PACE2017
National Scholastic Championship

Round	15	Moderator	
Bracket		Room	

Team (Left)

Player Names						Bonus	Steals	Question Total	Running Total	Tossup Number
..	..									1
..	..									2
..	..									3
..	..									4
..	..									5
..	..									6
..	..									7
..	..									8
..	..									9
..	..									10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										SD

Team (Left) Totals

	Heard
	20s
	10s
	Player Totals
	Tossup Total

Bonus Total			Steal Total

	Final Score

Team (Right)

Player Names						Bonus	Steals	Question Total	Running Total
..	..								
..	..								
..	..								
..	..								
..	..								
..	..								
..	..								
..	..								
..	..								
..	..								

Team (Right) Totals

	Heard
	20s
	10s
	Player Totals
	Tossup Total

Bonus Total			Steal Total

	Final Score

RH	RS	BH	BS	LEFT
RIGHT	BH	BS	RH	RS

1. The Futurist Gino Severini added Cubist sequins to his depiction of a "blue" person in this profession, one of over 100 paintings he made of them. One of these people, wearing a white dress affixed with colorful flowers, bends backwards in the painting *L'Étoile* (lay-TWAHL). An oft-painted person in this profession, Rosita Mauri, holds a bouquet of flowers in an 1877 painting. A "dreadfully ugly" statue of an upwards- looking (*) fourteen-year-old girl in this profession was originally made in wax and wears a skirt made from cotton. The same artist depicted two of these people "Practicing at the Barre" and painted another one raising her left leg and arms in the middle of a pirouette. For 10 points, Edgar Degas frequently painted what tutu-wearing people?
ANSWER: ballet **dancer**s [or **ballerina**s] <Bentley>

2. At age 70, the historian Ibn Khaldun was lowered in a basket from the city walls to interview this equally elderly leader. This man's six-foot long tomb was made from the largest piece of jade in the world and was damaged when Nadir Shah tried to seize it in 1740. Ahmad ibn Arabshah wrote a biography of this man after being taken prisoner during his campaign against (*) Bayezid I. He buried alive three thousand people at Sivas to technically honor his pledge that he wouldn't shed their blood. He died in 1405 before he could conquer China. Some of the 40,000 people his troops killed in Isfahan had their skulls piled into a pyramid. He shipped many artisans from Damascus back to his capital of Samarkand. For 10 points, name this nomadic conqueror who walked with a limp.
ANSWER: **Tamerlane** [or **Timur** the Lame; or **Timur** Leng; or **Timurlang**; or **Tamburlaine**] <Bentley>

3. This character's home is suggested to be the "Great Good Place" and has "fairy-tale" like qualities according to W. H. Auden's essay "Brothers and Others," which argues that this woman appears in an "Unpleasant Play." In a monologue, this character compares a certain quality to "the throned monarch better than his crown" and says that it "droppeth as the gentle rain from heaven." The Prince of Morocco and the Prince of Arragon choose (*) chests made of gold and silver when they try to woo this heiress of Belmont. Her maiden Nerissa takes the rings of Gratiano and his master after this woman disguises herself as Balthazar to save Antonio's life. The "quality of mercy" speech is given by, for 10 points, what heroine of *The Merchant of Venice*?
ANSWER: **Portia** <Jose>

4. A popular conspiracy theory held by tax protesters is that some parties in court cases do not actually exist since they are identified exclusively through the use of this technique. Styles that *do not* use this technique named "snake" and "kebab" are more commonly used in Python and Lisp than a style named "camel" that uses this technique in variable names. All five instances of the line "hurry up please its time" are (*) written using entirely this technique in T. S. Eliot's *The Waste Land*. Its use is mandated for German nouns, while doing it to the English word "polish" changes its pronunciation and meaning. Much of e. e. cummings's poetry eschews both punctuation and, for 10 points, what typographical technique in which lower case letters are replaced by upper case ones?
ANSWER: **capitalization** [accept word forms; accept descriptive answers like **all caps** or **capitalized first letter**; accept using **upper case** before "upper"] <Jose>

5. For diatomic ideal gases, a quantity named for this man roughly depends on the impact pressure over the static pressure all raised to the one-seventh power. This scientist's son popularized an interferometer that uses two detectors and is co-named for Ludwig Zehnder. This physicist criticized Newton's thought experiment involving a bucket full of water by arguing that rotation is relative to the entire universe, an idea that influenced (*) Einstein. If a quantity named for this man is less than 0.2, then a flow is incompressible. That constant named for this man determines whether or not pressure increases or decreases down a streamline, and equals one for air moving at 343 meters per second. For 10 points, name this physicist whose number equals velocity divided by the speed of sound.
ANSWER: Ernst **Mach** <Silverman>

6. Three hundred women were brought to this character in an effort to breed a race of heroic children by the Amazonian queen Thalestris. This character built the Caspian Gates, mirroring the construction of a wall to hold back Gog and Magog by the Qur'anic figure Dhul-Qarnayn, who was identified with this man. His mother had a dream in which her womb was struck by a thunderbolt, while his father dreamed of placing a lion-shaped seal on that womb. The earliest version of this man's namesake "Romance" was attributed to his (*) court historian Callisthenes. The oracle of Siwa proclaimed that his true father was Zeus-Ammon, a claim supported by his snake-worshiping mother Olympias. For 10 points, name this man who became the subject of many legends while expanding his Macedonian empire across most of the known world.
ANSWER: **Alexander** the Great [or **Alexander** III of Macedon] <Carson>

7. This quantity oddly jumps up on every other carbon atom added to a linear alkane. This value is measured in an apparatus where you view the sample in a capillary tube through a window while ramping up the voltage; it is then reported as a range to indicate sample purity. This quantity names the point at which 50 percent of a protein is denatured. This quantity is minimized for a mixture at its (*) eutectic point. It equals the enthalpy of fusion over the entropy of fusion. The change in this quantity equals molality times the cryoscopic constant. For water, this value decreases as pressure goes up, since its coexistence curve's slope is negative. Adding salt to water depresses this property. For 10 points, name this temperature at which a liquid turns solid.
ANSWER: **melting point** [or **freezing point**; or **melting temperature**; or **freezing temperature**] <Silverman>

8. Freeing this monarch from imprisonment was ostensibly the aim of a group of destitute peasants led by the Master of Hungary in the *pastoureaux* revolt. His personal confessor Robert de Sorbon provides the nickname of the University of Paris. Following the Saintonge War, this monarch agreed to lenient terms with Henry III of England. Shortly thereafter, he appointed his mother Blanche of Castile regent and embarked on a military (*) campaign. He paid a large sum to Baudouin II to obtain the Crown of Thorns and built the Sainte-Chapelle to house the relic. On a march through the desert back to the port of Damietta, his army was captured by the Mamluks and he was held for ransom. This monarch led the Seventh Crusade. For 10 points, name this canonized French king.
ANSWER: **Louis IX** [or **Saint Louis**] <Bentley>

9. The winner of a competition to design one of these buildings in Guangzhou (gwong-joh) that opened in 2010 was the "double pebble" plan submitted by Zaha Hadid. The Parque das Pedreiras in Curitiba, Brazil is home to one of them constructed of transparent panels and wire-like steel tubing. Charles Gumery's gilded sculptures *Harmony* and *Poetry* can be found atop a facade including Carpeaux's *The Dance* on a building of this type that also contains a removable interior (*) ceiling painted by Marc Chagall. Massive cost overruns plagued an expressionist building of this type designed by Jorn Utzon that features overlapping concrete shells and sits on a peninsula in Sydney Harbor. For 10 points, Paris's Palais Garnier and Milan's La Scala are what type of performing arts space?
ANSWER: **opera house**s [prompt on theater or auditorium; prompt on performing arts center until read] <Jose>

10. The protagonist of a novel fires a gun at one of these characters who had cut leaves off a tree to wrap food. One of these characters hides outside a cave after running all night to follow a priestess carrying a girl on her back. One of these characters goes to stay with her mother while pregnant in order to thwart the spirit responsible for her two miscarriages. That one of these characters tells a (*) story about a feast of the birds attended by Tortoise. The protagonist disrupts the Week of Peace by beating one of these people. Two of these women, Ekwefi and Ojiugo, run the household after the protagonist is exiled for killing Ikemefuna. For 10 points, identify this role of three women in relation to the fiery-tempered protagonist of *Things Fall Apart*.
ANSWER: **Okonkwo's wives** [or equivalents such as **spouse**s of **Okonkwo**; prompt on characters or women in *Things Fall Apart*] <Brownstein>

11. This instrument plays a lullaby-like melody in E major after taking it over from the piano in the first movement of an E minor Brahms chamber piece whose finale's main theme is based on Contrapunctus 13 from *The Art of the Fugue*. An exiled performer of this instrument regularly played his arrangement of *El cant dels ocells* (ull KAHNT dulls oo-SAYCE), or "The Song of the Birds", as an encore. Most modern performances of Baroque pieces use a continuo group that pairs either a (*) harpsichord or an organ with this instrument. It imitates a cantor chanting a liturgy in Max Bruch's *Kol Nidrei*. J.S. Bach wrote six six-movement solo suites for this instrument, which was played by Mstislav (MISS-tiss-lahv) Rostropovich and Pablo Casals. For 10 points, name this instrument, the lowest-pitched member of a string quartet.
ANSWER: **cello** [or violon**cello**; accept plurals like **cello**s or **celli**] <Carson>

12. Because of a set of axioms, Giuseppe Peano is the namesake of the first-order theory of this branch of mathematics. Polish notation is a syntactic form for creating expressions described by this branch of mathematics. It's not abstract algebra, but a subfield of this branch focuses on congruences between numbers given a fixed modulus. Every integer greater than one is either prime or the product of prime numbers according to the (*) fundamental theorem of this discipline. A sequence described by this branch of math has a constant difference between consecutive terms, and its namesake mean is the sum of a set of numbers divided by the number of numbers. For 10 points, name this sub-branch of number theory that analyzes operations like addition and multiplication.
ANSWER: **arithmetic** [accept **modular arithmetic**; prompt on number theory until read] <Aggarwal>

13. Paolo Macchiarini (mock-ya-REE-nee) notoriously faked data about autologous stem cell transplants of this organ. The narrowing of this structure to give a steeple sign is symptomatic of croup. This human organ is the namesake of a plant cell similar to a vessel element, but without perforation plates in its cell wall. During RSI, a patient is anesthetized by a sudden sharp stab into the cricoid ring of cartilage surrounding the top of this structure. Arthropods, but not arachnids, have (*) spiracles immediately leading to a large network of these structures. During intubation, a hole is cut into it. This structure extends between the larynx and the first branching-off point of the bronchi in the respiratory system. For 10 points, name this respiratory tube also called the windpipe.
ANSWER: **trachea** [or **windpipe** until it is read; prompt on throat] <Silverman>

14. Seven brothers with this last name all fought at Edgehill, and one of them, John, surrendered Chester to the Parliamentarians. A commander-in-chief of the West Indies with this surname known as "Foul Weather Jack" fought the Count d'Estaing at the Battle of Grenada in 1779. A man with this surname fathered a woman with a different surname who devised a way to compute the Bernoulli numbers using Charles Babbage's Difference Engine. Programmer (*) Ada Lovelace was the daughter of a man with this last name who was deemed "mad, bad, and dangerous to know" by Lady Caroline Lamb. That same man with this last name died in 1824 before he could attack Lepanto during the Greek War of Independence. For 10 points, give this surname of the womanizing Romantic poet of "She Walks In Beauty".
ANSWER: **Byron** [or Gordon **Byron**] <Bentley>

15. Officials from this country were unsuccessful in a lawsuit against men such as Nick Pentreath and Youssef Kabbah, who set up the funds Petershill and Mezzanine that lost this country 1.2 billion dollars. Those funds were set up by Goldman Sachs after sanctions were lifted against this country in the 2000s. A former leader of this country once set up his tent on a Donald Trump-owned lawn in Westchester County during a UN meeting. The Government of (*) National Accord has failed to unify this country's warring General National Congress and House of Representatives. A 2012 attack carried out in this country by Ansar al-Sharia killed J. Christopher Stevens. For 10 points, name this country where a U.S. diplomatic compound in Benghazi was raided after the downfall of Muammar Gaddafi.
ANSWER: **Libya** <Bentley>

16. One character in this novel skips school every Thursday by wearing an eyepatch and pretending he has to go to the ophthalmologist. In this work, a German naval officer asked about his decision to sink the *Ark of Miriam* replies, "They were children; we were wolves." One of this work's protagonists cuts Salvador Dali out of a diving suit at a party, which leads Rosa Saks to fall in love with him. A gay man in this novel kisses the other protagonist after visiting him at midnight at the top of the **(*)** Empire State Building; that character, Tracy Bacon, voices the radio version of the protagonists' most famous character, the Escapist. For 10 points, name this novel about comic book writers Sammy and Joe that was written by Michael Chabon (**SHAY-bon**).
ANSWER: *The **Amazing Adventures of Kavalier and Clay*** <Venkus>

17. This book uses a metaphor from the author's friend G. Papini to compare its method to a "corridor in a hotel" that can combat "anti-intellectualist" tendencies with the corridor's rooms. The "mystical way of pure cosmic emotion" that is used to read Whitman's poem "To You" is rejected in this book's final lecture, which favors the "plural, genuine possibilities" that underlie the poem's composition. A discussion about the clash between **(*)** "tender-minded" and "tough-minded" people is presented in this 1907 book, which uses a theory of "cash-value" to try and resolve "the present dilemma in philosophy". "A New Name for Some Old Ways of Thinking" is the subtitle of, for 10 points, what William James book that gives its name to a philosophical school valuing practicality?
ANSWER: ***Pragmatism***: *A New Name for Some Old Ways of Thinking* <Jose>

18. A scene involving one of these objects concludes with the image of a candle used to read a book filled with "grief and evil" flaring up then going out forever. The sight of a stooped figure on one of these objects inspires a dream of a peasant fumbling in a sack and muttering in French. The protagonist says "it's an omen of evil" after seeing a possibly drunk or frostbitten guard who was **(*)** killed by one of these objects. A character is killed by one of these objects after a French psychic's advice foils her divorce and she meets Kitty's husband Levin for the first time. Count Vronsky takes this sort of vehicle to the war in Serbia after one kills his lover. For 10 points, name this type of vehicle, the means of the suicide of Tolstoy's *Anna Karenina*.
ANSWER: **train**s [or **locomotive**s; or **rail**roads] <Brownstein>

19. Steven M. Wasserstrom argued that a "creative symbiosis" existed between these two religions since the figure of Metatron in one of them was often used to represent the other's founder. According to a holy text of one of these religions, people of the other religion worshiped Uzair and were called *yahud*. One of these two religions uses the term *hanif* to designate practitioners of the other during the "Age of Ignorance." The founder of one of these two religions was instructed to change the **(*)** *qibla* away from the holy city of the other. Although neither of them is Christianity, members of one of these religions referred to members of the other as "People of the Book." For 10 points, name these two monotheistic religions, which designate the same God as either Allah or Jehovah.
ANSWER: **Judaism** AND **Islam** [accept answers in either order; accept **Jewish** religion in place of "Judaism"; accept **Muslim** religion in place of "Islam"] <Jose>

20. The White House went into mourning after Abraham Lincoln's brother-in-law, Confederate Brigadier General Benjamin Hardin Helm, died in this battle. Major fighting on this battle's first day took place around the Vinard House and near the Union headquarters at the Widow Glenn's house. By ordering his troops to stand and fight on Snodgrass Hill, George Thomas averted a complete disaster, which earned him the sobriquet "The (*) Rock of" this battle. The winning commander of this battle was assisted by the timely arrival of men under James Longstreet, who exploited an accidentally created gap in the Union center to rout most of the Federal Army and force their retreat to Chattanooga. For 10 points, name this September 1863 battle in which Braxton Bragg defeated William Rosecrans, the second bloodiest of the Civil War.

ANSWER: Battle of **Chickamauga** <Aggarwal>

21. This composer adapted Rossini's song "Nessun maggior dolore" as the "Canzone" (kant-SOH-nay) **sandwiched by a "Gondoliera" and "Tarantella" in a supplemental triptych** (TRIP-tick)**. This composer re-transcribed for sostenuto pedal the "Lento placido" D-flat major third of his *Consolations*. The three-part "Venice and Naples" joins a pair of threnodies "to the cypresses of the Villa d'Este"** (DESS-tay) **and the virtuoso piece *Au bord d'une source*** (oh BORE dune SOORCE)**, among many other pieces, in this composer's three travel-themed suites. This student of (*)** Carl Czerny (CHAIR-nee) progressively stacked fifths in 3/8 time to imitate a fiddle being tuned in the opening of the first of four pieces inspired by Nikolaus Lenau's *Faust*. For 10 points, name this composer of *Years of Pilgrimage* and the *Mephisto Waltzes*, a virtuoso pianist from Hungary.

ANSWER: Franz **Liszt** [or Ferencz **Liszt**; accept names in either order] <Gupta>

1. Name these things that form American artificial reefs, for 10 points each.
[10] Most artificial reefs are made by scuttling these objects, such as the *Oriskany* and the *Massachusetts*. Cape Hatteras is known as the "Graveyard of the Atlantic" because of the presence of these objects on the nearby ocean floor.
ANSWER: **ship**s [or ship**wreck**s; accept specific types of ship]
[10] A gold-painted one of these objects commemorated the completion of the Osborne Reef in Florida, which was once made of them. Akron, Ohio was once home to four companies that made these objects.
ANSWER: rubber **tire**s [accept car or automobile **tire**s]
[10] Examples of these objects nicknamed "Redbirds" form a reef off the Delaware coast. Special R33 and R36 models of them were made for the 1964 World's Fair, and are now used in the IRT system.
ANSWER: New York City **Subway car**s [prompt on train <u>car</u>s] <Shimizu>

2. Despite harshly reviewing this novel, literary critic James Wood named his soul-rock group after it. For 10 points each:
[10] Identify this novel in which the patriarch Alfred Lambert, who suffers from dementia, is haunted by an evil turd while on the *Gunnar Myrdal* cruise ship. Lambert's children, Gary, Chip, and Denise, return for Christmas at the climax of this novel.
ANSWER: The *__Corrections__*
[10] *The Corrections* author Jonathan Franzen's most recent novel, *Purity*, centers on a young woman who goes by this nickname. This is also the nickname of Philip Pirrip, who receives the title *Great Expectations* from Abel Magwitch in a Charles Dickens novel.
ANSWER: **Pip**
[10] In Franzen's *Freedom*, Patty earns a basketball scholarship to a university in this state but later has her career ended with a knee injury. In another book, Will and Carol Kennicott live in this state, though Carol briefly lives on her own in Washington, D.C.
ANSWER: **Minnesota** [prompt on <u>MN</u>] <Bentley>

3. Answer the following about main-sequence stars, for 10 points each.
[10] Main-sequence stars occupy a boomerang-shaped region of an HR diagram, which plots a star's spectral type against its visual magnitude, a measure of this value of a star. This quantity is proportional to luminosity, the amount of energy emitted by a star.
ANSWER: **bright**ness [accept word forms]
[10] After a star consumes all of its hydrogen in the triple-alpha process, it will become a red giant and emit ions in the form of this structure. William Huggins found one of these structures called the Cat's Eye.
ANSWER: **planetary nebula** [prompt on nebula; prompt on emission nebula; do not accept or prompt on "protoplanetary nebula" or "protoplanetary disc"]
[10] The final phase of a main-sequence star's life is to eventually become one of these objects. These theoretical objects are stellar remnants that do not emit any light or energy, hence their color.
ANSWER: **black dwarf** [prompt on dwarf] <Jose>

4. This poet told the Soviet Union, "if we joined all the blood spilt in your struggle… we'd have a new ocean" in the poem "Let the Woodcutter Awaken." For 10 points each:
[10] Name this poet who described himself moving "from the air to the air, like an empty net" before joining the Communist Party in "The Heights of Macchu Picchu."
ANSWER: Pablo **Neruda**
[10] Three years after writing the communism-infused collection *Canto General*, Neruda received the Peace Prize named for this man, the first leader of a country that officially promoted the socialist realist style.
ANSWER: Vladimir **Lenin** [or Vladimir Ilyich **Ulyanov**]
[10] Neruda eulogized leftists from this country in the poem "I'm Explaining a Few Things." He was called a "great bad poet" by a poet from this country, Juan Ramón Jiménez, the author of a book about the donkey Platero.
ANSWER: **Spain** [or **España**] <Brownstein>

5. After leaving this island, a goddess turned some Lycian peasants into frogs when they refused to let her drink from their well. For 10 points each:
[10] Name this barren, rocky floating island that was the only place willing to provide itself as a site for Leto to give birth.
ANSWER: **Delos**
[10] Some myths suggest that Leto gave birth to Artemis on the island of Ortygia, but most agree that this god of light and music, Artemis's twin brother, was born after an extended labor on Delos.
ANSWER: **Apollo** [or **Phoebus** Apollo]
[10] According to a Homeric Hymn, Leto's labor was delayed because Hera detained this goddess of childbirth and midwifery, one of Hera's own daughters, on her trip back from Hyperborea.
ANSWER: **Eileithyia** [or **Ilithyia**; or **Eleuthia**; or **Elysia**; or **Eleutho**] <Carson>

6. This artist first employed the motif of figures floating through the air in *The Birthday*, a painting in which he and his bouquet-holding wife are about to fly out of the window of their apartment. For 10 points each:
[10] Name this Jewish artist of *Self-Portrait with Seven Fingers*.
ANSWER: Marc **Chagall** [or Moishe **Shagal**]
[10] In Chagall's "white" version of this religious scene, one house is on fire and another one is upside down. The Virgin Mary and other saints weep beneath Jesus in several versions of this scene by Giotto (**JOH-toh**).
ANSWER: **crucifixion** of Jesus Christ
[10] Chagall's *The Birthday* depicts the Ilitch church of this village in modern-day Belarus where he was born. A man holding a sack and a cane floats above the snowy streets of this village in a 1914 Chagall painting titled "over" this village.
ANSWER: **Vitebsk** [or **Vitsebsk**; or **Witebsk**] <Bentley>

7. Answer the following about experimental philosophy, which is the attempt to introduce empirical data to philosophy, for 10 points each.
[10] Much of experimental philosophy seeks to challenge the role of these beliefs in philosophical arguments. Herman Cappelen argues they already have little role in philosophy, but Daniel Dennett describes Descartes's "I think, therefore I am" as a "pump" of them.
ANSWER: **intuition**s
[10] Experimental philosophers often criticize "armchair" philosophers' reliance on these imagined scenarios, which include the trolley problem and the Chinese room.
ANSWER: **thought experiment**s
[10] Weinberg, Nichols, and Stich used cross-cultural surveys to check people's intuitions about a thought experiment by Edmund Gettier that challenged Plato's definition of this concept as "justified true belief." This concept is the subject of epistemology.
ANSWER: **knowledge** <Kothari>

8. In 1991, this ruler lifted the ban on political parties and allowed multi-party elections, causing his UNIP party to fall from power. For 10 points each:
[10] Name this man, the president who led Zambia to independence. He was ousted from power by Frederick Chiluba.
ANSWER: Kenneth **Kaunda** [prompt on KK]
[10] Kaunda was particularly critical of this Rhodesian prime minister's racist regime. This man secured independence for Rhodesia at the Lancaster House Agreement.
ANSWER: Ian **Smith**
[10] In his early years, Kaunda nationalized this industry in Zambia. Around 70 percent of Zambia's exports comes from the production of copper in this industry,
ANSWER: **mining** [accept copper **mining**] <Jose>

9. Structural analysis of these entities is often carried out using an equation named for Euler and Bernoulli. For 10 points each:
[10] Give this term for a structural element that can bear a load applied laterally to its axis based on its ability to resist bending. A common example of them increases its second moment of area, and thus its stiffness, by using an I-shaped cross section.
ANSWER: **beam**s
[10] The Euler–Bernoulli beam equation includes a term for the elastic modulus, which is equal to the ratio of these two forces on a material. One of these forces represents the force applied to a material, and the other represents the resulting deformation.
ANSWER: **stress** AND **strain** [accept answers in either order]
[10] One can minimize bending of a horizontal beam by placing supports at the points named for this English physicist and astronomer, who also lends his name to the bright region in the center of the diffraction pattern produced by light passing through a circular aperture.
ANSWER: George Biddell **Airy** [accept **Airy** points or the **Airy** disk] <Carson>

10. Tent pegging was one way to train for these events, as was an exercise involving a quintain (**QUINT-in**). For 10 points each:
[10] Identify this activity in which losers might have their equipment seized by assistants known as kippers.
ANSWER: **joust**ing [or **tilting**; or **joust** a plaisir]
[10] In some tournaments, if a knight won all three matches against his opponent, then he would be eligible to seize this valuable possession of the opponent. Youths would train on wheeled wooden versions of these creatures.
ANSWER: **horse**
[10] The Germans practiced two different types of jousting. In *Hohenzeuggestech*, the goal was to destroy *this* part of the opponent's equipment, which was usually blunted for competitions.
ANSWER: the **lance** <Bentley>

11. Peter and Rosemary Grant observed the evolution of this body part over a single generation in response to a drought in the 1980s. For 10 points each:
[10] Name these body parts. In the textbook example of adaptive radiation, these features changed in size and shape in response to the available food supply, leading to the evolution of *Geospiza fortis* and *Geospiza conirostris*.
ANSWER: finch **beak**s [or **bill**s; or **rostrum**s; or **rostra**]
[10] Peter and Rosemary Grant conducted their studies on Daphne Major, an island in this archipelago. Adaptations of finch beaks between different islands in this archipelago helped Darwin formulate natural selection.
ANSWER: **Galapagos** Islands
[10] The woodpecker finch, another Galapagos bird, engages in this specialized foraging behavior. New Caledonian crows engage in this behavior to feed on grubs and spread it through social learning. A description is fine.
ANSWER: **tool** use [or specific examples of tools, like **using a twig** or **using a cactus spine** to stab or prod food] <Grames>

12. Vladimir Rosing was the first director to cast Tamaki Miura in this role, doing so for the 1915 London season. For 10 points each:
[10] Name this soprano character who sings "Con onor muore" before stabbing herself and, earlier, dreams that "one fine day" her husband will return in the aria "Un bel dì, vedremo".
ANSWER: **Cio-Cio**-san (CHO-cho-sahn) [or Madame **Butterfly**; or Madama **Butterfly**]
[10] Cio-Cio-san, or Madame Butterfly, is the title character of an opera by this Italian composer of *Tosca* and *La bohème*.
ANSWER: Giacomo **Puccini**
[10] Puccini's operatic trilogy *Il trittico* concludes with this one-act comedy, in which Lauretta pleads with the title character to let her marry Rinuccio in the aria "O mio babbino caro".
ANSWER: *__Gianni Schicchi__* (jah-nee SKEE-kee) <Carson>

13. This character asks "Think'st thou existence doth depend on time?" to a chamois hunter who had kept him from committing suicide by jumping off the Jungfrau. For 10 points each:
[10] Name this title character of a closet drama in verse by Lord Byron who, feeling guilty over the death of his beloved Astarte, summons a series of spirits with the goal of talking to her shade.
ANSWER: **Manfred**
[10] *Manfred* belongs to this genre of literature that emphasizes themes of terror and the supernatural. It includes Horace Walpole's *The Castle of Otranto* and Mary Shelley's *Frankenstein*.
ANSWER: **Gothic** literature
[10] Winterbourne recites lines from *Manfred* about the beauty of the Colosseum in moonlight before seeing this innocent American girl with her Italian admirer Signor Giovanelli in a Henry James novella.
ANSWER: **Daisy Miller** [or **Annie** P. **Miller**; accept any underlined portion] <Kothari>

14. These documents established a "league of friendship" whose purpose was for the "common defense". For 10 points each:
[10] Identify these documents, drafted by a committee chaired by John Dickinson. Quebec was offered an opportunity to sign these documents, but refused.
ANSWER: **Articles of Confederation** [or **Articles of Confederation** and Perpetual Union]
[10] It took until 1781 for this state to become the thirteenth and final state to ratify the Articles of Confederation. Samuel Chase was a Signer of the Declaration of Independence from this state before he became an impeached-but-not-convicted Supreme Court justice.
ANSWER: **Maryland**
[10] James Madison, unhappy with the Articles of Confederation, played up the dangers of this rebellion in Massachusetts. Benjamin Lincoln led the army which suppressed this rebellion of indebted Western farmers.
ANSWER: **Shays**' Rebellion <Bentley>

15. Answer the following about Hindu funerals, for 10 points each.
[10] Unless the dead is a child or has taken a vow of poverty, Hindu funerals include this process that takes place at a location called the *Shmashana*. After this process has been performed in a Shinto funeral, mourners will use chopsticks to gather the products of this process.
ANSWER: **cremation** [accept answers indicating the body is turned into **ashes**]
[10] Members of this highest of the four Hindu castes usually stay inside their home and do not emerge for ten days after a funeral.
ANSWER: **Brahmin**s [do not accept or prompt on "Brahmans" or "Brahma"]
[10] Before cremation, the corpse is placed on a pyre with its feet pointing south. That way, it will point towards the realm ruled by this Hindu god of death.
ANSWER: **Yama** [or **Imra** or **Yama**raja] <Jose>

16. The type of profit denoted by this term differs from economic profit in that it only considers the net difference of revenue and costs and does not include implicit costs. For 10 points each:
[10] Give this term that is also applied to the bookkeeping process of tracking all the financial transactions of a firm that can buy and sell assets and liabilities.
ANSWER: **accounting**
[10] One of the most important implicit costs ignored in accounting profit is this cost associated with eschewing other options in favor of the option the firm chooses. This cost is the benefit that could have been obtained had another option been chosen.
ANSWER: **opportunity** costs
[10] The double entry system used in financial accounting is divided into two columns given these two names that are used to indicate the account's position with respect to assets and liabilities. Both terms are required.
ANSWER: **debit** AND **credit** [accept answers in either order] <Aggarwal>

17. The name of these documents comes from the lead used to seal them, and they were generally stamped with an image of the heads of Saints Peter and Paul. For 10 points each:
[10] Identify these documents issued from the Vatican. These decrees, such as *Unam Sanctam*, are usually titled for the first few Latin words of their text.
ANSWER: papal **bull**s
[10] This longest-reigning pope issued a series of influential bulls, including *Ineffabilis Deus* which outlined the concept of the Immaculate Conception. This "prisoner of the Vatican" also convened the First Vatican Council.
ANSWER: **Pius IX** [or Giovanni Maria **Mastai-Ferretti**; prompt on Pius]
[10] Pius VII's (the 7th's) papal bull, *Sollicitudo omnium ecclesiarum*, reestablished this group. In 1767, members of this organization were expelled from New Spain.
ANSWER: **Jesuits** [or **Society of Jesus**] <Bentley>

18. At a dinner in Berkeley, a poet from this country, Zbigniew (Z'BIG-nee-eff) Herbert, drunkenly attacked another poet from here for not resisting its occupation by the Nazis. For 10 points each:
[10] Name this European country home to the poet Czesław Miłosz (CHESS-wahf MEE-wohsh), who wrote the poem "A Poor Christian Looks at the Ghetto" to commemorate a Jewish ghetto in Warsaw.
ANSWER: **Poland** [accept Republic of **Poland** or Rzeczpospolita **Polska**]
[10] Miłosz described "a white-haired old man, who would be a prophet / Yet is not a prophet, for he's much too busy" in a "song" on this event. This event occurs "not with a bang, but a whimper" in T.S. Eliot's "The Hollow Men."
ANSWER: the **end** of the **world** [or obvious equivalents like the **apocalypse**]
[10] Miłosz also wrote this nonfiction book, which uses the Persian practice of Ketman as a metaphor for how Polish intellectuals collaborated with Stalinism while maintaining personal opposition to the state.
ANSWER: *The **Captive Mind*** [or ***Zniewolony umysł***] <Brownstein>

19. An updated, German-language edition of this text with an introduction by Richard Strauss was published in 1905. For 10 points each:
[10] Name this technical study by Hector Berlioz, which explores the techniques and proper usage of the various elements of a Western orchestra.
ANSWER: *Treatise on Instrumentation* [or *Grand **traité d'instrumentation** et d'orchestration modernes*; or *Grand **Treatise on** Modern **Instrumentation** and Orchestration*]
[10] In 1855, Berlioz added a chapter on this practice to his treatise. Gustavo Dudamel and Riccardo Muti are modern performers of this role, which involves cueing instruments with one hand and setting the tempo with the other, often by waving a baton.
ANSWER: **conduct**ing
[10] The *Treatise on Instrumentation* discusses a brass instrument called the ophicleide (OFF-ih-clyde), which appears in this late Felix Mendelssohn composition that incorporates his earlier *Overture* on the same theme. It includes a famous *Wedding March*.
ANSWER: incidental music to A ***Midsummer Night's Dream*** [or Mendelssohn's **Op**us **61**] <Carson>

20. The output of this technique is analyzed by looking at the relative heights of the base peak, symbolized M, and all the peaks around it, which are labelled M-plus-one, M-minus-one, and so on. For 10 points each:
[10] Name this technique. Its output is a histogram where m-over-z is on the x-axis and percent abundance is on the y-axis.
ANSWER: **mass spectrometry** [or **mass spec**; or **mass spectroscopy**; or **MS**]
[10] The base peak on the mass spectrum corresponds to the molecular ion, which has this net charge, since it has lost an electron. In solution, alkali metals like sodium acquire this net charge.
ANSWER: **plus-one** [or **one-plus**; prompt on one]
[10] When determining an unknown organic molecule's structure, this useful piece of information roughly equals the abundance of the M-plus-one peak divided by 1.1. This number is multiplied by two when calculating a molecule's index of hydrogen deficiency. A description is fine.
ANSWER: **number** of **carbon** atoms in the molecule [or **number of carbon**s; or obvious equivalents] <Silverman>

21. Answer the following about John von Neumann's (NOY-mahn's) work as it relates to computer science, for 10 points each.
[10] He developed an algorithm that performs this task by recursively merging two lists. The naive algorithm for performing this task of organizing data "bubbles" elements through a list repeatedly until no swaps have been made.
ANSWER: **sort**ing [accept merge**sort** or bubble**sort**]
[10] He developed a computer architecture in which this operation of retrieving an instruction to put into a pipeline causes a bottleneck, since it uses the same bus as many other operations. This operation is usually followed by a "decode" step.
ANSWER: **fetch** operation [or instruction **fetch**ing]
[10] John von Neumann and Stanislaw Ulam created cellular automata, in which entries in a grid can be in "on" or "off" states. One such automaton is this so-called "game" created by John Conway.
ANSWER: Game of **Life** <Jose>