

**2015 NSC Official  
Tiebreaker Scoresheet**

Round	19	Group	
Reader			

**Tiebreaker Leg One**

Team								Team								
Player Names																
	Q#					Bonus	Steals	Run. score						Bonus	Steals	Run. Score
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
SD																
FINAL SCORE																

**Tiebreaker Leg Two**

Team								Team								
Player Names																
	Q#					Bonus	Steals	Run. score						Bonus	Steals	Run. score
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
SD																
FINAL SCORE																

No substitutions, except for between tossup 10 and overtime. Start Leg Two with TU 11 and Bonus 11



PACE NSC 2015 - Round 19 - Tiebreaker I - Tossups

1. For the Lane-Emden equation, having a polytropic index take on this value appropriately models a stable, isothermally stratified atmosphere. This is the value in time at which the rate of expansion becomes zero if the density equals the critical density. When considering the Schwarzschild solution to the Field Equations, the curvature takes on this value when there is no radius. When calculating the escape velocity, this is the value that the distance takes on at the (\*) final time. The luminosity of any point in a steady-state universe takes on this value according to the scenario analyzed in Olber's Paradox. As one approaches a singularity, this is the amount of force needed to maintain a particle in place. For 10 points, name this value at which things become immeasurably big.

ANSWER: infinite [or infinity] <Jose>

2. A character in this short story attempts to make a portrait on a plate of metal, but he throws the metal into a jar of acid when it comes out "blurred and indefinable." Another character in this story is unable to forget hearing the words "It is in her heart now; we must have it out!", which her husband had spoken aloud while dreaming. Late in this story, the "yellow blotches" on a geranium are (\*) removed by a potion prepared with the assistance of Aminadab, which unfortunately for its inventor causes the death of his wife Georgiana. For 10 points, name this Nathaniel Hawthorne short story about Aylmer, who tries to remove the title imperfection, shaped like a small crimson hand, from his wife's cheek.

ANSWER: "The Birthmark" <Gehring>

3. This king made a politically-expedient pilgrimage to Rome to attend the coronation of Conrad II. This man used a dispute over a chess game as a pretext to kill his rebellious brother-in-law Ulf. This king legendarily set his throne up by a seashore and fruitlessly commanded the tides not to wet his robes to prove he had less power than God. This man's first wife Aelfgifu proved to be an unbearably autocratic ruler of (\*) Norway. After winning the Battle of Assandun against Edmund Ironside, this king married Aethelred the Unready's widow Emma of Normandy, and soon ruled all of England. This king's son had a name prefixing his with "Hartha." For 10 points, name this son of Sweyn Forkbeard, a powerful king who ruled both Denmark and England from 1018 to 1035.

ANSWER: Canute the Great [or Cnut; or Knutr inn riki] <Gupta>

4. This character foils a mother's plan to remove her blindfold and make her son's body strong as iron by instructing the son to cover up his privates. This character essentially demands that his half-sister Subhadra be kidnapped and married. This character threatens Bhishma with a carriage-wheel, very nearly breaking his vow never to raise a weapon. An appendix known as the *Harivamsa* relates the infancy of this god, who is relocated, along with his fairer-skinned brother (\*) Balarama, from the womb of Devaki to that of Rohini. This god, who steals butter and consorts with the *gopi* girl Radha, serves as the charioteer for a Pandava prince whom he reminds of his warrior duty. For 10 points, name this avatar of Vishnu who guides Arjuna throughout the *Mahabharata*.

ANSWER: Krishna [prompt on Vishnu] <Gupta>

5. Knut Wicksell claimed there was a version of this quantity that was "neutral" towards prices. More recent authors define Wicksell's "natural" version of this as the value at which GDP equals potential GDP. On the IS-LM diagram, this value must decrease as output increases in order for investment and savings to be in equilibrium. Paul Krugman has criticized the Federal Reserve's zero lower bound policies where this value is (\*) left very close to nothing. The Taylor Rule suggests how a central bank can raise or lower this value to control inflation. The virtual inability of this value to go below zero can lead to a liquidity trap, when people hoard cash rather than invest by loaning it to others. For 10 points, name this rate that is the cost of borrowing money.

ANSWER: interest rate <Bailey>

6. This cause was hurt when peasants in the village of Bronte were massacred by troops led by Nino Bixio, and it was championed by the essay *The Duties of Man*. It was the motivation for a military campaign which overthrew Francis II and captured the towns of Calatafimi and Milazzo. Marshal Radetzky frequently defeated its supporters. France fought the Battle of Magenta against (\*) Austria in support of this cause, one of the aims of the secret Carbonari society. The Expedition of the Thousand helped achieve this goal, which was promoted by the Piedmont-Sardinian prime minister Count Cavour and by the leader of the Redshirts. For 10 points, name this goal supported by Giuseppe Garibaldi, that was achieved in 1861 when Victor Emanuel II was elected king of a new country.

ANSWER: Italian unification [or unifying Italy; or Italian independence; or Risorgimento; or descriptions like creation of Italy; or more specific answers like Italian independence from Austria or reunification of Sicily with Italy; prompt on Italian nationalism] <Wang>

7. In the Ottoman Empire, some of these buildings housed royal kiosks that were the end-points of a weekly procession called selamlik. A prominent twentieth-century designer of these buildings was Vedat Dalokay, whose plans for the Kocatepe were deemed too radical and re-worked for a pyramidal one of these buildings shaped like a tent and surrounded by four obelisk-shaped towers. The largest adobe building in the world is one of these structures in (\*) Djenne, Mali. The grandest Ottoman versions of these buildings were built by Sinan and influenced by the huge central dome and semidomes of the Hagia Sophia. In these buildings, the qibla wall is marked with a mihrab, and the adhan is called from their minarets. For 10 points, name these houses of worship in Islam.

ANSWER: mosques [or masjid; or cami] <Mehigan>

8. This man painted a fellow artist at work beside a red canoe in *Portrait of Paul Helleu Sketching With his Wife*. Two guitars hang on a wall as men and women clap their hands to encourage a dancer in another of this man's paintings. In a group portrait by this artist, a young girl plays with a doll on a rug as one of her sisters leans against a large (\*) Japanese vase. Two girls dressed in white hang Japanese lanterns in a garden in a meticulously painted portrait by this artist of *El Jaleo*. This American ex-pat made a portrait of a woman in a black satin dress rejected by its subject, Virginie Gautreau. For 10 points, name this painter of *The Daughters of Edward Darley Boit*, *Carnation*, *Lily*, *Lily*, *Rose*, and *Madame X*.

ANSWER: John Singer Sargent <Bentley>

9. This book was excoriated in Joan Acocella's (a-koe-CHEH-lah's) *New Yorker* article about its "motive." The penultimate section of this book compares its subject to "stand[ing] naked in the wind and [melting] into the sun", and notes that "when you have reached the mountain top, then you shall begin to climb". A ploughman, an astronomer, and a rich man inquire about work, time, and giving in three of the (\*) twenty-six discourses on various topics, including the aforementioned "On Death", that make up this book. At the end of this book, the priestess Almitra follows the title character's ship departing from Orphalese until it crosses the horizon. For 10 points, name this collection of vague inspirational ramblings attributed to Almustafa and written by Lebanese author Khalil Gibran.

ANSWER: *The* Prophet <Gupta>

10. People from this civilization destroyed old household utensils in preparation for a ceremony which began when the "fire drill," or Orion's belt, rose above the horizon. They performed the Binding of the Years, or the New Fire ceremony, every 52 years at the end of a full cycle of the calendar. This civilization's "Great Temple" was dedicated to both the god of rain and the war god. Select members of this civilization would be wined and dined for a full year, before five priests (\*) laid them upon a table and cut their hearts out. This civilization settled where an eagle was spotted with a snake in its talons, and eagerly awaited the return of a feathered serpent. For 10 points, name this Mesoamerican civilization that revered Quetzalcoatl.

ANSWER: Aztecs [or Mexica; or Nahua] <Gupta>

11. A composer from this country wrote a piano concerto in which a solo trumpet muted with a felt crown introduces the theme of the D-flat major second movement. Another composer from this country used a small orchestra of just strings, harp, and piano for a concerto whose two movements are linked by a cadenza for the solo clarinet. Three trumpets introduce an ascending F – B-flat – F motif near the start of a piece from this country, whose composer included (\*) "Saturday Night Waltz" and "Hoe-Down" in a ballet. Another composer from here arranged his Opus 11 *String Quartet* into the *Adagio for Strings*. *Fanfare for the Common Man* and *Rodeo* are pieces from, for 10 points, what country home to Samuel Barber, George Gershwin, and Aaron Copland?

ANSWER: United States of America [or U.S.A or America or United States] <Kim>

12. This number is the output when the Möbius function is applied to a prime number. The product of all four basis elements of the quaternions, one times i times j times k, equals this number. The Legendre symbol of  $a$  over  $p$  is this number if  $a$  is NOT a quadratic residue modulo  $p$ . Every bit in this number's two's complement representation is a 1. According to (\*) Euler's identity, this number equals  $e$  to the power of  $i$  times pi. This is the only value achieved exactly once by cosine in the range 0 to  $2\pi$ , inclusive. Raising a number to this power is the same as finding its reciprocal. For 10 points, identify this additive inverse of one, which is equal to the square of the imaginary number  $i$ .

ANSWER: negative one <Schindler>

13. In 2014, a set of "Black Notebooks" written during this regime were edited by philosopher Peter Trawny. A man who wrote laws for this regime defined politics as the distinction of friend from foe in *The Concept of the Political*. A leader of this regime wrote before it took power that a populace willing to believe a "Big Lie" would easily trust in other small lies. Alfred Rosenberg's unified Protestant religious philosophy of this regime was opposed by the (\*) Confessing Church. During this regime, phenomenologist Edmund Husserl was dismissed from his professorship by a philosopher who defined human existence as *Dasein*. For 10 points, name this regime supported by Carl Schmitt and *Being and Time* author Martin Heidegger, whose ideology was first put forth in *Mein Kampf*.

ANSWER: Nazi Germany [or Third Reich] <Jackson>

14. In one scene, this character offers up licorice to sooth another character, who is deliberately coughing to signal to her hiding husband. This character does not appear until Act III and is ironically described as "the poor man" by a man who is told by Dorine that his own wife is sick. The play in which he appears was banned due to this character's similarities to Madame de Maintenon. (\*) Damis is banished from the house after revealing to his father that this character tried to seduce Elmire, while Mariane is told by her father that she must marry this character rather than Valere. An agent of King Louis XIV prevents this title character from seizing the house of Orgon and his family. For 10 points, name this title religious hypocrite of a Moliere play.

ANSWER: Tartuffe <Bentley>

15. A faction known as the "Group of Twelve" declared their loyalty to this party in a neighboring country. In 1980 this party launched a massive literacy campaign that cut illiteracy rates by nearly 38%. This party split into three "tendencies": the "prolonged popular war" tendency, the "proletarian tendency," and the eventually-successful *terceristas*. The namesake of this party lured US Marines into a protracted (\*) guerrilla war from 1927-33. This party's Junta of National Reconstruction was headed by future presidents Violeta Chamorro and Daniel Ortega. This party was opposed by rebel groups funded through the Reagan administration's arms sales to Iran, known as Contras. For 10 points, name this socialist party that ousted Anastasio Somoza and ruled Nicaragua.

ANSWER: Sandinistas [or Sandinista National Liberation Front; or Frente Sandinista de Liberacion Nacional; or FSLN] <Gupta>

16. The addressee of this poem "saw in sleep old palaces and towers" while "beside a pumice isle in Baiae's bay," and is held responsible for wakening a sea from "his summer dreams." This poem describes "winged seeds" that lie "cold and low" like a "corpse within its grave" until they are moved by the addressee's "azure sister", who blows a "clarion o'er the dreaming earth". In the final stanza of this poem, the speaker commands, "Drive my (\*) dead thoughts over the universe" to the title "Wild Spirit," who is called both "Destroyer" and "Preserver". This poem ends with the question, "If Winter comes, can Spring be far behind?" For 10 points, name this poem addressed to the "breath of Autumn's being," by Percy Shelley.

ANSWER: "Ode to the West Wind" <Sy>

17. Either density or this quantity is used as the variable of integration when calculating residual properties. A truncated virial equation sets the compressibility factor equal to one plus b times this quantity. Cubic equations of state are written as explicit functions of this quantity. Enthalpy equals heat only if this quantity does not change for an open system. The fugacity coefficient is defined as fugacity over this quantity. (\*) This quantity equals the liquid-phase concentration times Henry's constant for dilute solutions. Work is the area under a graph plotting this quantity versus volume. This quantity times volume has units of energy, and it multiplies volume in the ideal gas law. For 10 points, name this quantity measured in bars, torr, or atmospheres.

ANSWER: pressure [or partial pressure; do not accept or prompt on "vapor pressure"] <Silverman>

18. This state is home to a cave full of utterly massive gypsum crystals, some larger than people, near its Naica mine. The Basaseachic Falls grace a natural landmark in this state. For the past two decades, this state's largest city has been the site of unresolved "femicides" that inspired part of Roberto Bolano's novel *2666*. A canyon deeper at points than the Grand Canyon, known as (\*) Copper Canyon, is in this state's portion of the Sierra Madre Occidental range. Explorer Zebulon Pike was once jailed in this non-U.S. state, which lies just west of Coahuila and north of Durango. The United States city of El Paso lies just across from this state's most populous city, Ciudad Juarez. For 10 points, name this largest state of Mexico by area, the namesake of a dog breed.

ANSWER: Chihuahua <Jackson>

19. This man collected \$10,000 for writing an article promoting Lustron Corporation's prefabricated steel homes despite his opposition to the Taft-Ellender-Wagner Housing Act. This man stressed his participation in twelve combat missions by running for office with the slogan "Congress needs a tail-gunner." The Tydings Committee was formed to investigate claims made by this man, who was implicitly targeted by Margaret Chase Smith's "Declaration of (\*) Conscience" speech. This man was asked "At long last, have you left no sense of decency" by Joseph Welch in hearings between him and the Army. At a speech given in Wheeling, West Virginia, this man claimed to have a list of 205 suspect individuals. For 10 points, name this senator from Wisconsin and rabid anti-communist.

ANSWER: Joseph Raymond McCarthy [or Joe McCarthy] <Bentley>

20. In *Rhodospirillum rubrum*, a gene encoding the key enzyme in this process is inactivated by ADP-ribosylation of a arginine-101. In the structures where this biochemical process takes place, Nod factors induce the production of the oxygen-carrier leghemoglobin. Sixteen equivalents of ATP are hydrolyzed in this process, which produces one molecule of hydrogen gas. This process requires a cofactor containing iron and (\*) molybdenum atoms. This process has a very high activation energy because it requires cleaving a triple bond. Diazotrophs perform this process, the best-studied example of which is done by *Rhizobia* at root nodules. For 10 points, name this process of producing ammonia from the most abundant gas in the atmosphere.

ANSWER: nitrogen fixation <Gupta>

21. This poet describes how "earth's inward narrow crooked lanes do purge sea water's fretful salt away," in a self-deprecating poem which concludes "I, which was two fools, do so grow three." He wrote that "soldiers find wars, and lawyers find out still litigious men" in a poem from which Cleanth Brooks chose the title *The Well-Wrought Urn*, and begins "For God's sake (\*) hold your tongue, and let me love." This poet listed "Fate, Chance, Kings, and desperate men" as masters of an entity that some have called "Mighty and dreadful." That poem by this author of "The Canonization" ends simply: "death, thou shalt die." For 10 points, name this metaphysical poet whose tenth *Holy Sonnet* begins "Death, be not proud."

ANSWER: John Donne <Gupta>

22. The Koide formula gave a theoretical estimate for the mass of a particle symbolized by this letter. A particle symbolized by this letter decays into two pi-plus and a pi-minus, giving negative parity, unlike the theta particle, which has decay with positive parity. A particle symbolized by this letter has energy of 1777 MeV and will decay into a hadron because of its enormous mass. The third (\*) generation of leptons is named for this letter, which names a much heavier counterpart to the muon and electron. A quantity symbolized by this letter is the inverse of the decay constant and is a measure of the mean lifetime of a particle. For 10 points, name this Greek letter which is also used to symbolized proper time and torque.

ANSWER: tau <Silverman>

23. On this island, the Latin name Lake Candidus is sometimes given to its central Sun Moon Lake, where the Thao people live. According to scholarly consensus, a set of native tribes that make up 2% of its population descend from the original speakers of the Austronesian language family. The Dutch East India Company built Fort Zeelandia on this island, where a large building contains a 730-ton ribbed yellow ball that acts as a tuned (\*) mass damper. The nearby islands of Quemoy and Matsu were shelled during this island's namesake "Straits Crises." The Pescadores are administered from this island, whose large cities include Kaohsiung. For 10 points, name this island mostly ruled by the Kuomintang party since 1949, whose capital is home to the skyscraper Taipei 101.

ANSWER: Taiwan [or Formosa] <Wang>

24. This man quoted from the *Rubaiyat* of Omar Khayyam at the end of a twelve-hour long speech directed at John Caverly. This man intervened to help a black man from Detroit who was harassed for moving into an all-white neighborhood, named Ossian Sweet. He grilled one of his opponents about the population of ancient Egypt and where Cain got his wife. This man, who severed ties with a railroad company to represent (\*) Eugene V. Debs, argued that two University of Chicago students were suggestible to influence by Nietzsche and had them plea guilty for killing Bobby Franks. This man defended an teacher accused of violating the Butler Act against a prosecution led by William Jennings Bryan. For 10 points, name this lawyer who defended John Scopes in the monkey trial.

ANSWER: Clarence Darrow [or Clarence Seward Darrow] <Bentley>



## PACE NSC 2015 - Round 19 - Tiebreaker I - Bonuses

1. Amedee Chevalier dies after he comes down with appendicitis in this novel, which also features the protagonist's encounter with a horse doctor named Crazy Ivar. For 10 points each:

[10] Name this novel in which Nebraska homesteader Alexandra Bergson eventually marries Carl Linstrum.

ANSWER: ***O Pioneers!***

[10] *O Pioneers!* was written by this author of such novels of frontier life as *The Song of the Lark* and *My Antonia*.

ANSWER: Willa **Cather** [or Willa Sibert **Cather**; or or Wilella Sibert **Cather**]

[10] Tom Outland connects with nature in Blue Mesa in this Cather novel, which is titled for an edifice constructed by Godfrey St. Peter using money he received from winning the Oxford Prize in history.

ANSWER: *The **Professor's House*** <Bentley>

2. Autoantibodies form against a set of these proteins known as desmogleins in the skin disease pemphigus vulgaris. For 10 points each:

[10] Name these transmembrane proteins that come in E, P, and N varieties, and complex with p120, as well as alpha, beta, and gamma catenin, in adherens junctions.

ANSWER: **cadherins**

[10] Cadherins require this ion, which is crucial for a whole host of biological functions, including synaptic vesicle release and muscle contraction.

ANSWER: **calcium** ion [or **Ca<sup>2+</sup>**]

[10] The cytoplasmic face of adherens junctions is linked to this cytoskeletal protein which makes up microfilaments. Troponin prevents the binding of this protein, which makes up the thin filaments in muscle.

ANSWER: **actin** <Gupta>

3. The popularity of these gatherings in the early 20th century was mocked by Noel Coward's play *Blithe Spirit*. For 10 points each:

[10] Name these meetings at which a medium claimed to bring back the souls of the dead from the afterlife. They were a key component of the Spiritualist movement.

ANSWER: **seances**

[10] This popular entertainer and escape artist worked to debunk seances after the death of his mother. He died of appendicitis soon after betting a visitor that he could withstand any punch to the abdomen.

ANSWER: Harry **Houdini** [or Eric **Weiss**]

[10] This New York religious society, founded by Russian emigre Helena Blavatsky, also popularized seances. Its mishmash of ideas drawn from ancient religions, Eastern traditions, Freemasonry, and Symbolist poetry was described in books such as *Isis Unveiled*.

ANSWER: **Theosophy** [or **Theosophical** Society] <Jackson>



4. This compound comes in "high-density" and "low-density" forms depending on its level of branching. For 10 points each:

[10] Name this substance formed by the radical addition of two-carbon alkenes. It is usually represented as a C<sub>2</sub>H<sub>4</sub> group inside brackets, subscripted with an n.

ANSWER: **polyethylene** [prompt on **ethylene**]

[10] Increasing chain length increases the melting point of polyethylene due to an increase in the strength of these forces caused by induced dipoles. They're a class of van der Waals forces.

ANSWER: London **dispersion** forces [or **London** dispersion forces]

[10] Polyethylene polymerization continues until a termination step, such as this one, in which two radicals react to form an alkane and an alkene. The conversion of superoxide into a peroxide and oxygen gas is this type of reaction.

ANSWER: **disproportionation** [or **radical disproportionation**; prompt on **redox**; prompt on **reduction**; prompt on **oxidation**] <Silverman>

5. An influential advisor to this monarch, Cardinal Pedro Gonzalez de Mondoza, was known as the "Third King of Spain." For 10 points each:

[10] Identify this Queen of Castile who united her kingdom with Ferdinand II of Aragon.

ANSWER: **Isabella** I [or **Isabella** the Catholic; or **Isabel** la Catolica]

[10] Early in her reign, Isabella successfully fought off an invasion of Castile led by a Portuguese king of this name. A "wise" Castilian king of this name sponsored a series of namesake planetary tables and helped make Castilian a literary language.

ANSWER: **Alfonso** [or **Alphonso**; or **Afonso**]

[10] Early in their reign, Isabella and Ferdinand kicked this last Muslim emirate in Grenada out of Spain. This kingdom was a taifa, or tribute state, after the fall of Cordoba and turned the Alhambra into a palace under Yusuf I.

ANSWER: **Nasrid** Kingdom/Emirate/Sultanate <Bentley>

6. In this type of manufacturing, the company tries to reduce both its number of defects and its amount of inventory. For 10 points each:

[10] Identify this adjective which describes a type of manufacturing popularized by Toyota to reduce *muda*, or waste. Eric Ries wrote a book on operating *this* type of startup.

ANSWER: **lean**

[10] This man kicked off the Efficiency Movement through books such as *The Principles of Scientific Management*. The "scientific" basis of his claims were often sketchy and much of his advice boiled down to "work harder and take fewer breaks".

ANSWER: Frederick Winslow **Taylor**

[10] In his "pig tale", Taylor touted the efficiencies he brought to a company in this industry in Bethlehem, Pennsylvania. The world's first billion dollar company was formed by merging Elbert H. Gary's and Andrew Carnegie's companies in this industry.

ANSWER: **steel** making <Bentley>

7. This musician adopted "When It's Sleepy Time Down South" as his theme song. For 10 points each:

[10] Identify this New Orleans jazz musician who wowed listeners with his high notes on songs like "Body and Soul," of which he made the first jazz recording. His trademark gravelly voice can be heard in the song "Hobo, You Can't Ride This Train".

ANSWER: Louis **Armstrong** [or **Satchmo** or **Satchel Mouth** or **Pops**]

[10] Although he started on the cornet, Armstrong mainly played this similar instrument. Dizzy Gillespie puffed his cheeks out when playing this instrument.

ANSWER: **trumpet**

[10] Louis Armstrong and Cab Calloway both played at this whites-only Harlem nightclub, originally founded by heavyweight champion Jack Johnson in 1920. Duke Ellington's "jungle style" of the 1920s developed here.

ANSWER: **Cotton** Club <Bentley>

8. A group of communist rebels in this country formed the Hukbalahap during World War II. For 10 points each:  
[10] Name this modern-day country where the Sakdal Uprising and the Moro Crater Massacre took place.

ANSWER: Republic of the **Philippines** [or **Pilipinas**]

[10] The Moro Crater Massacre was carried out by troops from this country under the command of General Leonard Wood. This country took control of the Philippines from the Spanish after winning the battle of Manila Bay.

ANSWER: **United States** of America [or **USA**; or **America**]

[10] This revolutionary became the first president of the Philippine Republic through the Malolos Constitution, but soon clashed with American forces. He was captured by troops under Frederick Funston in 1901.

ANSWER: Emilio **Aguinaldo** [or Emilio Famy **Aguinaldo**] <Bentley>

9. In the Old Testament, Moses responds with this short utterance when God first calls his name from the burning bush. For 10 points each:

[10] Name this proposition, expressed by one word in Arabic and Hebrew but by three in English. While on *hajj*, pilgrims to Mecca say it in alternation with "O Lord," and "You have no partners" as they circle the Ka'aba.

ANSWER: "**Here I am**" [or "**Here am I**"; or "**Here I am** at your service;" or **Hineini**; or **Labbayka** Allahumma Labbayk; or **Talbiyah**]

[10] Many pilgrims on *hajj* aim to kiss this object at one corner of the Ka'aba, a meteorite which fell to Earth during Adam's lifetime.

ANSWER: **Black Stone** [or al-**Hajar al-Aswad**]

[10] This patriarch of Judaism, Christianity, and Islam simply responded "Here I am," or *Hineini*, when God told him to sacrifice his son Isaac.

ANSWER: **Abraham** [or **Abram**; or **Avraham**; or **Avram**; or **Ibrahim**] <Jackson>

10. This play, which was published as the second of its author's *Three Plays for Puritans*, features both a prologue and an "alternative to the prologue", the first of which is spoken by the god Ra. For 10 points each:

[10] Name this play in which Rufio avenges Pothinus by killing the nurse Ftataetea. In another scene, one of its title characters smuggles herself to the other in a rolled-up carpet.

ANSWER: **Caesar and Cleopatra**

[10] Bluntschli's unorthodox use of his ammunition pouches earn him the nickname "chocolate-cream soldier" from Raina Petkoff in this play by the same author. It takes its title from the opening words of the *Aeneid*.

ANSWER: **Arms and the Man**

[10] *Caesar and Cleopatra* and *Arms and the Man* were both written by this Irish author of *Pygmalion*, who is the only person ever to win both a Nobel Prize and an Academy Award.

ANSWER: George Bernard **Shaw** <Carson>

11. Natalie Nickerson gazes down at one of these objects on a desk in a controversial 1944 photograph published in *Life* magazine. For 10 points each:

[10] Identify these objects, one of which was constructed from over eight thousand diamonds by Damien Hirst for his *momento mori* sculpture, *For the Love of God*.

ANSWER: human **skulls** [prompt on human **heads**]

[10] This artist frequently included skulls in his still-lives, such as in his 1901 painting, *Pyramid of Skulls*. This French Post-Impressionist also painted *The Large Bathers* and numerous landscapes featuring Mont Sainte-Victoire.

ANSWER: Paul **Cezanne**

[10] Van Gogh once depicted a skeleton performing this action. The right-most seated figure in Delacroix's *Women of Algiers* is taking a break from performing this action.

ANSWER: **smoking** a cigarette [or **smoking** a hookah pipe or equivalents] <Bentley>

12. Answer the following about the Harvard classification system, for 10 points each.

[10] The Harvard classification system groups these astronomical objects by their spectral class. Their spectral class versus their absolute magnitude is plotted on an H-R diagram.

ANSWER: **stars**

[10] The hottest and most luminous stars belong to this spectral class in the Harvard classification system. Stars in this class are often found in associations with B stars.

ANSWER: **O**

[10] One of the better mnemonics to remember the extended Harvard classification system is "When Obstreperous Beasts Approach, Fragrant Geraniums Knowingly May Receive Night's Stigmata." What unusual stars with extremely strong solar winds does the "W" stand for in this mnemonic?

ANSWER: **Wolf-Rayet** stars <Jose>

13. This quantity is in the denominator of the Biot number. For 10 points each:

[10] Name this quantity, symbolized  $k$ , that multiplies the temperature gradient to give the rate of heat transfer in the Fourier equation.

ANSWER: thermal **conductivity**

[10] At an interface, this law sets the rate of heat transfer equal to a convective heat transfer coefficient times the area of the interface times the difference in temperature between the surface and the surrounding medium.

ANSWER: **Newton's** law of **cooling** [prompt on partial answers]

[10] The convective heat transfer coefficient is greater if the flow has this property. Flows with this property have high Reynolds number, are difficult to model mathematically, and sometimes present trouble for airplanes.

ANSWER: **turbulent** [or word forms] <Silverman>

14. The Muslim knight Feirefiz lacks the ability to see this object, which is housed in the castle Corbenic in *Le Morte d'Arthur*. For 10 points each:

[10] Name this omnipresent cup or dish in Arthurian mythology. Joseph of Arimathea is credited with bringing this object, which may have held the wine from the Last Supper, or Christ's blood, to Britain.

ANSWER: Holy **Grail** [or **Holy Chalice**]

[10] This son of Pellinore, who is raised in a forest until the age of fifteen, achieves the Grail after a long quest in both an unfinished romance by Chretien de Troyes and a romance written in Middle High German by Wolfram von Eschenbach.

ANSWER: **Percival** [or **Parzival**]

[10] This youthful son of Lancelot and Elaine of Corbenic successfully sits on the Siege Perilous, an unused chair reserved for the person who will achieve the Grail quest. He then gains the ability to die whenever he chooses.

ANSWER: Sir **Galahad** [or **Galeas**; or **Galath**] <Gupta>

15. This advice was originally offered in the title of an editorial written by John B. L. Soule. For 10 points each:

[10] Name this piece of advice, to which Horace Greeley added, "and grow up with the country."

ANSWER: "**Go West, young man**, go West and grow up with the country" [prompt on "**Go West**"]

[10] The phrase "Go West, young man" exemplifies this sentiment that it was the duty of the United States to expand all throughout the continent.

ANSWER: **Manifest Destiny**

[10] Thomas Jefferson presaged the idea of Manifest Destiny by coining this three-word term to describe a stretch of "extensive and fertile country" America could add to protect against British incursion. This term titles Gordon Wood's volume about the United States from 1789-1815 in the *Oxford History of the United States* series.

ANSWER: **empire of liberty** <Bentley>

16. This author wrote about a group of children taking care of a black survivor of a plane crash in his story "Prize Stock", or "The Catch". For 10 points each:

[10] Name this author, who often fictionalized his mentally-disabled son Hikari in such novels as *A Personal Matter*.  
ANSWER: Kenzaburo **Oe** [accept names in either order]

[10] Kenzaburo Oe was the second Japanese person to win this International literary prize, whose 2014 winner was Patrick Modiano.

ANSWER: the **Nobel** Prize in Literature

[10] In Oe's novel *The Silent Cry*, the protagonist's brother Takashi sells their family warehouse to "the Emperor", a grocery-store proprietor of this nationality. A perennial Nobel candidate of this ethnicity wrote the poetry collections *The Sound of My Waves* and *Ten Thousand Lives*.

ANSWER: South **Korean** [or **Choson**; or **Hanguk**] <Jose>

17. Moderator note: do not read the alternate answers to the first part.

Stefan Zweig characterized a commander of this organization named Nicolas Durand de Villegaignon as a "half-pirate, half-scientist." For 10 points each:

[10] Name this military order founded by Italian merchants from Amalfi in 11th century Jerusalem to care for sick and poor pilgrims.

ANSWER: Knights **Hospitaller** [or the Order of **Saint John** of Jerusalem or Order of the Hospital of **Saint John** of Jerusalem or Sovereign Military and **Hospitaller** Order of Saint John of Jerusalem, of Rhodes, and of Malta; accept Order of **Malta**]

[10] In 1530, the Knights acquired a semi-permanent home on this island, which withstood a devastating Ottoman siege in 1565. This island's capital was named in honor of Jean Parisot de Valette, the grandmaster of the order during the siege.

ANSWER: **Malta**

[10] The Hospitallers were formally recognized as an order by the second pope of this name, who struggled with Henry I of England between 1103 and 1107 in a re-ignition of the Investiture Controversy.

ANSWER: **Paschal** [or **Paschalis**] <Gupta>

18. In 2007, this man played incognito outside a D.C. Metro stop to see how much money he could make on the street. For 10 points each:

[10] Name this American virtuoso violinist, who also gained fame for his solos on John Corigliano's soundtrack to *The Red Violin*.

ANSWER: Joshua **Bell**

[10] Joshua Bell has recorded most of the major violin concertos, including this set by Antonio Vivaldi which depicts hunts, harvests, thunderstorms, and icy winds.

ANSWER: *The* **Four Seasons** [or *Le quattro stagioni*]

[10] Despite being crippled by polio at a young age, this Israeli-American violinist is often called the greatest alive. He played the violin solos for *Schindler's List*.

ANSWER: Itzhak **Pertman** <Rosenberg>

19. The 128th poem in this collection includes a call to arms against foreign dominion called "Italia mia." For 10 points each:

[10] Name this 366-poem collection whose first poem, a sonnet, addresses "You who hear the sound of scattered rhymes."

ANSWER: *Il* **Canzoniere** [or **Rime sparse**; or the **Song Book**; or **Book of Songs**]

[10] This Renaissance author of *Il Canzoniere* compiled a massive personal library of classical texts when he wasn't busy writing dozens of sonnets about his unrequited love Laura.

ANSWER: **Petrarch** [or Francesco **Petrarca**]

[10] All or nothing, give the names for the two portions into which a Petrarchan sonnet is split. The first of them introduces a problem, while the second begins with a "volta", or turn, which introduces the reaction.

ANSWER: an **octave** and a **sestet** [accept answers in either order] <Jackson>

20. This country's Prime Minister declared in a 2014 speech that this country should wind down its commitment to liberal democracy and look towards model such as Singapore and China to become "competitive once again". For 10 points each:

[10] Name this European country currently ruled by Viktor Orban and his right-wing Fidesz party.

ANSWER: **Hungary** [or Republic of **Hungary**; or **Magyarország**]

[10] During Orban's earlier stint as Prime Minister, Hungary entered into this military alliance. Late in life, George Kennan warned that expanding this US-dominated alliance out to former Soviet states such as Poland would provoke Russia.

ANSWER: **NATO** [or **North Atlantic Treaty Organization**]

[10] In the 1980s, Orban got scholarship funding from this Hungarian-born financier, who is sometimes called "the man who broke the Bank of England" for his role in Black Wednesday. This man donated 100 million dollars to Human Rights Watch in 2010.

ANSWER: George **Soros** <Bentley>

21. Late in life, this man referred to the most popular of his poems as "the worst poem I ever wrote, possibly the worst poem anyone ever wrote", having distanced himself from it after its satire of racist attitudes was widely mistaken for actual racism. For 10 points each:

[10] Name this author whose aforementioned poem "Plain Language from Truthful James", more popularly known as "The Heathen Chinee", served as the basis for a dramatic collaboration with Mark Twain called *Ab Sin*.

ANSWER: Bret **Harte** [or Francis Bret **Harte**]

[10] Much of Bret Harte's fiction, including stories like "The Luck of the Roaring Camp", concern miners in this state. The Joads travel to this state in *The Grapes of Wrath*.

ANSWER: **California**

[10] This natural phenomenon dooms the title group in Harte's "The Outcasts of Poker Flat" after Uncle Billy runs off with most of the supplies.

ANSWER: a **snowstorm** [or a **blizzard**] <Bentley>

22. One unsuccessful revolt against this government was supported by the free corps but opposed by workers who staged a general strike in the nation's most populous city. For 10 points each:

[10] Identify this government which survived the Kapp putsch. This government signed the Treaty of Rapallo with the Soviet Union.

ANSWER: **Weimar** Republic [prompt on **Germany**]

[10] In response to the Kapp Putsch, a left-wing uprising occurred in this location, France occupied Darmstadt and Frankfurt. The Allies occupied this entire region in 1923 in order to force Germany to pay its war debt.

ANSWER: **Ruhr** river valley

[10] Another putsch against the Weimar Republic was the one that Hitler staged in 1923 in one of these large pubs in Munich.

ANSWER: **beer halls** [or **bierpalast**] <Bentley>

23. These proteins, whose prefix changes to "cryo" when they become insoluble at low temperatures, circulate in the bloodstream and target red blood cells in cold agglutinin disease. For 10 points each:

[10] Name these Y-shaped immune proteins made of two heavy and two light chains, which are produced by plasma B cells and recognize antigens.

ANSWER: **antibodies** [or **immunoglobulins**]

[10] The anti-IgG antibodies in mixed cryoglobulinemia are versions of namesake factors elevated in this autoimmune disease, which is characterized by nodules on joints and inflamed synovial membranes. It is named for its resemblance to an acute fever.

ANSWER: **rheumatoid arthritis** [prompt on **arthritis**; accept **RA**]

[10] These antibodies, which are produced from B cells with identical lineages, are responsible for type I cryoglobulinemia. Synthetic ones are often administered as drugs whose names end with the suffix "mab."

ANSWER: **monoclonal** antibodies <Smart>