

Round	8	Moderator	
Bracket		Room	

Team:														
Player Names										Bonus	Steals	Question Total	Running Total	
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														Final Score

Team:														
Player Names										Bonus	Steals	Question Total	Running Total	
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														Final Score

RH	RS	BH	BS	LEFT
RIGHT	BH	BS	RH	RS



PACE NSC 2017 - Round 08 - Tossups

1. A feeling of shame arising from voluntarily having this trait is called *nagnya* and is often felt by monks who use a *pinchi* broom made of peacock feathers. A sect maintains that since women are not allowed to have this trait, taking the vow of *aparigraha* will not help them attain liberation. The flowery *shrivatsa* symbol is visible in *murti* depictions of the 24 "ford-makers", since they are shown with this trait. The last (*) *tirthankara* is often depicted with this property, which distinguishes a religious sect from its "white-clad" counterpart. This quality is adopted by Jain Digambara monks, as suggested by their "sky-clad" nature. For 10 points, name this practice, which in ancient Greek religion was possessed by "gymnosophists", and is sometimes called naturism or nudity.

ANSWER: nakedness [accept nudity until "nudity" is read; accept equivalents suggesting that no clothes are being worn; accept skyclad until "skyclad" is read] <Jose>

2. In yeast, Rap1 and the Sir proteins congregate at these structures, which are located immediately next to the HML and HMR sites. Fluorescence *in situ* hybridization is combined with flow cytometry to analyze these structures. Most G-quadruplexes occur at them. An enzyme discovered in *Tetrahymena* and named for these structures is partly composed of a noncoding RNA that initiates reverse transcription. When cells (*) over-express the enzyme named for these structures, they can surpass the Hayflick limit and become immortal. Because Okazaki fragments miss out on lagging strand sequence, these structures gradually shorten over adult lifetimes. For 10 points, name these repetitive sequences of DNA found at the ends of chromosomes.

ANSWER: telomeres [or telomerase; prompt on chromosomes] <Silverman>

3. A form of one of these events in African-American tradition provides the title for Yaa Gyasi's (JAH-see's) novel *Homegoing*. The speaker of a poem relates that "all the Heavens were a bell / and Being, but an ear" during a figurative description of one of these events, whose participants are described as "treading – treading – till it seemed / that Sense was breaking through." In Act III of *Our Town*, along with a birthday party, the ghost of (*) Emily Gibbs observes this type of event, which Emily Dickinson described feeling "in [her] Brain." Henry Gatz and the partygoer Owl Eyes are two of the handful of attendees at one of them in *The Great Gatsby*. For 10 points, name this type of event that Tom Sawyer watches conducted for himself after faking his death.

ANSWER: funerals [or burials; or funeral services] <Bollinger>

4. A promoter of this practice entered towns displaying a letter on a velvet cushion as part of a plan to pay off the debt Albert of Magdeburg had acquired while bribing his way to the Archbishopric of Mainz. John XXIII's (the 23rd's) use of this practice for a crusade against Ladislaus of Naples was attacked by Jan Hus (yon HOOS). This practice was advertised by a rhyme beginning "As soon as coin in coffer rings." This practice was (*) defended in the letter *Exsurge Domine* in response to an attack on Johann Tetzel's promotion of this practice. Leo X's use of these things to finance the rebuilding of St. Peter's Basilica led a priest to denounce them in the 95 Theses. For 10 points, Martin Luther denounced the sale of what things, which provided remission from afterlife punishment to their buyers?

ANSWER: **indulgences** [or plenary **indulgences**; accept the buying or selling of **indulgences**; prompt on **remissions**; prompt on buying or selling **relics**] <Brownstein>

5. A ballet from this country whose first act features the male lead diving in front of an arrow intended for Eros was popularized by Frederick Ashton's 1952 revival. A composer from this non-Hungary country used a Torquato Tasso play as the basis for a ballet in which Orion and the shepherd Aminta fight over the title nymph. That composer from here also introduced the *csárdás* (CHAR-dahsh) to ballet in a work based on two E.T.A. Hoffmann stories in which Franz falls in love with the title (*) mechanical doll. The title character's ghost protects her former love Albrecht from the demonic Wilis (WEE-teez) in another ballet from this country, the origin of *Sylvia* and *Coppélia* (koh-PAY-lee-ah). For 10 points, name this home country of Léo Delibes (LAY-oh deh-LEEB) and *Giselle* composer Adolphe Adam (ah-DAHM), where ballet was modernized in the court of Louis XIV.

ANSWER: **France** [accept the **French** Republic or Republique **Francaise**; accept the Kingdom of **France** or Royaume de **France**] <Carson>

6. A character in this novel humiliates a former authority figure by repeating phrases like "Inadequate, quite inadequate" to him and lifting him up as he does pull-ups. In the first chapter of this novel, a cook named Ginger agrees to give the characters beans and bread intended for 150 men. In this novel, a character repeats "forgive me, comrade" to a corpse whose pocketbook reveals he was a printer by trade. The teacher (*) Kantorek encouraged many characters of this novel to enter its hellish setting, in which a pair of boots passes from character to character as they die and Kat is struck by shrapnel while being carried to safety by the protagonist. For 10 points, name this novel about Paul Baumer, set during World War I and written by Erich Maria Remarque.

ANSWER: ***All Quiet on the Western Front*** [or ***Im Westen nichts Neues***] <Brownstein>

7. Holonomic constraints take a function of the position variables and the time and set it equal to this number. In special relativity, the center-of-mass frame has the property that the total momentum takes this value. The Lagrangian takes this value when the potential and kinetic energies are equal. For a reversible process, the integral of dQ -over- T equals this value, which is also the internal (*) resistance of an ideal ammeter. The statement that if two bodies are in thermal equilibrium with a third, then they're all in equilibrium, is given this number. Gauss's law can be used to show that the electric field inside a conductor takes on this value. For 10 points, name this value, which also names a temperature at which all thermal motion stops.

ANSWER: **zero** <Mukherjee>

8. A January 2017 wave of prison riots in this country arose from a clash between the CV, or "Red Command", and PCC criminal organizations. The current leader of this country once wrote a letter beginning with the Latin phrase "Verba volant, scripta manent." A 2017 plane crash killed this country's judge Teori Zavascki, who was handling trials arising from an investigation that fined the construction company Odebrecht and the meatpacking company JBS (*) 2.6 and 3.2 billion dollars, respectively. That bribery and money-laundering investigation in this country, Operation Carwash, has also targeted its largest oil company, Petrobras, and may also implicate current president Michel Temer. For 10 points, name this country once led by the recently-impeached Dilma Rousseff.

ANSWER: Federative Republic of Brazil [or República Federativa do Brasil] <Jose>

9. A set of ancient texts from this modern-day country includes the *Admonition of Protection* and the earliest known decimal multiplication table. A historian from this country advocated a Believing Antiquity movement in opposition to its early 20th century Doubting Antiquity school. A leader of this country used the phrase "sprouts of capitalism" to denote its apparent movement toward a commodity economy in the 17th and 18th centuries. A series of books on (*) *Science and Civilization* in this country was led by Joseph Needham. The Twenty-Four Histories of this country began with the *Records of the Grand Historian*. This country's Warring States Period produced the oldest of its surviving bamboo slips. For 10 points, name this country whose historians include Sima Qian (SUH-mah chee-EN) and Li Xueqin (shway-CHEEN).

ANSWER: China [or Zhōngguó] <Kothari>

10. John von Neumann (NOY-mahn) and Oskar Morgenstern developed a function for this quantity that is used when its value is subject to chance. To derive functions named after John Hicks and Alfred Marshall, one must minimize expenditures while holding this quantity constant, or maximize this quantity subject to a budget constraint, respectively. Francis Ysidro Edgeworth developed a graph whose axes represent goods and whose points are placed where this quantity is equal for both axes; that graph is the (*) indifference curve. According to the optimal consumption rule, this quantity is maximized when the marginal form of this quantity per dollar is equal for each good in a consumption bundle. For 10 points, name this economic quantity that represents the benefit that one obtains by consuming a good.

ANSWER: utility [accept marginal utility; accept number of utils] <Cheng>

11. Five-foot-by-five-foot square canvases painted in this color were the primary output of the last ten years of Ad Reinhardt's career. Bands and ovoids of this color are arranged at different points on the large canvas in the 150 paintings in Robert Motherwell's *Elegy to the Spanish Republic* series. Anish Kapoor controversially gained an exclusive license to make art with a (*) newly developed shade of this color. A series of paintings named for this color includes *Fight with Cudgels* and was painted onto the walls of the "House of the Deaf Man". The title god takes a bite out of a smaller god in *Saturn Devouring His Son*, one of Francisco Goya's paintings nicknamed for this color. The dress worn by Whistler's Mother is, for 10 points, what dark color?

ANSWER: black [or Vantablack] <Bentley>

12. The results of this technique are interpreted by tree diagrams, where each branch is separated by a distance labelled J . This technique applies a Fourier transform to the free induction decay profile. The n -plus-1 rule predicts signals in this technique occur in ratios like 1-to-2-to-1 or 1-to-3-to-3-to-1. This technique's apparatus is a superconductor suspended in a dewar of liquid helium, suspended in a dewar of liquid nitrogen. Since heavy water is undetectable in this technique, it or deuterated (*) chloroform is used as the solvent. This technique works for any atom with an odd number of protons plus neutrons; usually, however, it uses carbon-13 or hydrogen. For 10 points, name this technique that applies a strong magnetic field to a sample to induce spin flips, which is used in MRIs.

ANSWER: nuclear magnetic resonance [or NMR] <Silverman>

13. Irvine Welsh claimed that one of these things was "ill-conceived nostalgia" that was "wrenched from the rancid prostates of senile, gibbering hippies". A cinnamon bun, a bagel, and a pretzel were used to illustrate topological invariants to explain why David Thouless and J. Michael Kosterlitz received one of these things. One of them added in 1969 is sponsored by a national bank and was first given to Jan (*) Tinbergen and Ragnar Frisch. Ironically, one of them was given to Juan Manuel Santos four days after voters rejected a referendum solidifying peace with FARC. The citation for another of them mentioned "new poetic traditions within the great American song tradition." For 10 points, name these awards whose "literature" category was won in 2016 by Bob Dylan.

ANSWER: Nobel Prizes [accept Nobelpriset; accept 2016 Nobel Prizes; also accept more specific Nobel prizes, such as Nobel Prize in Physics or Nobel Peace Prize or the like; also accept Nobel Memorial Prizes] <Jose>

14. This adjective's namesake number is specified by a sum that includes the Euler–Mascheroni (mask-uh-ROH-nee) constant. If the Laplacian of a real-valued function equals zero, then that function is named for this adjective. It is used as a noun when denoting the angular part of the set of solutions to Laplace's equation in spherical coordinates. This term names an expression whose divergence can famously be proven via a medieval method in which every term is compared to a smaller term that is a reciprocal of a power of two. This word's namesake (*) analysis describes the mathematical modelling of overlapping waves, such as in music, where it describes small-integer note ratios. For 10 points, give this adjective used to describe the series "the summation, where n goes from one to infinity, of one-over- n ."

ANSWER: harmonic [accept harmonic number or harmonic function or spherical harmonics or harmonic series or harmonic analysis] <Aggarwal>

15. In 1830, this American city was connected to nearby Hamburg by the *Best Friend*, the country's first commercially-run passenger steam locomotive. In 1835, the Lynch Men burned mail sent to this city by the American Anti-Slavery Society, sparking a wave of laws that banned sending "inflammatory" letters. Benjamin Lincoln surrendered this city to the British four years after it was defended by (*) Liberty Flag creator William Moultrie. Denmark Vesey's (VEE-see's) slave revolt prompted the white citizens of this city to found the Citadel. Robert Anderson surrendered to a commander based in this city, P. G. T. Beauregard, on April 14th, 1861 in the first engagement of the Civil War. For 10 points, name this city whose harbor is guarded by Fort Sumter.

ANSWER: Charleston, South Carolina <Bentley>

16. In Jamaica Kincaid's *Lucy*, the title character dreams of being trampled by this poem's subjects after being forced to recite it. In Elizabeth Bishop's "Crusoe in England," Crusoe quotes this poem, but can't remember what comes after "bliss of" in a couplet that was written by the poet's wife Mary. This poem describes some things as "continuous as the stars that shine / And twinkle on the milky way." When the speaker of this poem (*) lies on his couch in "vacant or in pensive mood," the subjects "flash upon that inward eye." A "host" of this poem's subjects are found "Beside the lake, beneath the trees, / Fluttering and dancing in the breeze." For 10 points, name this Wordsworth poem titled either for its first line or some yellow flowers.

ANSWER: "**I Wandered Lonely as a Cloud**" [or "**Daffodils**"] <Brownstein>

17. This deity instructs a man to eat a crown of roses during a procession in order to be returned to his human form. Lucius joins the priesthood of this deity at her namesake "Campense" after having a trio of visions in which she reveals herself to be the true "Queen of Heaven" in Apuleius's *The Golden Ass*. The *tyet* was a symbol of this goddess, who hid in a marsh along with seven (*) scorpions after being freed from a spinning-mill. In another story, she used her knowledge of a secret antidote to acquire the true name of Ra. This goddess recovered a tree from a box in Byblos, then recovered thirteen of the fourteen parts of the contents of that box after Set chopped it up; that box contained the corpse of her husband. For 10 points, name this Egyptian goddess, the wife of Osiris.

ANSWER: **Isis** [accept **Aset** or **Iset**] <Carson>

18. A city inhabited by these people produced so much papyrus that the Greek word for papyrus derives from it. A writer named Philo compiled a lost history of these people. Herodotus visited a "temple of Heracles" built by these people which contained a gold pillar next to an emerald one dedicated to their god, Melqart. A profitable export developed by these people was extracted from (*) murex sea snails. A capital of these people that had been captured by the Achaemenians was seized in 332 BCE after a causeway was built by Alexander the Great. These people had a cultural center at Byblos, produced a prized purple dye in the city of Tyre, and founded Carthage. For 10 points, name these inventors of the alphabet, an ancient seafaring people.

ANSWER: **Phoenicians** <Bentley>

19. A section of this work opens with accelerating measures in which the woodwinds play a note accompanied by a tambourine strike, followed by an ascending triplet from the basses. A sudden note from the brass interrupts a series of harp runs in another section of this piece, while a third features alternating crescendoing and de-crescendoing passages for the trumpets and snare drum. The brass plays the primary theme, which begins with a D minor arpeggio, in the final section of this piece, which consists of a (*) fugue begun by the piccolo. Eric Crozier's narration originally accompanied this piece, which contains 13 variations on a theme taken from the "Rondeau" of Henry Purcell's *Abdelazer*. For 10 points, name this Benjamin Britten piece that demonstrates various instruments to children.

ANSWER: *The **Young Person's Guide to the Orchestra*** <Carson>

20. This character recalls how he found another's lost gold locket in some moss during a picnic at Shadow Pond. This character imagines the sentence "We never got away—how should you?" written on every stone in his family's graveyard. In the first chapter, this character watches a woman in a cherry scarf dancing through the window of a church basement, then drives her home. A cat walking on the (*) table ends an intimate supper that this character has with his love interest after another woman goes to Bettsbridge for the night to see a doctor. This character steers for the "big elm" in a failed suicide attempt after his wife Zeena tries to send Mattie Silver away. For 10 points, name this resident of Starkfield, a sled crash victim who titles a novel by Edith Wharton.

ANSWER: **Ethan** Frome [or Ethan **Frome**] <Brownstein>

21. Lord Howard helped secure this son of a tailor a seat in Parliament. This man annually celebrated the successful removal of his billiard ball-shaped kidney stone. His patron was Sir Edward Montagu, the Earl of Sandwich. Lord Shaftesbury accused this man of murdering Edmund Berry Godfrey in the Popish Plot and persuaded John Scott to testify against him to get him thrown in the Tower of London. He helped save the navy office building during the (*) Great Fire of London. Poor eyesight led him to discontinue his most famous project in 1669. This Chief Secretary of the Admiralty under Charles II used tachygraphy to write a document between ages 27 and 36 that was deciphered and published in the 19th century. For 10 points, name this author of a noted diary.

ANSWER: Samuel **Pepys** (peeps) <Bentley>



PACE NSC 2017 - Round 08 - Bonuses

1. The radiation force on a charged particle unusually depends on the time derivative of this quantity, since the power radiated depends on this quantity squared. For 10 points each:

[10] Name this quantity, which, for a particle moving in a magnetic field, equals charge times velocity times magnetic field, all divided by the particle's mass.

ANSWER: **acceleration** [or ***a***]

[10] The fact that accelerating charges radiate energy was a key failure of this Danish physicist's atomic model, which proposed electrons go around in fixed orbits and was used as the basis of the Rydberg formula.

ANSWER: Niels **Bohr** [or **Bohr** model]

[10] Still, the Rydberg equation does a decent job predicting hydrogen's spectral lines. For instance, for an electron excited from the n -equals-one state to the n -equals-two state, it accurately predicts a line at wavenumber equal to the Rydberg constant times *this fraction*.

ANSWER: **three-quarters** [or **3/4**; or **0.75**] <Silverman>

2. The first Anglo-Saxon king to convert to Christianity, Ethelbert, ruled from a kingdom that shares its name with this county. For 10 points each:

[10] Identify this English county where Jack Cade's revolt against Henry VI began. The head of the Anglican Church, the Archbishop of Canterbury, rules from within this county.

ANSWER: **Kent** [or **Kentish**]

[10] Ethelbert was converted by Augustine, a monk dispatched to Kent by this pope. This pope, who died in 604, earned the epithet "the Great" and shares his papal name with a pope who issued a new calendar in the 16th century.

ANSWER: Saint **Gregory** the Great [or **Gregory** I; or **Gregorius** I; or **Gregory** XIII]

[10] Ethelbert's wife Bertha, a member of this Frankish dynasty, was allowed to remain a Christian after marriage. The increasingly powerful mayors of the palace eventually overthrew this dynasty and replaced it with the Carolingian Dynasty.

ANSWER: **Merovingian** dynasty <Bentley>

3. One type of these structures is divided into alternating triglyphs and recessed rectangular spaces called metopes (**MEH-toh-pee-z**). For 10 points each:

[10] Name this portion of the entablature located above the cornice and below the architrave.

ANSWER: Doric **friezes**

[10] 15 metope panels and 247 feet of the frieze taken from this building, a temple to Athena on the Acropolis, are currently part of the Elgin Marbles collection at the British Museum.

ANSWER: **Parthenon**

[10] The Elgin Marbles also include sculptures that were removed from this gate on the Parthenon. In general, this is the name for large gateways in Greek architecture.

ANSWER: **Propylaea** [or **propylea**; or **propylaia**] <Jose>

4. A disagreement over floral arrangements prompted Princess Pauline von Metternich and Countess Kielmannsegg to fight a topless rapier duel in this city in 1892. For 10 points each:

[10] Name this European city where a yearly free party, open to all comers, is hosted by its current head of state, Hans-Adam II, and his son and regent Alois.

ANSWER: **Vaduz** (**fah-DOOTS**)

[10] Vaduz is the capital of this tiny, doubly-landlocked, German-speaking country sandwiched between Switzerland and Austria.

ANSWER: Principality of **Liechtenstein** [or Fürstentum **Liechtenstein**]

[10] Liechtenstein, like Panama and the Cayman Islands, is often considered to be one of these locations, which are often where shell companies are incorporated. These areas are the subject of the book *The Hidden Wealth of Nations*.

ANSWER: **tax havens** [or **tax shelters**] <Jose>

5. Answer the following about big noses in 17th-century European literature, for 10 points each.

[10] Cyrano de Bergerac, a real-life 17th-century author with a notably large nose, is fictionalized as a poet who loves Roxanne in the best-known play of this French author.

ANSWER: Edmond Eugène Alexis **Rostand**

[10] The residents of the Moon described in a pioneering story of this genre by Cyrano de Bergerac might have large noses, since they eat with their sense of smell. Isaac Asimov and Robert Heinlein wrote in this genre.

ANSWER: **science fiction** [or **sci-fi** or **SF**; prompt on speculative fiction]

[10] This Spanish poet's large nose was compared to a swordfish and a sundial in a sonnet by his rival Francisco de Quevedo, who championed *conceptismo* in opposition this poet's *culteranismo* style.

ANSWER: Luis de **Gongora** <Brownstein>

6. Answer the following about the Esala Perahera Festival, for 10 points each.

[10] The festival, which takes place in the city of Kandy in Sri Lanka, celebrates this sacred relic that belonged to the Buddha.

ANSWER: his preserved **tooth** [or **teeth**]

[10] Esala Perahera is a fast day that commemorates the first one of these discourses that the Buddha gave. The Buddha states "everything is aflame" in one of these discourses named for the element of "fire" that is preserved in the Pali Canon.

ANSWER: **sermons** [or **suttas**]

[10] The Esala Perahera Festival also commemorates the day that Buddha taught his mother, Queen Maya, about the "abhi-" form of this concept. This concept, which is often translated as "order", is often represented as a wheel.

ANSWER: **dharma** [or **abhidharma**] <Jose>

7. Future Supreme Court justice Byron White held this occupation in 1938, and Edward King had this occupation a few decades before becoming Governor of Massachusetts. For 10 points each:

[10] Identify this pre-Congress occupation of Oklahoma representative Steve Largent. Theodore Roosevelt spearheaded a 1905 committee to reduce the mortality rate of people in this profession.

ANSWER: professional **football** players [or college **football** players; accept equivalents; prompt on students; prompt on student-athletes]

[10] Another football player who turned to politics was this Housing Secretary in the George H. W. Bush administration. Bob Dole chose him as his running mate in 1996.

ANSWER: Jack **Kemp** [or Jack French **Kemp**]

[10] Kemp would not have been the first football player to become Vice President. This man turned down an offer from the Packers to attend Yale Law School years before he was appointed to the Vice Presidency by a man he eventually pardoned, Richard Nixon.

ANSWER: Gerald **Ford** [or Gerald Rudolph **Ford**, Jr.; or Leslie Lynch **King**, Jr.] <Bentley>

8. December 21 and June 21 are said to be the "winter" and "summer" version of these events respectively. For 10 points each:

[10] Name these events in which the Sun is at an extremum of the celestial equator. They are contrasted with equinoxes.

ANSWER: **solstices** [accept winter **solstice** or summer **solstice**]

[10] The solstices are also the extreme points on this circular construct, the Sun's apparent path on the celestial sphere. Members of the zodiac lie on it.

ANSWER: **ecliptic** plane

[10] Astronomers often report measurements of time using this kind of year, whose name is from the Latin word for "star," and which is defined as the amount of time it takes for the Sun to travel along the ecliptic. It is approximately 20 minutes longer than the tropical year.

ANSWER: **sidereal** year <Jose>

9. John Hick distinguished Plotinian, Augustinian, and Irenaean traditions of this practice. For 10 points each:

[10] Name this term that refers to attempts to reconcile the existence of a perfect God with the existence of evil.

ANSWER: **theodicy**

[10] This German rationalist philosopher coined the term "theodicy" in a book that argues that this world is the best of all possible worlds. He introduced a metaphysics built around simple monads in his *Monadology*.

ANSWER: Gottfried Wilhelm von **Leibniz** (LYBE-nits)

[10] This Jewish phenomenologist argued that theodicy is deeply immoral in the face of 20th century violence in his essay "Useless Suffering." He wrote that ethics is grounded in face-to-face encounters with the other in *Totality and Infinity*.

ANSWER: Emmanuel **Levinas** <Kothari>

10. In one collection by this author, Aunt Nezzy creates a beaded dress that's too heavy for anyone to wear but hopes that the woman able to "carry the weight of this dress on her back... will save us all." For 10 points each: [10] Identify this author of *The Lone Ranger and Tonto Fistfight in Heaven* and *The Absolutely True Diary of a Part-Time Indian*.

ANSWER: Sherman **Alexie** [or Sherman Joseph **Alexie**, Jr.]

[10] Thomas Builds-The-Fire plays in a rock band in a Sherman Alexie novel titled for the "blues" in one of these places. Alexie himself grew up in one of these places governed by the Spokane (spoh-CAN) tribe.

ANSWER: Indian **reservation** [or Native American **reservation**]

[10] In this debut novel by another Native American author, June Kashpaw decides to walk back to the Chippewa reservation on which she was raised but perishes in a blizzard. An errant dose of one of the title tonics in this novel kills Grandpa Kashpaw.

ANSWER: **Love Medicine** <Bentley>

11. Answer the following about the enzyme aromatase (uh-ROME-uh-taze), for 10 points each:

[10] It converts testosterone into the most important example of this class of sex hormones, which are responsible for the development of secondary sex characteristics in females.

ANSWER: **estrogens** [or **estradiol**]

[10] The temperature response of aromatase is thought to be a contributing factor for temperature-dependent sex determination, a phenomenon most commonly observed in this animal class. Parthenogenesis has been extensively studied in the Cnemidophorus (nuh-MEED-oh-FOR-us) genus from this class, some species of which have no extant males.

ANSWER: **reptiles** [or **Reptilia**] [The parthenogenetic animals are whiptail lizards.]

[10] Aromatase requires this reducing agent and oxygen as cofactors. Oxidizing a mole of water in the light-dependent reactions of photosynthesis makes two moles of this electron carrier.

ANSWER: **NADPH** [or **nicotinamide adenine dinucleotide phosphate**; or **NADP+**; do not accept or prompt on "NADH" or "NAD+"] <Grames>

12. Identify the following about islands in art, for 10 points each.

[10] Pairs of lovers are depicted embarking on a journey either to or from this island associated with Aphrodite in several paintings by French Rococo artist Antoine Watteau (vah-TOH).

ANSWER: **Cythera** [or **Cythère**]

[10] A white-clad figure stands in the prow of a boat being rowed toward the title foreboding location, on which a dark grove of cypresses is ringed by steep cliffs, in this Swiss Symbolist's painting *The Isle of the Dead*.

ANSWER: Arnold **Böcklin**

[10] In Georges Seurat's (surr-AH's) *Sunday Afternoon on the Island of La Grande Jatte*, a man in a brown shirt reclining next to the black dog in the left foreground of the canvas is performing this action. Stephane Mallarme is shown pointing at a book while pausing in this action in an Edouard Manet portrait.

ANSWER: **smoking** a pipe <Bentley>

13. This author is the chronologically first of the four great novelists discussed in F. R. Leavis's *The Great Tradition*. For 10 points each:

[10] Name this author. Montague Summers discovered that seven "horrid" novels mentioned by this writer, including *The Midnight Bell* and *The Orphan of the Rhine*, really did exist.

ANSWER: Jane **Austen**

[10] In *Culture and Imperialism*, Edward Said discusses the colonialist ideology that informs this Austen novel's brief references to an Antiguan plantation. This novel is set at an estate where Fanny Price stays with the Bertrams.

ANSWER: ***Mansfield Park***

[10] Jane Austen literary criticism often treats her use of this device, such as in the first sentence of *Pride and Prejudice*. This device's "dramatic" form occurs when the audience knows something a character does not.

ANSWER: **irony** <Brownstein>

14. Lightly-trained "barefoot" people in this profession were sent to the countryside during the Cultural Revolution. For 10 points each:

[10] Identify this profession whose ancient practitioners included Bian Que (**bee-EN ch'WEH**) and Hua Tuo. Many Chinese members of this profession used the text *Inner Canon of the Yellow Emperor*.

ANSWER: medical **doctors** [or **physicians**]

[10] Another public health idea of this Chinese Communist dictator was the Kill a Sparrow Campaign which lasted for four years before he decided it was better for people to eradicate bedbugs. He launched the Great Leap Forward.

ANSWER: **Mao** Zedong [or Chairman **Mao**; or **Mao** Tse-tung]

[10] One important text in Traditional Chinese Medicine is *On Cold Damage*, written by Zhang Zhongjing (**jong jung-jeeng**) near the end of this dynasty. Later emperors of this dynasty tried to reestablish control over territories lost during the reign of the usurper Wang Mang.

ANSWER: **Han** dynasty [or **Eastern Han** dynasty] <Bentley>

15. The bones of a sea monster were made into a weapon of this type that caused the deaths of Ferdiad and Connla and, in some stories, had to be prepared in a river and used only with the feet. For 10 points each:

[10] The mythical Gae Bulg (**GYE BUL-agh**) is what type of weapon, also exemplified by Odin's Gungnir?

ANSWER: **spears** [accept **javelins**; prompt on **polearms**]

[10] The Gae Bulg belonged to this Celtic hero, a son of the god Lugh who defended Ulster from the armies of Medb (**mayv**) during the Cattle Raid of Cooley.

ANSWER: **Cú Chulainn** (**coo KHULL-in** or **coo HULL-in**)

[10] Cú Chulainn was feared for this battle frenzy, in which his body drastically contorts and he kills indiscriminately. Give either the Irish term or one of the translations used in the Thomas Kinsella or Ciaran Carson versions of the *Tain* (**tyne**).

ANSWER: **ríastrad** [or **riastartha**; or **Lon lait**; or **warp spasm**; or **torque**] <Carson>

16. Answer the following about how music changed with the rise of recording, for 10 points each.

[10] Mark Katz argued that this effect went from being tacky to being an accepted tool to cover up pitch imperfections when playing a studio violin. The "extent" of this effect describes how much the pitch is varied.

ANSWER: **vibrato**

[10] The length of 78-rpm records forced the shortening of *son jalisciense* (**SONE ha-lee-see-EN-say**) songs, which thus eventually transformed into the modern version of this style of Mexican music. Its performers often play violins, guitarróns, or vihuelas, and wear *charro* outfits.

ANSWER: **mariachi**

[10] The "take-twoness" of recording in a studio allowed a Canadian performer to develop the innovative finger-tapping technique used for a 1955 recording of this composition. A longer 1981 recording of this work by the same performer has sold over two million copies.

ANSWER: the **Goldberg Variations** [or **BWV 988**; accept *Bach: The Goldberg Variations*] [The recordings are by Glenn Gould.] <Bentley>

17. The gas phase mass transfer coefficient is converted to the liquid phase mass transfer coefficient by dividing by this factor. For 10 points each:

[10] Name this constant that is used to calculate the fugacity of very dilute solutions of gases in liquids. It equals around 40,000 atmospheres for oxygen in water at room temperature, since oxygen is very insoluble in water.

ANSWER: **Henry's constant** [or **Henry's law constant**]

[10] Dissolved oxygen can be measured chemically using the Winkler test, a form of this analytical technique in which a known concentration of liquid is added to an unknown sample through a burette.

ANSWER: **titration** [or word forms]

[10] What little oxygen that does dissolve in water is completely used up during algal blooms, which are caused when either nitrate or this other polyatomic ion is dumped into a pond, resulting in eutrophication.

ANSWER: **phosphate** [or **PO₄³⁻**] <Silverman>

18. This disease's present name comes from an epic poem by Girolamo Fracastoro, which recommends treating it with guaiacum (**GWAH-yah-cum**) resin. For 10 points each:

[10] Name this disease, which many non-French people called "Morbus Gallicus" or "The French Disease." Its final stage may last for years and cause insanity.

ANSWER: **syphilis**

[10] The physician Ruy Díaz de Isla first reported syphilis in Europe while treating crewmen on this Genoese explorer's voyages to the Americas, such as Martín Alonzo Pinzón, captain of the *Pinta*.

ANSWER: Christopher **Columbus** [or Cristóbal **Colón**; or Cristoforo **Colombo**]

[10] Some of Columbus's crewmen joined this French king's 1494 invasion of Italy, and may have caused the horrifically virulent epidemic that followed.

ANSWER: **Charles VIII** [prompt on **Charles**] <Kothari>

19. One of the sons of this novel's protagonist gets a job with the help of Dr. Kenny, while another is killed while stealing from a tannery. For 10 points each:

[10] Name this Kamala Markandaya novel narrated by Rukmani, who recalls the hardships she faced while married to the tenant farmer Nathan.

ANSWER: *Nectar in a Sieve*

[10] *Nectar in a Sieve* is set in this country, whose lower classes also feature in Mulk Raj Anand's novel *Untouchable*.

ANSWER: India [or Bhārat Gaṇarājya]

[10] In *Nectar in a Sieve*, Rukmani and Nathan's daughter shares her name with a river in this country. This country's "days" title a George Orwell novel, who wrote about his time as a policeman in this country in "Shooting an Elephant."

ANSWER: Burma [or Myanmar] <Brownstein>

20. You are a startup founder looking for funding. Answer some questions about your plight, for 10 points each.

[10] Y Combinator offers you 250,000 dollars in exchange for a five percent stake in your company's shares, which is referred to by this term. In real estate, this term also applies to the value of your house minus the amount still owed on your mortgage.

ANSWER: equity stake [or shareholders' equity]

[10] After some seed funding success from angel investors, you attempt to wrangle millions in funding from these private equity firms that specialize in startups.

ANSWER: venture capital firms [or venture capitalists; or VCS; accept clear synonyms for "firm"]

[10] Now that you're set up on your venture to build a better mousetrap, you try to outcompete and displace inferior mousetrap companies as part of this process that Joseph Schumpeter described in *Capitalism, Socialism, and Democracy*. The Silicon Valley term "disruption" is analogous to this process.

ANSWER: creative destruction [or Schumpeter's gale; or schöpferische Zerstörung; do not accept or prompt on partial answer] <Aggarwal>

21. This playwright encouraged actors to cut his trademark pauses and silences "if they don't make any sense." For 10 points each:

[10] Name this playwright whose frequent use of menacing pauses features in a play in which Ben and Gus argue over the phrases "put on the kettle" and "light the kettle."

ANSWER: Harold Pinter

[10] Pinter's pauses were called "the climaxes of his plays" by Martin Esslin, a critic who coined the term for this style of theater exemplified by Pinter's work. Plays of this movement explore the purposelessness of life through nonsensical speech and action.

ANSWER: Theater of the Absurd [or absurdism]

[10] In a pause-laden dialogue from this Pinter play, Ruth states "if you take the glass... I'll take you." This play ends with Teddy leaving his wife Ruth with his brothers Lenny and Joey, who intend to set her up as a call girl.

ANSWER: *The Homecoming* <Brownstein>