

early autumn collegiate novice tournament

matt jackson | bryan berend | dallin kelson | ethan hewett | gaurav kandlikar | neil fitzgerald | tony leng | matt hart
huma zafar | brice russ | charlie rosenthal | sandy huang | idrees kahloon | tanay kothari | andrew hart

packet 10 tossups

1. Before this battle, Callimachus casted a deciding vote in favor of attack. This battle occurred after the fall of Eretria, an ally of the winning army, whose forces included a thousand troops from Plataea. This battle saw the winning side's flanks push through to encircle the stronger troops in the center, led by the victorious commander, Miltiades. In legend, its victors sent a courier named Pheidippides to report the victory in Athens. For 10 points, name this battle that ended the invasion of Greece by Darius I of Persia, and gave its name to a modern-day twenty-six-mile race.
ANSWER: Battle of **Marathon**
2. In 2007, Zenph Studios released a "re-performance" of this man's 1955 debut album, the original performance of which kicked off this musician's love for the "take-two-ness" of the recording studio. Before a 1962 performance, Leonard Bernstein claimed no responsibility for this artist's slow interpretation of a Johannes Brahms piece. This performer of a 1955 recording of the *Goldberg Variations* had a habit of tapping his feet and humming while playing. For 10 points, name this eccentric Canadian pianist who was renowned for his interpretations of J.S. Bach.
ANSWER: Glenn Herbert **Gould**
3. This structure becomes invaginated and buds inwardly in a process mediated by clathrin. During apoptosis, this structure bulges out in a process known as "blebbing." Signaling proteins that span this structure often have a seven alpha-helix motif. Sphingolipids and cholesterol are elevated in this structure's "lipid raft" domains, which help localize proteins in this structure. It is modeled as a phospholipid bilayer in the fluid-mosaic model. For 10 points, name this selectively permeable barrier structure, which, in plant cells, is located just inside the cell wall.
ANSWER: **cell membrane** [or **plasma membrane**; or **plasmalemma**; prompt on phospholipid **bilayer**]
4. The title character in one of this man's novels composes incidental music for *Love's Labours Lost* and the oratorio *Apocalypse cum figures*. Another novel by this author contains frequent debates between the humanist Settembrini and the radical Naptha. In another novel, this author wrote about the downfall of a Lubeck-based merchant family. He wrote a novel in which Joachim Ziemmsen is visited at a sanatorium by Hans Castorp. For 10 points, name this German author of *Buddenbrooks*, *Doctor Faustus*, and *The Magic Mountain*.
ANSWER: Thomas **Mann** [or Paul Thomas **Mann**]
5. Just off the north-central coast of this island nation is the Sabana-Camagüey Archipelago. The Nicholas Channel borders the north of this nation, which also contains the Isla de la Juventud. Narciso Lopez once attempted to filibuster this nation, which is home to the celebrated sports team Industriales. The Windward Passage separates Hispaniola from this island, which is a mere ninety-mile journey across the Strait of Florida from Key West. For 10 points, name this island nation that houses many 1950s automobiles and fine cigars in its capital of Havana.
ANSWER: Republic of **Cuba**

6. This quantity goes down two percent from its potential for every one percent increase in unemployment rate, by Okun's law. Its namesake deflator is equal to its nominal value over its real value times one hundred. Its nominal value over the money supply equals the velocity of money. This quantity is symbolized "Y" in the equation "MV equals PY." It is equal to the sum of net exports, government spending, investment, and consumption. For 10 points, name this statistic, which shows the total value of all goods and services produced in a country in a given time period.
ANSWER: **GDP** [or **gross domestic product**; do not accept "Gross National Product" or "GNP"]
7. Two brothers from this country, Gabo and Pevsner, wrote the "Realistic Manifesto." One artist from this country created a series of geometric paintings called "Prouns," in addition to a work in which a red wedge stabs a white circle. One artist from this country founded the Suprematism movement, which led to such works as *Black Square* and *White on White*. This country was the home of the author of *Concerning the Spiritual in Art*, the cofounder of the Blue Rider group. For 10 points, name this country, home to Kasimir Malevich and Wassily Kandinsky.
ANSWER: **Russian** Federation [or **Soviet Union**; or **USSR**]
8. One man to hold this office was faced with the Conscription Crisis in 1944. The first man to hold this office was embroiled in a scandal in which he accepted payments from Hugh Allan in return for granting a railroad contract. Kim Campbell was the first female holder of this office, which John Macdonald lost to Alexander Mackenzie after the Pacific Scandal broke. The failure of the Meech Lake Accord doomed Brian Mulroney's time in this office. For 10 points, name this office, formerly held by William Mackenzie King, which is currently held by Stephen Harper.
ANSWER: **Prime Minister** of **Canada** [or equivalents like **Canadian PM**; prompt on partial answer]
9. One poem by this author states that "Eden sank to grief" because a leaf subsided to a leaf. In another poem, he wrote of a creature whose claim that "highway dust is over all" causes the speaker to wonder "what to make of a diminished thing." In addition to "Nothing Gold Can Stay" and "The Oven Bird," this poet composed the lines "but I have promises to keep, and miles to go before I sleep" in his "Stopping by Woods on a Snowy Evening." For 10 points, name this American poet who discussed a choice made in a "yellow wood" in his "The Road Not Taken."
ANSWER: Robert Lee **Frost**
10. In hyperbolic geometry, two figures with the "ultra" form of this property must share a perpendicular, and two geodesics with this property with respect to a third can intersect. Given a line and a point not on the line, Playfair's axiom states that only one figure with this property can be drawn. If two lines intersect a third line, and the interior angles on one side sum to less than 180 degrees, the lines will not have this property, according to Euclid's fifth postulate. For 10 points, name this term that identifies lines in a plane that do not intersect.
ANSWER: **parallel**
11. Hephaestus' unsuccessful attempt to rape this goddess led to the birth of Erichthonius. This goddess casted the deciding vote at Orestes' trial. She won a contest judged by Cecrops by creating the olive tree. In the *Odyssey*, she forces Calypso to release the imprisoned Odysseus and aids Telemachus. This daughter of Metis defeated Arachne in a weaving contest. She was born by emerging, fully formed, from the head of Zeus. For 10 points, name this Greek goddess of wisdom, the counterpart of the Roman Minerva and patron deity and namesake of Athens.
ANSWER: **Athena** [or **Pallas** Athena; or **Minerva** before stated]

12. An alcohol with formula $C_{13}H_{28}O$ uniquely cannot undergo these interactions because of its large tert-butyl groups. Hoogsteen base pairing employs these interactions, which are strongest when they are symmetric. Typically, nitrogen, fluorine, and oxygen facilitate these interactions, which are stronger than van der Waals interactions. These interactions can form a dimer of H_2O . They cause the hexagonal lattice of ice crystals and the high boiling point of water. For 10 points, name these bonds, which are named after an element with atomic number one.
ANSWER: **hydrogen bonds** [accept word forms like **hydrogen bonding**; or **H-bonds**; prompt on **hydrogen** or **H**]
13. The western theatre of this conflict saw Wesley Miller become a military governor after the opposing fleet was wiped out by Commodore George Dewey. “Fightin’ Joe” Wheeler led an attempted charge on Santiago during this “splendid little war.” William Randolph Hearst’s “yellow journalism” inflamed support for this conflict after the explosion of the *Maine*. Theodore Roosevelt led the Rough Riders at San Juan Hill during this war. For 10 points, name this 1890s war that led to the American annexation of the Philippines, Puerto Rico, and Cuba.
ANSWER: **Spanish-American** War
14. In a short story by this author, the narrator realizes that he is “driven and derided by vanity” in his quest to buy a gift for Mangan’s sister. He wrote Father Arnall’s fire-and-brimstone sermon into his novel that begins with a nursery story about Baby Tuckoo. This author created a character who climaxes during a bottle rocket explosion in a novel in which Blazes Boylan has an affair with the protagonist’s wife, Molly. For 10 points, name this author of “Araby,” who created Stephen Dedalus and Leopold Bloom in his novels *A Portrait of the Artist as a Young Man* and *Ulysses*.
ANSWER: James Augustine Aloysius **Joyce**
15. This athlete was played in a Billy Crystal-directed HBO film by Battlefield Earth star Barry Pepper. Ron Rakowski discovered that this man was wrongly given an RBI in a game against the Indians, which led Jim Gentile to win a share of a fifty-year-old RBI crown in 2010. He was the younger half of the original “M&M Boys.” Ford Frick allegedly suggested putting an asterisk in the record books next to this player’s most famous accomplishment. For 10 points, name this player who outpaced Mickey Mantle in 1961 to break Babe Ruth’s record by slugging 61 homers.
ANSWER: Roger Eugene **Maris** [or Roger Eugene **Maras**]
16. This philosopher’s concept of “multitude” is central to *Empire* by Michael Hardt and Antonio Negri, who wrote about this man in *The Savage Anomaly*. This thinker defined God as an “infinite substance.” In one work, he claimed that, as a political constitution of Israel, the Torah was no longer valid. He argued for secular government in his *Tractatus Theologico-Politicus*. He wrote about “God or nature” in a work presented in a “geometric order” that reflects this thinker’s pantheism. For 10 points, name this Jewish-Dutch philosopher who wrote the *Ethics*.
ANSWER: Baruch **Spinoza** [or Benedict(us) de **Spinoza**; or Bento de **Espinosa**]
17. This man defeated the Golden Horde at the Terek River and the Kondurcha River, where he clashed with his rival, Tokhtamysh. He died during a campaign against the Ming dynasty in China. He ordered the massacre of the inhabitants of Isfahan after they revolted against his rule. His son Shah Rukh helped him to defeat and capture Bayezid I at the battle of Ankara. This brutal conqueror allegedly made pyramids out of his enemy’s skulls. For 10 points, name this great-great grandfather of Babur, a crippled Central Asian warlord who ruled from Samarkand.
ANSWER: **Tamerlane** [or **Timur** the Lame; or **Timur** e-Leng; or **Tamburlaine**]

18. One author from this country inserted a woman named Susan Barton into a castaway story. Another author from this country told of Jacobus finding a dead body, which disturbs the industrialist Mehring. One author from this country wrote the novel *Foe* in addition to a novel in which David Lurie seduces one of his students. Another novelist from this nation created Maureen and Bamford Smales, who flee their home during the Soweto riots. For 10 points, name this country, which is home to the authors of *Disgrace* and *July's People*, J.M. Coetzee and Nadine Gordimer.

ANSWER: Republic of South Africa

19. This force is represented by a first derivative with respect to position in the harmonic oscillator equation. In one model, this force stems from tiny electrostatic repulsions. It can be understood as the parallel shear component of the contact force, whose other component is typically calculated as $mg \cos \theta$. It is calculated from a coefficient, symbolized μ , multiplied by the normal force. Rolling motion is affected by the “kinetic” type of this force, which is known as “drag” in fluids. For 10 points, name this force that resists the motion of objects against one another.

ANSWER: friction [or drag before “electrostatic”]

20. One aria in this opera sees the villain hand the female protagonist a knife, order her to kill a priest, and sing about “Hell’s vengeance.” One character in this opera escapes from a Moor named Monostatos. Another character in this opera is the birdcatcher Papageno. The opera hits high F6 in its soprano aria “Der Holle Rache.” Its plot centers on the love between Tamina and Pamina. The priest Sarastro opposes the Queen of the Night in this opera. For 10 points, name this opera about an enchanted woodwind instrument, by Wolfgang Amadeus Mozart.

ANSWER: *The Magic Flute* [or *Die Zauberflöte*]

tiebreakers

21. This man was preceded in his chief office by Palladius. This author of a *Letter to the Soldiers of Coroticus* wrote the *Confessio*, which recalls a dream in which Victoricus gives him the letter that spurred his mission. Legend holds that it took so long for this man’s teachings of the Gospel to take hold that his ash walking stick took root in the ground while he was preaching and became a tree. He legendarily drove all the snakes from his adopted homeland and used the three-leaved shamrock to explain the Holy Trinity. For 10 points, name this patron saint of Ireland.

ANSWER: Saint Patrick

22. This process is modeled in an equation that uses the four factors, including thermal utilization and resonance escape velocity. The number of particles required to sustain this process is the “effective neutron multiplication factor,” k . Beryllium is used as a neutron reflector to reduce this phenomenon’s necessary supercritical mass. Breeder reactors facilitate this process, which can sustain itself in a “chain reaction.” For 10 points, name this process in which large atomic nuclei break down into smaller parts, which was used in the atomic bombs dropped on Japan.

ANSWER: nuclear fission [prompt on nuclear chain reaction; do not accept “nuclear fusion” or “fusion”]

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packet 10 bonuses

1. This work's title character marries Lady Aoi before fathering his only child with Akashi's daughter. For 10 points each:
 - [10] Name this Heian period work, sometimes called the world's first novel, written by Lady Murasaki.
ANSWER: *The Tale of Genji* [or *Genji Monogatari*]
 - [10] *The Tale of Genji* is a work of literature written during the Heian period in this country.
ANSWER: Japan [or Nippon]
 - [10] Another work written during Japan's Heian period was this collection of observations by the courtly rival of Lady Murasaki, Sei Shonagan.
ANSWER: *The Pillow Book of Sei Shonagan* [or *Makuro no Soshi*]
2. Name the following pioneers of aviation, for 10 points each.
 - [10] This first woman to fly solo across the Atlantic disappeared in 1937 while trying to circumnavigate the globe.
ANSWER: Amelia Earhart
 - [10] This aviator was the first to fly across the Atlantic, doing so in 1927 in his airplane *The Spirit of St. Louis*. Later in life, his son was kidnapped and killed and he became a member of the America First movement.
ANSWER: Charles Lindbergh
 - [10] Two French brothers with this surname invented the hot air balloon in 1783. The standard hot air balloon still bears their name.
ANSWER: Montgolfier brothers [or Joseph-Michel and Jacques-Étienne Montgolfier]
3. An early level in this game matches the main character up with the Toad Brigade to defeat Goombas on Kamella's airship. For 10 points each:
 - [10] Name this 2007 platformer in which Mario must travel into outer space to save Princess Peach.
ANSWER: *Super Mario Galaxy*
 - [10] *Super Mario Galaxy* is a best-selling title for this Nintendo system, which uses a remote-style controller.
ANSWER: Nintendo Wii
 - [10] Another top seller for the Wii is this sequel to a game that comes with the system, in which the user's Miis are flown to an island and can play ping pong and go wakeboarding.
ANSWER: *Wii Sports Resort* [or *Wii Supotsu Rizoto*]

4. This play culminates in Emily Webb's death during childbirth. For 10 points each:
[10] Name this play, which features a genial Stage Manager. Its title place is Groves Corners, New Hampshire.
ANSWER: **Our Town**
[10] This American playwright of *The Matchmaker* wrote *Our Town*.
ANSWER: Thornton Niven **Wilder**
[10] In a Thornton Wilder novel, Brother Juniper investigates the deaths of people walking on one of these structures in San Luis Rey.
ANSWER: a rope **bridge** [or *The **Bridge of San Luis Rey***]
5. Name the following artists who have famous sculptures in Chicago, for 10 points each.
[10] This artist created a fifty-foot Cubist sculpture in Daley Plaza, which is reminiscent of a harp with an eyeball. This artist's Blue Period produced paintings like *The Old Guitarist*.
ANSWER: Pablo Ruiz **Picasso**
[10] This other Spanish artist created a Chicago sculpture originally titled *The Sun, the Moon and One Star*, but then dropped the name. Andre Breton described this artist of *Dog Barking at the Moon* as "the most surrealist of us all."
ANSWER: Joan **Miró** i Ferrà
[10] This artist's *Flamingo* in Chicago's Federal Plaza is a "stabile." He also invented the mobile, a form of kinetic sculpture exemplified by his *Lobster Trap and Fish Tail*.
ANSWER: Alexander "Sandy" **Calder**
6. This process comes in Mullerian and Batesian forms. For 10 points each:
[10] Name this evolutionary process, which occurs when one species evolves to look like another species to gain an advantage in fitness.
ANSWER: **mimicry**
[10] This evolutionary process occurs when an animal evolves to become indiscernible from its surrounding environment, and not to look like another animal, as in mimicry.
ANSWER: **camouflage** [accept word forms]
[10] Some organisms attempt to avoid predation by aposematism, in which they flash a "warning" in the form of this property.
ANSWER: **colors** [accept word forms of "color"; or aposematic **coloration**]
7. This Frankish figure legendarily fought the Basques at Roncevaux Pass. For 10 points each:
[10] Name this nephew of Charlemagne, immortalized in a namesake "Song" that was written as a *chanson de geste* around 1100.
ANSWER: **Roland** [or **Orlando**]
[10] Roland had one of these weapons, named Durendal. The ruler Damocles had one hanging above his throne.
ANSWER: a **sword** [accept equivalents that indicate a big bladed instrument]
[10] Before the battle, Roland's friend Oliver advised him to use one of these objects to call for help. When Roland eventually does use it, his temples burst and he dies.
ANSWER: a **horn** [or **olifant** horn]

8. John Singer Sargent portrayed this artist painting in a garden. For 10 points each:
[10] Name this French artist, whose painting *Impression: Sunrise* gave rise to the term “impressionism.”
ANSWER: Claude **Monet** [or Oscar-Claude **Monet**]
[10] Monet made many paintings of these flowers during his stay at Giverny. Most depict the flowers in ponds that also reflect clouds.
ANSWER: **water lilies** [prompt on **lilies**]
[10] Monet painted this building with the “sun breaking through the fog.” Monet painted a series of works showing this building on the Thames from his window at the St. Thomas Hospital in London.
ANSWER: The Houses of **Parliament** [or Palace of **Westminster**]
9. The nationalization of this waterway led to a namesake 1967 crisis. For 10 points each:
[10] Name this man-made waterway, designed by Ferdinand de Lesseps in 1859 and completed in 1869, that connects the Mediterranean and Red Seas.
ANSWER: **Suez** Canal
[10] This successor of Muhammad Naguib as president of Egypt nationalized the canal, leading to the Suez crisis. He was succeeded by Anwar Sadat after dying in 1970.
ANSWER: Gamal Abdul **Nasser**
[10] A lake named for Nasser was formed after the construction of this dam on the Nile.
ANSWER: **Aswan High** Dam [prompt on partial answer]
10. Name the following measures of concentration of a solute in a solution, for 10 points each.
[10] This measure of concentration is defined as the number of moles of solute divided by the volume of solution.
ANSWER: **molarity** [or **molar** concentration; prompt on **amount** concentration or **substance** concentration]
[10] This temperature-independent measure of concentration is defined as the number of moles of solute per kilogram of solvent.
ANSWER: **molality** [or **molal**]
[10] This measure of concentration accounts for discrepancies between concentrations of various ionic species in solution. It is defined as the gram equivalents divided by the liters of solution.
ANSWER: **normality**
11. Name the following about Hans-Georg Gadamer’s magnum opus, for 10 points each.
[10] This is the first title concept of Gadamer’s work. Wittgenstein created “tables” that represent it, and a justified belief with this property is one way to define knowledge.
ANSWER: **truth** [or **Wahrheit**; or word forms like **true**]
[10] Gadamer paired Truth with this concept, which Paul Feyerabend wrote “against.” Its “scientific” type refers to a technique for investigating and acquiring new knowledge.
ANSWER: **method** [or **Methode**]
[10] Gadamer’s *Truth and Method* pioneered hermeneutics, an offshoot of the philosophy of this thinker, Gadamer’s mentor. This German thinker formulated the “being for whom being is in question,” *dasein*, in his *Being and Time*.
ANSWER: Martin **Heidegger**
12. Name the following modern European playwrights, for 10 points each.

[10] This Italian playwright told of the title figures rehearsing for the Director in his *Six Characters in Search of an Author*.

ANSWER: Luigi **Pirandello**

[10] This Swedish author called for Arnold Bocklin's *The Isle of the Dead* to be lowered at the end of his play *The Ghost Sonata*. He told of the title character's affair with the valet Jean in his play *Miss Julie*.

ANSWER: Johan August **Strindberg**

[10] This Czech playwright wrote a short story about a war between humans and newts in addition to a play that coined the word "robot," his *R.U.R.*

ANSWER: Karel **Capek** (CHAH-peck, but also accept phonetic pronunciations)

13. He made Chief Justice John Marshall cry while defending his alma mater in *Dartmouth College v. Woodward*. For 10 points each:

[10] Name this senator from Massachusetts who signed a treaty with British minister Ashburton.

ANSWER: Daniel **Webster**

[10] In the Senate, Webster sided with Andrew Jackson on the issue of nullification, but this vice president to Jackson supported states' rights and wrote the *South Carolina Exposition and Protest*.

ANSWER: John Caldwell **Calhoun**

[10] In January 1830, Daniel Webster engaged in a series of debates with this senator. Webster's "Second Reply" to this South Carolinian concluded "liberty and union, now and forever, one and inseparable!"

ANSWER: Robert Young **Hayne**

14. Name the following about the worship of Shiva, for 10 points each.

[10] This substance is served during prayers to Shiva. Mithai are sweets made with sugar and this substance, which is produced by sacred cows.

ANSWER: **milk** [or **doodh**]

[10] Also made from milk is this clarified butter, which is burned in the ritual of Aarti, and served with honey, yogurt, and sugar during prayers to Shiva.

ANSWER: **ghee**

[10] Shiva may be worshiped either in the form of a phallic statue or in his aspect as the Lord of the Dance. Give the name for either representation of Shiva.

ANSWER: the **Lingam** [the statue] or **Nataraja** [the Lord of the Dance]

15. This musical suite has sections entitled "People with Long Ears" and "Pianists." For 10 points each:

[10] Name this fourteen-movement suite. One of its movements uses an extremely slow version of the "Can Can" dance to depict tortoises, while another of its movements is called "The Swan."

ANSWER: *The **Carnival of the Animals*** [or *Le **Carnival des Animaux***]

[10] *Carnival of the Animals* is by this French composer, also responsible for the *Danse macabre* and the opera *Samson and Delilah*.

ANSWER: Camille **Saint-Saens**

[10] Saint-Saens's third symphony is nicknamed for this keyboard instrument, which is prominent in liturgical music.

ANSWER: the **organ** [or pipe **organ**; or **Organ Symphony**]

16. These bodies are rounded by their own gravity, but are not massive enough to clear the surrounding area of planetesimals. For 10 points each:
- [10] Name these bodies that orbit the sun, examples of which include Sedna and Eris.
ANSWER: **dwarf planets** [do not accept or prompt on “planets”]
- [10] This former planet was redefined as a dwarf planet in 2006, much to the chagrin of third graders everywhere.
ANSWER: **Pluto**
- [10] This moon, the largest satellite of Pluto, shares its name with the ferryman of the dead from Greek mythology.
ANSWER: **Charon** [or **(134340) Pluto I**]
17. The disasters of this campaign led Winston Churchill to resign as First Lord of the Admiralty. For 10 points each:
- [10] Name this World War I campaign against the Ottoman Empire, which saw the British lose many troops while attempting to land on the namesake peninsula.
ANSWER: **Gallipoli** campaign [or Battle of **Gallipoli**; or **Dardanelles** campaign]
- [10] This Ottoman leader proved effective during the Gallipoli campaign. He was central to the Young Turks movement and was elected the first president of Turkey.
ANSWER: Mustafa **Kemal Ataturk** [accept either underlined part]
- [10] The Anzac Corps at Gallipoli were made up of troops from New Zealand and this nation, which still celebrates its veterans on Anzac day.
ANSWER: Commonwealth of **Australia**
18. U Po Kyin plots to destroy the reputation of Dr. Verasami in this author’s novel *Burmese Days*. For 10 points each:
- [10] Name this author, who wrote of O’Brien torturing Winston Smith in Room 101 in his dystopian novel *1984*.
ANSWER: George **Orwell** [or Eric Arthur **Blair**]
- [10] In Orwell’s *Animal Farm*, this pig, analogous to Stalin, establishes a secret police of dogs that chases away Snowball from Manor Farm.
ANSWER: **Napoleon**
- [10] The unnamed narrator of a George Orwell short story immediately regrets shooting one of these creatures with his .44 Winchester rifle in front of a Burmese crowd.
ANSWER: an **elephant** [or “**Shooting an Elephant**”]
19. Richard Kayne was a supporter of this man’s Minimalist program, which attempted to remove many elements of X-bar theory from syntax. For 10 points each:
- [10] Name this MIT linguist, the author of *The Sound Pattern of English* and *Syntactic Structures*.
ANSWER: Avram Noam **Chomsky**
- [10] Chomsky developed the “transformational-generative” and “Universal” types of this concept, a term used to describe the system of linguistic rules that compose a given language.
ANSWER: **grammar**
- [10] To demonstrate how a phrase can be grammatical but have no understandable meaning, Chomsky created a sentence in which “colorless green ideas” do this action “furiously.”
ANSWER: **sleep**

20. For a particle of this type, the kinetic energy is three-halves the temperature times Boltzmann's constant. For 10 points each:

[10] Name these substances that, ideally, conform to a law that equates pV with NRT .

ANSWER: ideal **gases**

[10] Superheated gases become this ionized form of matter in which electrons and nuclei can fully separate.

ANSWER: **plasmas**

[10] Supercooling a gas can generate this form of matter, in which lots of bosons collapse into the lowest quantum state, thus rendering quantum effects observable at the macro scale. They are often made from rubidium atoms.

ANSWER: **Bose-Einstein condensates** [or **BECs**]

extra bonus

21. Rafael Carrera and Rios Mantt were leaders of this country, which is now led by Álvaro Colom. For 10 points each:

[10] Name this country that was once led by Jacobo Arbenz Guzman. With Belize, it makes up Mexico's southern border.

ANSWER: **Guatemala**

[10] Arbenz was overthrown in a 1954 coup backed by this organization, which also sponsored a coup to oust Mohammad Mossadegh in Iran and trained Cuban exiles in the U.S. for the failed Bay of Pigs invasion.

ANSWER: the **CIA** [or **Central Intelligence Agency**]

[10] The period of "Ten Years of Spring" in Guatemala saw land reform, necessary because this banana-producing company owned over 40% of the country's land. It was known colloquially as "El Pulpo," or "the Octopus."

ANSWER: **United Fruit** Company [or **UFC**; prompt on **Chiquita** Brands International; prompt on **United Brands**]