

Tossups

1. **Thomas Shields Clarke created a series of these works representing seasons, and three of these are found outside the Warsaw Supreme Court building. Ones representing Architecture and Music are found in the Saint-Gaudens designed Albright-Knox Gallery in Buffalo. It's not the Discobolus or a Venus, but Charles Townley acquired one of these figures from the Villa Montalto which is currently in the British Museum. The Canopus View of Hadrian's villa contains a series of these figures. The Erechtheion has a (\*) porch named for the fact that it contains six of these figures, one of which was removed as part of the Elgin marbles. These figures, whose counterparts are called telamon or atlas, often have a basket or entablature on their heads. For 10 points, name these architectural supports that take the shape of women.**

ANSWER: caryatid [prompt on things like “statues” or “statues of women”]

2. **A woman in this novel stops loving her husband after he gives their first child a haircut while she is asleep, although she was already turned off from him after finding unpaid furniture bills in his coat. The protagonist wins first prize at the Nottingham Castle painting exhibition, which earns him his brother's suit from a woman who still keeps a bible that she received from John Field. At a bar, the protagonist throws a beer in a man's face, after which that man gets thrown out of the bar and later gets fired from his factory job.**

(\*) Baxter is the husband of one of the central women in this novel, while another lives on the Leivers' farm. The protagonist of this story fails to commit himself to his relationships with Miriam or Clara Dawes because of his overwhelming love for his mother, Gertrude. For 10 points, name this novel about Paul Morel by D. H. Lawrence.

ANSWER: *Sons and Lovers*

3. **This composer wrote a piece whose first section begins in 6/4 but switches to 6/8 before a solo flute introduces the melody in sixteenth triplets; the third section of that work is marked “lively and tumultuous” and begins with trills on C for the timpani. The fourth and last section of a piano suite by this composer is in F sharp minor and begins with many bars of staccato arpeggios in the left hand; that is the (\*) “Passepied” of a suite that begins with a “Prelude” and “Menuet.” This composer's works were catalogued by Francois Lesure, which is the origin of their L numbers. This composer wrote the movements “Dialogue of the wind and the sea” and “Play of the Waves,” and he took another title from a Paul Verlaine poem. For 10 points, name this French composer of *La Mer* and “Clair de Lune.”**

ANSWER: Achille-Claude Debussy

4. **In this work, one person uses the example of huntsmen attending to dogs and horsemen attending to horses as examples of the word “attention”. One person states that disagreements about a number can be solved using arithmetic as a way of avoiding enmity and anger. One person in this work is refuted by noting that “looking after” a certain group is hubris, and agrees that a carried thing does not have an intrinsic property of being carried. This work takes place in a (\*) King-Archon's court, where one character discusses how he is bringing manslaughter charges against his father. This work outlines five possible definitions of its central subject, including that it is a species of justice and that it is what is loved by the gods. For 10 points, name this Platonic dialogue about the nature of piety, which takes place before Socrates' trial.**

ANSWER: Euthyphro

5. **This organelle is the localization site of the protein Treacle, whose mutation causes Treacher-Collins syndrome. Silver staining of tumor cells reveals this organelle's namesake organizing regions, which serve as a marker of malignancy. This structure is organized by genes on chromosomes 13, 14, 15, 21, and 22. A group**

**of molecules that segregate to this organelle come in C/D box and H/ACA box varieties, which are responsible for guiding methylation and (\*) pseudo-uridylation. This organelle can be stained for using the PAF49 antibody, and this organelle is divided into the fibrillar center, the dense fibrillary component, and the granular component. This organelle is the site of ribosome production. For 10 points, identify this small darkly staining structure found within the nucleus.**

ANSWER: nucleolus [prompt on “nucleus” until mention]

**6. The 1580 Portuguese Succession Crisis was caused by the killing by forces of *this country* of King Sebastian I at the Battle of the Three Kings; at that battle, the leader of this country, Abd Al-Malik, also perished. His brother succeeded him as the ruler of the Saadi Dynasty that had been established after the defeat of the Wattasids. Its current (\*) Alaouite Dynasty came to power after the chaos caused by three warring claimants trying to succeed Ahmad Al Mansur. Wilhelm II failed to isolate Great Britain at the 1906 Algeciras Conference that gave France and Spain rights in this country that were expanded after the Agadir Crisis via the Treaty of Fez. For 10 points, name this North African nation and site of two pre-First World War crises whose capital has been at times in cities such as Marrakech and Rabat.**

ANSWER: Morocco [or Saadi Dynasty before mention]

**7. A share of this substance is taken from the father and given to the son at some weddings. The term “homa” or “havan” is used to categorize rituals using this substance. In Tamil Nadu, practitioners of the Timiti ritual show their loyalty to Draupadi by traversing through this substance. In the Navratri festival, this substance, or Jyoti, acts as a symbol of the goddess Durga. In the yajna ritual, this substance acts as an intermediary between the (\*) offerer and the gods. The personification of this substance uses seven tongues to lap up ghee offered to him. This substance was also used in a now-shunned practice once commonly performed by recently-widowed women, known as sati. For 10 points, name this substance, represented by Agni, commonly used by Hindus to cremate the deceased.**

ANSWER: fire [or flame; or burning coals; or similar answers]

**8. A female in this play explains a central metaphor in a speech about “ideas, and lifeless old beliefs” that “have no vitality, but they cling to us all the same, and we cannot shake them off.” Another character in this play requests to be administered morphine before becoming unresponsive to his mother; that scene occurs during the sunrise at the end of this play. To avoid negative public opinion, one character in this work agrees to fund a (\*) sailors’ home; that agreement follows from a discussion about the lack of insurance for a certain building. The illegitimate nature of Johanna’s pregnancy, which resulted in the birth of Regina, is revealed to Pastor Manders, who is afraid of being accused of burning down an orphanage in this play. For 10 points, name this play about Helen and Oswald Alving by Henrik Ibsen.**

ANSWER: Ghosts [or Gengangere]

**9. The last bishop to rule this city was Pierre de la Baume. Michael Servetus was put to death in this city for heresy. A Savoyard attempt to reclaim this city, which they had ruled through both temporal and spiritual positions, was defeated in an incident called the Escalade. Napoleon called this city “the city where they know English too well.” This city had an aristocratic Council of (\*) Twenty-Five that increasingly grew in power at the expense of the General Council. This birthplace of Jean Jacques Rousseau was annexed by the Directory to France, and after the Napoleonic Wars, it joined its nearby cantons in confederation. For 10 points, name this Swiss city where John Calvin preached which sits by a namesake lake on the border with France.**

ANSWER: Geneva

**10. The product of one form of this quantity and the junction depth  $j$  is plotted against concentration on Irvin’s curves; that is its “sheet” form. This quantity decreases when photons hit a cadmium sulfide cell. The**

**quantum of this quantity is equal to the ratio of Planck's constant to the square of the elementary charge, which is a constant named for von Klitzing. This quantity is proportional to the (\*) length and inversely proportional to cross sectional area, and this quantity times I squared gives the power radiated in Joule heating. The derivative of voltage with respect to current gives this quantity, according to the most general form of Ohm's law. For 10 points, name this quantity measured in Ohms, the inverse of conductance.**

ANSWER: resistance

**11. One member of this group is killed by an African prince, and his death is avenged by Turpin. One member of this group owned an object whose name means "high and neat" and contains a crystal on one side; that member of this group split the head of his attacker in half before being impaled by a spear. One member of this group is sent to defeat the giant (\*) Fierabras. One member of this group owned a weapon containing the hair of Saint Denis, the blood of Saint Basil, and the tooth of St. Peter. That member of this group is engaged to Aude and dies after blowing his horn at the battle of Roncevaux Pass. For 10 points, name this group of 12 warriors that served Charlemagne, the most notable of whom was Roland.**

ANSWER: paladin [or 12 Peers; or knights of Charlemagne before "Charlemagne"]

**12. In one poem, this author wrote of "A million eyes, a million boots in line" as part of "An unintelligible multitude" among which there was "Nothing to eat and nowhere to sit down." That poem includes several stanzas beginning, "She looked over his shoulder" and ends as "Thetis of the shining breasts Cried out in dismay." In another poem by this author, the title figure "had everything necessary for the Modern Man" and "held the proper opinions for the time of year." This author of "The (\*) Shield of Achilles" asks, "Was he free? Was he happy?" in a poem about a man who "was found by the Bureau of Statistics to be One against whom there was no official complaint." Another poem by this author declares, "About suffering they were never wrong, The old Masters." For 10 points, name this author of "The Unknown Citizen" and "Musee des Beaux Arts."**

ANSWER: Wylan Hugh Auden

**13. During this conflict, the Division of the North led by La Romana was evacuated from Denmark. Admiral Rosily was forced to surrender his naval squadron during this conflict. During this conflict, a king who would later be called "the Felon king" was driven out of his kingdom despite granting the aggressor's troops a right of passage. Andé Masséna led a failed assault on the Lines of (\*) Torres Vedras, a key defensive position in this conflict. Joseph I was made king during this conflict, but lost power when Ferdinand VII was restored. The Battle of Salamanca was a key victory for the British and their allies in this war, which first saw the use of the term "guerilla warfare." For 10 points, name this war won by the Duke of Wellington against French forces in Portugal and Spain.**

ANSWER: Peninsular War [or Spanish Ulcer, Spanish campaign, Spanish War of Independence, and *Guerra de la Independencia* Espanola before "Spain" is read; prompt on "Napoleonic Wars" or "War of the N<sup>th</sup> Coalition"]

**14. This person responded to attacks calling him an opportunistic carpetbagger running for the House of Representatives with a column that highlighted the career of his father, who was nicknamed Mr. Seapower. He served as the chair of the Indian Affairs Committee that exposed the Jack Abramoff scandal. This politician was attacked by false polls sponsored by Karl Rove claiming his adopted Bangladeshi daughter was his illegitimate black child before the bitter (\*) South Carolina primaries in 2000. This politician names a campaign reform act along with Democratic Senator Russ Feingold. He was recently caught playing poker on his Blackberry during a briefing on Syria. For 10 points, name this "maverick Republican" and senior Senator from Arizona who lost the presidency to Obama in 2008.**

ANSWER: John Sidney McCain III

**15. This artist drew a large white cross stretching the entire length of the background of a lithograph titled *Tightrope Walker*, and late in life this artist painted a male and female in front of a brown background**

studded with jewel-like colors in *The Travelling Circus*. A copper etching by this artist shows a winged angel that was said to be the image of the “angel of history” by Walter Benjamin, and this artist also painted a group of (\*) colored arches that appear to be marching. This artist of *Angelus Novus* and *Viaducts Break Ranks* wrote a *Pedagogical Sketchbook*, and his notebooks collect his lectures on art from the Bauhaus. Another work by this artist shows a pit under a wire and crank, on which four birds are perched. For 10 points, name this German-Swiss artist of *Twittering Machine*.

ANSWER: Paul Klee

16. This incident was started by the arrest of Rufus McIntyre, who was sent by the newly elected Governor John Fairfield. During this incident, Lieutenant Governor John Harvey negotiated a temporary truce before full negotiations started in this event, which was partly caused by the building of Fort Blunder. General (\*) Winfield Scott helped negotiate the end of this event. The cause of this incident had failed to be settled by an earlier mediation attempt by William I of the Netherlands. The dispute that caused this incident was resolved three years later by the Webster-Ashburton Treaty. For 10 points, name this 1839 incident over the location of the boundary between New Brunswick and Maine.

ANSWER: Aroostook War [or Aroostock War; or the Pork and Beans War; or Coon-Canuck War; Lumberjacks’ War; or Northeastern boundary dispute]

17. One algorithm for doing *this* uses exponent vectors and bitwise adds the values of those vectors mod 2; that algorithm, for some input  $n$ , multiplies squares and their remainders mod  $n$  together to find a congruence of squares mod  $n$  in a manner that improves upon Dixon’s method for doing this. The period-finding sub-problem for this task is possible using a superposition of states. The most efficient classical algorithm for this is the (\*) general number field sieve. However, a big-Oh of  $\log n$  cubed quantum algorithm for doing this named for Shor is fast enough for very large products of primes, which would break RSA encryption. For 10 points, name this procedure which, for a number of the form  $a$  squared minus  $b$  squared results in a plus  $b$  and a minus  $b$ .

ANSWER: integer factorization [accept prime factorization]

18. Jonathan Unger wrote a work about the transformation of rural areas of this country. Mark Elvin once wrote that this country had undergone a “high-level equilibrium trap” in which supply and demand were balanced. One thinker stated that this country took a “diffusionist” approach to science. The Needham question asks why this nation fell behind other parts of the world in (\*) scientific development, even though they achieved many technological innovations earlier. One sociological issue about this nation is the 4-2-1 problem, the creation of “leftover women” and the overindulged, spoiled new generation, which is called “little emperor’s syndrome”. For 10 points, name this nation which has suffered several demographic changes due to its implementation of the one-child policy.

ANSWER: China [or Zhongguo]

19. An ion of this element is used as a masking agent when performing an EDTA titration of a mixture of magnesium and aluminum. A common inhibitor of serine proteases contains a phosphate group attached to two isopropyl groups and an atom of this element. One compound that contains 3 atoms of this element is used to cleave t-BOC during solid-phase peptide synthesis. When this atom is added to the alpha carbon of acetic acid, it significantly strengthens it via the (\*) inductive effect. A powerful Lewis acid is a compound of three atoms of this element attached to boron. Four atoms of this element are attached to the repeating element of Teflon, and an acid of this element is used to etch glass. An ion of the element is commonly added to drinking water. For 10 points, name this most electronegative element with atomic number 9 and symbol F.

ANSWER: fluorine [or fluoride]

20. In one section of this novel, a character remembers sleeping on a pallet at the river and waking up to see that hordes of rats had eaten his baby sister; that character makes it his life goal to exterminate all rodents in the world. This novel's epigraph, taken from *The Graphographer*, begins, "I write. I write that I am writing," and continues in a confusing fashion. One of the main characters of this work has a job that requires him to steal other journalists' work with his assistant, (\*) Pascual; that character is a "News Director" who falls in love with Olga's sister who was recently divorced. The Genaro family hires a Bolivian man whose works make up the even numbered chapters of this book. For 10 points, name this novel about Radio Panamerica where both Mario and Pedro Comacho work and written by Vargas Llosa.

ANSWER: *Aunt Julia and the Scriptwriter* [or *La tía Julia y el escribidor*]

TB. One character in this work is saved by Hans and Pete when, after being told to jump off a cliff, he actually tries to do so. In another scene of this work, Matthewson loses sixteen hundred dollars by betting against the protagonist's strength. After departing from Seattle, one character steals the protagonist's food aboard the (\*) *Narwhal*; that character, Dave, as well as a one-eyed character named Solleks, were positioned to instruct the protagonist when he began working for Francois and Perrault. The protagonist of this novel later kills several Yeehat Indians when he sees that his master, Thornton, is dead. For 10 points, name this novel about the sled dog Buck written by Jack London.

ANSWER: *The Call of the Wild*

## Bonuses

1. This play begins with a newlywed man on a terrace telling his wife that she isn't as pretty as his ex-wife and that he can't stand her mother, after which another couple appears on the terrace. For 10 points each:

[10] Name this play in which the honeymooners and ex-spouses Elyot and Amanda run into each other at a hotel in France.

ANSWER: Private Lives

[10] *Private Lives* is a play by this author who wrote about Charles Condomine in *Blithe Spirit*.

ANSWER: Sir Noel Peirce Coward

[10] *Blithe Spirit* takes its name from this poet who wrote, "Hail to thee, blithe spirit! Bird thou never wert," in his "To a Skylark"

ANSWER: Percy Bysshe Shelley

2. Giorgio Vasari misattributed this painter's *Rucellai Madonna* to Cimabue, who may have been this artist's teacher. For 10 points each:

[10] Name this artist of a *Maesta* with a center panel depicting Mary and Jesus with twenty angels and nineteen saints.

ANSWER: Duccio di Buoninsegna

[10] Duccio was an artist from this city in Tuscany where the artists had a more mystical tendency than in Florence.

ANSWER: Siena

[10] The masterpiece of Matteo di Giovanni, another Sienese painter, was a depiction of this scene with a king in gold on the right who is pointing to the title biblical event. Breughel painted this scene in a snowy village.

ANSWER: *The Massacre of the Innocents at Bethlehem*

3. This island has a namesake "dialogue" in Thucydides' *History of the Peloponnesian War* that is widely read in IR-classes for its realist message. For 10 points each:

[10] Name this island city-state whose emissaries were told "the strong take what they can, the weak must suffer what they must." It was an ally of Sparta, but ended up being sacked.

ANSWER: Melos [or Melian dialogue]

[10] This organization sacked Melos. It was originally meant to unite the Greek city-states against Persia, but after its treasury was moved from its namesake island to Athens, it became the Athenian Empire.

ANSWER: Delian League [or Athenian Empire, Athens, Athenian army, etc. before "Athens" is read]

[10] Cimon led the Delian League forces to victory in this combined land-sea battle in Anatolia, which ended with the destruction of the Persian Navy and the loss of a Persian army.

ANSWER: Battle of the Eurymedon River

4. An equation named for Goldman, Hodgkin, and Katz reduces to this one when the permeability is set to one and only one ion is considered. For 10 points each:

[10] Name this equation named for a German chemist, which gives the reduction potential for an electrochemical reaction given the number of electrons transferred and the concentration of the reactants.

ANSWER: Nernst equation

[10] The formation of this gas has a standard reduction potential of zero.

ANSWER: hydrogen gas [or H<sub>2</sub>]

[10] This technique generates a potential vs current plot by linearly ramping the electrode potential and reversing it at the peak. This technique is used to study the reversibility and kinetics of electron transfer reactions.

ANSWER: cyclic voltammetry [prompt on partial answer]

5. The last section of this book tells of Arafat, a magician who strangles a black servant, which causes the title character to die of shock. For 10 points each:

[10] Name this book in which both Adam and Arafat attempt to look into a forbidden book of knowledge, though neither succeeds.

ANSWER: *Children of Gebelawi* [or *Children of the Alley*]

[10] Mahfouz, the author of *Children of Gebelawi*, also wrote this set of novels including *Palace Walk* and *Palace of Desire*.

ANSWER: *The Cairo Trilogy*

[10] In this other work by Mahfouz, the protagonist, Said Mahran, takes shelter in Tarzan's cafe and the Sheikh's house well after losing his ex-wife Nabawiyya to Ihsan.

ANSWER: *The Thief and the Dogs* [or *El-lis's wa el-kilab*]

6. The KOF index measures the extent of this process on a per-country basis, and Joseph Stiglitz wrote a book about this "and its Discontents". For 10 points each:

[10] Name this process, a worldwide interchange of culture, products, and ideas, partly through the spread of multinational corporations. It is heavily criticized by Vandana Shiva and Naomi Klein.

ANSWER: globalization

[10] In *Globalization and its Discontents*, Stiglitz cites the success of Jubilee 2000 as one argument for this practice. The HIPC initiative will perform this action on a group of 39 countries.

ANSWER: debt relief or debt forgiveness [accept equivalents saying that debt is erased in some way]

[10] This work by Naomi Klein, written after the 1999 WTO protests, traces the origin of brands from simply putting a face on a product to an attempt to sell you a lifestyle to an oppressive way to limit choice.

ANSWER: *No Logo: Taking Aim at the Brand Bullies*

7. This book describes the failed rebellion led by Korah. For 10 points each:

[10] Name this fourth book of the Old Testament. It gets its name because much of its early sections feature records of the Israelite census.

ANSWER: Book of Numbers [or Bamidbar]

[10] In the Book of Numbers, this man and Joshua are the only two of the twelve Israelite scouts to faithfully recommend taking possession of Canaan. During the conquest of Canaan, this man received the land near the city of Hebron.

ANSWER: Caleb

[10] Near the end of Numbers, the high priest Aaron dies and is succeeded by this son. This man began taking on priestly duties after Aaron's other sons, Nadab and Abihu, were killed for improperly offering sacrifices.

ANSWER: Eleazar

8. Applying this result to a cyclic group is one method of proving the fundamental theorem of algebra, and this result can be proven using the Schreier refinement theorem. For 10 points each

[10] Name this theorem which states that any two composition series of a group are equivalent.

ANSWER: Jordan-Holder theorem

[10] The composition series of a group consists of a nested series of this type of subgroup. When given a subgroup of this type, H, and a member of the group, g, it must be true that g times H is equal to H times g.

ANSWER: normal subgroup

[10] Every subgroup of an Abelian group is normal. Abelian groups are unique because the group operation has this property, which means that it doesn't matter which order the operation is applied. Addition has this property because a plus b is equal to b plus a.

ANSWER: commutative [accept word forms]

9. This man threw a Bible held by Friar Valverde to the ground because he didn't want to be part of the Spanish system. For 10 points each:

[10] Name this Incan emperor who supposedly attempted to bribe conquerors with a room full of gold and/or silver in order to preserve his life. Francisco Pizarro decided to execute him anyway.

ANSWER: Atahualpa [or Atabalipa]

[10] Atahualpa was captured by Pizarro during this 1532 battle held in the namesake town's square. This battle was a key event in Jared Diamond's *Guns, Germs, and Steel*.

ANSWER: Battle of Cajamarca

[10] Atahualpa rose to power by defeating this half-brother of his after the death of Huanya Capac.

ANSWER: Huascar

10. This ballet company's Russian performers were advised to wear western clothes around Paris for their own safety even before a certain scandalous premiere. For 10 points each:

[10] Name this Sergei Diaghilev-founded ballet company that performed in Paris and worked with prominent artists like Pablo Picasso.

ANSWER: Ballet Russes

[10] The Ballet Russes premiered this Stravinsky work in 1913. It ends with a "Sacrificial Dance" that kills a virgin.

ANSWER: *The* Rite of Spring [or *Le* Sacre du printemps]

[10] This artist was the set and costume designer for the Ballet Russes co-founded the journal "World of Art" along with Diaghilev and Alexandre Benois.

ANSWER: Leon Samoilovitch Bakst [or Lev Samoilovich Rosenberg or Leon Nikolayevich Bakst]

11. Name the following types of cheeses, for 10 points each.

[10] This generic type of cheese resembles Emmental cheese and is named for a European country. They are typically full of holes called "eyes".

ANSWER: Swiss cheese

[10] This type of cheese is exemplified by Roquefort and Stilton, both of which have spots or veins formed through exposure to *penicillium*.

ANSWER: blue cheese

[10] This Dutch cheese from North Amsterdam is known for being sold in red paraffin wax spheres. Original flavour Babybel cheeses are also of this variety.

ANSWER: Edam

12. This work calls the "mind of the Past" one of the three primary influences for a proper education and suggests that "actions past by" are "a loss of power." For 10 points each:

[10] Name this work that contrasts the victim of society, the "mere thinker," with *Man Thinking*.

ANSWER: "The American Scholar"

[10] "The American Scholar" was a speech given by this man. In the speech, he suggests that Nature is one of the primary inspirations for a man's development, in reference to his essay *Nature*.

ANSWER: Ralph Waldo Emerson

[10] Emerson also wrote this poem that asks "Time and Nature" to "gently spare The shaft we raise to them and thee." It is set where "the embattled farmers stood, And fired the shot heard round the world."

ANSWER: "Concord Hymn"

13. Answer some questions about the Spanish-American war, for 10 points each:

[10] Hyman Rickover notably investigated the incident in which this ship blew up in Havana Harbor, which was the casus belli of the war.

ANSWER: USS Maine



[10] This first major engagement of the Spanish-American war saw Patricio Montojo's squadron defeated by the fleet of George Dewey.

ANSWER: Battle of **Manila Bay** [do not prompt on "Battle of Manila"]

[10] George Dewey was aboard this protected cruiser when he issued his famous order, "You may fire when you are ready, Gridley".

ANSWER: USS **Olympia**

14. The second chapter of one of his books has a part called "From Symptom to *Sinthome*" and that work begins with a preface by Ernesto Laclau. For 10 points each:

[10] Name this thinker who wrote and starred in *The Pervert's Guide to Ideology* as well as its prequel, *The Pervert's Guide to Cinema*. He's a pretty eccentric Slovene philosopher.

ANSWER: Slavoj **Zizek**

[10] Zizek is adheres to the teachers of this other philosopher, the author of *The 18<sup>th</sup> Brumaire of Louis Napoleon* and *Critique of the Gotha Program*. He also co-wrote *The Communist Manifesto* with Engels.

ANSWER: Karl **Marx**

[10] Another figure Zizek likes to apply to political questions is this psychoanalyst, who posited a time in which a child can picture themselves outside of themselves called "the mirror stage".

ANSWER: Jacques **Lacan**

15. This statistical distribution has a normalizing constant equal to one over  $2 \pi m k T$  all to the three-halves power. For 10 points each:

[10] Name this statistical distribution used to describe classical gases. A generalization of this distribution to relativistic speeds is named for Jüttner.

ANSWER: **Maxwell-Boltzmann** distribution

[10] In the Maxwell-Boltzmann distribution, an averaged form of this quantity is equal to the square root of 3 times  $RT$  over the molecular weight.

ANSWER: **velocity** [or **speed**]

[10] Maxwell-Boltzmann statistics can be derived from this ensemble, whose variables are  $N$ ,  $V$ , and  $T$ . The characteristic state function of this ensemble is the Helmholtz free energy.

ANSWER: **canonical** ensemble [do not accept or prompt on "grand canonical ensemble"]

16. This person performed her most famous action in exchange for what an invading force carried on their left arms, which she interpreted to mean bracelets. For 10 points each:

[10] Name this daughter of a military commander who betrayed Rome to the Sabines, and whose body was crushed by their shields afterwards.

ANSWER: **Tarpeia**

[10] During the invasion of the Sabines, this figure created a bunch of springs around the forums to stop the invaders. This two-headed god is a guardian of doors and gates.

ANSWER: **Janus**

[10] The Sabine King, Titus Tatius, agreed to create one nation with Rome. Titus agreed to co-rule with this king.

ANSWER: **Romulus**

17. The narrator of this collection meets a Jewish shopkeeper named Gedali as well as a rabbi's son named Ilya. For 10 points each:

[10] Name this collection about Kirill Lyutov who tries to gain the acceptance of the *nachdiv* in stories such as "A Letter," "Crossing the Zbruch," and "Two Ivans."

ANSWER: **Red Cavalry** [or **Cavalry Army**]

[10] *Red Cavalry* is a collection by this Russian language author of the *Odessa Tales* who was sentenced to death by firing squad by the Stalinist regime.

ANSWER: Isaak Emmanuilovich **Babel**

[10] Babel also wrote *Maria*, a play about the Mukovnins set during this event that involved fighting between the Reds and Whites.

ANSWER: **Russian Civil War**

18. The “passive resistance” to this action was advocated by Wilhelm Cuno’s minority government, which paid miners not to work. For 10 points each:

[10] Name this action taken by Belgian and French troops in the German industrial heartland to take coal to make up unpaid reparations.

ANSWER: **occupation of the Ruhr** [accept reasonable equivalents mentioning the **Ruhr**]

[10] The Ruhr occupation led to a crisis over this rampant devaluing of the *Reichmark*. It was later alleviated by when Gustav Stresemann introduced the *Rentenmark*.

ANSWER: **hyperinflation** [prompt on “inflation”]

[10] This 1924 plan to manage Germany’s war reparations came with an understanding that its acceptance would mean the withdrawal of troops within a year.

ANSWER: **Dawes Plan**

19. This composer identified two of his compositional periods as “Objective Nationalism” and “Subjective Nationalism,” which account for all three of his *Pampeanas*. For 10 points each:

[10] Name this composer of the ballet *Estancia* as well as the operas *Bomarzo* and *Don Rodrigo*.

ANSWER: Alberto Evaristo **Ginastera**

[10] Nicanor Zabaleta was the soloist when Ginastera’s concerto for this instrument premiered in Philadelphia. Reinhold Gliere wrote an E flat major concerto for this 47-stringed instrument.

ANSWER: **harp**

[10] Ginastera also wrote three works of this type, the last of which includes an additional part for soprano. A work of this type by Schubert is called *Death and the Maiden*.

ANSWER: **string quartet**

20. This protein oscillates between the T state and the R state upon binding of its ligand. For 10 points each:

[10] Name this iron-containing tetrameric protein, mutations in which can cause sickle-cell anemia. This protein is found in large quantities in red blood cells.

ANSWER: **hemoglobin**

[10] The heme cofactor of hemoglobin is one of these tetra-pyrrole rings, whose breakdown forms bilirubin. Chlorophyll is another example of these compounds.

ANSWER: **porphyrin**

[10] This disorder occurs when people are unable to correctly metabolize iron, causing iron overload. Side effects of this disorder include bronze diabetes, cirrhosis, and setting off metal detectors at airports.

ANSWER: **haemochromatosis**