge on an electron in his oil-drop experiment. Comments in his notebook include "Error high will not use."

ANSWER: Robert Andrews **Millikan** [accept **Millikan**'s oil drop experiment]

<EC>