

Penn Bowl 2018

Packet 3

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Tossups

1. **To fight people from this group, a brass cannon was set up at the urging of town burgess John McLuckie during an event in which this organization wounded William Foy. A member of this organization used the aliases Mrs. Cherry and Mrs. Barley in an event in which a man was diverted onto a Pennsylvania train; that first female member of this organization, Kate Warne, supposedly gave rise to this organization's motto by watching the subject of the (*) Baltimore Plot all night en route to his inauguration. Robert Pattison sent in the state militia under George Snowden to resolve a conflict involving this organization bringing a flotilla of barges. This agency had a logo of an eye and the legend "We Never Sleep." For 10 points, name this detective agency that fought Amalgamated Association steelworkers at Carnegie Steel in the Homestead Strike.**

ANSWER: Pinkerton detective agency [accept Pinkertons or Pinks]

<JC, American History>

2. **A work by this poet describes the "honest virtue" and "supple throat... soiled by slime" of a dove sent to his beloved, while another work by this poet reminisces: "Nobody knows you. No. But I sing of you" and remembers a "sad breeze through the olive trees." Another work by this author describes the "eyes of cold silver" of a "gypsy girl" after stating (*) "Green, how I want you green." This poet of "Romance Sonambulo" wrote the homoerotic "Sonnets of Dark Love" as well as a poem which repeats "I will not see it!" about the "white sheet" covering Ignacio's corpse. That poem repeats the line "at five in the afternoon." This author of "Lament for the Death of a Bullfighter" wrote a play about the Groom killing Leonardo after he elopes with the Bride. For 10 points, name this author of *Yerma* and *The House of Bernarda Alba*.**

ANSWER: Federico García Lorca [or Federico del Sagrado Corazón de Jesús García Lorca]

<JC, European Literature>

3. **An equation that governs these phenomena is plotted on a graph of pressure ratio against deflection angle to give the namesake polar of these phenomena. One type of them is governed by the theta-beta-M equation, which relates the tangent of the corner angle to an expression involving the oblique angle and heat capacity ratio. These phenomena are governed by a set of three equations that encode conservation of mass, momentum, and energy, called the (*) Rankine–Hugoniot ("RANK-in oo-gohn-YOH") conditions. A stationary example of these phenomena that detaches from the body from which it forms is called the "bow" variety. For 10 points, name these phenomena that occur with discontinuous changes in a medium's properties, examples of which include the "sonic boom" of breaking the sound barrier.**

ANSWER: shock wave [or oblique shock wave; prompt on wave; accept deflagration; accept detonation; accept combustion wave]

<EM, Physics>

4. **This character tells a clerk that she dreamed of him and her bed filled with blood. In one work, this character complains that "no one now sees fairies any more" because the only incubus is the "holy friar," who "will do no more than take your virtue." This character tells the story of King Midas's asses' ears, and she is deaf in one ear due to fistfighting her husband because he read a sexist book. This character cites Solomon**

and Abraham to defend her multiple (*) marriages. This woman talks about a man who is given the incorrect answers “wealth,” “honor,” and “pleasure” to a riddle he has a year and a day to answer. This character, who had five husbands, tells a story in which a knight rapes a young woman and has to marry an old hag. For 10 points, name this character from Chaucer’s Canterbury Tales who tells a story about a quest to find out what women most desire.

ANSWER: the **Wife of Bath** [or **Alison**]

<JC, British Literature>

5. A bearded old man with hollow-looking eye-sockets leans across a bar in an Escher-like one of these works by Rosso Fiorentino. Erwin Panofsky noted the “pictorial brilliance and sentiment” encapsulated by the “painted tears” in one of these paintings, in which a skull and a bone lie on the ground. Another of these pictures is crowded with weightless-looking figures in blue and pink pastels; that version is by Jacopo (*) Pontormo. A curved body in one of these paintings reflects its commission by a guild of crossbowmen; it shows field-of-cloth-of-gold robes on Joseph of Arimathea as well as a woman in blue swooning. Another painting of this type shows a white cloth and a ladder in the background as the central figure is carried down and Mary mourns. For 10 points, name this scene, painted by van der Weyden and Rubens, in which Christ is removed from the cross.

ANSWER: **deposition** from the cross [or **descent** from the cross; prompt on descriptive answers like “taking Christ down from the cross” until read; do not accept or prompt on “entombment of Christ” or “burial of Christ”; do not accept or prompt on “crucifixion”]

<JC, Painting>

6. The line “So may the God attain the God” appears in a hymn to “the true” version of this deity. This deity, who sometimes drives two bay steeds, smashes the cart of the earlier dawn goddess Usas. A hero gets the right to be only killed by someone who had not slept or eaten for twelve years after dragging this deity to Lanka. That hero was Meghanada, who was renamed for this god after this god captured his father, Ravana. He commits adultery with (*) Ahalya, causing vaginas to cover his entire body. This deity, who rides the white elephant Airavata, passes through 99 fortresses and drinks soma before releasing the rains by killing the dragon Vritra with the *vajra* thunderbolt. For 10 points, name this father of Arjuna, a Vedic storm god.

ANSWER: **Indra** [or **Sakra**]

<JC, Mythology>

7. This compound’s transporter is bound by the radioligand DASB. Cell groups labeled B1 to B9 in the brainstem are sometimes named for containing this compound. A receptor for this compound in the chemoreceptor trigger zone is blocked by the antiemetic ondansetron (“anti-emetic on-DANCE-uh-tron”). Dumping this compound into the bloodstream can cause cardiac fibrosis in patients with carcinoid syndrome. This compound is highly concentrated in (*) Raphe nuclei. In humans, the majority of this compound is secreted by enterochromaffin cells in the GI tract. This compound is metabolized to 5-HIAA by monoamine oxidases in the liver. This neurotransmitter is potentiated by SSRIs such as Prozac and Zoloft that cause it to remain in the synaptic cleft longer. For 10 points, name this neurotransmitter that regulates mood, appetite, and sleep.

ANSWER: **serotonin** [or **5-hydroxytryptamine**; or **5-HT**]

<AP, Biology>

8. This man retained his seat in office by defeating Tatsiana Karatkevich and others in an election in which “None of the above” won more votes than any candidate opposing him. Supreme Soviet chairman Stanislav Shushkevich resigned after this man, the chairman of the anti-corruption committee, accused him of stealing government money for his own use. After a 1996 referendum, a new House of Representatives was established in this man’s home country, but only his supporters were admitted. During a (*) 2006 press conference, this man claimed that he rigged the vote to lower his own totals, since it is not a European outcome. The opposition to

this man after the 2006 election was called the Jeans Revolution, but didn't lead to any significant changes in government. For 10 points, name this so-called "last dictator in Europe," the current president of Belarus.

ANSWER: Alexander Lukashenko

<AJ, European History>

9. This author writes "People are trapped in history and history is trapped in them" in an essay in which he describes a visit to a Swiss village. In another essay, he writes that people have a "bitter expectancy" about the title neighborhood's future, comparing it to a long, hard winter. This author of "Stranger in the Village" prefaced one of his essays with Kipling's "White Man's Burden." That essay ends with a quotation about Noah, which gives the title of a book by this author. An essay from that book discusses Frazier's "cities of destruction" and is subtitled (*) "Letter to My Nephew on the 100th Anniversary of Emancipation." This author, who responded to Richard Wright in one collection of essays, included "My Dungeon Shook" in his collection *The Fire Next Time*. For 10 points, name this American expatriate author of *Giovanni's Room* and *Go Tell It on the Mountain*.

ANSWER: James Arthur Baldwin

<MT, American Literature>

10. Charles Stoddart presented an offer of alliance at the beginning of this conflict but was thrown in a vermin-infested dungeon and executed for not bowing. Some historians date the beginning of this conflict to when the President of the Board of Control, Lord Ellenborough, ordered William Bentinck to establish a new trade route with Bukhara while others claim that it started with the Treaty of Gulistan. A party in this extended confrontation made several expeditions to subjugate the (*) Khanate of Khiva. Control of Herat juggled between several countries in this conflict and nearly sparked a Great Power war in the Panjdeh Incident. During one war in this broader conflict, William Elphinstone's army was massacred during a retreat from Kabul. For 10 points, name this 19th-century diplomatic conflict between Russia and Britain over Central Asia and especially Afghanistan.

ANSWER: The Great Game

<NR, World History>

11. *Composer and type of piece required.* Anne Teresa de Keersmaecker choreographed a performance of these pieces in which five dancers encircle the performer, Jean-Guihen Queyras ("zhahn-ghee-EN kay-ROSS"), who also performed these pieces in a space designed for them by Zaha Hadid. One of these pieces is partly notated in alto clef, and another may have been written for viola pomposa. The first movement of the first of these pieces relies heavily on *bariolage* ("bario-LODGE") and begins with an arpeggiated G major chord. A movement from the fifth of these pieces, which calls for *scordatura*, was played on the first anniversary of 9/11. These pieces were obscure until (*) Pablo Casals ("kuh-ZALLS") became the first to record all six in the 1930s. For 10 points, name this group of pieces written by a Baroque composer for an unaccompanied string instrument that is often played by Yo-Yo Ma.

ANSWER: J. S. Bach's cello suites [or Six Suites for Unaccompanied Cello or BWV 1007–1012; prompt on partial answer]

<MT, Music>

12. The demand-side explanation of this phenomenon by David Ley contrasts with Neil Smith's supply-side explanation. In a paper about this phenomenon, Gordon Douglas studied "edge-seekers," and claimed that they are seeking a place that never really existed. According to Sharon Zukin, this phenomenon correlates with the level of administrative activity in a location. In Philip Clay's model of this process, the final "mature" stage of this process occurs when (*) "risk-averse" people displace "pioneers." According to Jane Jacobs, this process is detrimental when it decreases diversity or creates a lack of affordable housing, which often

results in low-income inhabitants being priced out of their homes. For 10 points, name this phenomenon visible in Humboldt Park and Brooklyn where upper-class people move into urban neighborhoods.

ANSWER: **gentrification** [accept word forms; prompt on descriptive answers about moving into neighborhoods]
<MT, Social Science (Sociology)>

13. **Models of large-scale structure formation rely on the approximation that the relaxation time is less than a time named for this scientist. The radial component of baryon acoustic oscillations give a measurement of a quantity named for this scientist. The speed of light divided by a value named for this scientist gives the radius of a sphere outside of which objects are (*) receding faster than the speed of light. A parameter named for this scientist is equal to the time derivative of the scale factor over the scale factor, or one over the age of the universe. Based on measurements taken by Vesto Slipher (“SLY-fer”) and others, this man derived a law with a proportionality constant of 67.8 kilometers per second per megaparsec. For 10 points, name this scientist who names the result that an object’s distance and redshift are directly proportional to each other, and also names a space telescope.**

ANSWER: Edwin Powell **Hubble**
<JD, Other Science (Astronomy)>

14. **This philosopher outlined the ways that consciousness both discovers and creates meaning and refuted Dostoevsky’s line “if God is dead, everything is permitted” with an argument that if God is dead, sins cannot be forgiven. That work by this philosopher contrasted types like the serious man, the nihilist, the adventurer, and the passionate man, and concludes “to will oneself free is also to will others free.” This philosopher argued that (*) existentialism was the only contemporary philosophy that gave a real role to evil and discussed another philosopher’s concept of “radical freedom” in *The Ethics of Ambiguity*. “The privileged Other” is analyzed in this author’s most famous work, which contains the section “Lived Experience” and declares “one is not born, but rather becomes, a woman.” For 10 points, name this existentialist author of *The Second Sex*.**

ANSWER: Simone de **Beauvoir**
<JC, Philosophy>

15. *Description acceptable.* **A court ruling in 2012 allowed Yves Saint Laurent to continue using this feature, so long as its garments incorporating this feature were monochromatic. A 1993 prototype of a design inspired by Andy Warhol’s *Flowers*, the Pensée (“pon-SAY”), was the first garment to have this feature, after its designer spontaneously applied an assistant’s nail polish to it. The 2009 single by Jennifer Lopez about (*) “throwing on” some garments with this feature failed to reach the Billboard Hot 100 and was her last release under the Epic Records label. The color code for this clothing feature is Pantone 18-1663 TPX, and author Danielle Steel reportedly owns over 6,000 pairs of footwear with this feature. Cardi B refers to garments with this feature as “bloody shoes.” For 10 points, name this feature for which Christian Louboutin stilettos are popularly known.**

ANSWER: **red soles** [or anything indicating **red bottoms** on shoes; prompt on Louboutins; prompt on red; prompt on soles; prompt on “the top and the bottom are different colors” or equivalents; prompt on high heels by asking “what is unique about them?”]
<LT, Other Arts (Fashion)>

16. **A demand for members “of pure race and blood” led to the breakoff of a Mexican dissident group of this religion called the Third Convention. The barber Mischa Markow (“MEE-sha MAR-ko”) was repeatedly kicked out of Serbia, Hungary, Romania, and Bulgaria while preaching this religion. In March 2018, Ulisses Soares and Gerrit Gong were the first people of non-European descent to be appointed to this religion’s second-highest governing body, the (*) Quorum of the Twelve Apostles. Cardston, Alberta, the destination of migrants from this religion via the Macleod-Benton Trail, is home to the first temple of this faith outside of the US.**

Members of this faith migrated west from Nauvoo, Illinois, and often go on two-year missions. For 10 points, name this Christian denomination of politician Mitt Romney, as well as over half of the population of Utah.

ANSWER: Mormonism [or Church of Jesus Christ of Latter-Day Saints; or LDS]

<WD, Religion>

17. John Kirton described the attendants of this event as a “lonely hearts club, a kind of group therapy.” A photo from this event shows an attendant looking uncomfortable after a firm handshake left him with a noticeable white mark. This event was described by a commentator as the “geopolitical equivalent of the Comey firing.” An attendant of this event refused to sign a document finalizing it, calling its author “mild and meek.” Various (*) “Sherpas” were sent to this event’s location prior to it, and Peter Boehm served as its deputy minister. An attendant of this event drew the ire of the other leaders when he suggested that a former member of the meeting organization be reinstated. For 10 points, name this event that was held in La Malbaie (“la mal-BAY”), Québec, in June 2018 between the namesake seven countries.

ANSWER: 44th G7 Summit [or 2018 G7 Summit; accept Group of Seven in place of “G7”]

<PL, Current Events>

18. Caesarius of Heisterbach introduced a popular anecdote about this war in his *Dialogue on Miracles*. During this conflict’s Siege of Minerve, soldiers entered the town singing “Te Deum,” and 140 people were burned at the stake for refusing to convert. Despite the supposed advantage one side had in this conflict’s Battle of Muret, its forces were defeated, and Peter II was killed. During this conflict, (*) Arnaud Amalric stated “Kill them all! God will know his own” when asked how to tell the Catholics from their enemies. In response to the heresy displayed by the enemy in this conflict, St. Dominic formed his namesake group, also called the Order of Preachers. For 10 points, name this crusade that was fought by Pope Innocent III to eliminate the Cathars from Languedoc.

ANSWER: Albigensian Crusade [accept Cathar Crusade until “Cathars” is read; prompt on crusade]

<AJ, European History>

19. These entities expand slightly in size when doubly-occupied in an effect whose extent is given by the parameter beta, the ratio of the bonded to the free Racah parameter. Vibrionic transitions between two of these entities are weaker than MLCT and LMCT bands because those transitions in centrosymmetric molecules are forbidden by Laporte’s rule. These entities have two angular nodes and magnetic (*) quantum numbers ranging from negative 2 to 2, inclusive. The splitting of these entities into t_{2g} (“T-two-G”) and e_g (“E-G”) components is governed by crystal field theory, which predicts the colors of transition metal complexes. For 10 points, name these atomic orbitals whose azimuthal quantum number equals 2, which are found between p and f orbitals.

ANSWER: d orbitals [prompt on orbitals]

<AP, Chemistry>

20. In one work, this author wrote an ode to “Fleas and lice biting / Awake all night / A horse pissing close to my ear.” More seriously in that work, he noted that “the birds all mourn” as spring passes and described Castle-on-the-Heights, and wrote about “my dream wandering / over a field of dried grass” in his last work. This author juxtaposed pairs of poems by different authors on the same topic in one work, and wrote that “months and days are the travellers of eternity” in another. In one work, this poet of (*) *The Seashell Game* lamented that a new generation will celebrate the Festival of Dolls in his grass hut, outside which miscanthus grass grew by his banana plant, from which he took his name. For 10 points, name this author of *The Narrow Road to the Deep North*, who wrote about the splash caused by a frog jumping into a pond in one of his many haiku.

ANSWER: Matsuo Bashō [accept either underlined portion; or Matsuo Chuemon Munefusa; or Matsuo Kinsaku; or Sobo; or Tosei]

<JC, World Literature>

Bonuses

1. Name some things about fluorescence imaging techniques commonly used in biology, for 10 points each.

[10] Perhaps the most commonly used fluorophore in biology is this fluorophore first isolated from jellyfish *Aequorea victoria*. Blue derivatives of this fluorophore have the Y66H mutation.

ANSWER: **GFP** [or **green fluorescent protein**]

[10] This fluorescence imaging technique unusually involves exciting the fluorophore with photons with lower energy than the emitted light for increased penetration depth. Unlike confocal microscopy, this technique does not use point illumination.

ANSWER: **two-photon** excitation microscopy

[10] GFP has a structure containing a “barrel” of runs of amino acids with this secondary structure.

ANSWER: **beta-sheet** [or **beta**-barrels]

<PL, Biology>

2. Bandeirantes (“bun-day-RON-chiss”) in this country led expeditions to capture and enslave natives. For 10 points each:

[10] Name this South American country where slavery was not abolished until 1888 by Princess Isabel, daughter of Pedro II.

ANSWER: **Brazil**

[10] Runaway Brazilian slaves lived in these Maroon communities. King Gunga Zumba ruled one of these communities with thousands of fugitives at Palmares (“pow-MAH-riss”).

ANSWER: **quilombos** [or **mocambos**]

[10] These mostly Afro-Brazilian slum settlements trace back to bairros africanos, which were originally settled by freed slaves migrating to the cities.

ANSWER: **favelas**

<NR, World History>

3. This man commissioned original books by Arthur Conan Doyle and M. R. James to be produced in miniature for the incredibly realistic Queen Mary Dolls’ House. For 10 points each:

[10] Name this prolific British architect, more famous for designing Hyderabad House and the layout of New Delhi, as well as Castle Drogo, which disappointingly has absolutely nothing to do with *Game of Thrones*.

ANSWER: Edwin **Lutyens** (“LUTT-yinz”)

[10] Lutyens often collaborated with Gertrude Jekyll, who was known for using “hardy borders” and “brush-like strokes” in this discipline, which is also the field of Lancelot “Capability” Brown.

ANSWER: **landscape** gardening [or **landscaping**; or **horticulture**; or **gardening**]

[10] Lutyens is often described as the best British architect since this designer of St. Paul’s Cathedral, who reconstructed large swathes of London after the Great Fire.

ANSWER: Christopher **Wren**

<JC, Other Arts (Architecture)>

4. Despite remarrying her first husband from Apex, who is ostensibly best suited to her, this character wishes she could be an ambassador’s wife at the end of a novel. For 10 points each:

[10] Name this character who complains that pregnancy “takes a whole year” out of her life after learning she is pregnant with Ralph Marvell’s child.

ANSWER: **Undine Spragg** [accept either name]

[10] Undine appears in a novel by this author, who also wrote *The Age of Innocence* and *The House of Mirth*.

ANSWER: Edith **Wharton**

[10] This Wharton novel describes how Undine moves to New York City to pursue a series of high-class marriages and divorces with Ralph Marvell and Raymond de Chelles before remarrying Elmer Moffatt.

ANSWER: *The Custom of the Country*

<MT, American Literature>

5. After an incident at the end of Game 1 of the NBA finals, this player stated, “After thinking about it a lot... I can’t say I was sure of anything at that point.” For 10 points each:

[10] Name this player who infamously got a free-throw rebound after a miss by George Hill but proceeded to dribble the clock out with 4 seconds left instead of trying to score, leaving LeBron James visibly upset in a moment that was captured as one of the greatest memes in sports history.

ANSWER: **J. R. Smith**

[10] LeBron himself put on a historic performance in Game 1, becoming only the sixth player in NBA history to score at least this many points in a finals game.

ANSWER: **50** points [do not accept any other numbers]

[10] This player helped the Warriors pull away in overtime in Game 1, connecting on a midrange jumper and a dunk to cap off a 9–0 run. This player played for the Brooklyn Nets and eight other teams before becoming a 3-time NBA champion with the Warriors.

ANSWER: Shaun **Livingston**

<AP, Trash (Sports)>

6. One of the victorious generals at this battle was later beatified as the Saint Constable. For 10 points each:

[10] Name this 1385 battle at which Nuno Álvares Pereira led the forces of King John I to secure his country’s independence from Castile.

ANSWER: Battle of **Aljubarrota** (“ALL-zhoo-buh-RO-tuh”)

[10] King John I was the first member of this dynasty that received its name from a monastic order of which John I had been Grand Master. Other members include John I’s son, Henry the Navigator.

ANSWER: House of **Aviz**

[10] The House of Aviz ruled this Iberian country until 1580, when they were succeeded by the House of Braganza. Under their reign, this country captured Goa and colonized Brazil.

ANSWER: Kingdom of **Portugal** [or **Portuguese Republic**]

<NR, European History>

7. This equation accounts for interparticle attraction with its a term. For 10 points each:

[10] Name this equation of state that accounts for the volume taken up by gas molecules with its b term. It is named for a Dutch scientist.

ANSWER: **van der Waals** equation of state

[10] Kamerlingh Onnes used statistical mechanics to introduce this equation of state. The second-order truncation of this equation of state gives the van der Waals equation.

ANSWER: **virial** equation of state

[10] A common method of finding higher-order virial coefficients uses an f -function named for two scientists with this last name, which can then be used for cluster integrals.

ANSWER: **Mayer** [accept Joseph Edward **Mayer** or Maria Goeppert **Mayer**]

<AP, Chemistry>

8. One of this composer’s pieces depicts a cloud’s journey to the top of a mountain to deliver a message to a man’s wife. For 10 points each:

[10] Name this composer of several Indian-inspired pieces including *The Cloud Messenger*, a choral setting of a poem by Kalidasa.

ANSWER: Gustav **Holst**

[10] Holst wrote two suites for this ensemble. The second suite in F for this ensemble incorporates seven different English folk songs, including “I’ll Love My Love” and “Greensleeves.”

ANSWER: wind **band** [or concert **band** or military **band** or symphonic **band** or marching **band** or **wind** ensemble]

[10] This orchestral suite by Holst depicts celestial bodies and includes movements subtitled “The Bringer of War” and “The Mystic.”

ANSWER: *The **Planets***

<MT, Music>

9. After this man pissed off the theologian Johann Goeze (“GURT-suh”), he was punished by the passage of a law that took away his freedom from censorship. For 10 points each:

[10] Name this author who published *Nathan the Wise* in response to that law.

ANSWER: Gotthold Ephraim **Lessing**

[10] In *Nathan the Wise*, Saladin asks Nathan which of the three Abrahamic religions is true. Nathan responds diplomatically with a parable about a father giving each of his three sons one of these objects but not telling them which one is the original.

ANSWER: **rings**

[10] The first instance of the ring parable was probably in this collection of stories by Boccaccio told by travelers escaping the Black Death.

ANSWER: **Decameron**

<MT, European Literature>

10. One version of this scene was described as a “bad boiled lobster” and won a competition to be shown as the only colored image in a black-and-white Albert Lewin film. For 10 points each:

[10] Name this scene depicted by Max Ernst. Another version of this scene features a rearing horse and the symbol of the Escorial in the clouds.

ANSWER: *The **Temptation of St. Anthony***

[10] This artist lost the competition, but his version of *The Temptation of St. Anthony* became more famous. It includes four long-legged elephants and an obelisk inspired by Bernini’s in Rome.

ANSWER: Salvador **Dali**

[10] This artist created a much earlier version of *The Temptation of St. Anthony*. He also painted triptychs like *The Hay Wain* and *The Garden of Earthly Delights*.

ANSWER: Hieronymus **Bosch**

<MT, Painting>

11. Name some things about complexity classes in computational theory, for 10 points each.

[10] This class consists of all problems whose solutions can be [emphasize] *verified* in polynomial time. It may or may not equal P, the class of problems that can be [emphasize] *solved* in polynomial time.

ANSWER: **NP** [or **nondeterministic polynomial** time]

[10] This Karp problem was the first to be proven NP-complete by the Cook–Levin theorem. It builds up a logical expression out of variables in conjunctive normal form and asks whether an assignment to the variables exists such that the expression is true.

ANSWER: Boolean **satisfiability** problem [or **SAT**; or propositional **satisfiability** problem; or **SATISFIABILITY**; accept more specific answers like 2-**satisfiability** or 2-**SAT** or 3-**satisfiability** or 3-**SAT**]

[10] This class consists of counting problems associated with the decision problems in NP. For instance, a problem in NP might ask whether a variable assignment exists to solve a SAT (“sat”) problem, while a problem in this class would ask [emphasize] *how many* variable assignments are possible.

ANSWER: **#P** [or **sharp P**; or **number P**; or **hash P**]

<JC, Other Science (Computer Science)>

12. Egocentric bias can result in quarantine failures when using this ability. For 10 points each:

[10] Name this ability, also called mindreading, that allows us to implicitly and explicitly attribute beliefs, emotions, and other mental states to others that are different from our own.

ANSWER: **theory of mind** [or **mentalizing**; prompt on **folk psychology**]

[10] One type of this task often used to test development of theory of mind asks participants to say where a character thinks an object is after leaving it somewhere even though the participant saw someone else move it. More generally, these tasks involve attributing a mental state to someone that differs from reality.

ANSWER: **false belief** task [accept **Sally–Anne** task]

[10] People with this condition fail elicited response false belief tasks but do pass spontaneous response tests, suggesting that there may be more than just a single module responsible for theory of mind. These disorders include Asperger’s syndrome.

ANSWER: **autism** spectrum disorder

<MT, Social Science (Psychology)>

13. In a poem by this author, the ghost of a Trojan war hero asks the title character “am I a ghost?” and in response, she wonders if he will “dare remember / the unreality of war / in this enchanted place.” For 10 points each:

[10] Name this bisexual Imagist author who went by two initials. She wrote that the title character is looking for “the Sun / hidden behind the sun of our visible day” in her poem “Helen in Egypt.”

ANSWER: Hilda **Doolittle** [accept **H.D.**]

[10] In this Madeline Miller retelling of the *Iliad*, the title hero of the Trojan War asks his companion to “name one hero who was happy,” and then says that he will be the first because of that companion.

ANSWER: *The **Song of Achilles***

[10] This Modernist novel by James Joyce parallels Homer’s *Odyssey* by following Leopold Bloom for a single day in June of 1904.

ANSWER: ***Ulysses***

<MT, British Literature>

14. The eighteen-year-old Alexander the Great commanded the left wing at this battle, but fled into exile shortly after. For 10 points each:

[10] Name this 338 BC battle in which a Macedonian army under Philip II annihilated the Sacred Band of Thebes on its way to crushing an allied Greek force.

ANSWER: Battle of **Chaeronea**

[10] After the Battle of Chaeronea, Philip II founded a unified Greek “League” named for this city, which is found on a namesake isthmus.

ANSWER: **Corinth**

[10] Sparta refused to join the League of Corinth, sending only this reply to Philip II when he threatened that he would raze the city if he brought his army into Sparta.

ANSWER: “**If**” [or “**An**”]

<NR, European History>

15. This class of materials consists of polarizable, rod-like molecules that are locally aligned. For 10 points each:

[10] Name these materials that exhibit properties in between those of a solid and a liquid. They are used in namesake displays.

ANSWER: **liquid crystals** [or **liquid crystal** displays; or **LCDs**]

[10] Liquid crystals usually have the short-range, but not the long-range, form of this property. This quantity’s namesake parameter for liquid crystals is usually between 0.3 and 0.9.

ANSWER: **order** [accept **order** parameter]

[10] If a liquid crystal's order varies with both temperature and concentration, then it is classified as this. A mixture of soap and water is an everyday example of this type of liquid crystal.

ANSWER: **lyotropic** liquid crystal

<AP, Physics>

16. Answer the following about 1968, for 10 points each.

[10] In April 1968, this civil rights leader was assassinated while at the Lorraine Motel in Memphis to support striking sanitation workers.

ANSWER: Martin Luther **King**, Jr. [or **MLK**]

[10] In May 1968, this group including Daniel Berrigan stole files from a Maryland draft board and burned them in a parking lot with homemade napalm.

ANSWER: **Catonsville Nine**

[10] This 1968 NASA mission launched the first men to orbit the moon, one of whom took the *Earthrise* photograph. Its members read from the Book of Genesis in a famous Christmas Eve broadcast.

ANSWER: **Apollo 8** [prompt on partial answer]

<NR, American History>

17. This god created the first dogs by decapitating people and putting their heads on their butts. For 10 points each:

[10] Name this god who shapeshifted into a jaguar to destroy the world. His name "smoking mirror" refers to a replacement for a body part originally bit off by the ravenous crocodile-fish Cipactli.

ANSWER: **Tezcatlipoca**

[10] This god was sometimes known as "Red Tezcatlipoca." This inventor of war and god of skin and eye diseases flayed himself and wore his own skin in order to bring food to humanity.

ANSWER: **Xipe Totec** [or **Youalahuan**]

[10] Tezcatlipoca got this god drunk enough to have sex with his sister, causing him to kill himself out of remorse. This "Feathered Serpent" is the brother and rival of Tezcatlipoca.

ANSWER: **Quetzalcoatl**

<JC, Mythology>

18. The teachings of this man were compiled by Gautama Swami, his chief disciple. For 10 points each:

[10] Name this 24th tirthankara, the founder of Jainism.

ANSWER: **Mahavira** [or **Vardhamana**]

[10] Mahavira's birth is sometimes recounted on the fifth day of this monsoon festival during which Jains emphasize the five main vows and ask forgiveness for the offenses of the year. This festival can last 8 or 10 days.

ANSWER: **Paryushana** [or **Das Lakshana Parva** or **Das Lakshana Dharma**]

[10] Many Jains perform this practice during Paryushana. A more extreme Jain version of this practice is *sallekhana*.

ANSWER: **fasting** [or **upavasa**; accept equivalents like **not eating**]

<AP, Religion>

19. In one scene in this novel, an owl looks in on a sleeping woman who is dreaming about a weevil teaching ethics.

For 10 points each:

[10] Name this novel whose characters include the transgender woman Anjum, who is caught in a massacre of Hindu pilgrims, and the architecture student Tilottama.

ANSWER: *The **Ministry of Utmost Happiness***

[10] This author of *The Ministry of Utmost Happiness* wrote a novel in which Baby Kochamma blames Sophie's drowning on an Untouchable, *The God of Small Things*.

ANSWER: Arundhati **Roy**

[10] In *The God of Small Things*, this woman partially narrates the story. She gets married and goes to America before returning and committing incest with her twin brother Estha.

ANSWER: **Rahel**

<JC, World Literature>

20. This text posits the concept of “free play” between imagination and understanding, in which the imagination is not constrained in the same way as cognition. For 10 points each:

[10] Name this book that discusses the agreeable, the sublime, the beautiful, and the good.

ANSWER: ***Critique of Judgement*** [or ***Kritik der Urteilskraft***; or ***Critique of the Power of Judgement***, prompt on incomplete answers like “Third Critique”]

[10] The *Critique of Judgement* was written by this German Enlightenment thinker, who advanced his deontological ethical position in the *Critique of Pure Reason* and created the idea of a “categorical imperative.”

ANSWER: Immanuel **Kant**

[10] In this section of the *Critique of Pure Reason*, Kant claims that space and time are pure forms of intuition, corresponding to the outer and inner senses, respectively.

ANSWER: “**Transcendental Aesthetic**” [or “**Transzendentaler Aesthetik**”]

<NR, Philosophy>

