PRISON BOWL VIII

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Round 01

Tossups

1. The speaker of this poem praises a "happy melodist" and urges, "ye soft pipes, play on." The subject of this poem is addressed as a "Sylvan historian," in its last stanza, the speaker muses, "Thou, silent form, dost tease us out of thought / As doth eternity." The poet of this work describes the subject as a "foster-child of silence and slow time" and a "still unravish'd bride of quietness," which by the end of this work leads the poet to assert his claim that "Beauty is truth, truth beauty." For 10 points, name this poem by John Keats about the title piece of ancient pottery.
ANSWER: "**Ode on a Grecian Urn**" <NB>

2. The founder of this dynasty was a peasant who had become a military commander with the Red Turbans and who won one of the largest naval battles of all time, the Battle of Lake Poyang. One emperor of this dynasty committed suicide after the peasant rebel Li Zicheng gained control of Beijing, and the gate at Shanhaiguan was opened by a general of this dynasty, Wu Sangui. The Yongle Emperor in this dynasty gave the city of Beijing its name after moving the capital from Nanjing and constructed the Forbidden City. That emperor also authorized the treasure voyages of Zheng He. For 10 points, name this Chinese dynasty, followed by the Qing, the last to be ruled by ethnic Han Chinese.
ANSWER: **Ming** Dynasty <CL>

3. This element's acid is coupled with a halide in the Suzuki reaction, and a water molecule is added across an alkene's double bond to yield an alcohol in an oxidation reaction named for this element. An isotope of this element is bombarded with epithermal neutrons in neutron capture therapy, which aims to destroy cancerous tumors. This element is used as a dopant for p-type semiconductors, and its silicate is used in Pyrex glass and in fiberglass. Due to the fact that this element only wants six electrons in its valence shell, it is a frequent violator of the octet rule. For 10 points, name this metalloid element with atomic number 5 and symbol B.
ANSWER: **boron** <AT>

4. The first one of these figures was created when the mists of Niflheim met the heat of Muspelheim. Another one of these figures owned a horse named Gullfaxi, which he claimed was faster than the eight-legged Sleipnir, and drove a whetstone into Thor's forehead. Thor is also challenged by one of these figures to wrestle with old age and empty a drinking horn connected to the sea. Utgard-Loki is one of these figures, and an army of them attributed to fire and will lead armies to attack Asgard during Ragnarok. The "frost" variety of these figures frequently war with the gods. For 10 points, name this large mythological race also known as Jotunn in Norse.
ANSWER: **giant**s [accept **jotunn** before mention] <JK>

5. Senator Ralph Flanders introduced a censure resolution against this man, which was deliberated upon by the Watkins Committee. Edward Murrow and Fred Friendly denounced this man's policies on the show "See it Now." One document named after this man was largely based off the "Lee List" and went under investigation by the Tydings Committee. That committee led to this man's namesake hearings in which Joseph Welch famously asked this man if he had "no sense of decency." For 10 points, name this Wisconsin Senator who accused members of the State Department of being Communists.
ANSWER: Joseph **McCarthy** <WX>

6. This film features a stewardess tucking a floating pen back into a sleeping man's pocket. Other scenes in this film include one where an underwear-clad man exercises by running along the walls of a circular room, and a nearly 10 minute-long psychedelic sequence produced by taking slit-scan photos of technical drawings. In this beginning of this film, a desert-dwelling ape triumphantly smashes an equine skeleton with bones. The protagonist of this film rapidly ages in a Louis XVI-style room before he is transformed into a fetus, and tries to open the pod bay doors by commanding HAL 9000. For 10 points, name this science fiction film directed by Stanley Kubrick.
ANSWER: *2001: A Space Odyssey* <AT>

7. This state contains Steens Mountain, which creates a rain shadow over the Alvord Desert. The Warm Springs Indian reservation is located northwest of the Great Basin Desert in this state, which contains the Silicon Forest in and around its largest city. This state includes part of the Columbia River Gorge as well as Crater Lake. A city in this state is known for its abundant food trucks, and the majority of this state's people live in the Willamette Valley. This state's largest city has the nickname "City of Roses" due to its abundant rose gardens. For 10 points, name this Pacific state with a capital at Salem.
ANSWER: **Oregon**

8. Two of these structures fuse together in a phenomenon named for William Robertson, and they can form a fibrous corona when initiated by the spindle checkpoint. Centimorgans measure the length of these structures, which contain repeating TTAGGG sequences. During prometaphase, kinetochores on the centromeres of these objects attach to microtubules. Prokaryotic plasmids are analogous to these structures, which can undergo aneuploidy as a result of their non-disjunction. Telomerase lengthens the ends of them, and a third copy of one of them structures can result in Down syndrome. For 10 points, name these paired structures consisting of DNA that can come in X and Y varieties.
ANSWER: **chromosomes** [accept **telomeres** before mention; accept specific chromosome numbers/names before "Down syndrome"] <SC/AT>

9. This poet included details about his trip to the Soviet Union in his travelogue *EIMI*, and wrote a play where Death trades masks with Santa Claus. A poem by him features "eddieandbill," as well as a "goat-footed balloonMan" that alludes to the god Pan. This American poet of "in Just-" asked "how do you like your blueeyed boy Mister Death," and wrote about a prisoner who resists the "wellbeloved colonel's" torture methods in "i sing of Olaf glad and big." Another work features the lines "he sang his didn't he danced his did." For 10 points, name this poet of "anyone lived in a pretty how town," known for his unconventional use of grammar and capitalization.
ANSWER: Edward Estlin **Cummings** <AT>

10. This man earned a primary victory in South Carolina over John Connally following a planted leak that Connally was buying the black vote, and this man's campaign paid for the Nashua debate. He ordered the overthrow of Maurice Bishop, and may have been complicit in causing delays in the release of hostages in Tehran, but was cleared by the Tower Commission of wrongdoing in another scandal involving the funding of rebel groups in Nicaragua. His re-election campaign featured the slogan "It's morning again in America", declaring the success of economic policies another candidate called "voodoo economics". For 10 points, name this President who defeated Walter Mondale in 1984 after succeeding Jimmy Carter.
ANSWER: Ronald **Reagan**

11. One opponent of this legal principle was billionaire Mark Cuban, who said it would create a "whack-a-mole environment." A proposal establishing this legal principle was put into effect in 2010, but in a 2014 case, the DC Circuit Court determined that companies would not be affected unless they were reclassified. Over a million public comments were elicited by a 2014 proposal violating this regulatory principle, which would allow companies to build special fast lanes. Those comments in support of this principle were sent to the FCC, led by ex-cable lobbyist Tom Wheeler. For 10 points, name this policy which states that Internet service providers should treat all Internet data equally.
ANSWER: **net neutrality** <WX>

12. One variation on this type of work is the Spanish pasodoble dance, which is often played during bullfights. Works in this genre include *Semper Fidelis* and one featuring the piccolo in its trio section. Another work of this type is Julian Fučík's ("foo-CHEEK's") *Entry of the Gladiators*, which is commonly used as circus music, and Chopin wrote a funeral one of these compositions. Often written in 2/4 time, these compositions' namesake bands are heavy in brass instruments and percussion. For 10 points, name this type of work exemplified by "The Stars and Stripes Forever" by John Philip Sousa.
ANSWER: **march**es [accept military or funeral **march**es] <BM>

13. It's not superconductivity, but Landau formulated a theory of these phenomena divided into universality classes by their critical exponents. This non-magnetic phenomenon occurs in the 2-dimensional Ising model when aligned magnetic moments become disordered at the Curie temperature. Second-order ones are continuous and first-order ones involve latent heat. A diagram of these for water is shaped like a Y and plots pressure against temperature. They occur at critical points, when several forms of a substance can coexist. For 10 points, name these transformations which include melting and boiling.
ANSWER: **phase transitions** [accept **phase changes**; accept **critical transition**s before "critical points"] <SH>

14. One character in this novel says he is "going to America" and shoots himself on a bridge. The protagonist in this novel dreams of being read the story of the biblical figure Lazarus, and the daughter of the drunken Marmeladov is driven to prostitution in order to help her family in this novel. Lizaveta finds out her sister Alyona has been killed with an ax by the protagonist before being killed herself. The protagonist of this novel attempts to murder a pawnbroker for her cash and compares himself to Napoleon Bonaparte. For 10 points, name this novel by Fyodor Dostoyevsky featuring the murderer Raskolnikov.
ANSWER: ***Crime and Punishment*** [accept ***Prestupleniye i nakazaniye***] <DH>

15. Francis Crick argued that these occurrences serve the purpose of creating new neural pathways in the brain. One famous example of these occurrences described by another theorist involved three white wolves sitting in a tree. That theorist was Sigmund Freud, who argued that these these occurrences have both manifest and latent content and that they often represent "wish fulfillment." In his most famous book, he describes these occurrences as the "royal road to the unconscious;" that book was entitled *The Interpretation* of these occurrences. For 10 points, name these mental visions which occur during sleep.
ANSWER: **dream**s <CC>

16. This man won at the battle of Monte Malmusi to turn his country's public opinion against Abd-el-Krim. Once in power, this leader's party issued 27 points which he later reduced to 26. As second-in-command of his nation's Foreign Legion, he relieved besieged forces at Melina during the Rif War. This man became leader of his party's armed forces in his nation's civil war after General Jose Sanjurjo died in an airplane crash, allowing this man to join, and lead, the junta that followed. For 10 points, name this Generalissimo who led Nationalist forces during the Spanish Civil War who founded the Falange and ruled until 1975.
ANSWER: Francisco **Franco** Bahamonde

17. In one novel from this country, the protagonist starts a taxi business, but one of his drivers gets into an accident with a bike messenger. In another novel from this country, Sophie drowns while attempting to reach an abandoned house, and the twins Rahel and Estha commit incest. Another novel by an author from this country sees the protagonist dream about the priestess Hind and the poet Baal. In that novel, a plane explodes over the English Channel, and two characters take on the personas of the devil and the archangel Gabriel; that novel is *The Satanic Verses*. For 10 points, name this home country of authors Arundhati Roy and Salman Rushdie.
ANSWER: Republic of **India** <AT>

18. Faa di Bruno's formula can be used to find higher order examples of these operations. A form of this operation can be found for a neighborhood of every point in holomorphic functions, which satisfy the Cauchy-Riemann equations. The Jacobian matrix consists of functions on which one type of this operation has been performed, and it can be used to define a gradient. One type of this operation occurs when there are multiple variables, and is called partial. For a composition of functions, the chain rule can be used to find it. For 10 points, name this mathematical operation which is the inverse of the integral.
ANSWER: **derivative** [accept **differentiation**, accept partial **derivative** and equivalent word forms] <BS>

19. Antonio Canova created a statue of this figure, who holds a golden orb with the goddess Nike perched on it. A painting of this man features him distributing Eagle Standards, while in another he holds a staff topped by a hand with two extended fingers. Another painting of this man features flickering candles and a clock reading 4:13 AM to demonstrate that he has pulled an all-nighter. This man is often depicted with a hand in his waistcoat, and his coronation was painted by Jacques-Louis David. For 10 points, name this French ruler who points toward the sky while riding a horse in a painting depicting him "Crossing the Alps."
ANSWER: **Napoleon** **Bonaparte** [accept **Napoleon I**, prompt on **Napoleon**] <AT>

20. A method called felicific calculus in this philosophical theory was first described in *An Introduction to the Principles of Morals and Legislation*. One man in this school wrote *Enquiry Concerning Political Justice* and was named William Godwin. One work in this school of philosophy distinguishes between intuitionist and "inductive" schools of morality in the first of five chapters. In the 20th century, philosophers split this theory into types that differ in their consideration of moral rules called its "act" and "rule" types, and this theory is now considered a form of consequentialism. For 10 points, name this hedonistic theory founded by Jeremy Bentham and John Stuart Mill, striving for the greatest happiness for the most people.
Answer: **utilitarianism** <RM>

TB. One poem about a mountain in this range describes its subject as "still, snowy, and serene" and discusses the "everlasting universe of things." One novel set in this mountain range features debates between Naphtha and Settembrini and a chapter entitled "Snow." In another novel set in this range, the protagonist is confronted by a monster of his own creation at Mount Montanvert. That protagonist is Victor Frankenstein. The classic children's book character Heidi lives in, for ten points, what mountain range which is home to Mont Blanc and occupies much of Switzerland?
ANSWER: Swiss **Alps** <CC>

Bonuses

1. This goddess went into hiding in the cave Ama-no-Iwato because a flayed horse was thrown at her. For 10 points each:
[10] Name this sun deity in Shinto mythology. The Emperors of Japan are considered to be direct descendents of her.
ANSWER: **Amaterasu**-no-kami
[10] The thrower of the flayed horse was this brother of Amaterasu. He possesses a sword whose name means "grass-cutter," which he won from killing the serpent Orochi.
ANSWER: **Susano'o**-no-mikoto
[10] Susano'o and Amaterasu were also siblings of this moon god. When Uke Mochi vomited up a meal of rice and game for a feast, this god killed her out of disgust.
ANSWER: **Tsukuyomi**-no-Mikoto <JK>

2. Tax policy is a source of much debate among economists. For 10 points each:
[10] Name this graphical construct that is used in determining the hypothetical tax revenue at given rates. It works under the assumption that at both tax extremes there will be no taxable income.
ANSWER: **Laffer curve**
[10] The Laffer curve is often used by proponents of this economic school to justify reduction in taxation as a way to increase state revenue. This school also postulates that the most economically beneficial course of action is to eliminate barriers to producers.
ANSWER: **supply-side** economics
[10] Followers of this author of *The General Theory of Employment, Interest and Money* often criticize supply-side economics. He is most famous for advocating deficit spending.
ANSWER: John Maynard **Keynes** <LT>

3. In July 2012, CERN announced that it detected this elusive particle with a mass of 125 giga-electronvolts. For 10 points each:
[10] Name this elementary particle of the Standard Model whose existence was theoretical for many decades. It and its associated field are named after a British physicist.
ANSWER: **Higgs boson**
[10] The Higgs boson helps explain what gives rise to this property of matter, the amount of stuff something contains. Photons and gluons lack this property.
ANSWER: **mass**
[10] Bosons contrast with this other classification of particle in the Standard Model. These particles obey the Pauli Exclusion Principle and include quarks, electrons, and neutrinos.
ANSWER: **fermion**s <BM>

4. Many artworks feature horrific depictions of people getting eaten. Name some of these works, for 10 points each:
[10] In the far right of this painting, a man with outstretched hands is being devoured by a black, rectangular monster with what seems to be a window for an eye. Other surreal elements in this Picasso work include an eye with a light bulb for an iris.
ANSWER: *Guernica*
[10] In this triptych by Hieronymus Bosch, only the hand and legs of a man are visible, as he is being swallowed by a giant mussel. Masses of nude humans enjoy themselves in the title locale.
ANSWER: *The Garden of Earthly Delights*
[10] This bloody work features a nude bearded man munching on the arm of a decapitated young boy. It is one of its creator's Black Paintings.
ANSWER: *Saturn Devouring his Son* <AT>

5. Name some key figures in the movement for, and early period of, Irish Home Rule, For 10 points each:
[10] This Sinn Fein leader was a prominent figure of the First Dail and participated in negotiating the Anglo-Irish Treaty. For this he was assassinated in 1922 by his fellow Irish Republican Army members.
ANSWER: Michael **Collins**
[10] This Colonial Secretary was a British representatives at the Treaty. He would later suppress the Mau-Mau rebellion and the Malayan Emergency as Prime Minister, and, of course, never surrender to the Nazis.
ANSWER: Winston **Churchill**
[10] This 19th century leader and founder of the Irish Parliamentary Party spent most of his career advocating for Home Rule, and served as a member of the House of Commons for decades.
ANSWER: Charles **Parnell**

6. The speaker of this poem states that he "was of three minds," and asks, "O thin men of Haddam / Why do you imagine golden birds?" For 10 points each:
[10] Name this poem set "among twenty snowy mountains," in which the speaker describes the title creature as "a small part of the pantomime."
ANSWER: "**Thirteen Ways of Looking at a Blackbird**"
[10] "Thirteen Ways of Looking at a Blackbird" is written by this Modernist poet who penned the line "Call the roller of big cigars," the author of "The Emperor of Ice Cream" and "The Idea of Order at Key West."
ANSWER: Wallace **Stevens**
[10] "The Emperor of Ice Cream" and "Thirteen Ways of Looking at a Blackbird" appear in this first poetry collection of Wallace Stevens which also includes the poems "Peter Quince at the Clavier" and "Anecdote of the Jar."
ANSWER: ***Harmonium*** <LG>

7. This type of tissue contains elongated tracheids and shorter vessel elements that contain perforation plates. For 10 points each:
[10] Name this type of plant tissue that transports water and dissolved solutes throughout plants. It contrasts with phloem.
ANSWER: **xylem**
[10] Secondary xylem originates from this meristematic tissue, which is located between the xylem and phloem in vascular stems. It consists of undifferentiated, parallel rows of totipotent cells.
ANSWER: vascular **cambium**
[10] Water travels through xylem during transpiration because of this process, which allows water to move upwards against gravity due to a combination of cohesion, surface tension, and adhesion.
ANSWER: **capillary action** [accept **capillary motion** or **wicking**] <AT>

8. Influenced by John Locke, this document starts, "When in the course of human events…" For 10 points each:
[10] Name this document written by Thomas Jefferson, John Adams, Benjamin Franklin, Robert Livingston, and Roger Sherman that was ratified by 12 of the 13 colonies, with one abstention.
ANSWER: The United States **Declaration of Independence**
[10] John Dickinson, who led the anti-independence group in Congress, was from this colony. In 1777, John Conway tried to have General Washington replaced during a campaign here that forced the second Continental Congress to relocate to York in this province.
ANSWER: **Pennsylvania**
[10] This signer of the Declaration of Independence from Massachusetts also served as James Madison's vice president, but is perhaps better known as the namesake of a particular kind of electoral redistricting.
ANSWER: Elbridge **Gerry** <AG>

9. In this novel, a monk commits suicide just before the arrival of two important characters, who come to investigate a missing horse. For 10 points each:
[10] Name this novel which features a head drowned in pig's blood in which William of Baskerville investigates the murder of a monk named Malachi.
ANSWER: *The Name of the Rose* [accept *Il nome della rosa*]
[10] This Italian author of *The Name of the Rose* also wrote *Foucault's Pendulum* and *The Island of the Day Before*.
ANSWER: Umberto **Eco**
[10] Eco also wrote this novel in which a knight sets off on a journey to find the kingdom of Prester John and falls in love with a satyr-like female creature.
ANSWER: *Baudolino* <DH>

10. Adherents of this religion, who are collectively known as the Khalsa, frequently go on pilgrimages to the Golden Temple in Amritsar. For 10 points each:
[10] Name this Punjab-based religion founded by Guru Nanak. Practitioners of this religion wear the Five K's at all times.
ANSWER: **Sikhism**
[10] One of the five K's is this ceremonial dagger, which is symbolic of the triumph of morality over injustice. The legality of possessing these objects in public spaces has been questioned.
ANSWER: **kirpan**
[10] This is the central religious text of Sikhism. It is considered to be the last of eleven gurus, and contains the writings of the previous ten gurus.
ANSWER: **Adi Granth** [accept **Guru Granth Sahib**] <PS>

11. pH is related to the negative logarithm of the concentration of these in a solution. For 10 points each:
[10] Name this particle which is an ionized hydrogen atom. According to the Brønsted-Lowry definition, it is donated by acids and accepted by bases.
ANSWER: **proton** [accept **H+** ion]
[10] These compounds do not dissociate as much in solution as their stronger counterparts. Examples of these compounds include formic, hydrofluoric, and acetic.
ANSWER: **weak acid**s [prompt on **acid**s]
[10] This term applies to substances which can both gain and lose a proton. Water exemplifies this characteristic because it can dissociate into both acidic hydronium and basic hydroxide ions.
ANSWER: **amphoteric** [accept **amphiprotic**] <BM>

12. This opera's music features a system of leitmotifs, or short symbolic musical phrases to represent characters. For 10 points each:
[10] Name this opera that takes place in King Herod's court, the ending of which sees the title character kiss the severed head of John the Baptist.
ANSWER: *Salome*
[10] *Salome* was written by this German composer of *Der Rosenkavalier*. Nietzsche inspired his tone poem *Thus Spoke Zarathustra*, which features the famous "Sunrise" fanfare.
ANSWER: **R**ichard **Strauss** [prompt on **Strauss**]
[10] Salome performs this act for Herod after being promised her heart's desire. Its risqué nature caused controversy when it was first performed.
ANSWER: **Dance of the Seven Veils** <LG>

13. This man frequently wrote about Christmas, churning out five novels about the holiday. For 10 points each:
[10] Name this author who created Oliver Twist, Ebenezer Scrooge, and David Copperfield during his 33 year writing career.
ANSWER: Charles **Dickens**
[10] Dickens wrote this book about the French revolution in three parts. It begins with a sentence of contradictions that includes, "It was the epoch of belief, it was the epoch of incredulity."
ANSWER: *A **Tale of Two Cities***
[10] This middle book of *A Tale of Two Cities* takes place five years after the end of the first book and begins with two British spies trying to frame Darnay. It is named for the blond Lucie Manette, who holds her family together like the title object.
ANSWER: "The **Golden Thread**" <AG>

14. Recent pop culture has certainly been marked by an increased presence of a certain mythological creature. For 10 points each:
[10] Name this manga and anime series where fighters such as Eren Yeager and Mikasa Ackerman must defend the walls of their city from colossal man-eating humanoid monsters.
ANSWER: ***Attack on Titan***
[10] This first person shooter allows players to fight six-on-six "attrition" or "capture the flag" matches while riding in large mech suits. It features an automatic locking-on gun known as the Smart Pistol.
ANSWER: ***Titanfall***
[10] This purple-skinned Mad Titan played by Josh Brolin has started appearing in several Marvel movies, such as *The Avengers* and *Guardians of the Galaxy*. He is on a quest to capture all six Infinity Gems.
ANSWER: **Thanos** <AT>

15. In the 1500s the demand and economy of silver grew. For 10 points each:
[10] Name this Spanish legal system, practiced before the *hacienda*, which entrusted authority and land to colonists who would ideally protect Indians and convert them to Roman Catholics, while extracting precious silver and gold from them.
ANSWER: **encomienda**
[10] Mexican miners developed a new method of silver extraction using this element, which was mixed with silver ore. Its main source was a mine at the city of Huancavelica, and its use caused many natives to die from poisoning.
ANSWER: **mercury**
[10] This modern-day country, initially called "Upper Peru" by the Spanish, contained vast silver mines like the one at Potosi and Huancavelica, and was ruled from what is now Sucre.
ANSWER: **Bolivia** <HL>

16. One section of this work asks the reader to "arise to birth with me, my brother" and "speak through my words and through my blood." For 10 points each:
[10] Name this set of twelve poems which itself is the second section of the collection *Canto General*.
ANSWER: *The **Heights of Macchu Picchu*** [accept Las **Alturas de Macchu Picchu**]
[10] *The Heights of Macchu Picchu* is by this poet who included the line "tonight I can write the saddest lines" in his *Twenty Love Poems and a Song of Despair*.
ANSWER: Pablo **Neruda** [also accept Neftali Ricardo Reyes **Basoalto**]
[10] Pablo Neruda was a poet from this nation, which is also home to the writer Gabriela Mistral.
ANSWER: **Chile** <AT>

17. Beethoven wrote a work of this type for string quartet, known as his *Grosse* one. For 10 points each:
[10] Name this type of composition in which multiple voices build upon a single theme introduced in the beginning. J.S. Bach notably paired a *Toccata* with one of these pieces for organ.
ANSWER: **fugue**
[10] Fugues often exemplify this technique of writing multiple musical voices in conjunction with each other. An important principle in this practice is to avoid parallel fifths or octaves.
ANSWER: **counterpoint**
[10] J.S. Bach included a contrapuntal composition of this type in his work *The Musical Offering*. This type of work is palindromic in nature because it features two musical lines which are the reverse of one another.
ANSWER: **crab canon** [accept **canon cancrizans**] <BM>

18. This philosopher often employed pseudonyms such as "Anti-Climacus," which he used in his work *The Sickness Unto Death*. For 10 points each:
[10] Identify this philosopher who wrote that "subjectivity is truth" and who encouraged an irrational "leap" to Christian faith. Much of his work criticized the practice of Christianity as a state religion.
Answer: Soren **Kierkegaard**
[10] Kierkegaard wrote this work, which examines Abraham's willingness to sacrifice his son Isaac, under the alias Johannes de Silentio.
Answer: ***Fear and Trembling***
[10] Kierkegaard is considered to be the first philosopher of this theory that claims that philosophical thinking begins with the human acting a free agent
Answer: **existentialism** <RM>

19. Answer the following about a certain field of mathematics, for 10 points each:
[10] This mathematical field involves procedures such examining the convergence of series, differentiating, and integrating. It was developed in the 17th century.
ANSWER: **calculus**
[10] Principles in calculus like the Law of Continuity supported the use of these in developing calculus. They are too small to see or measure and were first rigidly defined by Archimedes.
ANSWER: **infinitesimals** [accept clear knowledge equivalents, like **infinitesimal value**s]
[10] This philosopher attacked the use of infinitesimals in *The Analyst*. He was mainly known for the development of what came to be called "subjective idealism," the belief that only mental things and minds themselves exist.
ANSWER: George **Berkeley** <BS>

20. This empire used administrative subdivisions like *guberniyas* and *zemstvos* through its violent history. For 10 points each:
[10] Name this Eurasian empire which was ruled by the Romanov Dynasty until Nicholas II's overthrow in March of 1917.
ANSWER: **Russia**n Empire or **Rossiyskaya** Imperiya
[10] Nicholas' October Manifesto created this legislative body after the 1905 Revolution. Before Russia's Civil War, it was suppressed by the Fundamental Laws, and its modern version is the lower house of the Federal Assembly.
ANSWER: **Duma**
[10] This Russian statesman helped write the October Manifesto and oversaw a period of rapid industrialization, epitomized by the construction of the China Eastern Railway in Manchuria.
ANSWER: Count Sergei Yulyevich **Witte**

TB. Osmotic pressure is one of these properties, as it is directly proportional to the number of moles of solute. For 10 points each:
[10] Name these properties that are dependent on the concentration of a solute in a solution, rather than the composition of the solute.
ANSWER: **colligative** properties
[10] Boiling and freezing points are also colligative properties. This will occur to the boiling point of a substance if the concentration of solute is increased.
ANSWER: it will **increase** [accept clear knowledge equivalents, like it will be **higher** or go **up**]
[10] This value, symbolized i, is a measure of the effects of a solute on the colligative properties of a solution. Glucose has a value of 1 for this quantity, because it does not dissolve in water.
ANSWER: **van't Hoff factor** <AT>