

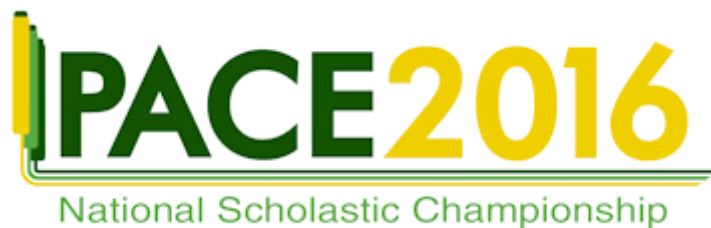
2016 NSC - Official Scoresheet

Round	22	Room	
Bracket			
Reader			

Team									Team								
Player Names																	
Q#					Bonus	Steals	Ques. Total	Run. Score					Bonus	Steals	Ques. Total	Run. score	
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OT																	
Player 20s																	
Player 10s																	
Point totals																	
Final score																	
	Substitutions before Tossup 11								Substitutions before Tossup 11								
	Out:				In:				Out:				In:				
	Out:				In:				Out:				In:				

Circle winning team above. Clearly mark if game goes to OT/SD. Fill out "Point totals" row completely.
If there are substitutions, please note tossups by each player in "20s" and "10s" rows. Below is for Tab Room use only:

RH	RS	BH	BS	Left	Right	BH	BS	RH	RS
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PACE NSC 2016 - Round 22 - Tossups

1. The topography of this location led to the development of the Koehler Depressing Gun Carriage. This territory contains Gorham's Cave, one of the last habitations of the Neanderthals. This territory is administered from an old Franciscan building known as "the Convent." According to legend, this location's bottomless St. Michael's Cave allowed the arrival of its population of (*) barbary macaques. Over 30 miles of defensive tunnels run through an iconic limestone monolith in this territory, which lies about 100 kilometers southeast of Cádiz. This territory, which was ceded by Spain in the Treaty of Utrecht, historically constituted the northern Pillar of Hercules. For 10 points, name this small British territory on the southern tip of Spain.

ANSWER: Gibraltar <Wang>

2. This quantity is roughly constant along a streamline when the Mach number is less than 0.3. When this quantity doesn't change within a fluid, the continuity equation in the Euler equations has only one term. Dynamic viscosity is divided by this quantity to give the kinematic viscosity. The only term in the Bernoulli equation which is not multiplied by this quantity is the pressure term. When this quantity is constant (*) throughout a fluid, the fluid is incompressible. The buoyant force on an object is proportional to this quantity times the volume the object displaces. The ratio of this quantity for any fluid to this quantity for water is called specific gravity. For 10 points, kilograms per meter cubed are the units of what quantity defined as mass over volume?

ANSWER: mass density <Busse>

3. In this play, a man imagines that humans actually have a hundred senses, ninety-five of which keep working after we die. A governess performs card tricks and ventriloquism at a party in this play during which an idealistic character storms out and falls down the stairs. In this play, a man who often shouts out billiards terms begins crying after he notices that a bookcase is a hundred years old. Minor characters in this play include a clerk who is (*) nicknamed "two-and-twenty troubles" and a shabby "eternal student." This play ends with an elderly servant lying down as if dead after being locked inside an empty house. In this play, Lopakhin purchases Madame Ranevsky's estate at an auction. For 10 points, name this Anton Chekhov play named for the trees on that estate.

ANSWER: *The Cherry Orchard* [or *Vishnevyyi sad*] <Brownstein>

4. In the *Dionysiaca*, members of this group smear their faces with chalk and devour Zagreus whole. In the Orphic cosmogony, humanity was created from the dust of this group after they were killed by lightning. As a reward for being the first to swear opposition to this group, oaths made on the river Styx became unbreakable. Mount Othrys served as the base for this group, which lost a ten-year war fought in Thessaly after which the (*) Hecatoncheires were assigned to guard them. Their numbers included Crius, Coeus, and Iapetus, the last of whom was the father of Atlas and Prometheus. The leader of this group ruled over the Golden Age and castrated his father Uranus with his sickle. Cronus and Rhea led--for 10 points--what group of giant deities who waged war against Zeus?

ANSWER: **Titans** [do not accept or prompt on "giant(s)"] <Jose>

5. Bernhard Wiener developed a theory of this process to explain academic success and failure. Harold Kelley proposed the three factors of consistency, distinctiveness and consensus that affect this process in his covariation model, which explores how observers make causal inferences. An in-group negatively views the actions of an out-group according to the (*) "ultimate error" of this process. Lee Ross commented on a paper by Jones and Harris about biases in this process; that paper described subjects reading essays about Fidel Castro. People place too much importance on internal characteristics of actors, like personality traits, according to the "fundamental" error of this process. For 10 points, name this process of explaining the causes of people's behavior.

ANSWER: **attribution** <Jose>

6. A type of equation denoted by this adjective is often solved using the h-principle or the method of characteristics and is exemplified by the Helmholtz equation. The commutativity of an operation denoted by this adjective is guaranteed if the resulting functions are continuous according to Clairault's theorem. A technique named for this adjective converts a rational function into a series of factors allowing one to integrate each factor; that technique is named for this kind of (*) fraction decomposition. This type of differential equation contains functions of multiple variables and is contrasted with ODEs ["O-D-E's"]. A derivative in which all but one variable is held constant is described by, for 10 points, what adjective contrasting it with a total derivative?

ANSWER: **partial** [accept **partial differential equation** or **partial fraction** or **partial derivative**; prompt on **differential** before the word "Clairault;" prompt on **second** derivative"] <Jose>

7. Otto III traveled to Gniezno to retrieve the relics of Adalbert, a bishop from this city who was martyred in 997. The freedom to confess the Holy Word was one of four articles issued from this city by the Ultraquists, who held this city against the more radical Taborites. Charles IV founded a namesake university in this city in 1348. In this city, the brief reign of Frederick V the (*) Winter King was ended by Count Tilly's victory at the Battle of White Mountain. A professor in this city was burnt at the stake at the Council of Constance for his Wycliffite views. In this city home to Jan Hus (yahn HOOS**), Jaroslav Bořita of Martinic and Vilem Slavata survived a fall into a moat in this city. For 10 points, name this capital of Bohemia and site of a 1618 defenestration.**

ANSWER: **Prague** [or **Praha**] <Bentley>

8. The speaker of a poem by this author tells a man that "Sometimes perhaps you don't want to be a part of me" and states "I like a pipe for Christmas, or records." Another poem by this author imagines a "Tomorrow" when "Nobody'll dare say to me, 'Eat in the kitchen.'" This author described how "the stars went out and so did the moon" before a character sleeps "like a (*) rock or a man that's dead" in his poem about a man on a "rickety stool" who drones "a drowsy syncopated tune." One of this writer's poems repeats that "my soul has grown deep" like the title places. For 10 points, name this leading figure of the Harlem Renaissance and poet of "I, Too," "Theme for English B," "The Weary Blues," and "The Negro Speaks of Rivers."

ANSWER: Langston Hughes [or James Mercer Langston Hughes] <Brownstein>

9. This event might have occurred earlier if the United States had properly read signals about journalist Edgar Snow being included in a parade. The man who instigated this "week that changed the world" sent messages through Yahya Khan of Pakistan prior to it. During this event, the National Zoo in Washington was gifted two new animals. In preparation for this event, Secretary of State William P. Rogers announced that the US would end its opposition to another (*) nation joining the UN. A year prior to this event, travel visas were offered to members of the US Table Tennis Team. This event was organized through secret meetings between Henry Kissinger and Zhou Enlai. For 10 points, identify this event in which an American president visited with Mao Zedong.

ANSWER: Richard Nixon's China visit in 1972 [or Nixon in China; or the United States establishing diplomatic relations with China; or anything that involves Richard Nixon and The People's Republic of China; or anything that involves the U.S. recognizing China; prompt on the opening of China] <Bentley>

10. In a painting made in this place, a woman wears a pink dress in contrast to the *pāreu* (PAH-ray-oo) worn by the woman seated to her left. A painting made in this place was inspired by the artist finding his wife "immobile, naked, lying face downward flat on the bed." A painting made here, *When Will You Marry?*, sold for \$300 million in 2015. A painting made in this place features a nude old woman crouching next to a seagull in the bottom left, and a (*) blue statue of a god in the background. This island is the setting of *The Spirit of the Dead Watching*. A painting created here centers on a figure picking fruit and depicts the progression of life from right to left. For 10 points, name this Pacific island, the setting of *Where Do We Come From? What Are We? Where Are We Going?* by Paul Gauguin.

ANSWER: Tahiti [or French Polynesia or Polynésie française] <Bentley>

11. An essay mocking the style of "character" criticism by L.C. Knights sardonically asks "How many children had" this character? This character encourages another by exhorting, "screw your courage to the sticking place, and we'll not fail." In a late scene, this character laments the inadequacies of "all the perfumes of Arabia." This character fears that another character's nature is "too full o' th' (*) milk of human kindness," even though that character is thane of Glamis and becomes thane of Cawdor. News of this character's death cues the lament "she should have died hereafter." She exclaims "Out, damned spot!" during her sleepwalking scene. For 10 points, name this woman who plots King Duncan's death and becomes Queen of Scotland in a play by William Shakespeare.

ANSWER: Lady Macbeth [do not accept or prompt on "Macbeth"] <Jose>

12. This concept fills empty spaces and is not governed by the soul's laws according to a Simone Weil book pairing it with "gravity." Eastern Christianity holds that this concept can be found in the Uncreated Energies of the light of the Transfiguration. The "prevenient" form of this concept in Arminianism saves people from total depravity, while Calvinism holds that the Elect are saved by the (*) "irresistible" form of it. One of the five solae of Protestantism is salvation by the "divine" form of this concept alone, meaning that salvation is unmerited. A hymn by John Newton asks of this concept, "how sweet the sound," and said that it "saved a wretch like me." For 10 points, *gratia* is the Latin word indicating what "saving" concept said to be the free favor of God, and described as "Amazing" in a popular hymn?

ANSWER: **grace** [accept *Gravity* and **Grace** or prevenient **grace**; irresistible **grace** or "Amazing **Grace**" or saving **grace**] <Jose>

13. This molecule is produced along with carbon black in the Kvaener process and along with carbon monoxide in the CPOX partial oxidation process. When exposed to atmospheric moisture, reducing agents like lithium aluminum hydride produce this compound. Its liquid form is stored at its boiling point of 20 Kelvin. This molecule is the lightest component of syngas, a high (*) energy mixture of carbon monoxide and it. Catalysts like palladium are used to add it across a double bond. In the Haber process, three equivalents of this compound are used up per ammonia molecule. O₂ and this compound are produced by the electrolysis of water. For 10 points, name this explosive diatomic gas containing two atoms of the lightest element.

ANSWER: **hydrogen** gas [or **H₂** or **dihydrogen**] <Mukherjee>

14. The last king of these people was temporarily exiled to St. Helena in 1890 and later supported these people's failed Bambatha Rebellion. Nathaniel Isaacs sent a letter to Henry Francis Fynn urging him to make his account of these people more bloody to attract readers. A group of commandos under Andries Pretorius defeated a large force of these people at the Battle of Blood River. In the 1820s, an offshoot of these people migrated (*) north and became the Matabele (mah-tah-BEL-lay**) people, sparking a long period of chaos and internal displacement known as the Mfecane (**um-feh-KAH-nay**). These people used their "buffalo horns" formation during a war in which British forces captured their capital at Ulundi and their king Cetshwayo. For 10 points, name these South African people united under Shaka.**

ANSWER: **Zulu** people [or **amaZulu**; prompt on **Nguni** people] <Wang>

15. This composer used a theme from Handel's Harpsichord Suite No. 1 in a set of twenty-five variations for solo piano. His late works include a series of clarinet pieces for Richard Mühlfeld and a set of eleven chorale preludes for organ. His violin concerto is the last major piece of its kind to have the soloist improvise a cadenza, though most performances use the one by its dedicatee, Joseph Joachim. This composer quoted (*) drinking songs such as "What comes there from on high?" and "Gaudeamus igitur" in a companion piece to the *Tragic Overture* titled the *Academic Festival Overture*. Selections from the Luther Bible, rather than Latin texts, form the basis for his *German Requiem*. For 10 points, name this German Romantic composer of a namesake lullaby.

ANSWER: Johannes **Brahms** <Kim>

16. Watchtowers in Corsica were built by a Genoese one of these institutions named for Saint George. A group best known for operating these institutions also created the world's first civil housing project in Augsburg, where the Hochstetters and the Welsers also ran places of this type. The "Lombard" variety of these institutions, like the Franciscan Mounts of Piety, were based around (*) pawnbroking. The election of Charles V was supported by one of these institutions owned by the Fugger family. The double-entry bookkeeping system may have been introduced at one of these institutions that provided the wealth of the Medicis, who operated it despite the Church's ban on usury. For 10 points, name this sort of institution that accepts deposits and provides loans to its clients.

ANSWER: **banks** [or **bankhouses**; or **bancos**; prompt on moneylenders; prompt on pawnshops or pawnbrokers] <Brownstein>

17. Jaegwon Kim assumed that this relation is closed within the physical universe in his argument for reductionist physicalism, which seeks to explain how mental properties can be involved in this relation. David Lewis proposed a counterfactual theory of this phenomenon, which Mill's Methods are tools for reasoning about. Occasionalists argued that the (*) efficient type of this phenomenon is only possible through God. An argument that inferences about this phenomenon involve neither relations of ideas nor matters of fact allows Hume to conclude they are based on association. Aristotle distinguished four types of this relation, and posited the unmoved mover as the ultimate efficient one. For 10 points, name this kind of relation in which one event makes another happen.

ANSWER: **causation** [or word forms, like **causality** or **cause**] <Kothari>

18. The TEV protease, often used in protein purification, was extracted from a virus that infects this organism. The anti-Ebola drug ZMapp was cultured in this organism. The NNN and NNK nitrosamines specific to this organism cause DNA alkylation. Wendell Stanley crystallized a pathogen of this organism, which has a hollow helical structure that was studied by Rosalind Franklin and James Watson. Though it's not *Arabidopsis*, an antibiotic-resistant variant of this organism was the first transgenic (*) plant. Martinus Beijerinck coined the term "virus" while studying the "mosaic" discoloration observed in the leaves of this member of the nightshade family. The 1964 Surgeon General's report showed that an alkaloid extracted from this plant causes heart disease and lung cancer. For 10 points, name this nicotine-containing plant.

ANSWER: **tobacco** [or *Nicotiana tabacum*; or *N. tabacum*; or *Nicotiana benthamiana*] <Yu>

19. After snatching some chocolate from his sister's hands, this character runs away and never sees his mother or sister again. This character is surprised to learn how tiny a coral polyp is when his paperweight is shattered. Late in the book he appears in, this character is told "the word you are trying to think of is solipsism" after being informed "we control the past." This character's wife, a member of the (*) Anti-Sex League, leaves him when their union proves childless. This character, who hides out in Mr. Charrington's shop, predicts that Syme will become an unperson. This character falls in love with Julia but breaks when taken to the Ministry of Love. For 10 points, name this character who O'Brien tortures into loving Big Brother in the novel *1984*.

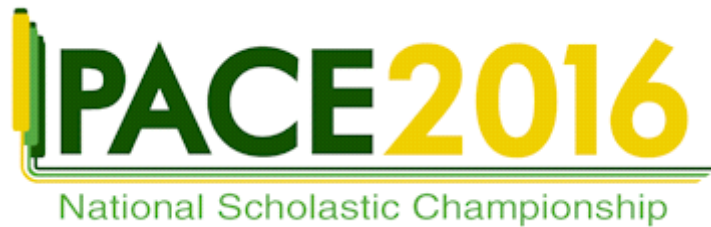
ANSWER: **Winston Smith** [accept either] <Jose>

20. This artist got into a public debate about the gender of angels after a clergyman stated that one of his sculptures of angels for the Cathedral of St. John the Divine did not have a stern and masculine face. One of this artist's subjects is a nude man who has a sheathed dagger and can be found at the University of Virginia; that sculpture honors James McConnell, a pilot killed during World War I. This man's son, named Lincoln, finished his largest sculpture after he died; the climax of (*) *North by Northwest* features that sculpture by this artist. This artist of *The Aviator* rejected the "Needles" as a potential site for a sculpture honoring four men who "preserved the Republic." For 10 points, name this sculptor who created the sculptures at Mt. Rushmore.

ANSWER: Gutzon Borglum <Jose>

21. In Dirac notation, one of these entities evaluated at a point \mathbf{r} is equal to "bra- \mathbf{r} -times-ket" of that entity. Whether these entities are symmetric or antisymmetric under exchange is the subject of the spin-statistics theorem. When they are time-invariant, these quantities are equal to their complex conjugate. Applying the Hamiltonian operator to these quantities returns them (*) multiplied by a constant representing energy. According to the Copenhagen interpretation, the square of these quantities is the probability density per unit volume, and they can be found by solving the Schrodinger equation. For 10 points, name these quantum mechanical functions which bear the Greek letter psi.

ANSWER: wavefunctions [prompt on psi before mentioned] <Wang>



PACE NSC 2016 - Round 22 - Bonuses

1. This kingdom's second war with Britain was concluded by the Treaty of Mangalore after the sudden death of Hyder Ali. For 10 points each:

[10] Identify this kingdom ruled from Seringapatam by Tipu Sultan.

ANSWER: Kingdom of **Mysore**

[10] A 1799 siege of Seringapatam was justified by rumors that Tipu Sultan had signed an alliance with this country, whose chief outpost in India was located at Pondicherry. This country's control of India declined after the Battle of Plassey.

ANSWER: **France** [or Kingdom of **France** or **French Republic**]

[10] Tipu Sultan owned a life-sized automaton that depicted one of these animals attacking a British man. A Tamil secessionist militant group on Sri Lanka was nicknamed for these animals.

ANSWER: **tigers** <Bentley>

2. Answer the following about literary trips to India, for 10 points each.

[10] Adela Quested and Ms. Moore are guided around India by Dr. Aziz in this author's novel *A Passage To India*. He also wrote *A Room with a View*.

ANSWER: E. M. **Forster** [or Edward Morgan **Forster**]

[10] The protagonist takes a vacation to India after a business trip to Thailand in *The Temple of Dawn*, which is an entry in this four-part series of novels by Yukio Mishima that begins with *Spring Snow*.

ANSWER: **Sea of Fertility** tetralogy [or **Hōjō no Umi**]

[10] Writer Suketu Mehta chronicled giving up his life in this American city to tour Mumbai for two years in his book *Maximum City*. In Jhumpa Lahiri's story "The Interpreter of Maladies," Mr. Das is a science teacher in this city who visits India with his family.

ANSWER: **New York** City [or **NYC**] <Alston>

3. For 10 points each, answer the following about computational complexity:

[10] This class contains all problems whose solutions are verifiable in polynomial time on a deterministic Turing machine. It is an open question as to whether or not it is equal to its non-deterministic counterpart, NP.

ANSWER: **P**

[10] The computational complexity class BPP contains problems, such as polynomial identity testing, which are solvable by one of these algorithms in polynomial time. These algorithms, such as the Metropolis Hastings method, sample from an unknown distribution.

ANSWER: **Monte Carlo** algorithm [or **Monte Carlo** method]

[10] The first problem shown to be NP-complete asks whether or not one of these formulas can be satisfied. In these formulas, variables can be assigned a value of one or zero.

ANSWER: **Boolean** formula [or **Boolean** function] <Jose>

4. This man joined the New York City Ballet in the late 1940s, where he worked on largely plotless works, such as *Dances at a Gathering*.

[10] Name this man, who designed the dances in the Rodgers and Hammerstein musical *The King and I*, as well as the dances for *Fiddler on the Roof*.

ANSWER: Jerome **Robbins**

[10] Jerome Robbins was known for his work in this art, which focuses on designing the movements of dancers in a dance sequence. Its name comes from the Greek for "writing the dance."

ANSWER: **choreography** [or **choreograph**; or **choreographer**]

[10] Jerome Robbins also choreographed this musical, which is a loose adaptation of *Romeo and Juliet* set in New York City. It depicts two rival gangs named the Sharks and the Jets.

ANSWER: **West Side Story** <Jose>

5. In her book *This Changes Everything*, Naomi Klein argues capitalist solutions are incapable of addressing this problem. For 10 points each:

[10] Name this phenomenon of rising average temperatures as a result of man-made carbon emissions.

ANSWER: global **climate change** [or **global warming**]

[10] One debate in climate change economics concerns the proper value for this quantity, the rate at which future payoffs are reduced in present value. It is often set equal to the interest rate.

ANSWER: **discount** rate

[10] A proposed solution for limiting carbon is this system of giving producers a fixed amount of carbon allowances, which they can exchange. By changing the number of allowances, the government can raise the private cost of emission to match the social cost.

ANSWER: **cap and trade** [prompt on emission trading] <Bailey>

6. Sodium ethoxide reacts with ethyl chloride to form diethyl ether in an SN2 Williamson synthesis. For 10 points each:

[10] In the reaction, sodium ethoxide uncharacteristically acts as a nucleophile, rather than this type of compound. These compounds accept protons from solution in the Bronsted-Lowry definition.

ANSWER: **bases** [or Bronsted-Lowry **bases**]

[10] The Williamson synthesis usually doesn't involve a Walden inversion because the substrate has this property. Molecules with this property are optically inactive.

ANSWER: **achiral** [or **not chiral**]

[10] In the reaction, the electrons on the ethoxide attack this kind of orbital for the carbon-chlorine bond. On a molecular orbital bonding diagram, they are the orbitals highest in energy.

ANSWER: **antibonding** orbitals [or **antibonding sigma** orbital; prompt on sigma star orbital] <Silverman>

7. Perennialism is the belief that all the world's religions are based on a common, core truth. For 10 points each:

[10] This British novelist advocated perennialism in an anthology called *The Perennial Philosophy*. He also described his spiritual experiences on mescaline in *The Doors of Perception*.

ANSWER: Aldous Leonard **Huxley**

[10] Like Huxley, many perennialists were inspired by this Hindu school's Advaita sub-school, which teaches that *atman* is *brahman*. This school is based on the Upanishads and takes its name from the four key texts of early Hinduism.

ANSWER: **Vedanta** [accept neo-**Vedanta**]

[10] Some perennialist beliefs resemble tenets of this monotheistic religion founded in 19th century Persia, which holds that God reveals religious truth through a series of divine messengers.

ANSWER: **Bahá'í** faith [or **Bahá'íyyah**] <Kothari>

8. An owl sits on the shoulder of a woman holding a pewter mug in this artist's painting, *Malle Babbe*. For 10 points each:

[10] Name this artist, also known for his group portraiture, such as his paintings of the Regents and Regentesses of the Old Men's Almshouse. His *The Laughing Cavalier* depicts a man smiling, not laughing.

ANSWER: Frans **Hals** [or Frans **Hals** the Elder]

[10] Born in Antwerp, Frans Hals moved to Haarlem in this modern-day country during its Golden Age. Jan Vermeer painted a view of Delft, a city in this country, in 1660.

ANSWER: The **Netherlands** [or the **Dutch** Republic; or **Holland**]

[10] This other artist of the Dutch Golden Age painted lively family scenes, such as *The Feast of Saint Nicholas* in which a boy is crying because the only gift he's received is a lousy birch rod.

ANSWER: Jan **Steen** (**yahn SHTAIN**) [or Jan Havickszoon **Steen**] <Bentley>

9. This Athenian statesman chose to build a fortified port at Piraeus, and was effectively responsible for converting Athens into a naval power. For 10 points each:

[10] Name this politician, who commanded the Athenian navy at the Battles of Artemisium and Salamis.

ANSWER: **Themistocles**

[10] The Battle of Artemisium was fought at the same time as this land battle, during which Leonidas and his Spartans fended off the armies of Xerxes before being slaughtered.

ANSWER: Battle of **Thermopylae**

[10] Themistocles was ostracized after the Spartans implicated him in the treasonous plot of this Spartan general, who had earlier defeated Mardonius at the Battle of Plataea. He shares his name with a geographer who wrote *Description of Greece*.

ANSWER: **Pausanias** <Jose>

10. Doaker tells a story about this object in which a mob sets the train Yellow Dog on fire after it was stolen. For 10 points each:

[10] Name this object into which Willie Boy carves images of his family. Berniece uses this thing to remove the spirits haunting her home at the conclusion of the play about it.

ANSWER: the **piano** from *The Piano Lesson*

[10] The history of the piano figures heavily into this author's play *The Piano Lesson*; other plays from his Pittsburgh Cycle include *Radio Golf*.

ANSWER: August **Wilson** [or Frederick August **Kittel** Jr.]

[10] Troy Maxson, a former baseball player, works as a trash collector in this other play by August Wilson, which partly centers on Troy's son Cory winning a college football scholarship.

ANSWER: **Fences** <Jose>

11. Though not tears, this substance contains activate hydrolases like lysozyme, which kills bacteria. For 10 points each:

[10] Name this watery substance produced by the parotid, sublingual, and submandibular glands, which helps in the digestion of food.

ANSWER: **saliva**

[10] This hydrolase found in saliva is critical for breaking down starches into glucose. It was the first enzyme to be characterized.

ANSWER: alpha-**amylase**

[10] Metabolism of lipids, on the other hand, is trickier, and requires both lipases and these compounds, most of which are derivatives of cholic acid. These compounds, which are formed by oxidizing cholesterol, allow fatty acids to aggregate into micelles.

ANSWER: **bile acids** [or **bile salts**; prompt on **bile**; prompt on **emulsifiers** or **surfactants**] <Jose>

12. For 10 points each, answer the following about a book of verse called *Tottel's Miscellany*, which first appeared in print in 1557.

[10] It is considered the first English-language example of one of these collections of poetry, whose name comes from the Greek word for "garland" or "collection of flowers." These compilations often consist of works by several different authors.

ANSWER: **anthology**

[10] Many of the poems in *Tottel's Miscellany* have this fourteen-line form. William Shakespeare wrote 154 of these poems.

ANSWER: **sonnets** [accept **English sonnets** or **Shakespearean sonnets**]

[10] *Tottel's Miscellany* contains the verses of this English poet, who is credited with inventing the English sonnet form. His poem "Whoso List to Hunt" may be an allegory about his love for Anne Boleyn.

ANSWER: Thomas **Wyatt** <Jose>

13. The prosecutor in this case was particularly upset that the defendant believed that Man evolved "not even from American monkeys but from old world ones." For 10 points each:

[10] Name this 1925 case that concerned the teaching of the theory of evolution.

ANSWER: **Scopes** Monkey Trial [or *The State of Tennessee v. John Thomas Scopes*]

[10] During the Scopes trial, Clarence Darrow called this man, the prosecution's lawyer, to the stand and asked him questions about the creation of Eve. This man died five days after the trial.

ANSWER: William Jennings **Bryan**

[10] Bryan played a role in both the growth of the Christian fundamentalism movement and this other Protestant movement also led by Washington Gladden. This movement sought to improve the conditions of industrial society through Christian teachings.

ANSWER: **Social Gospel** <Bentley>

14. After a gadfly prevented this man from ascending to Mount Olympus, this man lived out his days as a crippled beggar wandering across the Plain of Aleion. For 10 points each:

[10] Name this man who was falsely accused of making advances on the Tirynian queen Stheneboea, which prompted her husband King Proetus to try to have him killed. He later accomplished a number of feats with the help of Pegasus.

ANSWER: **Bellerophon** [or **Bellerophontes**]

[10] Proetus attempted to ensure Bellerophon's death by sending him to fight this fire-breathing monster with the heads of a goat and a lion, and a snake for a tail.

ANSWER: the **Chimera**

[10] In the *Iliad*, this man recounts the story of Bellerophon to his opponent Diomedes, after which they stop fighting and swap armor. He shares his name with a sea god who gained immortality after eating a magic herb.

ANSWER: **Glaucus** <Jose>

15. This woman embarrasses her husband's aunt by pretending to mistake her hat for a servant's. For 10 points each:

[10] Name this woman who responds to Judge Brack's attempts to blackmail her over the death of Eilert Lovborg by shooting herself with a pistol.

ANSWER: **Hedda** Gabler [or Hedda **Gabler**; prompt on **Tesman**]

[10] Hedda Gabler was created by this realist Norwegian playwright who also wrote *A Doll's House* and *An Enemy of the People*.

ANSWER: Henrik Johan **Ibsen**

[10] This other Ibsen play also ends with a suicide by pistol, in this case committed by Hedvig in the loft of her family's apartment.

ANSWER: *The* **Wild Duck** [or **Vildanden**] <Brownstein>

16. Presidential candidates campaigning in this state will often stop for photo-ops next to the butter cow at its State Fair. For 10 points each:

[10] Identify this state, the first in each presidential election cycle to hold a caucus.

ANSWER: **Iowa**

[10] Republican candidates in Iowa frequently make trips to this Midwest fast-food chain, which advertises that it "believes in the power of prayer." Mike Huckabee won Iowa in 2008 in part by hard-selling patrons of this buffet chain from its free-to-use party rooms.

ANSWER: The **Pizza Ranch**, Inc.

[10] Another goal for politicians hoping to win Iowa is to earn an endorsement from this Des Moines newspaper. Ann Selzer runs a highly respected poll of Iowa for this largest paper in the state.

ANSWER: *The Des Moines **Register*** <Bentley>

17. Identify the following about NASA's advertising campaign to build excitement over the Moon, for 10 points each.

[10] This man helped the cause with frequent guest appearances on the Tomorrowland segment of the *Disneyland* TV program. This German-born rocket scientist helped develop NASA's Saturn rockets after being appropriated from Nazi Germany in Operation Paperclip.

ANSWER: Wernher **von Braun** [do not accept or prompt on "Braun"]

[10] The Hasselblad Company let the world know that astronaut William Anders used one of its cameras to take the iconic *Earthrise* photograph on this first manned mission to leave Earth's orbit.

ANSWER: **Apollo 8** [prompt on Apollo]

[10] To convince reluctant engineers to bring live TV equipment on the Apollo mission, NASA instructed this artist to include TV cameras in a popular lunar painting he made for *Look* magazine. The Treasury Department sponsored this artists *Four Freedoms* series.

ANSWER: Norman **Rockwell** [or Norman Percevell **Rockwell**] <Bentley>

18. This quantity is equal to $m v^2$ over r . For 10 points each:

[10] Name the acceleration that causes uniform circular motion. This acceleration is normal, or perpendicular, to the motion.

ANSWER: **centripetal** acceleration

[10] If an object in circular motion changes its speed, this name is given to the acceleration associated with that change. In general, this adjective describes any acceleration that changes the speed of an object without changing its direction.

ANSWER: **tangential** acceleration

[10] For a system in a rotating reference frame, the magnitude of the force is equal to the magnitude of the cross product of the angular velocity and linear velocity, times mass, times this constant.

ANSWER: **2** [accept **negative 2**] <Reinstein>

19. A politician from this family attempted to pass the *Lex Sempronia Agraria*, a plan to reform Roman *latifundia*. For 10 points each:

[10] Name this family of Tiberius, a brother of Gaius who was killed and thrown into the Tiber river after his reforms angered the Roman aristocracy.

ANSWER: **Gracchus** [or Tiberius Sempronius **Gracchus**; prompt on Sempronius]

[10] The *Lex Sempronia Agraria* limited the amount of this resource a Roman citizen could own. This resource was measured using the unit of *jugerum*, which consisted of a 240 by 120 foot area.

ANSWER: **land** [or **property**]

[10] Tiberius Gracchus was killed by members of this group of politicians that represented the interests of the wealthy. Unlike the rival *populares*, its members did not favor the people's assemblies or the democratic tribune.

ANSWER: **Optimates** <Jose>

20. This composer used scordatura in his B minor solo cello sonata and used hand signs in his system of musical pedagogy. For 10 points each:

[10] Name this composer of a folk opera whose title soldier impresses tavern-goers with fanciful tales. This Hungarian depicted a Viennese musical clock in that work, *Háry János* (**HA-ree YA-nosh**).

ANSWER: Zoltán **Kodály** (**KOH-dye**)

[10] In the opera, Háry János defeats this man and wins the heart of his wife Mária Lujza (**Louisa**). Tchaikovsky's *1812 Overture* depicts Russia's defense against this man's invasion.

ANSWER: **Napoleon Bonaparte** [or **Napóleon**; accept either name]

[10] This large Central European instrument plays a fast *verbunkos* (**VAIR-boon-kohsh**) in the Intermezzo of Kodály's *Háry János* orchestral suite. Its coupled strings are struck with small mallets.

ANSWER: **cimbalom** [accept hammered **dulcimer**] <Lifshitz>

21. Some stars take the Hayashi track to join the main sequence, which is visually depicted on one of these diagrams. For 10 points each:

[10] Name these scatterplots, which are used to classify stars. They are named for a Danish and an American astronomer.

ANSWER: **Hertzsprung–Russell** diagrams [or **H–R** diagram]

[10] On an H–R diagram, this quantity is plotted on the vertical axis. The graph uses the apparent, and not the bolometric form of this quantity.

ANSWER: **luminosity** [prompt on magnitude]

[10] RR Lyrae, Cepheid Variables and ZZ Ceti stars all lie on this vertical component of an H–R diagram, whose name indicates that it is filled with pulsating stars.

ANSWER: **instability strip** <Jose>