



NASAT 2015 - Round 06 - Tossups

1. The change in this quantity multiplies i in the exponential of the integral giving the atomic form factor. Einstein suggested that the change in this quantity for the far screen would determine which slit a photon passes through. The "transfer" of this quantity, symbolized q , is a common term in scattering experiments. This quantity, divided by \hbar , gives the wavevector. The commutator of this quantity with x is i times \hbar . The energy of a photon equals the speed of light times this quantity. The Hamiltonian of a particle in a box is the square of its operator, over twice the mass. The de Broglie wavelength is Planck's constant over this quantity. For 10 points, name this quantity which, classically, equals mass times velocity.

ANSWER: linear momentum <Silverman>

2. In the first scene of this play, a woman inquires of a messenger, "how many hath he killed? for indeed I promised to eat all of his killing." A man in this play regrets that his friend would now rather hear "the tabour and the pipe" than "the drum and the fife." In a climactic confrontation in this play, a man exclaims, "Is this the prince? Is this the prince's brother?...Are our eyes our own?" Women are told to convert all their "sounds of woe into hey nonny nonny" in a song in this play urging them to "sigh no more." In this play, Borachio and Margaret become part of a scheme by Don John that leads to the faked death of Hero, who is in love with Claudio. For 10 points, name this Shakespeare play featuring a "merry war" between Beatrice and Benedick.

ANSWER: *Much Ado About Nothing* <Gehring>

3. In a story by this author, a woman begins a relationship with her stepson after breastfeeding him, but eventually dies of shock when a centipede bites her. A novel by this author ends with the protagonist contemplating one of his father-in-law's puppets while awaiting the return of his estranged wife. In a novel by this author, a firefly hunt is contrasted with a family's annual cherry blossom-viewing trips. A novel by this author follows an engineer who molds the title teen waitress into a "modern girl." In one of his novels, the beauty parlor owner Itani suggests various marriage prospects for one of the title characters, Yukiko. For 10 points, name this Japanese author of *Naomi*, *Some Prefer Nettles*, and *The Makioka Sisters*.

ANSWER: Jun'ichiro Tanizaki [or Tanizaki Jun'ichiro] <Brownstein>

4. A painting identified at the Prado in 2010 as being by this artist features a saint dividing his cloak on the right. Another of this artist's four surviving paintings in distemper includes a man who has just fallen on his back in a ditch at the head of a diagonally-oriented procession connected by their staffs. He also depicted that parable from Matthew at the background of a canvas in which a woman puts a blue cloak on her husband, indicating that he is a cuckold, one of many illustrations of idioms. In another of his paintings, a farmer, shepherd, and angler fail to notice a boy dangling his legs, about to drown. For 10 points, name this Flemish artist of *Netherlandish Proverbs* and *Landscape with the Fall of Icarus*.

ANSWER: Pieter **Bruegel** the Elder [or Peasant **Bruegel**] <Saric>

5. In 2014, the Fresno City Council agreed to remove one of these places designed by Garrett Eckbo on Fulton Street. Victor Gruen built one for Kalamazoo, the first in the United States. Mayor Jane Byrne turned nine blocks of State Street in Chicago into one of these places in an unsuccessful attempt to keep businesses from leaving the city center. In the 1960s and 70s, many were built in hopes of revitalizing downtowns and competing with places like the Southdale Center in the Minneapolis suburbs. More successful examples have been built in college towns, like the one in Charlottesville, Virginia or on Pearl Street in Boulder, Colorado. For 10 points, name these shopping areas where cars are prohibited.

ANSWER: **pedestrian malls** [or **pedestrian zones**; prompt on "mall"] <Bailey>

6. This hero strikes the ground with an arrow to bring forth water for a dying enemy, whom this hero had previously struck with so many arrows that his fallen body appears to be resting on a bed of arrows. This man wins a battle against a warrior whose chariot becomes stuck in some mud. This slayer of Bhishma and rival of Karna wins the hand of his wife after he shoots the eye of a golden fish while staring only at its reflection in a bowl of oil. This hero is reluctant to fight Duryodhana in the Kurukshetra War until his companion declares "Now I am become death, the destroyer of worlds." For 10 points, name this Pandava prince whose charioteer Krishna delivers the *Bhagavad Gita* in the *Mahabharata*.

ANSWER: **Arjuna** [or **Arjun**] <Kim>

7. The Suppressor-of-White-APricot domain regulates this process. Prp24 helps form a duplex during this process, which is promoted by serine/arginine-rich SR proteins binding to ESEs. Parts for this process are stored in namesake speckles. This process starts with an attack on a namesake donor site by the branchpoint, which then attacks the 3-prime acceptor site adjacent to a polypyrimidine tract in a second transesterification. Its "alternative" type produces protein isoforms. U4, U5, and U6 snRNAs form a triple-snurp complex during it. The reading frame can be restored in this process by skipping over exons. For 10 points, name this process in which introns are excised from pre-mRNA.

ANSWER: RNA **splicing** [or **splice**; or alternative **splicing**; prompt on pre-messenger **RNA processing** and **spliceosome formation**] <Smart>

8. This man is baffled when he observes a mysterious figure that "looks like a son of the gods" walking amongst a group of prisoners. This man is described as "drenched with the dew of heaven" and eating "grass like an ox" after he is punished with seven years of madness, as prophesied by a dream in which a bountiful tree is ordered to be chopped down. This man has a dream in which a statue is made of various precious metals but has feet made of iron and clay. Three servants of this ruler are re-named Shadrach, Meshach, and Abednego and ordered to be thrown into a fiery furnace. Daniel interprets the dreams of this emperor, who orders the destruction of the First Temple in Jerusalem. For 10 points, name this emperor who initiates the Babylonian Captivity.

ANSWER: **Nebuchadnezzar** II <Kim>

9. The AK-47 was first used on a wide scale during this event. During this event, the Dudas Group attacked members of the AVH Secret Police. Its leader was deported to Romania after leaving the Yugoslavian embassy despite a promise of safe conduct. Tensions resulting from this event spilled over into an Olympic water polo match that became known as the "Blood in the Water Match." It was inspired in part by the Secret Speech of Nikita Khrushchev, and following it, premier Janos Kadar instituted the system of "goulash communism." For 10 points, name this 1956 revolution in which Imre Nagy's attempt to withdraw a Central European country from the Warsaw Pact was quelled by a Soviet invasion.

ANSWER: **Hungarian** Revolution of 1956 [or anything indicating an uprising in **Hungary** in 1956] <Douglass>

10. In this period, Ishida Baigan's religion of "Heart Learning" was among the various movements to legitimize business. During this period, nobles were forced to leave their families in the imperial capital as hostages when they were at their castles in the *sankin-kotai*, or alternate attendance, policy. In the later part of this period, known as the Bakumatsu, the Convention of Kanagawa was signed, signaling the reversal of this period's *sakoku* isolationist policy. The founder of this government defeated an alliance led by Ishida Mitsunari at the Battle of Sekigahara, and this shogunate was ended by the restoration to power of the Meiji Emperor. For 10 points, name this last shogunate of Japan that was founded by Ieyasu.

ANSWER: **Tokugawa** Shogunate [or **Tokugawa** bakufu; or **Edo** bakufu] <O'Rourke>

11. Goursat's theorem makes it easy to check differentiability of a function over this set. If a function over this set is bounded and entire, then it is constant by Liouville's theorem. Fractional linear transformations named for Mobius take this set to itself. Extending this set by adjoining a point at infinity in this set allows for it to be mapped to a sphere via stereographic projection. Differentiable functions from this set to itself satisfy the Cauchy-Riemann equations and are referred to as holomorphic. This field is the algebraic closure of the real numbers, and numbers of this type can be written in the form $r \text{ times } e \text{ to the } i \text{ times } \theta$. For 10 points, name this set of numbers which can be written in the form $a + bi$.

ANSWER: **complex** numbers <Schindler>

12. This book credits a Prince Lichnowsky with coining the phrase "hasn't go no date" to describe historical existence transcending specific circumstances. A section of this book that argues against Nassau Senior's conception of the crucial "last hour" says that all goods, and not just those produced at the point of profitability, contain "c," "v," and "s" values. This book introduces the "MCM" and "CMC" paradigms for the flow of money into commodities, and it claims that the "use-value" of every good is objective and inherent. This book's labor theory of value blames a class of "accumulators" for creating a class of wage-dependents. For 10 points, name this book which was redacted by Friedrich Engels following the death of its primary author, Karl Marx.

ANSWER: **Capital** [or *Das Kapital*, *Kritik der politischen Ökonomie*; or **Capital: A Critique of Political Economy**] <Bollinger>

13. The penultimate chapter of this novel is a police report which describes how two men call each other names like "Teresa" and "Perla." In a section of this novel set in Paris, a man with a clubfoot runs over a chorus girl with his car. The lengthy footnotes of this novel describe the theories of psychologists like D. J. West, Lang, and Freud. This novel ends with the protagonist being tortured and having a morphine-induced dream in which he lands on a tropical island and meets his lover Marta. Stories told in this novel include one set on a zombie-infested island and one featuring a woman who can turn into a "cat person." For 10 points, name this novel in which the homosexual Molina relates the plots of movies to his cellmate Valentine, a work of Manuel Puig.

ANSWER: *The **Kiss of the Spider Woman*** [or *El beso de la mujer arana*] <Brownstein>

14. Scientists observing this region once thought an odd green emission line from it was due to a new element called "newtonium", but later discovered it was due to highly ionized iron—Fe thirteen plus. Phenomena observed in this region include polar plumes and helmet streamers. Alfvén waves have been proposed as an energy source for this region, and the magnetic reconnection theory makes use of spicules that extend into it. X-ray telescopes first discovered its namesake holes, which are the origins of solar wind. Huge amounts of plasma can be released in its "mass ejections." Scientists are still confused as to why this region is so much hotter than the Sun's surface. For 10 points, name this outermost layer of the Sun that's usually only visible during a solar eclipse.

ANSWER: **corona** [prompt on the **Sun**'s atmosphere] <Lee>

15. In a novel by this man, the phrase "Tekeli-li" is cried by natives of an island off the coast of Antarctica, who gleefully set fire to the *Jane Guy*. In that novel by this man, the half-Indian Dirk Peters launches a rebellion with Augustus and the title character on the *Grampus*. In a story by this author, the title creature's image appears on a wall with a hangman's noose around its head. At the end of that story of his, the police are alerted to the location of the narrator's wife's corpse by the cries of Pluto. General Lasalle rescues the narrator from the Spanish Inquisition in another of his stories. For 10 points, name this author of *The Narrative of Arthur Gordon Pym* who also wrote "The Black Cat" and "The Pit and the Pendulum."

ANSWER: Edgar Allan **Poe** <Sy>

16. After this emperor appointed his former tutor as the "Prince-Pope" of a group of his drinking buddies, he decided to have his "Drunken Synod" parody the *sviatki* folk custom. This emperor allowed the black general Abram Gannibal, the grandfather of a famous poet, to rise to a position of power in his court. During a power struggle between the Naryshkin and Miloslavsky families, this ruler's sister Sophia encouraged a rebellion of the musket-wielding streltsy regiments. This ruler learned shipbuilding in the Netherlands as part of his "Grand Embassy," and he attempted to westernize his country by making the boyars shave their beards. For 10 points, name this modernizing tsar of Russia who won the Great Northern War.

ANSWER: **Peter the Great** [or **Peter I**; or **Pyotr the Great**; or **Pyotr I**; prompt on **Peter** or **Pyotr** Alexeyevich Romanov] <O'Rourke>

17. A 2011 Criterion Collection special release of this film bundled it with the thematically-similar *King, Queen, Joker*, which stars its lead actor's brother. A character in this film shaves a man to the tune of Brahms's *Hungarian Dance No. 5*. The prelude to *Lohengrin* is played over both this film's closing speech and a scene in which the title character tosses around an inflatable globe. This film's closing speech addresses soldiers who are controlled by "machine men with machine minds and machine hearts," and is given by a Jewish barber who looks identical to the title character. For 10 points, name this film in which Charlie Chaplin plays Adenoid Hynkel, a parody of Adolf Hitler.

ANSWER: *The **Great Dictator*** <Golimlim>

18. The opening movement of this piece begins with the quarter notes "G, F, B-flat," then the rising eighth notes "C, F," then a quarter note "D." In a movement of this piece, a quivering theme depicting the destitute man Schmuyle follows a Jewish theme that depicts Samuel Goldenberg. A section to be played "with the dead in a dead language" ends this piece's "Catacombs" movement, which follows a portrayal of French women arguing at "The Market at Limoges." This piece closes with depictions of "The Hut on Fowl's Legs" and "The Great Gate of Kiev," and contains multiple "Promenade" movements that depict the composer walking between museum displays. For 10 points, name this suite by Modest Mussorgsky.

ANSWER: ***Pictures at an Exhibition*** [or ***Kartinki s vystavki***] <Kim>

19. Dwight Waldo criticized this man's reliance on Rudolf Carnap's logical positivism in a protracted debate in the *American Political Science Review*. He developed a theorem on the existence of solutions to input-output matrices along with David Hawkins. With Allen Newell, this man won the Turing Prize for creating the Logic Theorist, potentially the first program of artificial intelligence. This author's major work proposes a "hierarchy of judgments" in which "value judgments" are above "factual judgments," and rejects the idea of an "economic man." In that book, *Administrative Behavior*, this man argued that when an optimal solution cannot be determined, decision-makers instead seek out the first solution that meets most needs at hand. For 10 points, name this polymath from Carnegie Mellon who theorized "bounded rationality" and "satisficing."

ANSWER: Herbert **Simon** <Bollinger>

20. During debates, Congressman William Barksdale once drew a knife on this politician. Abraham Lincoln once told this man the country was trying to catch a "pretty big hog." He reportedly sneered "the country is going to the devil" after Senator Edmund Ross broke with his party during a crucial vote. This man insisted "if you don't kill the beast, it will kill you" after Edwin Stanton was removed. The New York Herald claimed this clubfooted man had a "face of corpselike color" during the impeachment of his nemesis, Andrew Johnson. For 10 points, name this Pennsylvania Congressman who was one of the main Radical Republican leaders during Reconstruction.

ANSWER: Thaddeus **Stevens** <Cheyne>

21. This statement's demonstration of the existence of a Hamel basis allows for non-linear solutions to Cauchy's functional equation. This statement is equivalent to Tychonoff's theorem, the fact that the product of any number of compact spaces is compact, or to the fact that any vector space has a basis. In graph theory, this fact allows for the finding of a spanning tree in any connected graph. It means that, given a partially ordered set where every chain has an upper bound, there is a maximal element, a statement known as Zorn's lemma. It's often combined with the Zermelo-Fraenkel set theory axioms to create ZFC. For 10 points, identify this axiom which, informally, says that one can select from a given collection of objects.

ANSWER: axiom of **choice** [accept anything mentioned in the question before it is mentioned, since they are all equivalent] <Schindler>



NASAT 2015 - Round 06 - Bonuses

1. These areas were formally created following the United Nations Convention on the Law of the Sea. For 10 points each:

[10] Identify these areas that generally extend 200 miles from a country's coastline. They guarantee a country's right to resource exploration and energy production within their extent.

ANSWER: **Exclusive Economic Zones** [or **EEZs**]

[10] The establishment of EEZs helped resolve the Cod Wars between this country and the United Kingdom.

ANSWER: **Iceland**

[10] This country marks its maritime claims with the "nine-dotted line," which extends into several countries' EEZs. In May 2014, ships from this country confronted ships from its southern neighbor, Vietnam, over an oil rig.

ANSWER: **China** [or People's Republic of **China**; or **PRC**; or **Zhongguo**; or **Zhonghua** Renmin Gongheguo; do not accept "Republic of China"] <Golimlim>

2. Answer the following questions about the properties of peptide bonds, for 10 points each:

[10] Peptide bonds are stabilized by resonance, in which the delocalization of these particles lowers the overall energy of the system.

ANSWER: pi **electrons**

[10] Because of resonance, the nitrogen atom is considered not to have trigonal pyramidal geometry, and instead, forms this bond angle. Give your answer in degrees.

ANSWER: **120** degrees

[10] Peptide bonds interact strongly with this blue dye in the Bradford assay for protein concentration. This dye is commonly used to stain protein gels, as well.

ANSWER: **Coomassie** Brilliant Blue <Silverman>

3. Artemis performs this transformation on the nymph Arethusa after Alpheus discovers her hiding in a cloud. For 10 points each:

[10] Identify this transformation which Galatea performs on her dead lover Acis.

ANSWER: they are turned into **rivers** [or obvious equivalents]

[10] Acis is killed by a boulder hurled by one of these giants named Polyphemus, who is more famously blinded when Odysseus drives a stake through his single eye.

ANSWER: **cyclops** [or **cyclopes**]

[10] In another incident of hurling boulders, Odysseus's ship is the only one to escape the barrage thrown by this race of giant cannibals.

ANSWER: **Laestrygonians** <Kim>

4. The narrator of this novel seems to believe he has a "pensum to discharge" before he can be free. For 10 points each:

[10] Name this final novel in a trilogy that also includes *Molloy* and *Malone Dies*. It ends with the words, "you must go on, I can't go on, I'll go on."

ANSWER: *The Unnamable* [or *L'Innomable*]

[10] This author of *The Unnamable* also wrote plays including *Endgame*. Lucky gives an incomprehensible speech in his play *Waiting for Godot*.

ANSWER: Samuel **Beckett** [or Samuel Barclay **Beckett**]

[10] *Waiting for Godot* opens with Estragon attempting to do this, using both of his hands and panting.

Estragon's inability to do this leads him to resignedly say the opening line of the play, "Nothing to be done."

ANSWER: **remove** his **boot** [or obvious equivalents] <Sy>

5. Answer the following about taxes in European history, for 10 points each.

[10] In the Roman Empire, Vespasian imposed the "temple tax" on members of this religion. Members of this religion later rebelled under Roman rule while led by Simon bar Kokhba.

ANSWER: **Judaism** [or **Jewish** people]

[10] This Anglo-Saxon king of England was advised by Sigeric the Serious, the Archbishop of Canterbury, to stop Viking raids by starting to pay the danegeld.

ANSWER: **Aethelred the Unready** [or **Aethelred II**; prompt on **Aethelred**]

[10] In France, the tax on this commodity was expanded by Charles I, the brother of Saint Louis. Philip VI first instituted that unpopular tax on this substance, which was called the *gabelle*.

ANSWER: **salt** <O'Rourke>

6. This principle suggests that as the pressure of a compressible fluid decreases, its velocity should increase if the flow is steady. For 10 points each:

[10] Name this principle that is a restatement of energy conservation as applied to fluids.

ANSWER: **Bernoulli's** principle [or **Bernoulli's** equation]

[10] As cross-sectional area decreases, a flow eventually achieves this quality, in which the exit velocity is sonic and the downstream pressure is minimized. Gas escaping a small aperture in a pipe is often at these conditions.

ANSWER: **choked** flow

[10] Incompressible fluids don't undergo choked flow because they have a constant value for this quantity. The static pressure head equals this quantity times gravity times the height of fluid.

ANSWER: **density** [or **rho**] <Silverman>

7. After exploring the Strait of Tartary, this man sailed through a strait that now bears his name between Sakhalin and Hokkaido. For 10 points each:

[10] Name this French explorer whose lost expedition was eventually discovered to have been shipwrecked on Vanikoro in the Solomon Islands.

ANSWER: Jean Francois de Galaup, comte de **La Perouse**

[10] La Perouse served under this king, who was guillotined during the French Revolution.

ANSWER: **Louis XVI**

[10] This earlier French explorer voyaged to the Gulf of St. Lawrence, and first used the name Canada to refer to the region he visited.

ANSWER: Jacques **Cartier** <Yu>

8. This opera is preceded by a spoken "Prologue of the Bard," which asks "Where is the stage? Is it outside, or inside?" For 10 points each:

[10] Name this one-act opera in which Judith discovers a torture chamber and a pool of tears in her new husband's abode.

ANSWER: Duke **Bluebeard's Castle** [or A *kékszakállú herceg vára*]

[10] *Duke Bluebeard's Castle* was the only opera of this Hungarian, whose characteristic "night music" can be found in his *Music for Strings, Percussion, and Celesta*.

ANSWER: Bela **Bartok**

[10] The recurring "blood motif" in *Duke Bluebeard's Castle* consists of this disquieting interval, which is formed by note pairs such as B and C. The major seventh is the inversion of this interval.

ANSWER: **minor second** [or **diatonic semitone**] <White>

9. This story's narrator cuts his forehead on a door jamb while rushing to examine his copy of the *Arabian Nights*. For 10 points each:

[10] Name this story about Juan Dahlmann, who gets into an argument with some drunken farmers at a store. This story ends before Dahlmann and a farmer engage in a knife fight.

ANSWER: "The **South**" [or "El **Sur**"]

[10] The author of "The South" also wrote this story about a point in space from which one can see everything in the universe all at once. It is found in the basement of Beatriz Viterbo's cousin, Daneri.

ANSWER: "The **Aleph**" [or "El **Aleph**"]

[10] "The Aleph" and "The South" are stories by this Argentine author, who included "Tlon, Uqbar, Orbis Tertius" and "The Library of Babel" in his *Ficciones*.

ANSWER: Jorge Luis **Borges** <Golimlim>

10. This adjective appears in the title of a painting of a coppice near Warter that the artist created using both *en plein air* and digital photography. For 10 points each:

[10] Name this adjective which precedes "picture" in the name of a popular 2012 exhibition at the Guggenheim Bilbao. It also appears in the title of a Pop Art painting of a swimming pool in a modern house.

ANSWER: **bigger** [accept **Bigger** *Trees Near Warter*; accept A **Bigger** *Picture*; accept A **Bigger** *Splash*; do not accept or prompt on "big" or other wrong answers]

[10] A *Bigger Splash* is a painting by this English-born California artist of *Mr. and Mrs. Clark and Percy*, who together with physicist Charles Falco theorized that optical aids like the camera obscura made advances in realism in Western art possible.

ANSWER: David **Hockney**

[10] A key example Hockney used to support his thesis was the chandelier in this van Eyck painting of an Italian merchant and his presumed wife.

ANSWER: *The **Arnolfini Portrait*** [or *The **Arnolfini Wedding***; *The **Arnolfini Marriage***; or *The **Arnolfini Double Portrait***; or ***Portrait of Giovanni Arnolfini and his Wife***] <Saric>

11. This woman helped Dolly Madison fundraise for the Washington Monument, and took a step towards providing better care for orphans in her home state by founding the New York Orphan Asylum Society. For 10 points each:

[10] Name this socialite who died in 1854. Virtually all her correspondence with a husband who cheated on her with Maria Reynolds is now lost.

ANSWER: **Elizabeth Schuyler Hamilton** [or **Elizabeth Schuyler** Hamilton; accept answers with "Eliza" in place of "Elizabeth"]

[10] Elizabeth Schuyler's husband, Alexander Hamilton, inaugurated this Cabinet position in part by supporting the First Bank of the United States.

ANSWER: United States Secretary of the **Treasury**

[10] This later Treasury secretary presided over, and protested, the expiration of the First Bank of the United States a year before managing the country's finances during the War of 1812.

ANSWER: Albert **Gallatin** <Jackson>

12. Harrison Gray Otis claimed this event was perpetrated by "anarchic scum." For 10 points each:

[10] Name this 1910 event, an explosion that killed 21 people. It resulted in the arrest and trial of the labor activists J.J. and J.B. McNamara.

ANSWER: the bombing of the **Los Angeles Times** building [or the bombing of the **L.A. Times** building]

[10] This famous lawyer reluctantly agreed to serve as the lead defense attorney in the McNamaras' trial despite his ill health. He would later defend John Scopes during the "Monkey Trial."

ANSWER: Clarence **Darrow**

[10] This muckraker and author of the *The Shame of the Cities* was sympathetic to the McNamaras' cause but claimed they confessed their guilt in the bombing to him. He was a staunch supporter of the Soviet Revolution.

ANSWER: Lincoln **Steffens** <Cheyne>

13. Layers of this material called visual microlaminations (**VMLs**) can reveal changes in the aridity of a region. For 10 points each:

[10] Name these paper-thin coatings on rocks in arid environments, especially deserts, that appear reddish-black. It is especially common on desert pavement.

ANSWER: desert **varnish** [or rock **varnish**; or **rock dust**; or **desert patina**]

[10] Wetter climates favor the creation of layers rich in this element's oxide, with VMLs appearing black, while drier climates with alkaline dust favor layers poor in this element's oxide, with VMLs appearing orange-yellow. This element's oxides and iron oxides are important components of varnish.

ANSWER: **manganese** [or **Mn**]

[10] Manganese nodules are rock concretions found in this place, where stromatolites also formed. This location bounds the benthic zone and most of it, globally, is classified as abyssal plain.

ANSWER: **ocean floors** [or **sea floors**; or obvious equivalents; prompt on **oceans** or **seas** or obvious equivalents of such] <Voight>

14. This document poignantly ends with the declaration, "I don't think two people could have been happier than we have been." For 10 points each:

[10] "Name this document written to the author's husband Leonard right before she walked into the River Ouse. It pessimistically declares "I shan't recover this time...I am doing what seems the best thing to do."

ANSWER: Virginia **Woolf's suicide note** [or obvious equivalents]

[10] In this Virginia Woolf novel, a man suffering from PTSD named Septimus Smith kills himself by leaping from a window. Its title character, Clarissa, hosts a house party.

ANSWER: **Mrs. Dalloway**

[10] This character from *Mrs. Dalloway* was once rejected by Clarissa. At the time of Mrs. Dalloway's party, he has recently returned from India and has arranged to marry Daisy.

ANSWER: **Peter** Walsh [or Peter **Walsh**] <Sy>

15. In this novel, Llewelyn Moss finds a load of heroin after meeting a Mexican man who is in desperate need of water. For 10 points each:

[10] Name this novel in which the killer Anton Chigurh is hunted by Sheriff Ed Bell.

ANSWER: **No Country for Old Men**

[10] This author of *No Country for Old Men* created the brutal Judge Holden in his novel *Blood Meridian*, and depicted John Grady Cole's adventure in Mexico in *All the Pretty Horses*.

ANSWER: Cormac **McCarthy** [or Charles **McCarthy**]

[10] In *All the Pretty Horses*, John Grady Cole meets this fellow teenager, who kills a man during the retrieval of his beloved Colt pistol. In the final parts of the novel, John Grady travels around Texas trying to find the owner of this boy's stolen horse.

ANSWER: **Jimmy** Blevins [or Jimmy **Blevins**] <Sy>

16. A study done on this group involved a checkered floor with Plexiglas suspended over a four-foot drop, and was a test on depth perception. For 10 points each:

[10] Identify this group of people who participated in Eleanor Gibson's visual cliff experiment.

ANSWER: **infants** [or obvious equivalents, such as **toddlers** or **children**]

[10] In another study, children were shown videos of adults beating up these inflatable toys. After watching the videos, children acted violently towards these toys.

ANSWER: **bobo dolls**

[10] This Stanford professor conducted the bobo doll experiment.

ANSWER: Albert **Bandura** <Saric>

17. This book skeptically claims that causality can be inferred from empirical observation, since the idea that two ideas are causally related only comes from the impression of frequent association.

[10] Name this 18th-century work of philosophy, written as a better follow-up to its author's earlier *Treatise of Human Nature*. It contains the section "Of Miracles."

ANSWER: An **Enquiry Concerning Human Understanding**

[10] *An Enquiry Concerning Human Understanding* is a major work by this Scottish empiricist philosopher.

ANSWER: David **Hume**

[10] Hume's *Enquiry* argues that all objects of human reason can be divided into these two categories, in a dichotomy later termed "Hume's Fork." Hume places geometry into the first of these categories and physics into the second. Hume's specific terminology is required.

ANSWER: **relations of ideas** and **matters of fact** [prompt on general answers, like **statements about ideas** and **statements about the world**] < Bollinger >

18. Ludwig van Beethoven's piece of this type and number unusually begins its slow introduction with a C dominant seventh chord moving to an F major chord. For 10 points each:

[10] Identify this genre and number shared by a Gustav Mahler piece whose third movement funeral march is interrupted by an unexpected section of klezmer music.

ANSWER: **Symphony No. 1** [or obvious equivalents]

[10] Beethoven's Symphony No. 1 was strongly influenced by this other C major symphony, whose coda is characterized by a large fugue in five voices.

ANSWER: **Jupiter Symphony** [or **Mozart's Symphony No. 41**; or obvious equivalents]

[10] Indicative of a transition between Beethoven's early and middle periods is this piano sonata said to evoke the image of the title object shimmering over a lake at night.

ANSWER: **Moonlight Sonata** [or **Beethoven's Piano Sonata No. 14**; or obvious equivalents] <Kim>

19. Memories Pizza in this state was targeted with numerous overly negative Yelp reviews. For 10 points each:
[10] Name this state whose largest newspaper published the headline "Fix This Now," urging the repeal of Senate Bill 101.

ANSWER: **Indiana**

[10] This was the full name of SB 101. A 1993 national version of this law with the same name was signed into law by Bill Clinton. Twenty one states have passed laws with this name, which many people claim could be unfairly used to target gay Americans.

ANSWER: **Religious Freedom Restoration Acts**

[10] SB 101 was similar to this southwestern state's SB 1062, which was vetoed by Governor Jan Brewer.

ANSWER: **Arizona** <Cheyne>

20. The lateral and medial giant interneurons mediate the caridoid response of some members of this subphylum. For 10 points each:

[10] Name this arthropod taxon that includes decapods such as crayfish and shrimp.

ANSWER: **crustacean**

[10] This group of shrimp comprises the order *Stomatopoda* and is classified into "smashers" and "spearers". Some species in this group possess sixteen different photoreceptor pigments, and their raptorial claws are similar to those of a namesake insect order.

ANSWER: **mantis** shrimp

[10] The cavitation generated by mantis shrimp produces these structures, which can also sometimes emit sonoluminescence.

ANSWER: **bubbles** <Smart>

21. The difference of these two values can be written as a term multiplied by the square of the thermal expansion coefficient, divided by the isothermal compressibility. For 10 points each:

[10] Identify these two values for a substance, whose ratio is the substance's adiabatic index.

ANSWER: **constant-pressure heat capacity** and **constant-volume heat capacity** [or **C_p** and **C_v**; or obvious equivalents]

[10] The adiabatic index appears in the equation for this quantity in a gas. This value is related to flow speed by the Mach number.

ANSWER: **speed of sound**

[10] For a monatomic ideal gas, the constant pressure heat capacity is the sum of the constant volume heat capacity and this value, which when divided by Avogadro's number yields Boltzmann's constant.

ANSWER: **ideal gas constant** [or **R**] <Yu>