

PACE NSC 2011

Edited by Mike Bentley, Matt Bollinger, Rob Carson, Kyle Haddad-Fonda, Hannah Kirsch, Trygve Meade, Bernadette Spencer, Guy Tabachnick, and Andy Watkins

Packet 14

Tossups

1. A disease caused by a mutation in one gene coding for this protein involves symptoms like “basket-weave” kidneys and kidney scarring and is called Alport syndrome. Integrin is key in binding it to cell membranes, and cortisol stimulates the degradation of this protein. The lens of the (*) eye contains its crystalline form, and vitamin C is a cofactor in this protein’s synthesis. The amino acid sequence glycine, proline, and hydroxyproline is abundant in its triple-helical structure, and this protein’s Type I is mineralized to form bone. For 10 points, name this protein that gives teeth, skin, and bones their tensile strength, the most abundant protein in the human body.

ANSWER: collagen

<Kirsch>

2. Remnants of one of the groups organized to suppress this rebellion would fight on in another country as the Black Flags. The leader of this rebellion had been influenced by a man named Issachar Roberts, and many of the participants belonged to the Hakka ethnic group. The central government relied on foreign mercenaries like Frederick Townsend Ward in suppressing it, and during this rebellion, a separate revolt by the (*) Nien people broke out. It was opposed by the Ever Victorious Army. Some 20 million people are estimated to have died in this revolt, during which the rebels set up a capital at Nanking. It was led by Hung Hsiu-ch’uan, a man who believed himself to be a brother of Jesus and sought to create the Heavenly Kingdom of Great Peace. For 10 points, name this mid-nineteenth-century Chinese rebellion.

ANSWER: Taiping Rebellion [or Taiping Revolt; or Tai Ping Tian Guo; accept Kingdom of Heavenly Peace Rebellion before mention]

<Bentley>

3. One figure in this work repeats the odd phrase “Nautron respoc lorni virch” every morning, and several plates and utensils in this work are inscribed with the motto “Mobilis in Mobile N.” The owner of its primary setting gives gold to the poor in India and once saved a wounded (*) pearl hunter despite his misanthropy. Near its opening, Conseil and the hunter Ned Land stand aboard the *Abraham Lincoln* with its narrator, Professor Pierre Arronax; that trio survives the book’s climax by escaping the Maelstrom. For 10 points, name this book in which an elusive narwhal is actually the *Nautilus*, Captain Nemo’s squid-proof submarine, a novel by Jules Verne.

ANSWER: Twenty-Thousand Leagues Under the Sea [or Vingt mille lieues sous les mers]

<Jackson>

4. **One artist in this movement made photographs like *Greetings!* influenced by Étienne-Jules Marey. An amorphous red stallion charges while men strain to hold him back in one painting from this movement, *The City Rises*. One painting from this movement depicts a man lunging forward as he and many others carry (*) black flags. Another work shows a silver chain swinging in four different places while a man's shoe is seen in several phases of taking a step, as is the title character. Those paintings are *Funeral of the Anarchist Galli* and *Dynamism of a Dog on a Leash*. For 10 points, name this artistic movement whose proponents included Carlo Carrà, Giacomo Balla, and Umberto Boccioni and whose manifesto was written by Filippo Marinetti.**

ANSWER: Futurism

<Tabachnick>

5. **In political thought, this man contributed a comparison of socialism, anarchism, and syndicalism, three of the titular *Roads to Freedom*. In another work sometimes viewed as a sequel to his *What I Believe*, he critiqued organized religion and as a whole, writing that “No one can sit at the bedside of a dying child and claim to believe in God” in an attempt to explain *Why I Am Not a* (*) *Christian*. Other works by this man include one written with Alfred North Whitehead, in which he explained the whole of mathematics in terms of logical expressions. For 10 points, name this modern British philosopher who wrote *Principia Mathematica*.**

ANSWER: Bertrand Russell

<Meade>

6. **This lawyer presented the argument that “a law cannot exceed the authority of the lawgiver” in a case involving the selling of D.C. lottery tickets in another state, *Cohens v. Virginia*. Later, he negotiated a treaty that helped mediate the Caroline Affair. This lawyer argued against a state's right to tax a federal bank in (*) *McCulloch v. Maryland*. He served as Secretary of State under William Henry Harrison and John Tyler and during his time in office negotiated a treaty that settled the border of Maine. This man's “Second Reply to Robert Hayne” during the Nullification Crisis contains the famous phrase, “Liberty and Union, now and forever, one and inseparable!” For 10 points, name this noted orator, a senator from Massachusetts.**

ANSWER: Daniel Webster

<Bentley>

7. **In June 2010, this man and Bashar al-Asad formed the “Movement of Free Allies.” This man has championed the so-called Bank of the South. He secured Russian help to build the first nuclear power plant in his country in October 2010 and in April 2011 offered to negotiate between Libya's Transitional Council and Muammar Qaddafi. His September 2006 speech at the United Nations referred to George W. Bush as (*) “the devil,” but just seven months earlier he had offered discounted heating oil to poor Americans. His United Socialist Party pushed through a referendum to eliminate term limits in 2009, allowing his Bolivarian Revolution to continue indefinitely. For 10 points, name this president of Venezuela.**

ANSWER: Hugo Chavez

<Haddad-Fonda>

8. One work by this composer features the song “Come Sunday”, and his band members included double bass virtuoso Jimmy Blanton. This composer’s 15-minute “In the Beginning God” is part of the first of three “sacred concerts” he wrote late in life. Members of this bandleader’s ensemble included saxophonist Johnny Hodges. His concert works include the symphony *Black, Brown and Beige*. This man’s band performed songs, including (*) “Chelsea Bridge”, that were composed by Billy Strayhorn, as well as “Mood Indigo” and “Sophisticated Lady”. For 10 points, name this composer of “It Don’t Mean a Thing (If It Ain’t Got That Swing)”, a jazz pianist whose band performed “Take the ‘A’ Train”.

ANSWER: Edward Kennedy “Duke” Ellington

<Tabachnick>

9. This process is inhibited by the PI3K pathway, and it can be initiated upon the binding of Apo-1 to Fas receptors, which leads to the formation of DISC complexes. Proteins in the Bcl2 family inhibit this process, while proteins like Bax and (*) Bad promote it. This process, which occurs 191 times during *C. elegans* development, can be initiated upon an increase in p53 concentration due to DNA damage. It occurs upon the release of cytochrome c from the inner membrane of the mitochondria, which activates a caspase cascade. The action of those proteases leads to blebbing and the eventual fragmentation of the cell. For 10 points, name this process of controlled cell death.

ANSWER: apoptosis

<Kirsch>

10. One king of this country was never able to put his Bayonne Statute into full effect, although four years later this country passed a then-groundbreaking constitution that enfranchised all non-Africans. That king’s predecessor was served by the so-called Prince of the Peace before fleeing the country. A rebel force in this country won a pivotal victory over General Pierre Dupont at the Battle of Bailen, although it wouldn’t be until (*) Jean-Baptiste Jourdan’s troops were defeated at Vitoria that this country would finally throw off foreign yoke. It’s not in Italy, but this kingdom was once ruled by Joseph Bonaparte, and it was the site of the Second of May, 1808 Uprising. For 10 points, name this European country occupied by France during the Peninsular War.

ANSWER: Spain

<Bentley>

11. One character in this work complains about the antics of Dora Williams and Reuben Pantier, and another complains that his wife “took [his] life by hours.” Those two characters, A.D. Blood and Fletcher McGee, lived in the title location of this work along with the village poetess Minerva Jones, who was accidentally killed in a botched abortion by (*) Doc Meyers. The title location of this work was also inhabited by the happy couple Davis and Lucinda Matlock and the banker Thomas Rhodes, who, among others, “all, all are sleeping on the hill.” For 10 points, name this poetry collection in which dead residents of the title town speak from the grave, a work of Edgar Lee Masters.

ANSWER: Spoon River Anthology

<Angelo>

12. This composer wrote a masque containing “Satan’s Dance of Triumph” that was based on engravings by Blake. This composer of *Job* included the song “Bredon Hill” in a song cycle based on A.E. Housman poems. His seventh symphony is an adaptation of his film score for *Scott of the Antarctic*. He wrote a tone poem about a (*) bird “lost on his aerial rings” in a poem by George Meredith. This man used two separate string orchestras and a string quartet for a “Jacobean Fantasy” based on a tune he included in an English hymnal. His second symphony references hansom cabs in its namesake city. For 10 points, name this British composer of *The Lark Ascending*, *A London Symphony*, and *Fantasia on a Theme of Thomas Tallis*.

ANSWER: Ralph Vaughan Williams

<Bollinger>

13. One end-times scenario of this faith involves a river of metal created by melting all the minerals of the earth. The first ruler to adopt it as an official faith was King Vishtaspa, and one of its rituals involves a drink made from water, pomegranate leaves, and the haoma plant. It lumps together all evil actions as falsehoods, or *druj*, and, like in Judaism, each of its temples houses a sacred fire. Its (*) *Vendidad* text describes the evil *daevas* and discourages burial in favor of leaving bodies on vulture-inhabited Towers of Silence, and its founder allegedly wrote the Gathas as part of its holy scripture, the *Zend Avesta*. For 10 points, name this religion that believes in the evil Ahriman’s fight with the good god Ahura Mazda and is named for its Persian prophet founder.

ANSWER: Zoroastrianism [or Mazdaism]

<Jackson>

14. One side in a rebellion in this city was led by Ferdinand von Sammern-Frankenegg until he was replaced following a failed offensive. That same uprising in this city was carried out by members of the ZOB and ZZW and sought to resist the January Aktion. Leon Uris wrote a novel about the headquarters of a resistance movement in this city titled *Mila 18*. Jurgen Stroop ordered the destruction of the Tlomackie (*) Synagogue in this city as a symbol of German victory; that assault on a section of this city was ordered against a population resisting deportation to Treblinka. For 10 points, name this site of a 1943 Jewish uprising against the Nazis in a namesake ghetto, also the capital of modern-day Poland.

ANSWER: Warsaw, Poland

<Cohen>

15. One combination of two of these devices intended to mitigate the Miller effect is a cascode amplifier, and Darlington pairs behave like single ones with approximately the product of the respective current gains. The most common current type of these devices, often employed in the (*) CMOS configuration on integrated circuits, exploits the ability of a voltage to induce a conducting channel elsewhere via field effects. The bipolar junction type of these devices gradually has given way to MOSFETs. For 10 points, name these three-terminal semiconductor devices, which amplify and switch electronic signals.

ANSWER: transistors

<Watkins>

16. This author wrote about the Frenchman Raoul Duquette, who discovers that his friend Dick Harmon is breaking up with Mouse, in “Je Ne Parle Pas Français.” In another story by this author, the boss decides to test the title creature’s resolve after Woodfield reminds him of his son Reggie’s death. This author of “The Fly” wrote a story about a (*) fur-wearing English teacher who observes people around her in a park, only to notice a young couple mocking her. This author of “Miss Brill” wrote a work in which Mrs. Scott’s husband dies in a mining accident, bringing grief to Laura Sheridan in spite of the marquee that’s been set up outside. For 10 points, name this New Zealand author of “The Garden Party.”

ANSWER: Katherine Mansfield

<Nediger>

17. One chapter in this book attributes the success of the cloth business in its model to the sharpness of the knives and to the “Polish Jew”; that chapter is “The Sweaters of Jewtown.” This book contains a model colored map dividing its subject city into various ethnicities, and notes that the law defines its subject as “occupied by three or more families, living independently and doing their cooking on the premises.” The epilogue of this book attempts one of the earliest programs of subsidized model (*) housing projects and advocates legislative change to achieve them. For 10 points, identify this early sociological work about immigrants and tenements in New York written by the journalist Jacob Riis.

ANSWER: How the Other Half Lives: *Studies Among the Tenements in New York*

<Meade>

18. One character in this play writes an extemporaneous quartet about Betty Curricl’s ponies and fancies himself a “wit and a poet.” Another character disguises himself as Mr. Premium and buys his family’s portraits from his unknowing nephew. In addition to Benjamin Backbite and Sir Oliver, this play’s characters include Verjuice and Lady (*) Sneerwell, the leader of the title group. In this play, Peter Teazle’s wife is linked romantically to Charles Surface but is actually having an affair with Charles’s brother Joseph. For 10 points, name this play by Richard Brinsley Sheridan in which Lady Teazle associates with the title group of rumor-mongers.

ANSWER: *The* School for Scandal

<Wynne>

19. One of these objects results from compactifying the union of infinity and the complex numbers; that one, equivalent to the extended complex plane, is named for Riemann. The homeomorphic relation between simply connected, closed 3-manifolds and a type of these was shown in Grigori Perelman’s proof of the Poincaré conjecture. A lack of Lebesgue measure in fragments of these helps resolve the (*) Banach-Tarski paradox, which considers the set of points bounded by one of these, cuts it into pieces, and constructs two equivalent objects. Diametrically opposite points on these are called antipodes, and the angle phi joins theta in their namesake coordinates, in which rho signifies distance from the origin. For 10 points, name these objects whose enclosed volume is four-thirds pi r^3 .

ANSWER: sphere [prompt on ball during and after the Banach-Tarski clues; accept extended complex plane until read]

<Jackson>

20. During a storm, this man accidentally killed the hospitable king of the Doliones, Cyzicus. He sired twins before abandoning the malodorous isle of Lemnos and its queen, Hypsipyle. This son of Alcimede yoked two bronze-hoofed, fire-breathing bulls and carried a (*) goddess disguised as an old woman across a river. He was sent by his uncle, king Pelias of Iolcus, to deal with Aeetes after arriving home wearing only one sandal. That journey took him through the Symplegades to Colchis and back through the Hellespont. For 10 points, name this husband of Medea, a Greek hero who sailed in search of the Golden Fleece with the Argonauts.

ANSWER: Jason [or Iason]

<Jackson>

21. This supporter of “coal-whippers” resigned one post after supporting increased grants to Maynooth Seminary, since it contradicted views laid out in his work *The State in its Relations with the Church*. He personally talked to street prostitutes as leader of the Church Penitentiary Society for the Reform of Fallen Women. His pamphlet on the “Question of the East” opposed Turkish massacres, which he called the (*) “Bulgarian Horrors,” and was written during his Midlothian campaign. He expanded the Land Act with ally-turned-adversary Charles Parnell, and after opposing the Second but passing the Third Reform Act, he failed to pass bills for Irish Home Rule during his third term. For 10 points, name this four-time Liberal prime minister of Britain, the rival of Benjamin Disraeli.

ANSWER: William Ewart Gladstone

<Jackson>

22. The plateau principle of this field concerns exponential approaches to steady states, and Patlak plots are employed in compartment models of one part of this field. Concepts in this field include the “therapeutic window,” which is very small for molecules like warfarin, and (*) Schild regression may be performed to estimate dose-response curves. Its two major branches include the study of its subject compounds' absorption, metabolism, and excretion and the study of their actual interactions with receptors. For 10 points, name this field that studies the interaction between organisms and drugs.

ANSWER: pharmacology

<Watkins>

23. This man's best-known work opens as a woman with a hare-lip rapes her brother-in-law while her father steals that man's turnips. One of this man's characters kidnaps an albino named Dave Dawson to find gold on his land. This man wrote about a family that ruins Bessie's car while driving to (*) Augusta but fails to sell wood there. That family includes Lov and his fifteen-year-old wife Pearl, and those characters are incinerated after attempting to burn the broomsedge off their land. Besides writing about Ty Ty Walden in *God's Little Acre*, this man documented the disasters befalling the sharecropping family of Jeeter Lester. For 10 points, name this Southern American author of *Tobacco Road*.

ANSWER: Erskine Caldwell

<Bollinger>

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Bonuses

1. Early in life he was captured by pirates. For 10 points each:

[10] Identify this man who defeated Pompey at Pharsalus but was assassinated by a group of conspirators, including Brutus.

ANSWER: Gaius Julius **Caesar**

[10] Julius Caesar uttered the phrase “Veni, vidi, vici” after defeating Pharnaces II, a ruler of this Anatolian kingdom with capital at Amaseia.

ANSWER: **Pontus** [or **Pontos**; or Kingdom of **Pontus**; or **Pontic Empire**]

[10] Pharnaces II overthrew this father of his, a notorious king of Pontus who defeated Lucius Murena and slaughtered thousands of Roman citizens before being defeated by Pompey. This sixth in the line of kings of Pontus allegedly built up an immunity to poison.

ANSWER: **Mithridates** VI Eupator

<Bollinger>

2. This experiment employed a half-silvered mirror to split a beam of light into two perpendicular beams. For 10 points each:

[10] Name this experiment, the results of whose interferometry were intended to investigate the properties of the aether wind. It came up with nothing.

ANSWER: **Michelson-Morley** experiment

[10] While in Galileian relativity one could merely have added or subtracted the relative velocity, special relativity requires that these mathematical transformations be used to convert between two observers' frames of reference.

ANSWER: **Lorentz** transformations

[10] The use of Lorentz transformations is required because special relativity can be considered to be a natural consequence of the geometry of this four-dimensional manifold describing spacetime.

ANSWER: **Minkowski** space

<Watkins>

3. In one of this author's plays, Thérèse describes a horned monster rising from the waves to kill Hippolyte offstage, leading the wife of Thésée to poison herself. For 10 points each:

[10] Name this French tragedian, the author of *Andromaque* and *Phèdre*.

ANSWER: Jean **Racine**

[10] Racine wrote his tragedies in rhyming couplets of this 12-line meter with stresses on the sixth and twelfth syllables.

ANSWER: **alexandrines** [or **alexandrine** meter]

[10] In Racine's play *Britannicus*, the title general loses the Roman emperorship to this historical figure. His teacher Seneca wrote a *Phaedra* tragedy that inspired Racine's, and other literary works focus on his persecution of Christians after the Great Fire.

ANSWER: **Nero** Claudius Caesar Augustus Germanicus

<Jackson>

4. One of this writer's essays claims that no art can be criticized in a vacuum but only understood in the context of its predecessors. For 10 points each:

[10] Name this poet and critic who wrote *Tradition and the Individual Talent* and several essays collected in *The Sacred Wood*.

ANSWER: Thomas Stearns **Eliot**

[10] *Hamlet's* problems include the failure to satisfy this critical ideal of Eliot, in which works of literature mean what they say while their words have connections to hidden meanings or ideas which follow naturally from them.

ANSWER: **objective correlative**

[10] Eliot also wrote extensively on this group of lyric poets that included George Herbert, Andrew Marvell, and John Donne.

ANSWER: **Metaphysical** poets

<Meade>

5. This man legendarily received a copy of the *Anti-Duhring* as a prize for winning a chess tournament. For 10 points each:

[10] Name this dictator who established a "Revolutionary government" and held power in Budapest until 1988.

ANSWER: Janos **Kadar**

[10] Budapest is the capital of this nation over which Janos Kadar held power.

ANSWER: **Hungary**

[10] This future Russian premiere was in Budapest at the time of the Hungarian revolution. He convinced Khrushchev to use military force to crush it and ensured the death of Imre Nagy (NAJ); later, he succeeded Brezhnev.

ANSWER: Yuri Vladimirovich **Andropov**

<Bollinger>

6. These entities are made of tiny ice crystals and drops of water. For 10 points each:

[10] Name these entities, which are classified based on their shape and altitude into categories such as cirrus, stratus, and cumulus.

ANSWER: **clouds**

[10] Köhler theory models cloud formation theory by considering Raoult's law as well as this effect, wherein high-curvature surfaces have higher effective vapor pressure due to their higher surface area-to-volume ratio.

ANSWER: **Gibbs-Thomson** effect [or Gibbs-**Kelvin** effect]

[10] A prominent application of the Gibbs-Thomson effect is this phenomenon, in which small precipitating particles redissolve and large ones grow.

ANSWER: **Ostwald ripening**

<Watkins>

7. This author wrote an acrostic poem with 26 stanzas, each beginning with a letter of the medieval Latin alphabet. For 10 points each:

[10] Identify this author of “An ABC” and a poem whose speaker hears three tercel eagles argue at a location he was guided to by Scipio Africanus, titled *The Parlament of Foules*.

ANSWER: Geoffrey **Chaucer**

[10] In Chaucer’s adaptation of a Trojan War story, this lover of Cressida exchanges vows with her in an orchard and is heartbroken when she throws herself at Diomedes later.

ANSWER: **Troilus**

[10] Troilus and Cressida are brought together by this lord, Criseyde’s uncle, who owns numerous books on the Theban war and personifies learning and artifice.

ANSWER: **Pandarus**

<Gupta>

8. This artist painted *putti* looking down from an oculus on the ceiling of the Camera degli Sposi. For 10 points each:

[10] Name this man who decorated the Ducal Palace and who showed a severely foreshortened corpse whose lower body is enshrouded in one painting. He painted *The Agony in the Garden*.

ANSWER: Andrea **Mantegna**

[10] That foreshortened work depicts the Lamentation of this figure. Weeping in the corner are his mother and John the Baptist.

ANSWER: **Jesus Christ** [accept either or equivalents]

[10] Mantegna painted the frescos in the Ducal Palace in Mantua for this family’s Duke Ludovico, whom he depicted in his court on the north wall.

ANSWER: **Gonzaga**

<Tabachnick>

9. Answer the following questions about religion and politics in Persia for 10 points each.

[10] Ghazan, the seventh Ilkhanid ruler of *this* ethnicity, converted to Islam in 1295 in order to secure the political support of the Emir Nawruz. These people had conquered much of the Middle East under Hulagu in the 1250s and 1260s, and their other leaders included Kublai.

ANSWER: **Mongols**

[10] Shah Isma‘il I was descended from a long line of Sunni sufi leaders, but he declared Shi‘ism to be the official religion of this Persian dynasty after he established it in 1501. This dynasty lasted until 1736 and fought many wars with the neighboring Ottoman Empire.

ANSWER: **Safavid** Dynasty

[10] Both Ghazan Khan and Isma‘il I made this city in northern Iran their capital. Currently the fourth most populous city behind Mashhad and Isfahan in Iran, it has an Azeri majority and Persian minority.

ANSWER: **Tabriz**

<Haddad-Fonda>

10. The epigeal type of these eventually become photosynthetic, while the hypogeal type remains underground and does not photosynthesize. For 10 points each:

[10] Identify this portion of the plant embryo that can develop into the first leaves of a plant.

ANSWER: **cotyledons** [or **seed leaves**]

[10] This type of angiosperm has scattered vascular bundles and trimerous flowers, as well as a certain number of seed leaves.

ANSWER: **monocotyledons**

[10] This part of the pistil contains the ovule, which produces egg cells and eventually develops into the seed.

ANSWER: **ovary**

<Kirsch>

11. Identify the following authors known for writing about particular geographic locales, for 10 points each:

[10] This author created the cow Mistress Mooly in a work that sees Sylvia choose poverty over the death of the title creature in “A White Heron.” Mrs. Todd and Captain Littlepage appear in her most famous novel, *The Country of the Pointed Firs*.

ANSWER: Sarah Orne **Jewett**

[10] This satirist wrote about the Mississippi river in works about Tom Sawyer and Huck Finn.

ANSWER: Mark **Twain** [or Samuel Langhorne **Clemens**]

[10] This author wrote poems like “Sunrise,” “The Marshes of Glynn,” and “The Song of the Chattahoochee” about his beloved native Georgia.

ANSWER: Sidney **Lanier**

<Ray>

12. This group oppresses the people of Zeniff, who had left Zarahemla to return to their ancestral homeland only to find this group occupying it. For 10 points each:

[10] Name this race, which later emerges victorious at the battle of Cumorah. They are divinely marked with dark skin for their evil ways.

ANSWER: **Lamanites**

[10] The Lamanites defeat the Nephites in North America during an episode in this religious text, which according to tradition was revealed to Joseph Smith as an inscription on golden plates.

ANSWER: **Book of Mormon**

[10] This scripture joins the Bible and the Doctrine and Covenants among the Latter-Day Saints' standard works. Containing the Book of Abraham and autobiographical material by Joseph Smith, it takes its name from a parable in the Gospel of Matthew.

ANSWER: **Pearl of Great Price**

<Jackson>

13. A menorah appears among a procession of spoils of war in this work. For 10 points each:

[10] Name this ceremonial triumph erected on the Via Sacra to honor its namesake emperor's conquest of Judea.

ANSWER: the **Arch** of **Titus**

[10] This other ceremonious erection depicts the Dacian Wars in a frieze spiraling up its entire length. It resides in its namesake emperor's forum.

ANSWER: **Trajan's Column**

[10] This Roman emperor set up the Ara Pacis in the Campus Martius. It shows his ancestor Aeneas making a sacrifice. This emperor is seen pointing his right index finger in the Prima Porta statue of him, and he made a forum to rival that of his predecessor, Julius Caesar.

ANSWER: Gaius Julius Caesar **Augustus** [or Gaius **Octavius** Thurinus; or **Octavianus**]

<Tabachnick>

14. Examples of these entities include one that describes ideal gases. For 10 points each:

[10] Name these laws, which relate variables like temperature and pressure.

ANSWER: **equation of state**

[10] This equation of state is an infinite series in negative powers of the molar volume. It follows from first principles in statistical mechanics, rather than being an empirical fit like other equations of state.

ANSWER: **virial** equation [or the **Kamerlingh Onnes** equation]

[10] This triplet of pressure, volume, and temperature conditions may be found from the parameters of any equation of state by setting the first and second derivatives of pressure with respect to volume equal to zero.

ANSWER: **critical point**

<Watkins>

15. Answer these questions relating to mythological music, for 10 points each.

[10] These man-eating bird-ladies in Greek myth had their song drowned out by the louder music of Orpheus. Another captain tied himself to his ship's mast so he could hear them without dying.

ANSWER: the Sirens [or Seirenes]

[10] The folkloric Finnish bard Vainamoinen fashioned the body of his zither-like instrument, the first *kantele*, from this part of a fish. According to the Maori, the hero Maui used that of his grandmother to slow down the Sun and pull large islands from the sea.

ANSWER: a jawbone

[10] The Dagda, leader of this Celtic race of deities, owned a magical harp that could change the seasons. These gods conquered Ireland from the Firbolg and fought the Fomorians at Magh Tuiredh.

ANSWER: Tuatha de Danaan [or the people of Danu]

<Jackson>

16. This anthropologist achieved a chiefhood in a village called Sa'anapu. For 10 points each:

[10] Name this man who confronted another anthropologist about his fieldwork allegedly corrupting the people of Kajang. He also wrote about another anthropologist's "fateful hoaxing."

ANSWER: Derek Freeman

[10] That book about a "fateful hoaxing" was written in response to this work, which described the teenagers of a certain island group as sexually loose and uninhibited.

ANSWER: Coming of Age in Samoa

[10] Name the anthropologist with whom Freeman feuded about her book *Coming of Age in Samoa*.

ANSWER: Margaret Mead

<Meade>

17. For 10 points each, name these piano sonatas by Beethoven.

[10] This work's first movement begins with a short Grave section, innovative for a sonata, while its second movement is marked Adagio cantabile. It is named for the sadness it evokes.

ANSWER: Piano Sonata No. 8 in C minor, Op. 13, "Pathetique" [accept any]

[10] Originally called "Quasi una fantasia," this piece got its common name because Ludwig Rellstab thought it reminded him of a setting at Lake Lucerne. It begins with an Adagio sostenuto, while its third movement has frequent sforzandos belying its piano marking.

ANSWER: Piano Sonata No. 14 in C sharp minor, Op. 27 No. 2 [accept any; or Moonlight Sonata]

[10] This is Beethoven's longest and most difficult piano sonata. It ends with a fugue introduced by a trill and contains every method of fugal permutation, including stating the theme backwards.

ANSWER: Piano Sonata No. 29 in B flat major, Op. 106, "Hammerklavier" [accept any]

<Tabachnick>

18. Answer these questions about India's Himachal Pradesh for 10 points each.

[10] The capital city of Himachal Pradesh is this city called the "Queen of the Hills" that was once famous as the summer capital of the British Raj.

ANSWER: **Simla** [or **Shimla**]

[10] During the winter, the government of Himachal Pradesh moves to this city that is best known as the location of the Tibetan government-in-exile and of the Dalai Lama.

ANSWER: **Dharamsala** [or **Daramshala**]

[10] To the north of Himachal Pradesh lies this contested state that is currently divided between India and Pakistan.

ANSWER: Jammu and **Kashmir**

<Haddad-Fonda>

19. This man was once a member of the Oneida Community, and before his execution he sang the self-composed lines "I am going to the Lordy, I am so glad." For 10 points each:

[10] Identify this man most famous for an incident at the Pan-American Exposition.

ANSWER: Leon Frank **Czolgosz** [or Leon **Nieman**]

[10] Leon Czolgosz assassinated this president, the man who brought the United States into the Spanish-American War.

ANSWER: William **McKinley**, Jr.

[10] Much of our knowledge of life at this earlier Massachusetts utopian community comes from the letters of Mary Ann Dwight. It was founded by George Ripley.

ANSWER: **Brook Farm** Institute for Agriculture and Education

<Wynne>

20. Raised by Vanita and the accordionist Wee Willie Winkie after being switched at birth, he is sent to destroy the "magician's ghetto" as a major in "The Widow's" army. For 10 points each:

[10] Name this large-kneed character who hones his innate talent for fighting on the streets.

ANSWER: **Shiva** of the Knees

[10] Shiva is a rival to the large-nosed telepath Saleem Sinai in this Salman Rushdie novel, whose title superpowered group was born in the hour after the partition of India and Pakistan.

ANSWER: **Midnight's Children**

[10] *Midnight's Children* was recently declared the best winner of this award given to the novel of the year by authors from the United Kingdom or a Commonwealth country. Recent winners have included Aravind Adiga's *The White Tiger*.

ANSWER: Man **Booker** prize

<Jackson>

21. Identify the following about the history of New Mexico for 10 points each.

[10] Stephen W. Kearny's forces departed from this state and proceeded to "liberate" Santa Fe on their way to California in 1846. Many of Kearny's troops fought in the Mormon War in this state, which resulted in the expulsion of most of its Mormon population to Illinois.

ANSWER: Missouri

[10] Along with the Navajo, these Native Americans were the chief antagonists of white settlers in New Mexico. Prominent members of this tribe included Magnas Coloradas and Geronimo.

ANSWER: Chiricahua Apaches [or the Apachean People]

[10] New Mexico and other parts of the Southwest were explored following the Louisiana Purchase by an expedition led by this man. On that trip he passed through Colorado before getting arrested by Governor Salcedo.

ANSWER: Zebulon Montgomery Pike

<Bentley>

22. One of this man's poems repeatedly invokes "Our Lady of Pain." For 10 points each:

[10] Name this Victorian poet of "Dolores," "The Triumph of Time," and "Laus Veneris."

ANSWER: Algernon Swinburne

[10] In this work by Swinburne, Meleager kills the boar plaguing his land, but is killed by his mother Althaea for his hubris.

ANSWER: Atalanta in Calydon

[10] Swinburne also wrote a work based on this knight, whose tragic love for Isolde results in his death.

ANSWER: Tristan or Tristram

<Bollinger>

23. A solenoid is an example of these objects, made particularly strong by a piece of iron put inside the coil. For 10 points each:

[10] Name these objects, which exert a certain field due to the flow of current.

ANSWER: electromagnets

[10] This theory suggests that the flow of the outer core around the inner core creates an electromagnet, explaining the existence of the Earth's magnetic field.

ANSWER: dynamo theory

[10] When the current in an electromagnet is turned off, some of the domains in the magnetized material remain magnetized, an example of this phenomenon first modeled by Franz Preisach.

ANSWER: hysteresis

<Watkins>