**2021 National All-Star Academic Tournament**

**Round 20 – Tossups**

**Note to moderators: Please read the answerline to tossups 9 and 15 carefully**

1. In 2019, a team of Australian researchers discovered that the Weyl **(VILE)** semimetal tungsten ditelluride has a nonzero value of this quantity at room temperature. Changes in a different quantity cause a nonlinear response in this quantity in materials studied in nonlinear optics. Bound volume charge density is the negative divergence of this quantity, which spontaneously has a nonzero value in ferroelectrics. This quantity is equal to vacuum permittivity times susceptibility times electric field strength in a homogenous, linear, isotropic dielectric. This vector is defined as electric dipole moment per unit volume. The electric analogue of magnetization is, for 10 points, what quantity that arises in dielectrics due to a small separation of charges?  
ANSWER: electric **polarization** [or **polarization** density; accept answers which refer to a material that has been **polarized**; do not accept or prompt on polarizability]  
<Science Physics - Geoffrey Chen>

2. A playwright with this surname wrote the early gay-theater play *The Madness of Lady Bright* and won a Pulitzer for a play set in a boathouse in which Matt Friedman falls for the title woman. This is the surname of the author of *Talley's Folly*, with first name Lanford. A playwright with this surname wrote about a man trying to buy a "magic suit" from Wining Boy in a play in which four characters who died in a boxcar fire become the Ghosts of the Yellow Dog. An author with this surname chronologically followed their play *Seven Guitars* with a play where an object with a family's history carved into it, which Boy Willie is trying to sell, is used to exorcise Sutter's ghost. For 10 points, give this surname by a playwright who included their play *The Piano Lesson* in the *Pittsburgh Cycle*.  
ANSWER: **Wilson** [accept Lanford **Wilson**; or August **Wilson**]  
<Literature American - Matt Weiner>

3. In one aria, this character holds the last syllable of the phrase "so sei sie dann" across a 15 bar phrase before resolving to a B flat major chord. Near the end of a D minor aria, this character cries "Hört! Hört! Hört!" to the rising notes D, F, long B-flat. In the quintet "Nur stille, stille," this character affirms her promise to give away her daughter to Monostatos. The composer's sister-in-law Josepha Hofer premiered this role, who sings "O Zittre Nicht" before she and her three ladies give Tamino an enchanted item. This character hits several F6's **("F sixes")** in an aria where she commands her daughter Pamina to stab Sarastro, "Der Hölle Rache" **(dair HER-luh RAH-kuh)**. For 10 points, name this coloratura role, the villain of Wolfgang Amadeus Mozart's *The Magic Flute*.  
ANSWER: **Queen of the Night** [or **Königin der Nacht**; or **Astrofiammante**]  
<Arts Opera - Shan Kothari>

4. This country's power monopoly EDL bleeds 3 percent of its GDP annually. In this country, the protest group "For My Rights" coined the phrase "all of them means all of them" to target politicians in its Marada and Amal Movement parties. Economists dubbed this country a "nationally regulated Ponzi scheme" after 90 percent of the value of its currency was lost under its corrupt Central Bank chief Riad Salameh. 2019 taxes on WhatsApp sparked this country's October Revolution which ousted Saad Hariri. Hangar 12 in this country's capital docks stored the *MV Rhosus*' confiscated ammonium nitrate. For 10 points, name this country where Prime Minister Hassan Diab has been charged with negligence over a massive August 2020 explosion in Beirut's harbor.  
ANSWER: Republic of **Lebanon** [or the **Lebanese** Republic; or al-Jumhūriyyat al-**Lubnān**iyyah]  
<Current Events - Ganon Evans>

5. This man and his half brother Mohammed led forces that left Kuwait to drive the Rashidi family out of his birthplace, initiating his conquest of the Emirate of Ha'il. At the battle of Sabilla, this man defeated a revolt of the Ikhwan forces that he founded. Seven of this man's sons with Hassa Sudairi successfully pledged to prevent his other children from inheriting his crown. After conquering the Nejd, this man captured the Hijaz from Sharif Hussein, allowing him to become "Custodian of the Two Holy Mosques." He founded the third state ruled by his family, deriving his legitimacy from his ancestor Muhammad's alliance with the theologian ibn Wahhab. For 10 points, name this father of King Salman, the founder of modern Arabia.  
ANSWER: Abdulaziz ibn **Saud** [or **Abdulaziz** ibn Abdul Rahman ibn Faisal ibn Turki ibn Abdullah ibn Muhammad Al Saud]  
<History World - Charles Dees>

6. The word "ofermod" titles an essay that accompanies a retelling of a poem written in this language titled for its central character's "homecoming." The speaker says, "My feet were by frost benumbed" "while she tossed close to cliffs" in a poem in this non-Chinese language that was translated by Ezra Pound. This language was used to write "The Seafarer." The Vercelli Book contains a poem written in this language whose speaker sees a "beacon entirely garnished with gold" upon seeing the bloodstained cross in a dream vision. Seamus Heaney translated a word as "So!" in a poem in this language whose title character uses his sword Hrunting to slay Grendel's mother. For 10 points, name this language used to write *The Dream of the Rood* and *Beowulf*.  
ANSWER: **Old English** [do not accept or prompt on just "English"] (the first poem is J.R.R. Tolkien's *The Homecoming of Beorhtnoth Beorhthelm's Son*)  
<Literature British - Hari Parameswaran>

7. While this god was being raised in hiding by Athamas **(AH-thah-mahs)**, Hera incited Athamas to go mad and kill this god's foster brother Learchus **(lee-AR-kus)**, who appeared as a deer. After this god impregnated a Bithynian **(bith-EE-nee-ahn)** nymph with Telete **(TEH-leh-tuh)** and the nymph hanged herself, this god named the town of Nicaea **(nie-CEY-ee-ah)** in the nymph's honor. That story is found in book XV **("fifteen")** of the longest surviving poem from classical antiquity, which is an epic by Nonnus **(NON-noos)** titled for this god that also describes his battle with Hera-backed Indians led by Thureus **(thur-EH-us)**. This god turned a mast and oars into snakes and caused a ship's crew to transform into dolphins after being captured by pirates on the way to Naxos **(nax-ohs)**. For 10 points, name this Greek god who inspired the Maenads **(mee-nads)** into a frenzy with wine.  
ANSWER: **Dionysus** [do not accept or prompt on "Bacchus"]  
<RMP Greek/Roman Myth - Matt Weiner>

8. In 2011, archaeologists in this modern-day country discovered a "zombie graveyard" of skeletons with stones shoved in their mouths. The Cashel Man is a mummified king of this country's Loígis kingdom who was sacrificed for good harvests. Gold lunula necklaces have mostly been found in this country, as have heart-shaped varieties of fede rings. Harry Clarke argued this country's modern-day capital evolved from a Viking longphort near a "black pool" of water. A Hiberno-Saxon style manuscript from this country contains more zoomorphic designs than the similar Book of Durrow and Lindisfarne Gospels. Archaeologists excavating this country's South Great George's Street discovered artifacts from the Battle of Clontarf. For 10 points, name this country home to the Book of Kells at Trinity College, Dublin.  
ANSWER: Republic of **Ireland** [or **Éire**, or **Airlann**; accept **Northern Ireland** or Tuaisceart **Éireann**]  
<History European to 1400 - Ganon Evans>

9. A tensor of this name conventionally has its principal components ordered from sigmaZZ **(sigma sub ZZ)** to sigmaYY **(sigma sub YY)** and has anisotropies which must be inferred from the line shapes of CSA. Aromatic compounds produce diamagnetic ring currents that weaken a phenomenon of this name, shifting peaks upfield. Chemical shift is the change in a nucleus's resonant frequency due to that phenomenon of this name. The lanthanide contraction is due to weak contributions from the f orbitals to a different phenomenon of this name, whose strength was estimated by John Slater to calculate effective nuclear charge. For 10 points, give the name of the phenomenon in which core electrons screen the potential of the nucleus from those outside.

ANSWER: **shielding** [accept electronic **shielding**, nuclear magnetic **shielding** or local diamagnetic **shielding**; accept **shielding** tensor, **deshielding**, **shielding** effects, or **shielding** constants; accept electron **screening** before "screen"; accept chemical shift tensor or chemical shift anisotropy **before** “CSA”; afterwards, prompt with “chemical shift measures what phenomenon’s impact on the resonant frequency?” until “chemical shift”]  
<Science Chemistry - Kevin Wang>

10. These are the most commonly depicted objects in Neanderthal-made art found in the Cave of Maltravieso. Two of these objects making a symbol used by the *Cohanim* frequently appear on Levite tombstones. It's not a bird, but Egyptians represented the *ka* with two of these objects pointing towards the sky. Protection against the Evil Eye is provided by Middle Eastern *hamsa* amulets shaped like these things. In Buddhist art, *mudras* are different positions for these objects, such as the *abhaya* one on which the Dharma Wheel may be drawn, as in the symbol for Ahimsa. These objects are the most common to be decorated during *mehndi* ceremonies at Hindu weddings, in which henna is placed on them. For 10 points, what objects are used by an artist in finger painting?  
ANSWER: **hand**s [accept the **palm** or the back of a **hand**; prompt on **finger**s with "What larger body part are they a part of?"; prompt on **arm**s]  
<Arts Painting - Ganon Evans>

11. A poem by this author asks, "Why have I kept silent?" in regards to Israel's nuclear program before claiming their own origins were "tarnished by a stain that can never be removed." This author wrote a chapter titled "How I Learned Fear" in which they described receiving "clueless worries in my father's fine penmanship" after being recruited for the army. In a novel by this author, the protagonist's father dies after swallowing a pin to avoid revealing that he is a Nazi when the Russians invade. This author's memoir *Peeling the Onion* revealed that they had served in the Nazi party and ended with the publication of a book about a boy who can shatter glass with his voice. For 10 points, name this author of the Danzig Trilogy, which includes *The Tin Drum.*  
ANSWER: Gunter (Wilhelm) **Grass**  
<Literature European - Matthew Lehmann>

12. This man controversially claimed Jewish news anchors put out "pornographic stuff" during a leaked breakfast chat with Richard Nixon. "Inquirers" gathered after mass performances of "Just As I Am" at events hosted by this person. In 1963, this man bailed Martin Luther King Jr. out of jail. Mike Pence and other evangelical leaders practice this man's namesake "rule" which prohibits spending time alone with women other than their wives. This host of the *Hour of Decision* radio show substituted "New York" for "Sodom and Gomorrah" while preaching for 112 straight nights in Madison Square Gardens as part of his many "crusades." For 10 points, name this longtime Presidential spiritual advisor, a Southern Baptist minister.  
ANSWER: Billy **Graham** [or William Franklin **Graham** Jr.]  
<History American (1945-present) - Ganon Evans>

13. One of these things became much more abundant in the Lomagundi Event. One of these things is the less massive component of a "clumped" thermometer characterized by the value "cap 47." Pee Dee Belemnite standardized the signature of two of these things. A technique pioneered by Willard Libby that measures the ratio of two of these things is often calibrated against tree ring measurements. In a common example of kinetic fractionation, a heavier one of these things undergoes fixation less often than a lighter one during photosynthesis. Cosmic rays that strike nitrogen form one of these things with a half-life of 5730 years, a fact used in a common radiometric dating technique. For 10 points, name these atoms with 6 protons and differing numbers of neutrons.  
ANSWER: **isotope**s of **carbon** [or similar answers like **carbon isotope**s; prompt on isotopes by asking "of which element?"; prompt on radiocarbon by asking "what differing forms of carbon?"]  
<Science Earth Science - Geoffrey Chen>

14. Allan Gibbard discussed the "contingent" variety of this property using the example of the clay statues Lumpl and Goliath. Objects possess this property over time because they exist as mereological sums of their temporal parts according to perdurantism. Saul Kripke argued Hubert Humphrey possesses the "trans-world" variety of this property in an objection to David Lewis's counterpart theory. Derek Parfit's *Reasons and Persons* includes a thought experiment about whether an individual possesses this property after being placed in a "teletransporter." Leibniz's law states that objects with this property are indiscernible. The ship of Theseus paradox asks whether a ship retains this property as its parts are slowly replaced. For 10 points, identify this relation of sameness.  
ANSWER: **identity** [or personal **identity**; or contingent **identity**; prompt on the self]  
<RMP Philosophy/Thought - Geoffrey Chen>

15. An ethnography of these people begins by imagining an "anthropological strangeness" in which these people are studied as though they were members of a foreign tribe. David Bloor's "strong programme" attempted to go beyond "weak" theories of these people which only explained their erroneous beliefs. Robert Merton argued that these people adhered to the four CUDOS **(COO-"dose")** norms. A 1979 anthropological work about these people by Bruno Latour and Steve Woolgar inspired Latour to develop actor-network theory. In the 1990s, one of these people fraudulently published a nonsense paper in *Social Text* in the Sokal hoax. These people use a method of inquiry developed by Francis Bacon. For 10 points, identify these people who are the subject of the ethnography *Laboratory Life*.  
ANSWER: **scientist**s [or **biologist**s; or **physicist**s; or scientific **researcher**s; accept any answers indicating someone who **works in a lab**; prompt on intellectuals, academics, or professors by asking “in what field?” and accept **science** or specific fields of science thereafter]  
<Social Science Sociology - Geoffrey Chen>

16. An essay by this author describes how teachers at school would find out which students had broken a certain rule each day by having them pass around a button when they broke the rule. The goal of building a school for expelled village children causes a rift between Waiyaki and his village in a novel by this author. A novel by this author ends with the protagonist burning down his ex-lover's brothel. Munira works as a teacher after moving to Ilmorog in a novel by this author that borrows its title from Derek Walcott's poem "The Swamp." This author discusses how colonial schools punished students for speaking Gikuyu instead of English in the essay collection *Decolonising the Mind.* For 10 points, name this Kenyan author of *A Grain of Wheat* and *Petals of Blood.*  
ANSWER: **Ngũgĩ** wa Thiong'o **(GOO-gee wah thee-ON-go)** [or James **Ngugi**]  
<Literature World / Classical / Misc - Caroline Mao>

17. A Juilliard professor of this instrument who was the dedicatee of a one-movement concerto by Joan Tower is Carol Wincenc **(WIN-sense)**. This instrument plays with piano and percussion in Leonard Bernstein's dodecaphonic piece *Halil*. Four of these instruments grow increasingly dissonant as they respond to a repeated trumpet melody in Charles Ives' *The Unanswered Question*. A D-major *Concertino* for this instrument was dedicated to French master Paul Taffanel and was composed by Cécile Chaminade. Edgar Varèse's piece *Density 21.5* was written for one of these instruments made of platinum. This instrument is the highest-pitched member of a woodwind quintet. For 10 points, name this reedless, transversely-played instrument that is lower than a piccolo.  
ANSWER: **flute**  
<Arts Music - Noah Sheidlower>

18. *Description acceptable.* A party founded for this cause adopted a black flag with a white cross and was created from the merging of three parties under Leopoldo Figueroa. Lolita Lebrón nearly killed Alvin Bentley during a shooting over this cause. Pedro Albizu Campos withdrew his party from electoral politics unless this cause was accomplished following a university shooting in Río Piedras. The National Guard bombed Utuado to suppress protests over Public Law 53 or the "Gag Law" which criminalized supporting this cause. Media suppression of Blanca Canales's Jayuya **(hi-YOO-yuh)** Uprising for this cause motivated Griselio Torresola and Oscar Collazo **(koh-YAH-soh)** to attempt to assassinate Harry Truman at the Blair House in 1950. For 10 points, name this cause that seeks autonomy for a U.S. territory in the Caribbean.  
ANSWER: the **independence** of **Puerto Rico** [or the United States giving **independence** to **Puerto Rico**; or **Puerto Rican** **nationalism**]  
<History American (1945-present) - Ganon Evans>

19. About 12 hours after the formation of these features, cells of the hair follicle bulge niche begin to migrate upwards. It isn't a part of a plant, but a closed one of these features opens during the process of dehiscence **(de-HIS-uhns)**. Granulation tissue forms at the surface of these features as part of the process of re-epithelialization. Normally, at the site of one of these features, type III collagen is replaced with type I collagen, which can cause keloid **(KEY-loid)** formation if it occurs improperly. If one of these features is left alone for too long without regeneration, myofibroblasts will repair them with parallelly oriented collagen, causing scarring. For 10 points, name these holes to the epidermis which can be opened by trauma.  
ANSWER: open **wound**s [or closed **wound**s; accept **cut**s, **laceration**s, **puncture**s, **incision**s, **gash**es, **abrasion**s, or skin **lesion**s; accept **surgical site**s or answers which indicate the **opening of surgery**; prompt on injuries or blows with “what external features does that produce?”; prompt on keloid scars with "scars form at the site of what features?"]  
<Science Biology - Geoffrey Chen>

20. A saint with this name convinced a woman not to drown herself in the Tagus **(tay-gus)** River, and gave her a brief which read "Behold the Cross of the Lord! Flee ye adversaries!" That saint of this name was known as the "Hammer of the Heretics." Doña Beatriz **(DOH-ny-ah bee-ah-TREEZ)** was inspired by a vision of a saint of this name to found that saint's namesake sect in the Kongo Kingdom. Gaston **(guh-STOHN)** of Valloire **(val-wah)** set up a hospital named for this saint to assist those affected by that saint's "fire," a form of ergotism. Demons harassed a saint with this name while he spent a night alone in a tomb. For 10 points, give this name of a saint from Padua and an Egyptian saint who was tormented by the devil in the desert.  
ANSWER: **Anthony** [or **Anthony** the Great; or **Anthony** of Padua]  
<RMP Christian/Bible Religion - Hari Parameswaran>

21. A woodcut depicting this U.S. state shows a group of people in purple clothes looking at a yellow building with ladders. Works like *The Bishop's Apricot* are included in a *Portfolio* named after this state by Gustave Baumann. Ernest Blumenschein, Bert Phillips, and Joseph Henry Sharp helped form a "Society of Artists" in this state. One artist created a series of abstract paintings of the "Black Place" in this state, which is where D.H. Lawrence lived at art patron Mabel Dodge Luhan's home. While living on this state's Ghost Ranch, one artist painted *Red and Yellow Cliffs* and painted a sunflower below a ram's skull in *Summer Days*. The artist's colony of Taos was found in, for 10 points, what state, where Georgia O'Keeffe painted many desert scenes?  
ANSWER: **New Mexico** [or **NM**]  
<Arts Painting - Noah Sheidlower>

**2021 National All-Star Academic Tournament**

**Round 20 – Bonuses**

1. A sailor discovers a sea creature who has pursued him his entire life only wanted to give him the gift of luck and power in this author's story "The Colomber." For 10 points each:  
[10] Name this author who described how the soldier Giovanni Drogo spent his entire life waiting at a remote border post in vain to fight off an invasion in *The Tartar Steppe.*  
ANSWER: Dino **Buzzati**  
[10] *The Tartar Steppe*'s atmosphere of existential boredom is often compared to the novels of this French author, which include *The Stranger*.  
ANSWER: Albert **Camus**  
[10] The plot of J. M. Coetzee's **(koot-SEE-yeh's)** novel *Waiting for the Barbarians* heavily draws on *The Tartar Steppe*. However, its title is taken from the title of a poem by this Greek-language poet of *Ithaka.*  
ANSWER: Constantine Peter **Cavafy** [or C. P. **Cavafy**]  
<Literature European - Joseph Krol>

2. This man is the subject of a series of portraits by Heinrich Christoph Kolbe **(KOLE-buh)** in which he appears hiking with a notebook. For 10 points each:  
[10] Name this figure, who rests on a broken column next to a marble scene of Iphigenia's sacrifice in a J. H. W. Tischbein painting set "in the Roman Campagna."  
ANSWER: Johann Wolfgang von **Goethe**  
[10] This Swiss neoclassicist created a portrait of Goethe in Rome during his Italian Journeys. A painting by this artist subtitled *Mother of the Gracchi* is a mirrored version of her earlier painting *Cornelia Presenting Her Children as Her Treasures*.  
ANSWER: Angelica **Kauffman** [accept Maria Anna Angelica **Kauffman**]  
[10] Kauffman and Mary Moser were the only two female founders of this British institution, whose first president was Joshua Reynolds.  
ANSWER: The **Royal Academy** of Arts [prompt on RA]  
<Arts Painting - Ganon Evans>

3. Victor Hugo described himself "weeping before the great starry banner of the New World" in a letter to the *London News* defending this person. For 10 points each:  
[10] Name this person, the subject of a popular song whose lyrics were written by William Weston Patton. Ralph Chaplin borrowed from a song about this man to create the popular labor union anthem "Solidarity Forever."   
ANSWER: John **Brown** [or "John **Brown**'s Body"]  
[10] The marching song "John Brown's Body" was used by Julia Ward Howe to compose this Civil War-era anthem. The chorus in this song repeats the lyrics "Glory, Glory, Hallelujah."  
ANSWER: "**Battle Hymn of the Republic**"  
[10] John Brown's Body" was popularized by this state's 12th regiment, whose members were known as the "Tigers." Robert Gould Shaw led a unit from this state in assaulting Fort Wagner during the Civil War.   
ANSWER: **Massachusetts** [or **MA**]  
<History American (pre-1865) - Hari Parameswaran>

4. Since these devices produce the same output regardless of incident energy, they are unable to discriminate between different types of radiation. For 10 points each:  
[10] Identify these radiation detectors named for a German physicist that produce clicking noises in response to incident radiation.  
ANSWER: **Geiger**-Muller counter  
[10] Geiger counters become limited at high radiation rates due to their high value for this quantity, the time required after an event is recorded before the detector is able to record any subsequent events.  
ANSWER: **dead** time  
[10] Both the dead time and decay time are important when using these radiation detectors, which produce photons in response to radiation. They are often paired with photomultiplier tubes that amplify their responses.  
ANSWER: **scintillator**s [or **scintillation** counters or **scintillation** detectors or **scintillation** cameras]  
<Science Physics - Sam Rombro>

5. A newspaper headline in 1992 asked that, if the leader of this party won, "would the last person to leave Britain please turn out the lights?" For 10 points each.  
[10] Name this political party, which lost unexpectedly to the Conservative Party in 1992 in England.  
ANSWER: **Labour** Party  
[10] A key issue in the 1992 U.K. election was a "War" concerning this government body over an allegedly untrue advertising campaign. The death of Samantha Rickard sparked an investigation into this government body.   
ANSWER: **National Health Service** [Accept **NHS**]   
[10] The shift left by Labour during the 1980s caused a moderate "Gang of Four" led by David Owen to break away and found a party with this name, which later merged with the Liberal Party. A party with this name was the main left-wing party in Imperial Germany.  
ANSWER: **Social Democratic** Party [accept **SDP**, **SPD**, or **Sozialdemokratische Partei Deutschlands**]  
<History European 1914-present - Douglas Simons>

6. In one story, this character laughs at a man's farts while baked into a pudding, allowing him to escape when the pudding is thrown away as possessed. For 10 points each:  
[10] Name this English folk character. After his birth, this character is dressed in garb such as an oak leaf hat, spider web shirt, and apple rind socks by the Queen of the Fairies.   
ANSWER: **Tom Thumb** [or **Bawd Tom**; accept **Thomas** in place of Tom; prompt on just Tom or Thomas]  
[10] In Richard Johnson's version of the Tom Thumb story, Tom is born after his parents consult with this figure. In another source, this son of an incubus is set to be sacrificed by Vortigern until he explains why a castle is collapsing.  
ANSWER: **Merlin**us Ambrosius  
[10] Perhaps surprisingly, Tom Thumb is frequently depicted as a member of this chivalrous group, whose more well-known members include Yvain **(ee-vahn)** and Gawain.   
ANSWER: **Knights of the Round Table** [accept any answer indicating **knights** from **Camelot** or King **Arthur**'s court]  
<RMP Non-Greek/Roman Myth - Bradley McLain>

7. In a novel titled for this type of place, Lutie sees Henry Lincoln Johnson's name on a mailbox and muses that she also belongs to "that mighty mighty tribe of Johnsons." For 10 points each:  
[10] Name these places which subtitle a novel about a woman who dies after she is abandoned by the bartender Pete, leading her mother to exclaim, "I'll fergive her!"  
ANSWER: a **street** [accept *The* ***Street*** or *Maggie: A Girl of the* ***Streets***]  
[10] Jimmie Johnson fights a gang of boys from Devil's Row in the opening of this author's *Maggie: A Girl of the Streets*. This author also wrote *The Red Badge of Courage*.  
ANSWER: Stephen **Crane**  
[10] Kids throw bags of garbage at a different Jimmie in the opening of this author's novel *The Street*, which made her the first African-American woman to write a book that sold over a million copies.   
ANSWER: Ann **Petry** [or Anna Houston **Lane**]  
<Literature American - Caroline Mao>

8. For stars whose mass is less than half of the sun's, this quantity is larger than the age of the universe. For 10 points each:  
[10] Identify this quantity, which for the Sun is equal to approximately 10 billion years.   
ANSWER: main sequence **lifetime** [or **lifespan**; or **life expectancy**; accept answers referring to how long a star will **live** or stay in the **main sequence** or undergo thermonuclear **fusion** or **burn** hydrogen; do not accept or prompt on "age" or answers that refer to how old the star is]  
[10] Main sequence stellar lifetime is shown to be approximately proportional to this power of zero-age main sequence mass by assuming the total energy emitted by a star is proportional to mass, and applying the mass-luminosity relation. Answers within a range will be accepted. You have 10 seconds.  
ANSWER: **-2.5** [accept answers between **-2.1** and **-3.0**]  
[10] Stars with a higher value of this quantity symbolized Z have higher stellar lifetimes. It is commonly quantified by calculating the logarithm of the quantity "iron concentration over hydrogen concentration."  
ANSWER: **metallicity**   
<Science Astronomy - Geoffrey Chen>

9. Stew-houses" home to this profession installed moats and sent "Southwark geese" to Henry VIII to circumvent 1504 legislation targeting this profession. For 10 points each:  
[10] The transgender Londoner Eleanor Rykener worked under the Bishop of Winchester in this profession. A campaign against "Laundries" primarily for people of this profession began after the discovery of a mass grave in Dublin.  
ANSWER: **prostitution** [accept **courtesan**s; accept **streetwalker**s, accept **fallen women**; accept **sex work** or the **sex industry**; prompt on the oldest profession]  
[10] Anastasia the Patrician, frequently believed to be transgender, fled to this city from the Byzantine Empire. Some historians believe that the Legend of Hilaria, about a person who flees to this city, is a depiction of a transgender man.  
ANSWER: **Alexandria**, Egypt [or **Eskendereyya** or **Iskandariyya**]  
[10] E.P. Sanguinetti's translation of the trial of this French teenager by Pierre Cauchon argues that her "voices" encouraged her to wear male clothes as well as to don armor and relieve the Siege of Orléans.   
ANSWER: **Joan** of Arc [accept **Joana** of Arc or **Jeanne** d'Arc; accept St. **Joan**]  
<History European to 1400 - Ganon Evans>

10. This story's unnamed protagonist is forced to wear a ruby choker and bears the mark of a stained key on her forehead. For 10 points each:  
[10] Name this story based on "Bluebeard," in which the protagonist discovers the title location in her murderous husband's castle and is saved by her mother. It titles a short story collection by Angela Carter.  
ANSWER: "The **Bloody Chamber**"[10] "The Bloody Chamber" is one of Carter's reworkings of these types of stories, which were collected by Charles Perrault and the Brothers Grimm.  
ANSWER: **fairy tales** [accept **folk tales**; accept descriptive answers about **tale**s for **children**; prompt on tales; do not accept or prompt on "fables"]  
[10] In "The Bloody Chamber," the protagonist's husband undresses her in a bedroom filled with white lilies and twelve of these objects. In the fairy tale "The Snow Queen," the devil creates one of these objects, which breaks into pieces that become lodged in Kai's heart and eyes.  
ANSWER: a **mirror** [accept **looking glass**; prompt on glass]  
<Literature British - Eve Fleisig>

11. An inactivated form of this compound called CRM197 is a common carrier protein in conjugate vaccines. For 10 points each:

[10] Name this compound, which is diluted and injected into your skin in the Schick test. The chemotherapy drug Ontak is derived from this compound, which was the first known compound to perform ADP-ribosylation on elongation factor 2.

ANSWER: **diphtheria toxin** [prompt on partial answers; accept **DT**; accept **diphtheria exotoxin** or **diphtheria toxoid** or similar answers]

[10] DT’s toxicity is induced by a beta example of these viruses, which are any viruses that infect bacteria.

ANSWER: bacterio**phage**s [accept coryne**phage**s]

[10] DT’s function is similar to that of exotoxin A, a toxin produced by this genus’s *aeruginosa* species. That species in this genus is often studied for its ability to form biofilms.

ANSWER: ***Pseudomonas*** [accept ***Pseudomonas*** *aeruginosa*; prompt on *P*. *auruginosa*]  
<Science Biology – Vishwa Shanmugam>

12. The last shot of this film is a recreation of the final piece in William Hogarth's series *Marriage-a-la-Mode*. For 10 points each:  
[10] Name this film whose cinematography was inspired by a scrapbook of classic English paintings. NASA lens technology captured actors in this movie moving laterally to the camera to avoid going out of focus, because this movie was largely lit by candles.  
ANSWER: ***Barry Lyndon***  
[10] *Barry Lyndon* was born out of this director's scrapped idea for a Napoleon biopicture. This director popularized the tracking shot in films like *2001: A Space Odyssey.*  
ANSWER: Stanley **Kubrick**  
[10] This director's *Days of Heaven* was inspired by Andrew Wyeth's *Christina's World* and other pastoral paintings. This director adapted the Book of Job into the *Tree of Life*.  
ANSWER: Terence **Malick**  
<Arts Film - Ganon Evans>

13. This piece opens with the trombones playing a call on a repeated B-flat followed by the chorus singing "Thus spake Isaiah." For 10 points each:  
[10] Name this Biblically-inspired cantata for chorus, solo baritone, two brass bands, and orchestra. Osbert Sitwell wrote the libretto for this piece, which was premiered at the 1931 Leeds Festival.  
ANSWER: ***Belshazzar's Feast***  
[10] This English composer drew from the Book of Daniel for his cantata *Belshazzar's Feast*. He set Edith Sitwell's poetry to music in his *Façade*.  
ANSWER: William Turner **Walton**  
[10] Walton also wrote pieces in this genre like *Crown Imperial* and *Orb and Sceptre* for the coronation of King George VI. Edward Elgar wrote six of these pieces for orchestra titled *Pomp and Circumstance*.  
ANSWER: military **march**es [accept coronation **march**es]  
<Arts Music - Noah Sheidlower>

14. Answer the following about Garry Kasparov and bizarre conspiracies. For 10 points each:  
[10] Kasparov joked that Donald Trump "lacked the strategic calculations" to play this game in a 2017 Politico article. QAnon supporters popularized this term to describe the Trump administration's "one step ahead" control of media and politics.  
ANSWER: **4D chess** [prompt on chess; prompt on higher dimensions of chess such as 5D chess with "What is the most simplified version of that idea?"]  
[10] Valery Salov claimed Kasparov predicted the destruction of these buildings by making three rook sacrifices representing the fall of its North, South, and missing "Solomon" towers during his 9th and 11th games at a 1995 tournament hosted here.  
ANSWER: **W**orld **T**rade **C**enter [accept **WTC**]  
[10] Kasparov subscribes to an Anatoly Fumenko theory with this name which claims Ancient Egypt began in the year 1000. David Rohl’s theory of this name reorganizes Egyptian history starting with Ashurbanipal’s sack of Thebes and centers on biblical Pharaohs.

ANSWER: **new chronology**  
<Other Academic - Ganon Evans>

15. The "Father of Turkic Linguistics" Mahmud al-Kashgari was an Uyghur scholar who created a circular one of these objects in 1072. For 10 points each:  
[10] Name these objects. Abbasid thinkers used al-Khwārizmī's rectangular coordinate grids to shift the Prime Meridian on examples of these objects created by Euclid.  
ANSWER: **map**s  
[10] The cartographer Muhammad al-Idrisi created his 1138 *Tabula Rogeriana* under the patronage of a king of this region named Roger II. Asa ibn al-Furat established Aghlabid control of this region in 827 which was later displaced by the Fatimid-backed Kalbi family.  
ANSWER: Emirate of **Sicily**   
[10] Early world maps known as "T and O maps" were also named for this scholar due to their description in his *De natura rerum*. This non Lucretius person wrote that treatise under the Chalcedonian king Sisebut.   
ANSWER: **Isidore** of Seville   
<History World - Ganon Evans>

16. Larry Laudan's pessimistic meta-induction is an argument against this position. For 10 points each:  
[10] Identify this position, which Hilary Putnam argued is the only position that doesn't make the success of science a miracle. Unlike instrumentalism, it contends that scientific theories describe objects which actually exist in the world.  
ANSWER: scientific **realism**  
[10] Scientific anti-realists often make the argument that scientific theories suffer from this problem, because the amount of scientific data at any given time is usually insufficient to choose between competing theories.   
ANSWER: **underdetermination** [Accept **UDT**]  
[10] This philosopher of science was an anti-realist because he held that the world changed with a paradigm shift, since paradigms are incommensurable with each other. He wrote *The Structure of Scientific Revolutions*.  
ANSWER: Thomas **Kuhn**  
<RMP Philosophy/Thought - Geoffrey Chen>

17. . This term was popularized by a 1995 cover story in *The FBI Law Enforcement Bulletin* discussing a rise in this activity in south Florida. For 10 points each:  
[10] Give this extra-legal term used in crime debates for intentionally accessing an occupied dwelling by force, usually to perform a combination of robbery and another violent crime.  
ANSWER: **home invasion**  
[10] This common law principle states that there is no duty to retreat before using deadly force to resist an intruder in one's home. It is less strong than a "stand your ground" law, which applies outside of the home to any place a person is legally entitled to be.  
ANSWER: **castle** doctrine  
[10] This offense in Anglo-American law is defined as illegally entering a building with the intent to commit a crime, and applies regardless of whether the building is occupied or violence is used.  
ANSWER: **burglary**  
<Social Science Misc - Matt Weiner>

18. Basavanna **(buh-suh-vuh-nuh)** founded a sect whose members wear a necklace adorned with one of these objects. For 10 points each:  
[10] Name these objects which are usually marked with a symbol consisting of three horizontal lines and a red dot, known as a *tripundra* **(trih-poon-drah)**. These objects are traditionally placed inside yonis.  
ANSWER: **linga**ms  
[10] Lingams **(leen-gahms)** are a phallic representation of this Hindu god of destruction and member of the Trimurti **(trih-MOOR-thee)**. Statues of this god's mount, the bull Nandi **(nahn-dee)**, are commonly found outside Hindu temples.  
ANSWER: **Shiva**  
[10] The controversial philologist Wendy Doniger blamed Richard Burton for the warped Western view of lingams on account of his translation of a text named for this Sanskrit concept, personified by the divine consort of Rati.   
ANSWER: **Kama** [accept **Kama**deva; accept **Kama** Sutra; prompt on English translations like love or desire]  
<RMP Non-Christian/Bible Religion - Hari Parameswaran>

19. This character publishes "a very small, brief book of thoughts, *Maximes*," that all citizens are forced to purchase. For 10 points each:  
[10] Name this character who is advised by Raymond and commissions the "State Domain" as president of a country home to characters such as the magician Zabeth. He is known only by a two-word nickname.  
ANSWER: **Big Man**  
[10] Big Man appears in *A Bend in the River*, a novel by this Trinidadian Nobel laureate who also wrote *A House for Mr. Biswas*.  
ANSWER: V.S. **Naipaul** [or Sir Vidiadhar Surajprasad **Naipaul**]  
[10] A man moves to England to support his brother's engineering studies before learning his brother isn't in school in "Tell Me Who to Kill," a story from this Booker-winning Naipaul book. In its title story, Bobby and Linda drive through the namesake recently independent African country.  
ANSWER: ***In a Free State***  
<Literature World / Classical / Misc - William Grossman>

20. These objects may be inspected for pinhole leaks by filling them with water and looking for beading, though this is often impractical. For 10 points each:  
[10] Name these objects, which are often supplied by Ansell. A lab can consult a resistance table to determine what variety of these objects to choose, with butyl/Viton blends being a sturdy option.  
ANSWER: laboratory **glove**s [accept ChemTek butyl **glove**s]  
[10] Vinyl and nitrile gloves are popular choices in large part because chemists with an allergy to this natural rubber can use them.  
ANSWER: **latex** rubber [accept **latex** gloves]  
[10] Nitrile rubber gloves are formed from a block copolymer of acrylonitrile and butadiene **(BYU-tah-DI-een)**, which are found alongside this third monomer in the thermoplastic used to manufacture Legos. The vinyl group of this molecule is joined in another common polymer, which is soluble in gasoline.  
ANSWER: **styrene** [accept acrylonitrile butadiene **styrene** or **polystyrene**; prompt on ABS]  
<Science Chemistry - Vishwa Shanmugam>

21. The epitaph of one author unusually makes no mention of his literary career, instead noting that the "long-haired [these people] know [his noble prowess] well". For 10 points each:  
[10] Name these people, who title the only play by its author to focus on contemporary events. That play opens with a queen of these people recounting a dream in which her son puts a yoke and reins on two women.   
ANSWER: *The* ***Persian****s* [or ***Persai***]  
[10] *The Persians* expresses this Greek author and soldier's preoccupation with the Persian war. This playwright is best known for the *Oresteia*.   
ANSWER: **Aeschylus**  
[10] Aeschylus claims that *The Persians* was "the best thing I ever wrote" in this later play by another author, in which the servant Xanthias and his master repeatedly exchange clothes.  
ANSWER: *The* ***Frogs*** [or ***Batrachoi*** or ***Ranae***]  
<Literature World / Classical / Misc - Joseph Krol>