

MKULTRA 3: Asking the Super-Important Questions

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Tossups

1. **One short story by this author ends with a group of man-hunters hearing a laugh “so unnatural, so unhuman... that fills them with dread unspeakable”. Those man-hunters find the body of a man killed either by Branscom or by the ghost of his mother Catherine Larue. In one short story by this author of “The Death of Halpin Frayser”, the narrator sees a figure whose eyes “glitter like diamonds” in the machine-shop, which strangled his friend before starting a fire later blamed on a lightning strike. This author, who featured a murderous chess-playing robot in (*) Moxon’s Master, created a character who is convinced to burn some driftwood by a disguised Union scout and is charged with treason. For 10 points, name this author, who wrote of the hanging of Peyton Farquhar in “An Occurrence at Owl Creek Bridge”.**

ANSWER: Ambrose Bierce <EWL, Literature>

2. **This functional group is reacted with N-chloro-suc·cin·imide and di·methyl·sulfide in a reaction named for Corey and Kim. A reagent used on this functional group can be synthesised by adding three acyl groups to the iodine atom in 2-iod·oxy·ben·zoic acid and is named for Dess and Martin. This functional group can be removed using carbon disulfide and iodo·methane via a xanthate intermediate in the Chugaev elimination, and this functional group is reacted with oxalyl chloride and DMSO in the (*) Swern oxidation. The reagent PCC is used to convert this functional group to an aldehyde, and the Jones reagent can oxidise primary examples of this functional group to carboxylic acids. For 10 points, name this functional group symbolised -OH, found in ethanol.**

ANSWER: alcohol [or hydroxyl] <EWL, Chemistry>

3. **Mark Moseley was playing for this team when he became the only placekicker to be awarded MVP. This team reached Super Bowl VII [“seven”] with a team of veterans nicknamed the “Over the Hill Gang”. Gary Clark and Ricky Sanders joined a member of “The Fun Bunch”, Art Monk, in a wide receiver trio for this team nicknamed “The (*) Posse”. Cornerback Darrell Green played his entire career for this team. In the 2016 playoffs, this winner of the NFC East lost to the Green Bay Packers at their home stadium of FedExField. For 10 points, name this NFL team whose name combines a controversial slang term for Native Americans with the US capital.**

ANSWER: Washington Redskins [accept either underlined part] <DK, Miscellaneous>

4. **Kurt Haijby was convicted of blackmailing one monarch of this name. A ruler of this name was chased on skis as he fled to Lima chased by the men of Mora, who had changed their minds about him leading a revolt against King Christian II. One ruler of this name ended the Age of Liberty with a 1772 self-coup which suppressed both (*) Cap and Hat parties. The Kalmar Union ended when a ruler of this name established the Vasa dynasty in 1523. This was the name of the commander who allied with John George of Saxony to defeated Tilly at Breitenfeld. For 10 points, give this name of the king who fell from his horse Streiff at Lützen, the “Lion of the North” who shared his name with five other kings of Sweden.**

ANSWER: Gustav [or Gustavus; or Gustavus Adolphus; or Gustav Adolph] <DJ, History>

5. **This character says that “My days are swifter than a weaver’s shuttle and they come to an end without hope” and describes his uncleanliness as such that “even if I washed myself with soap and my hands with washing soda, you would plunge me into a slime pit”. This character debates his**

fate with (*) Elihu, Eliphaz, Bildad and Zophar while he sits among the pot-sherds scraping his sores. One figure speaks to this character from a whirlwind, asking him “where were you when I laid the earth’s foundations?” and describes at length the magnificence of the Behemoth and the Leviathan. For 10 points, name this “greatest man among all the people of the East”, whose blessings are removed as God seeks to test his faith.

ANSWER: Job

6. The SURF complex is formed in one process that degrades these molecules, which uses factors UPF 1 through 3 to detect the presence of the EJC. One type of this molecule adopts a conformation called the H/ACA [“H slash A C A”] box and guides pseudo-uridylation reactions in the nucleolus. Defective examples of these molecules are eliminated in nonsense-mediated decay. snRNPs [“snurps”] form a complex used to remove (*) introns from these molecules in their namesake splicing. Inosine can cause “wobble” base pairing between these molecules, one type of which is modified with the poly-A tail and 5-prime cap. For 10 points, name these nucleic acids which come in “transfer” and “messenger” varieties.

ANSWER: RNA [or ribonucleic acid, accept specific types of RNA like mRNA, tRNA, rRNA, etc.] <EWL, Biology>

7. In a novel in this language, the narrator becomes obsessed with a mysterious woman who comes into his house and dies on his bed, where he dismembers her and buries her in Rey. This language was used to write that novel about a pen-case painter who reveals his suicidal fantasies to a birdlike shadow on his wall. A poet who used this language told the reader that *The Bird of Time has but a little way/ To flutter — and the Bird is on the Wing*” so (*) “Come, fill the Cup, and in the fire of Spring/Your Winter-garment of Repentance fling”. For 10 points name this language in which Sadegh Hedayat wrote *The Blind Owl*, and from which Edward Fitzgerald translated a book of quatrains by Omar Khayyam.

ANSWER: Persian [or Farsi] <DJ, Literature>

8. In this city, one palace courtyard is covered with a Daniel Buren installation of a black and white grid with various heights of striped columns. Bernini’s Baroque design lost a commission for a façade closing the east face of a square palace courtyard in this city, in favour of a flat-roofed Corinthian colonnade standing on a plain podium raised above street level. Houses were excluded from a new (*) bridge in this city to allow a clear view of that palace; that stone-arched bridge is decorated with hundreds of grotesque *mascarons*. The Marie de Medici cycle by Rubens was commissioned for a palace in, for 10 points, what city whose architecture includes the Pont Neuf and the Louvre?

ANSWER: Paris <ED, Visual Fine Arts>

9. This figure makes a cameo in *Father of the Pride*, in which his stunt double is kidnapped, and Simon Cowell told this figure that he was “on fire” during a performance of *Disco Inferno*. This figure tries to reassure his friend after an assassination attempt by reminding him “almost everybody that meets you wants to kill you”. After an obviously-French chef announced “bon appétit”, this character exclaimed “ooh, (*) Mexican food! My favourite!” This character snatches a bottle from a cat arguing that animal testing is “the best friend’s job”, and after drinking that “Happily Ever After” potion, he transforms into “a stallion, baby!”. For 10 points, name this annoying talking animal voiced by Eddie Murphy, the best friend of Shrek.

ANSWER: Donkey <BS>

10. Over ten kilometres of road through the swamp in this war in the Piquissiri maneuver. Another side in this war resorted to guerrilla tactics after the defeat at Lomas Valentinas. That side had begun this war well but overextended with the invasion of Corrientes, before being defeated in a

naval battle on the (*) Paraná River. This war ended when the dictator Francisco Solano Lopez was killed. This conflict was especially bloody and involved the battle of Tuyutí, the deadliest battle in South America. For ten points, name this war which saw an alliance of Brazil, Argentina and Uruguay defeat a country with capital in Asuncion.

ANSWER: War of the **Triple Alliance** [or **Paraguayan War**] <PA, History>

11. Moraru and Andersen modified an algorithm that performs this task to incorporate a feed-forward Bloom filter to reduce memory consumption by up to 50 times. The Galil rule modifies an algorithm that performs this task using two “shift rules”. The bitap algorithm performs this task, as does another which uses a fingerprint as a (*) rolling hash function to speed up computation.

Algorithms that perform this task include the Knuth-Morris-Pratt and Rabin-Karp algorithms. For 10 points, name this task which retrieves information from a data structure, for which you might use Google.

ANSWER: **searching** [or specific types such as string **searching**] <EWL, Other Science>

12. A bald member of this group is said to have worn a black sheepskin as a wig. Another member of this group is cursed to be killed by a boar after his father kills a steward’s son in the form of a boar. One member of this group finds the horn Borabu under a rock, and one figure is given the leadership of this group after waking himself with poison from his spear to slay a musical monster. In an account of the Battle of Gabhra, a member of this group, (*) Oscar, dies in single combat with Cairbre Lifechair, whose forces destroy this group, leaving only Caifte and Oisín alive to tell the tale to St. Patrick. For 10 points, name these bands of warriors, who served Cormac mac Airt under the leadership of Fionn mac Cumhaill.

ANSWER: **Fianna** [or **Fianna** Éireann or Leinster **Fianna**] <DJ, Mythology>

13. According to Failbetter Games’ *Fallen London* series, three decades ago London was “stolen by these creatures”. The coats of arms of Palma de Mallorca and Valencia feature one of these animals atop a crown, and the second eponymous character of *Yooka-Laylee* is one of these animals. In Oaxacan mythology, being a dick about receiving (*) feathers caused one of these things to lose them all. The *Silverwing* series of books follows examples of these animals such as Zephyr, Shade, and Goth, while these animals live in the attic in *The Deptford Mice*. The Bacardi logo depicts, for 10 points, what nocturnal mammal emulated by Bruce Wayne?

ANSWER: **bats** [accept any specific kind of bat; accept **Masters** of the Bazaar until “Palma”] <EBL, Miscellaneous>

14. One character in this work describes its title object as “a forgotten, perpetual public works project”, and all seven characters in this work are named after prisons, such as Alderson, Rennes, and Kazan. This film was shot entirely on a single set, with coloured gels being used for different rooms. One character in this work is killed with acid due to an unexpected heat sensor, and another is (*) diced by monofilament wire before speaking a word. The only character to survive this work is an autistic savant capable of quickly performing prime factorisations, leading to his eventual escape from the title structure. For 10 points, name this 1997 sci-fi horror film by Vincenzo Natali, set entirely inside a booby-trapped prison made of the eponymous identical geometric figures.

ANSWER: **Cube** <EBL, Trash>

15. In Franz Reizenstein’s humorous *Concerto Popolare*, a piece by this composer is superimposed over a similar piece by Tchaikovsky. The most famous section of a work by this composer begins with an octave F-sharp in the horns, before the low strings play a pizzicato melody based on a B minor scale. A dramatic timpani roll, before a cascade of falling minor seconds and thirds in the (*) piano, opens a work by this composer that was probably influenced by a similar work by Robert Schumann. The flute plays a pentatonic melody to begin the “Morning Mood” section of a suite of

incidental music by this composer, set to a play by Ibsen, a fellow Norwegian. For 10 points, name this composer of a *Piano Concerto in A minor* and *Peer Gynt*.

ANSWER: Edvard Hagerup **Grieg** <BS, Auditory Fine Arts>

16. In one novel by an author from this country, the bookshop-owning Stones tell the narrator that they want to play fictionalised versions of themselves, the Alabasters, in a film version of one of the author's earlier books. In another novel from this country, a Duke and Duchess tease the protagonist with information they gained from reading the first part of the book, which was published (*) 10 years earlier. At the end of that novel the protagonist loses a duel with the Knight of the White Moon and lays down his arms. For 10 points, the author of *Dark Back of Time* and *All Souls*, Javier Marías, is from which country, whose windmills were assaulted by Don Quixote?

ANSWER: **Spain** [accept **Espana**] <DJ, Literature>

17. In a song by The Toyes, the singer does this action twice in time of peace and twice in time of war. The D'Angelo song "Brown Sugar" is an allegory of this action as a liaison with a dark-skinned woman. Miley Cyrus recently claimed that no one has done this action as much as she has. In the Dr. Dre song (*) "The Next Episode", he advocates for doing this action every day. In the song "Gin and Juice", Snoop Dogg rolls down the street sipping on the title substance and doing this action. For ten points, which action is celebrated in Black Sabbath's "Sweet Leaf"?

ANSWER: **smoking marijuana** [or obvious equivalents, including, but not limited to, **weed**, **reefers**, **grass**, **smoking indo** etc; prompt on getting high; accept "**Smoke Two Joints**", which is The Toyes song] <PA, Trash>

18. One of the best examples of a Georgian rotunda in England can be found at Ickworth House in this county. An excavated Anglo-Saxon village is displayed at West Stow in this county where the town of Lavenham [LAV-un-um] was built with wool money. This county is home to a large American population due to major air bases at (*) Lakenheath and Mildenhall. This county's River Gipping is known as the Orwell in its tidal reach. *The Scallop* is a sculpture dedicated to Benjamin Britten in Aldeburgh in this county where the Stour Valley is known as "Constable Country". For 10 points, name this East Anglian county that includes Ipswich.

ANSWER: **Suffolk** <DK/ED, Geography>

19. A form of ritual warfare in this region called kayasa has been supplanted by a syncretic sporting activity. This region was named after the navigator of the first European ship to reach it, the *Espérance*. Marcel Mauss distinguished between the gimwali barter system and another form of exchanging commodities in this region. A book on 'Oedipus in' this region opposed the argument made in *The (*) Sexual Life of Savages in North-Western Melanesia*. One ceremony carried out in this region involves the clockwise movement of veigun and the anticlockwise movement of mwali: that is the Kula ring. For ten points, name this group of islands, whose customs and culture were studied in a trilogy of books by Bronislaw Malinowski.

ANSWER: **Trobriand** Islands [prompt on Papua New Guinea; prompt on Oceania] <FCM, Social Science>

20. The first pandemic of this disease originated in Bengal in 1817. The most recent pandemic of this disease was in the 1960s and 70s, dominated by the El Tor strain of this disease. Charles X of France, James Polk and Carl von Clausewitz all died of this disease during its second pandemic. Pasteur's first vaccine was on the chicken variety of this disease (*), which first reached South America in the mid-1880s. Robert Koch identified the bacillus that causes this disease, and an 1854 outbreak of this disease in Soho was linked to the Broad Street Pump by John Snow. For ten points, identify this disease caused by a namesake bacterium of the genus *Vibrio* and often spread by unclean water.

ANSWER: **cholera** <PA, History>

Bonuses

1. Wikipedia compares the kinetic energy delivery of this type of weapon to a school bus travelling at 300 miles per hour. For 10 points each:

[10] Name this electromagnetic weapon in which a conducting projectile is accelerated by the Lorentz force acting on it due to an ultra-high current.

ANSWER: **railgun**

[10] The railgun was a signature weapon of the second and later iterations of this series of first-person shooters. John Carmack helped program this series's first game to render in full 3D, unlike its predecessor *Doom*.

ANSWER: **Quake**

[10] This organisation's Surface Warfare Center released footage in July 2017 claiming a Mach 6 projectile velocity from a railgun. The *Monitor* ironclad steamship that fought *CSS Virginia* at Hampton Roads was an earlier technological innovation of this organisation.

ANSWER: **U**(nited) **S**(tates) **Navy** <ED, Miscellaneous>

2. The influence of "Elizabethan melancholy" on this composer can be seen in works such as "Come Heavy Sleepe, the Image of True Death" and "Mourn, day is with darkness fled". For 10 points each:

[10] Name this composer of *I saw my Lady Weepe*, who reworked his instrumental *Lachrimae* into the song *Flow, my tears*.

ANSWER: John **Dowland** [or John **Doland**]

[10] Dowland is perhaps best known for writing songs for this medieval string instrument, which has a teardrop-shaped body and is related to the Arabian Oud.

ANSWER: **lute**

[10] This Italian wrote a concerto and two trio sonatas for lute and violin. He also included violin concertos nicknamed "The Hunt" and "The Storm at Sea" in his collection *The Contest Between Harmony and Invention*.

ANSWER: Antonio Lucio **Vivaldi** <BS, Auditory Fine Arts>

3. We're here, we're queer, and we've got you some music bonuses. For 10 points each:

[10] This New York-based queer punk duo saw their recently-released second album *Pageant* pulled from distribution in May 2017 after singer and instrumentalist Ben Hopkins was accused of sexual abuse.

ANSWER: **PWR BTTM** ["power bottom"]

[10] This pair of Canadian twins have been active in the indie scene since the mid-90s, but since the 2016 presidential election, have focused on their namesake Foundation in support of LGBTQ women.

ANSWER: **Tegan and Sara** [accept Tegan and Sara **Quin**]

[10] Much of the modern queer music scene has been spearheaded by people who share this characteristic, such as rapper Mykki Blanco, Against Me!'s Laura Jane Grace, and ANOHNI of Anthony and the Johnsons.

ANSWER: being **transgender** [prompt on **transsexual**; accept **trans women** or other clear-knowledge equivalents] <EBL, Trash>

4. Answer the following about the physics of polymers, for 10 points each:

[10] This behaviour in polymer chains occurs because stretching a chain decreases the number of available microstates, hence an entropic effect causes a restoring force. This behaviour for a spring is modelled by Hooke's law.

ANSWER: **elasticity**

[10] The radius of gyration of a polymer chain scales with the chain length raised to an exponent named for this chemist. He also names a model of the thermodynamics of polymer solutions with Maurice Huggins.

ANSWER: Paul **Flory**

[10] Poor solvent interactions cause the Flory exponent to decrease from three-fifths for real polymer coils to a value of one-third, where the coil transitions to this geometry to minimise solvent contacts.
ANSWER: **globule** [or word forms; accept coil-**globule** transition] <EWL, Physics>

5. For 10 points each, answer the following on artist's books:

[10] This artist decorated his book *Jazz* with collages similar to the white paper and gouache cut-outs he produced in his later career; one example of those cut-outs is *The Snail*.

ANSWER: Henri(-Émile-Benoît) **Matisse**

[10] George Brecht included dozens of "event-scores" in *Water Yam*, a printed work in this art movement whose leader George Maciunas ["muh-CHOO-nuss"] designed a special box to contain the printed material.

ANSWER: **Fluxus**

[10] This pop artist began a prolific career producing artist's books with his photography collection *Twentysix Gasoline Stations*.

ANSWER: Ed **Ruscha** ["roo-SHAY"] [or Edward Joseph **Ruscha** IV] <ED, Visual Fine Arts>

6. **I AM THE CIRCLE AND THE CIRCLE IS ME**. For 10 points each:

[10] This phrase is first used as a tool of mental discipline by Mayor Prentiss in this novel, which sees Todd escape the dystopian Prentisstown on a planet where everyone's thoughts are audible.

ANSWER: *The **Knife of Never Letting Go*** [prompt on *Chaos Walking*]

[10] *The Knife of Never Letting Go* is the first novel in the *Chaos Walking* series by this double Carnegie Medal-winning British-American author, whose more recent writing credits include *A Monster Calls* and *BBC Three's Class*.

ANSWER: Patrick **Ness**

[10] *Class* is a spinoff of this long-running BBC science fiction series, whose other spinoffs include *The Sarah Jane Adventures* and *Torchwood*.

ANSWER: **Doctor Who** <EBL, Trash>

7. In this novel, the author of the nature column *Lush Places* is sent to see Mr Salter after his sister Priscilla changes every mention of badgers in the column to "great crested grebe". For 10 points each:

[10] Name this novel, in which William Boot writes for the *Daily Beast*, and is forced to become a foreign correspondent after Lord Copper mistakes him for his famous novelist cousin.

ANSWER: **Scoop**

[10] *Scoop* is based on this author's experience of writing for the Daily Mail, though he may be better known for writing *Brideshead Revisited*.

ANSWER: Evelyn **Waugh**

[10] Boot is sent to this fictional East African state to report on a potential civil war there. In this country, the military is sensibly merged with the inland revenue under the command of General Gollancz Jackson.

ANSWER: **Ishmaelia** <EWL, Literature>

8. We hope you have been keeping up with memes in 2017, because here are some questions on them. For ten points each:

[10] The first meme of 2017 was arguably Nusret Gökçe, a Turkish chef seen sprinkling this substance in a now-famous pose.

ANSWER: **salt** [accept **Salt Bae**]

[10] Following "Bad Phone Number Inputs", in June redditor PM_ME_YOUR_WATERMELO started a fad on r/ProgrammerHumor to create the worst kind of this computer feature.

ANSWER: **volume sliders** [or **volume control**; or clear-knowledge equivalents]

[10] This character is a veritable trove of memes, the most recent being this character bent over and mockingly repeating something with alternating capitalisation.

ANSWER: **Spongebob** Squarepants <PA, Trash>

9. This historical government department is first attested to in the reign of Henry I, and took its name from the large piece of cloth that was central to its early function. For 10 points each:

[10] Name this body which formerly managed government revenues. In modern times, the title of the minister in charge of the Treasury refers to this institution, though historically it was a separate body.

ANSWER: The **Exchequer**

[10] Most evidence for the workings of the early exchequer come from the “Dialogue of the Exchequer”, written by this churchman and Lord Treasurer of Henry II.

ANSWER: Richard **FitzNigel** [or **FitzNeal**; or **Richard** of **Ely**]

[10] FitzNigel was rewarded for his efforts as Treasurer by being appointed to this position, in which he succeeded Gilbert Foliot. Foliot had opposed Thomas Becket whilst serving in this third most senior position in the English Church.

ANSWER: **Bishop** of **London** <TH, History>

10. Popular music and OpenType fonts - two great tastes that...um. For 10 points each:

[10] MKULTRA is written in this Dutch-designed serif font which combines with Coheed in the name of a progressive metal band behind “Here We Are Juggernaut” and “A Favor House Atlantic”.

ANSWER: **Cambria** [accept **Coheed and Cambria**; if anyone says **Cambria Math**, give them the points but also a funny look]

[10] As well as being the font family that is the official typeface of US Supreme Court briefs, “Century” was a 2009 track by Tiësto and this Scottish DJ who produced “Acceptable in the 80s” and “Feels”.

ANSWER: Calvin **Harris** [accept Adam Richard **Wiles**]

[10] This font was inspired by a tabloid headline about “Alien heads found” in its namesake state, to which Gladys Knight & the Pips were taking the “Midnight Train” in a 1973 hit.

ANSWER: **Georgia** <EBL, Miscellaneous>

11. Objects of this kind include the mirror Yata no Kagami, the Nachi Falls, and the Meoto Iwa rocks. For 10 points each:

[10] Name this class of objects, believed to house spirits, which are worshipped at *jinja* shrines and housed in private shrines called *honden*.

ANSWER: **Goshintai** [or **mitamashiro**; prompt on **yorishiro**; antiprompt on **iwakura**]

[10] *Shintai* are a special class of *yorishiro*, objects capable of attracting these spirits worshipped in Shinto.

ANSWER: **kami**

[10] *Shintai* are often protected from malevolent *kami* by a *shimenawa*, an object of this kind. Sumo wrestlers with the rank of *yokozuna* often wear one of these objects, as they are considered living *shintai*.

ANSWER: **rope** [accept clear-knowledge equivalents, such as **belt**]

12. 192 and 193 were very much banner years for Chinese warlords. For 10 points each:

[10] This tyrannical Prime Minister disregarded the omen of a monk holding a coiled banner with ‘mouth’ written at each end, and was killed by his protégé Lü Bu shortly after.

ANSWER: **Dong** Zhuo [accept **Zhongying**]

[10] The following year, this future Prime Minister, King of Wei and “Hero of Chaos” responded to his father’s death by marching on Xu Province under a white banner simply reading “Vengeance”.

ANSWER: **Cao** [“tsao”] Cao [or **Mengde**; or **Taizu**; or King **Wu**; or Emperor **Wu**]

[10] These events are fictionalised in this 120-chapter historical novel by Luo Guanzhong, dealing with the fall of the Han and the conflicts between the eponymous states of Wei, Wu and Shu.

ANSWER: **Romance of the Three Kingdoms** [accept **Sānguó yǎnyì**] <EBL, Literature>

13. This speaker asked the question “Is God dead?” over a hundred years before *Time* put it on their cover. For 10 points each:

[10] Name this freed slave who in 1851 delivered the “Ain’t I a Woman?” speech in defence of equality for women.

ANSWER: Sojourner **Truth** [accept Isabella **Baumfree**]

[10] Truth’s question, “Is God dead?”, was addressed to this abolitionist campaigner when he had lost hope of divine salvation for America’s slaves. As an advisor to Abraham Lincoln, this freed slave urged the Civil War to be fought as a slavery war.

ANSWER: Frederick **Douglass** [accept Frederick Augustus Washington **Bailey**]

[10] “Is God dead” is inscribed on Sojourner Truth’s headstone, in the same Michigan cemetery as the grave of this prolific female author who wrote *Conflict of the Ages* and co-founded the Seventh Day Adventist Church.

ANSWER: Ellen Gould **White** [accept Ellen Gould **Harmon**] [Fun fact: John and William Kellogg, inventors of breakfast cereal, are also buried in the same cemetery.] <ED, History>

14. Two areas of this field of philosophical field are divided by a ‘fork’ within *An Enquiry Concerning Human Understanding*; those are a priori and a posteriori statements. For 10 points each:

[10] Name this area of philosophy concerned with the foundations and nature of knowledge.

ANSWER: **epistemology**

[10] This philosopher gives his name to cases in which knowledge is not equivalent to ‘justified true belief’, such as a man who gets a job and is unaware of how many coins he has in his pocket.

ANSWER: Edmund **Gettier**

[10] One response to Gettier cases says that a belief can only be justified if it is arrived at through a process described by this adjective. A clairvoyant described by this adjective is used by Laurence Bonjour.

ANSWER: **reliable** [accept **reliabilist** or **reliabilism**] <FCM, Philosophy>

15. This state’s Marina Bay Financial Centre was completed in 2012. For 10 points each:

[10] Name this independent city-state situated just off the tip of Peninsula Malaysia.

ANSWER: Republic of **Singapore**

[10] A causeway and a bridge link Singapore to this state of Malaysia, which shares its name with the straits that separate it from Singapore.

ANSWER: **Johor** [or **Johore**]

[10] This small island of Singapore has been developed into a tourist resort. On this island one can visit Universal Studios Singapore and Fort Siloso.

ANSWER: **Sentosa** <DK, Geography>

16. Maritime republics were thalassocratic city-states that flourished in Italy in the middle ages. For 10 points each:

[10] The most successful and important maritime republic was arguably this city in north east Italy, known as *La Serenissima*.

ANSWER: Most Serene Republic of **Venice** [or Serenissima Repubblica di **Venezia**]

[10] Outside of Italy, the main maritime republic was this city-state located in Dalmatia, in modern-day Croatia.

ANSWER: Republic of **Ragusa** [prompt on **Dubrovnik**]

[10] Maritime republics were often at war with each other. The Republic of Genoa decisively defeated the Republic of Pisa in this naval engagement of 1284.

ANSWER: Battle of **Meloria** <PA, History>

17. You are arguing with John, and John uses a lot of logical fallacies. For 10 points each:

[10] John says that since his child was discovered to be autistic after vaccination, the vaccine caused the autism. It is a logical fallacy which claims that if two events happen in succession, the former caused the latter, and can be described by this Latin phrase.

ANSWER: **Post hoc ergo propter hoc** [do not accept *cum hoc ergo propter hoc*]

[10] Once you point it out to him, John claims that the truth must be in some middle ground between “vaccines never cause autism”, and “vaccines always cause autism”, which is an example of this fallacy.
ANSWER: **Golden mean** fallacy [or **gray** fallacy; or **false compromise**; or **argument to moderation**]

[10] John fails to understand that, so you call him stupid. It is an example of this fallacy.

ANSWER: Argumentum **ad hominem** <PA, Social Science>

18. The wavefunction and energy of a many-body system can be approximated using the Hartree-Fock method, which approximates a solution to this equation. For 10 points each:

[10] Name this fundamental equation of quantum mechanics named for an Austrian physicist, which in its time-independent form states that the energy is an eigenvalue when the Hamiltonian acts on a wavefunction.

ANSWER: **Schrödinger** equation

[10] The Hartree-Fock method satisfies antisymmetry requirements by using a determinant named for this chemist, who also names a set of rules for calculating the effective nuclear charge of a many-electron atom.

ANSWER: John C. **Slater** [accept **Slater** determinant or **Slater**'s rules]

[10] After using Hartree-Fock to optimise the energy of a molecule, one of these diagrams can be plotted, which illustrates the energy of molecular orbitals as a function of bond angle and can be used to predict reactivity.

ANSWER: **Walsh** diagram [or **angular coordinate** diagrams or **correlation** diagrams] <PA/EWL, Chemistry>

19. This character is described as “rich - yes, richer than a king / And admirably schooled in every grace”.

For 10 points each:

[10] Name this resident of Tilbury Town, “a gentleman from sole to crown”, who “went home and put a bullet in his head” in the poem in which he appears.

ANSWER: “**Richard Cory**”

[10] “Richard Cory” is a poem by this American author, who created Tilbury Town as the setting for poems such as “Miniver Cheevy”.

ANSWER: Edwin Arlington **Robinson**

[10] This other poem by Robinson attempts to relate a marriage, including the lines “As if the story of a house / Were told, or ever could be”. It begins “She fears him, and will always ask / What fated her to choose him”.

ANSWER: “**Eros Turannos**” <EWL, Literature>

20. The theory of this process was first proposed by Harry Hess. For 10 points each:

[10] Name this process, where new oceanic crust is formed at mid-ocean ridges and then gradually moves away from the ridge.

ANSWER: seafloor **spreading**

[10] According to the Vine-Matthews-Morley hypothesis, symmetric series of stripes in oceanic crust formed by seafloor spreading are evidence for these events, the most recent of which was named for Brunhes and Matuyama.

ANSWER: **geomagnetic reversal** [accept descriptions such as Earth's magnetic field flipping]

[10] Observations of sheeted dyke complexes and magnetic stripes in these structures proved that these features are sections of oceanic crust that were formed by seafloor spreading and later emplaced on land.

ANSWER: **ophiolites** <EWL, Other Science>