

### MKULTRA 3: Asking the Super-Important Questions

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#### Tossups

1. **One of these animals was anaesthetised during an experiment where a micro-electrode was inserted into its primary visual cortex while it was shown light and dark patterns, which led to Hubel and Wiesel's theory of "simple" and "complex cells". X chromosome inactivation in these animals can lead to a distinctive three-colour pattern on their coats in an example of mosaic expression. (\*)** Ne-pe-ta-lactone has a strong excitatory effect on the behaviour of these animals. Lyall's Wren was apocryphally driven to extinction by the action of a single one of these animals. An M-shaped mark on the forehead often appears on the tabby variety of, for 10 points, which adorable animals that go meow meow meow?

ANSWER: Cats [or Felis catus, accept kitten or kitty cat] <Aqua Doggos, Biology>

2. **In one interview, this singer revealed how he brought a Lego set on a date, made the set, then left. Ben and Ling bond over their love of this singer in the series 3 finale of *Cuckoo*. This artist sings "And all my walls stood tall painted blue" in a song on Taylor Swift's album *Red*. In one music video, this singer is dragged through a series of bars by Saoirse [SEER-SHUH] Ronan, who proceeds to kiss him (\*)** "like there was nobody else in the room". A song whose title character "played the fiddle in an Irish band" appeared on an album by this singer whose tracks simultaneously occupied 16 spots of the UK top 20. *Galway Girl* was sung by, for 10 points, which ginger British singer-songwriter who released the album ÷ ["divide"] in 2017?

ANSWER: (Edward Christopher) "Ed" Sheeran <Aqua Doggos, Trash>

3. **In a novel written in this language, the Fellowship of the Good Fellows for Good are opposed to the members of a group who have phalluses that are genetically modified to glow in primary colours when erect. That novel is by the author writing in this language who described the Brotherhood of Light in his *Ice Trilogy*. Another writer who works in this language described soldiers sent home in (\*)** zinc coffins in one work about war in Afghanistan. The author of *Zinky Boys* and winner of the 2015 Literature Nobel writes in this language despite being from Belarus. For 10 points, in what language do Vladimir Sorokin and Svetlana Alexievich write?

ANSWER: Russian <Aqua Doggos, Literature>

4. **During this election one candidate attracted derision for claiming to have 'committed adultery in his heart' and "looked on a lot of women with lust" in an interview with *Playboy*. That same candidate faced late opposition in the primaries from the ABC movement, having already won Iowa and New Hampshire. George Wallace received the third most votes (\*)** while Jerry Brown came second in the Democratic primaries. The presidential and vice-presidential nominees for both parties at this election would each eventually lose a presidential election. Ronald Reagan launched an unsuccessful primary challenge against the incumbent president in this election. For 10 points, name this election in which Gerald Ford lost to Jimmy Carter.

ANSWER: 1976 US Presidential Election [prompt on partial answer] <JL/OC, History>

5. **In *Runescape*, one of these animals will recite the first stanza of *Jabberwocky* when talked to, and inspecting a strange-looking of these animals will reveal it to actually be two penguins in disguise. A "super" one of these animals can be steered with the arrow keys after being fired out of a launcher in *Worms: Armageddon*. In *Scandinavia and the World*, New South Wales is depicted as**

**one of these animals, and an xkcd cartoon shows one of these animals rising out of the ground after being told to (\*) “wake up” by a protester with a megaphone. *Timmy Time*’s title character is one of these animals, as is his elder cousin who the title character of a stop-motion *Wallace and Gromit* spin-off. For 10 points, name this farm animal, such as the plasticine Shaun.**

ANSWER: **sheep** [accept **sheeple** or **lambs**] <Aqua Doggos, Trash>

**6. Zero-crossings of this operator applied to a Gaussian are detected in the first version of the Marr-Hildreth edge detection algorithm. That combination of this operator and a Gaussian is also the multidimensional form of the Mexican Hat wavelet. One over c squared times the second time derivative minus this operator gives the D’Alembertian operator. The (\*) harmonic functions are solutions of an equation where this operator acting on a scalar function equals zero. In Cartesian coordinates, this operator is equal to the sum of second partial derivatives of a function with respect to each independent variable. Equal to the divergence of the gradient, for 10 points name this operator denoted del-squared and named for a French mathematician.**

ANSWER: **Laplacian** [or **Laplace** Operator or **del-squared** before mention, do not prompt or accept on **del**] <EWL, Other Science>

**7. A gay relationship with one artist from this group was recalled in the memoir *This Small Cloud* by the subject of the portrait *Police Constable Harry Daley*. One member of this group created an *Abstract Kinetic Collage* in coloured rectangles to be unrolled to music. An art critic associated with this group founded the Omega Workshops to encourage modern approaches in decorative art, and promoted Cézanne by writing *A Study of His Development*. The painter Duncan (\*) Grant was a member of this group who designed book covers for the Hogarth Press. For 10 points, name this artistic group including Roger Fry and Vanessa Bell, the sister of Virginia Woolf.**

ANSWER: **Bloomsbury** Group [or **Bloomsbury** Set] <Aqua Doggos, Visual Fine Arts>

**8. This man was imprisoned in the Qasr prison after outlining his opposition to the White Revolution, an arrest which prompted the 15 Khordad uprising. This man expounded the theory of Velayat-e faqih while in exile in Najaf where the death of his son Mostafa was attributed by some to SAVAK. This man replied that he felt “nothing” when asked what he felt at returning to his home country from exile in (\*) Paris, a period which is celebrated in the *dahe-ye Fajr*. He began the trend of referring to America as “Great Satan” and in 1989 issued a fatwa calling for the death of Salman Rushdie. For 10 points, name this Ayatollah who overthrew Mohammad Reza Pahlavi.**

ANSWER: Ruhollah **Khomeini** <DJ, History>

**9. One of these figures floods a river by urinating in it, and catches a god in the flood, who then breaks that figure’s and her sister’s backs under a chair. One of these figures had nine heads, but is mostly known from an epithet for his killer, and another was known as “bright bride of the gods” and is associated with skiing. As well as Gjalp, Thrivaldi and Skadi, one of these figures was Bestla, daughter of Bölthorn, whose eldest son got nine magic songs from her brother, who may have been (\*) Mimir. One class of these people lived in Muspelheim, and Farbauti and Laufey, the parents of Loki, are both members of this race. FTP, name this race from Norse mythology, the ‘fire’ examples of which are led by Surtr, while the ‘frost’ examples are descended from Ymir.**

ANSWER: **giants** [accept **fire giants**, **frost giants**, **jötnunn**, **jötnar**, **risar**, **thursar**, **Muspellsmegir**, **eldthursar**, or **hrimthursar**] <EBL, Mythology>

**10. One composer from this country divided his oeuvre into “Objective Nationalism”, “Subjective Nationalism” and “Neo-Expressionism”. With Edward Said, a conductor born in this country founded the West-Eastern Divan Orchestra and is the current director of the Berlin State Opera. “The Wheat Dance” and “The Cattle Men” are two movements from a ballet written by a composer from this country, his (\*) *Estancia*. A *Nuevo* form of a popular musical style that originated in this**

country was pioneered by a bandoneon virtuoso from this country, Astor Piazzolla. The birthplace of Alberto Ginastera and Daniel Barenboim, for 10 points name this country which, alongside Uruguay, created the Tango.

ANSWER: Argentina <Aqua Doggos, Auditory Fine Arts>

11. **This institution's practices were modernised through the 1882 statutes written by Sir William Anson. It's not part of the military, but *Seven Pillars of Wisdom* was written by T.E. Lawrence while he was elected to this specific institution. This institution holds a centennial feast during which its members follow a man carrying a wooden (\*) mallard tied to a pole. The Codrington Library in this organisation must be renamed according to Rhodes Must Fall, and this organisation sponsors the Chichele Lectures. "Water" and "Novelty" were among the now-abolished one-word essay prompts set by this institution as part of "The hardest exam in the world". For 10 points, name this fellows-only Oxford College.**

ANSWER: All Souls College [prompt on Oxford or the University of Oxford] <Aqua Doggos, Miscellaneous>

12. **One model of this phenomenon, which was developed by Marvin Zuckerman, explains it using an 'alternate' set of factors. One method of measuring this phenomenon was developed by Hathaway and McKinley at the University of Minnesota, and Meyer Friedman claimed that people with one form of this thing were twice as likely to suffer heart attacks. A 1921 book by Jung laid out (\*) eight possible types of this phenomenon, and this concept was studied by Gordon Allport. One model of this phenomenon includes openness to experience and neuroticism among five 'traits'. For ten points, name this set of psychological characteristics of an individual, which can be classified according to the Myers-Briggs test.**

ANSWER: personality <FCM, Social Science>

13. **Hugh Trevor-Roper's first book was a biography of this man who established the first English professorship in Arabic. This man was made President of St. John's under the patronage of Richard Neile. This man arranged for the communion table in Gloucester Cathedral to be moved to the eastern end and for people to bow towards the altar upon entering. This figure's trial was overseen by the author of *Histrionomastix*, William Prynne, who had been tried for seditious libel at this man's instigation. During a period of personal rule, this man and (\*) Thomas Wentworth established a system of rule known as "thorough" and was criticised as an Arminian by parliamentary puritans. For 10 points, name this archbishop of Canterbury under Charles I who was executed in 1645.**

ANSWER: William Laud <DJ, History>

14. **A person's progress through learning this religion is depicted in a set of ten pictures, of which the eighth is blank, although the other nine show the catching of a bull. The founder of one school of this religion used the 'Three Mysterious Gates' to teach students, often through shouting and violence. One practice used in this religion is performed while walking, and is called *kinhin*, while another is called *shikantaza*, or (\*) 'single-minded sitting'. Stories associated with this religion are compiled in such works as *The Blue Cliff Record* and *The Gateless Gate*, and include the questions of whether a dog has Buddha-nature and the sound of one hand clapping. FTP, name this school of Buddhism that emphasises meditation and teaches through the use of koans.**

ANSWER: Zen Buddhism [accept Chan, Seon, or Thiền, prompt on Buddhism]

15. **When DNA from these animals' sperm is unavailable, herring sperm is substituted as a blocking agent to reduce nonspecific DNA interactions in a Southern blot. Umberto Eco emptied a hotel minibar to refrigerate one of these animals in an essay on *How to Travel with one*. One of these animals is named in the title of a posthumous collection containing an unfinished novel in which half a cat is missing but holistic detective (\*) Dirk Gently refuses to help. Wildlife catching these**

animals is a natural wonder of Kodiak Island. In the Ulster Cycle, Fionn mac Cumhail [fin muh-KOO-uhl] burns his thumb on one of these “of knowledge”. For 10 points, name these fish which swim upstream to breed.

ANSWER: **salmon** [accept *The Salmon of Doubt: Hitchhiking the Galaxy One Last Time*] <Aqua Doggos, Miscellaneous>

16. **A white mark in this territory that is visible from space results from the wind dispersal of phosphates as they are carried away from Bou Craa by the longest conveyor belt in the world. The MINURSO peacekeeping mission is active in this territory, which is divided into Western and Eastern portions by a fortified berm. In 1976, the (\*) Polisario Front declared the Saharawi Arab Democratic Republic in this territory, whose temporary capital is at Tifariti owing to its Northern neighbour occupying its largest city of Laayoune.** For 10 points, name this disputed and Moroccan-occupied territory between Morocco, Algeria and Mauritania.

ANSWER: **Western Sahara** [accept as-Sahra’ al-Gharbiyah, Tanezroft Tutrimt and Sahara Occidental] <Aqua Doggos, Geography>

17. **A musically-obsessed character in this work declares that the policeman “has his truncheon out and is playing cadenzas by the pump”. In this work, the maid Lily Smalls is described as being up to “shenanigans” with the fisherman Nogood Boyo in the wash house. A guesthouse owner in this work who refuses to let anyone sleep in it as they will mess up her sheets is the widow of both Mr Ogmore and Mr Pritchard. This work is set on a (\*) moonless night, “starless and bible-black”, in a town whose name is “bugger all” backwards, and begins with the drowned shipmates of the *SS Kidwelly* appearing to Captain Cat in a dream.** For 10 points, name this ‘play for voices’ by Dylan Thomas.

ANSWER: **Under Milk Wood** <EWL, Literature>

18. **The “sticking” of muons to these particles limits the effectiveness of muon-catalysed fusion. In the 1970s, “soft errors” in dynamic RAM were attributed to bit-flips caused by these particles. A model for the formation of these particles sees them tunnel out of a square potential well and was developed by (\*) George Gamow. A rate dependence on the 40th power of temperature is observed in a carbon-forming process named for these particles. These particles are emitted during a radioactive decay process which results in a decrease of two in the atomic number.** For 10 points, name these subatomic particles consisting of two protons and two neutrons.

ANSWER: **alpha** particles [or helium nuclei] <EWL, Physics>

19. **While performing this activity in an episode of *Family Guy*, Mayor Adam West sends a man back to the fifth dimension by tricking him into saying “Kebert Xela”. The “Forrest Bounce” is a common strategy in this activity. One man who became known for holding up a number of fingers equal to the number of his victories in this activity while smiling slowly was Yale graduate (\*) Matt Jackson. The book *Brainiac: Adventures in the Curious* was written by a man who amassed a 74-game winning streak in this activity. Brad Rutter and Ken Jennings became famous through, for 10 points, what activity that involves playing a game show hosted by Alex Trebek?**

ANSWER: Playing **Jeopardy!** [or anything about winning it or appearing on it, prompt on quizzing] <Aqua Doggos, Trash>

20. **One essay by this author recounts how a college student claims to be able to rig a shower head to perform fellatio “if only he could get his hands on a metric ratchet set”. Another essay by this author follows the 2000 election campaign trail for the Republican nomination, centred on John McCain. This author of “Up, Simba” described a Caribbean cruise aboard the *Nadir* in one essay, and wrote how a sporting figure’s (\*) “intelligence manifests as angle” in an essay about the “religious experiences” of watching Roger Federer. This author discussed the ethics of boiling the title animal alive**

in an essay set at a Maine food festival; “Consider the Lobster”. For 10 points, name this author, who created the Incandenza family in *Infinite Jest*.

ANSWER: David Foster **Wallace** <EWL, Literature>

### Bonuses

1. For 10 points each, answer the following on the kingdom of Epirus:

[10] Epirus reached its zenith under this Molossian and for a short period king of Sicily who Plutarch wrote had quipped “If we are victorious in one more battle with the Romans, we shall be utterly ruined” after his victory at the Battle of Asculum.

ANSWER: **Pyrrhus** of Epirus

[10] This oldest Greek oracle, at times second only to Delphi in prominence, is mentioned in the Odyssey. This Epirot sanctuary was rebuilt and extended by Pyrrhus to promote its and his Panhellenic credentials.

ANSWER: **Dodona**

[10] Olympias, daughter to King Neoptolemus I of Epirus, married this king of Macedon. Plutarch suggests that she helped provoke his assassination at the hands of his somatophylax Pausanias.

ANSWER: **Philip II** [prompt on **Philip**] <DJ/OC, History>

2. Richard Aldington’s parody of this poem, which describes “White faces in a dead black faint”, hints at “the infatuation of the dead” of this poem’s author, according to Daniel Tiffany. For 10 points each:

[10] Name this short Imagist poem, which reads “The apparition of these faces in the crowd; / Petals on a wet, black bough”.

ANSWER: “**In a Station of the Metro**”

[10] “In a Station of the Metro” is a poem by this American poet, who included the section “Rock-Drill” in *The Cantos*.

ANSWER: Ezra Weston Loomis **Pound**

[10] Ezra Pound nicknamed this other poet “Dryad”, the wood-nymph inspiration for his early poems such as “The Tree”. This poet reinterpreted the basis of the Trojan War in her epic *Helen in Egypt*.

ANSWER: **H.D.** [or Hilda **Doolittle**] <EWL, Literature>

3. The Romanovs ruled Russia for just over 300 years. For 10 points each:

[10] This Tsar was responsible for reforms such as the creation of zemstvo councils and the Emancipation of the Serfs.

ANSWER: **Alexander II**

[10] In spite of such changes, Alexander was not reforming enough for some dissident elements and was thus assassinated by a member of this revolutionary socialist group.

ANSWER: **Narodnaya Volya** [or **People’s Will** or **People’s Freedom**]

[10] This elder brother to Vladimir Lenin was executed for attempting to assassinate Alexander III, six years after the assassination of Alexander II. One of his co-conspirators was the brother of Josef Pilsudski.

ANSWER: **Aleksandr** Ilyich Ulyanov <JL, History>

4. This artist created a colossal stone representation of the Apennine Mountains for the Villa di Pratolino. For 10 points each:

[10] Name this sculptor of a *Rape of the Sabines* that inspired the pose of Bernini’s *Rape of Proserpina*. His nickname coincidentally contains the name of the red city of Emilia-Romagna that contains his best known work.

ANSWER: **Giambologna** [“jam bologna”] [accept **Giovanni** (da) **Bologna** or Jean **Boulogne**; do not accept or prompt on “Bologna”]

[10] Though named for Boulogne in Flanders, Giambologna created a bronze nude of this Roman god for a fountain in Bologna decorated with nereids. This god is usually understood to be the deity represented in Benvenuto Cellini’s gold salt cellar.

ANSWER: **Neptune** [accept Fountain of **Neptune** or Fontana di **Nettuno**]

[10] This actual local and leader of the Bolognese School created a fresco of *St Dominic in Glory* in Bologna, as well as many Baroque works commissioned in Rome for the Borghese family.

ANSWER: Guido **Reni** <Aqua Doggos, Visual Fine Arts>

5. Answer some questions about the ingredients list of Diet Coke, without looking at a can. For 10 points each:

[10] This compound is listed among the natural flavourings in Diet Coke, and a polymer of it is used as a powerful dehydrating reagent and as a catalyst for intramolecular Friedel-Crafts acylations.

ANSWER: **phosphoric acid** [or **H<sub>3</sub>PO<sub>4</sub>**; accept poly**phosphoric acid** or **PPA**]

[10] Another natural flavouring present in Diet Coke is this methyl-xan-thine found in coffee that helps you stay awake.

ANSWER: **caffeine**

[10] Diet Coke contains aspartame, which is a source of this aromatic amino acid that cannot be metabolised by people with PKU.

ANSWER: **phenylalanine** <EWL, Chemistry>

6. In the final section of this novel, it is revealed that the title character had managed to lose his virginity to Ybon before his death. For 10 points each:

[10] Name this novel by Junot Diaz where the title hopelessly romantic Dominican nerd endures rejection at the hands of many, many women.

ANSWER: *The **Brief Wondrous Life of Oscar Wao***

[10] Oscar and his family have a history of bad luck in these locations, where, in separate incidents, Oscar and his mother are beaten to within an inch of their lives before being saved by a vision of a Golden Mongoose.

ANSWER: Sugar **cane fields** [prompt on “**fields**” with “fields of what?”]

[10] In keeping with Oscar Wao’s nerdiness, Junot Diaz repeatedly likens the Dominican dictator Rafael Trujillo to this Dark Lord from *The Lord of The Rings*.

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

7. Answer some questions about three-nippled characters. For 10 points each:

[10] This James Bond movie features Christopher Lee as the three-nippled assassin Francisco Scaramanga, as well as an epic scene where a car does a corkscrew jump across a river.

ANSWER: ***The Man with the Golden Gun***

[10] Though her nipples are not explicitly mentioned, *The Hitchhiker’s Guide to the Galaxy* makes frequent references to this triple-breasted whore of Eroticon Six, whose erogenous zones start four miles out from her body.

ANSWER: **Eccentrica Gallumbits**

[10] A running gag in this Simon Pegg and Nick Frost movie features a comic book cover which multiple characters see and comment “three tits - that’s awesome”. Seth Rogen provides the voice this movie’s title character.

ANSWER: **Paul** <Aqua Doggos, Trash>

8. For 10 points each, answer some questions on vehicles with movable noses:

[10] This commercial aircraft had to drop its nose during taxiing for the pilot to be able to see anything, though it could bring it back up during supersonic flight across the Atlantic.

ANSWER: (Aérospatiale/BAC) **Concorde**

[10] Javelin trains made by this company for HS1 lift up their nose cones to couple six-car sets into longer trains. This company’s Class 800 series are set to replace InterCity 125 trains on the Great Western Main Line.

ANSWER: **Hitachi**

[10] This term describes ships such as car ferries with an openable nose to allow wheeled cargo to board and disembark under its own power. *MS Herald of Free Enterprise* was one of these vessels which sunk after its bow doors were left open.

ANSWER: **roll-on/roll-off** ships or **RORO**s [accept **ROPAX**] <Aqua Doggos, Miscellaneous>

9. According to Laozi, there are four great things in the universe. For 10 points each:

[10] Along with heaven, earth, and humans, the fourth great thing is this overarching flow of the universe, generally translated as “The Way”.

ANSWER: **Dao** [or **Tao**; or **Taoism**; or **Daoism**]

[10] In that passage of the *Dao De Ching*, the Dao is described as modelling itself after this other Taoist virtue, commonly translated as “naturalness” or “self-such”.

ANSWER: **ziran** [or **tianran**, prompt on **pu**]

[10] If the process of returning to *ziran* is regarded as the positive side of the Dao, the negative side is this highest Daoist virtue of inaction, or “action without intent”.

ANSWER: **wu-wei** [or **wei wu wei**]

10. For 10 points each, answer the following questions about Canadians who have helped improve healthcare:

[10] This amputee began his Marathon of Hope in St. John’s, Newfoundland but was forced to stop in Thunder Bay, Ontario. He lends his name to the world’s largest one day cancer research fundraiser.

ANSWER: Terry **Fox**

[10] Tommy Douglas, the first leader of this national leftist political party, was named the greatest Canadian in a 2004 survey. He implemented North America’s first universal single-payer healthcare system in Saskatchewan, a system supported by leaders of this party since then, including Jack Layton and Ed Broadbent.

ANSWER: **New Democratic Party** [or **NDP**]

[10] Norman Bethune, a Canadian communist, treated injured soldiers and ailing civilians in this country while serving with the Eighth Route Army. Chairman Mao wrote in a notable eulogy that “Every Communist must learn [the] true communist spirit from Comrade Bethune.”

ANSWER: People’s Republic of **China** <DJ, History>

11. A character created from the fusion of these *two* people almost dies on a search for Kalaxian crystals. For 10 points each:

[10] Name these two people whose personalities are combined in an attempt to create a “morally neutral super leader”. That character threatens to “emancipate [a monster] from its own inferior genes”.

ANSWER: Abraham **Lincoln** and Adolf **Hitler** [prompt on just one of them]

[10] That hybrid, Abradolf Lincler, is a character created by this often drunk super genius, who goes on adventures with his grandson Morty in an Adult Swim cartoon.

ANSWER: **Rick** Sanchez (C-137)

[10] In the *Rick and Morty* episode “Rick Potion No. 9”, Morty’s request for a love potion escalates into humanity being transformed into hideous blobs, which Rick names for this Canadian filmmaker. This man is known for his body horror films including *Dead Ringers* and the 1986 version of *The Fly*.

ANSWER: David (Paul) **Cronenberg** <Aqua Doggos, Trash>

12. Answer the following about pieces by Mozart written in D minor. For 10 points each:

[10] Perhaps the most famous composition Mozart wrote in D minor was this choral work, completed after his death by Franz Xaver Sussmayr.

ANSWER: **Requiem** in D minor K.626

[10] This perhaps most recognisable Mozart aria is sung by the Queen of the Night in *The Magic Flute* in which she threatens to curse her daughter Pamina if she does not kill Sarastro.

ANSWER: **Der Hölle Rache** kocht in meinem Herzen [or **Hell’s Vengeance** Boils in my Heart]

[10] Along with No. 24 this is the only Mozart Piano Concerto written in a minor key. It was rumoured to be Joseph Stalin's favourite piece of music, and the many composers who wrote a cadenza for its third movement include Beethoven, Alkan, Hummel, Brahms and Clara Schumann.

ANSWER: *Piano Concerto **No. 20** in D minor K.466* [GC: Seriously, go listen, objectively the best Mozart Piano Concerto] <Aqua Doggos, Auditory Fine Arts>

13. The use of unclean needles in a nationwide attempt to reduce the burden of this disease is thought to have led to Egypt having the highest incidence of hepatitis C infection in the world. For 10 points each:

[10] Name this tropical disease caused by the species *japonicum* and *mansoni* in a namesake genus. The parasite causing this disease incubates in certain species of freshwater snail.

ANSWER: **schistosomiasis** [or **bilharzia**]

[10] Damming of rivers increased the spread of schisto-somi-asis, since it decreased the population of the *Macro-brachium vollen-hoven-ii* species of this animal, which feeds on freshwater snails. Reintroducing this animal has been used as a biological control for the disease.

ANSWER: it's a massive **prawn**

[10] Schisto-somes belong to this invertebrate phylum of flatworms and flukes. Ewan wants you to know that they engage in penis fencing.

ANSWER: **Platyhelminthes** <EWL, Biology>

14. This man is killed when a wall falls on him during the eruption of Mount Vesuvius. For 10 points each:

[10] Name this character based on a historical figure, a paterfamilias in Pompeii who, according to the Cambridge Latin Course, "est in horto".

ANSWER: Lucius **Caecilius** Iucundus

[10] The Caecilius in the Cambridge Latin Course shares his name with a Doctor Who character played by this actor in *The Fires of Pompeii*. This actor would later go on to play the Twelfth Doctor.

ANSWER: Peter **Capaldi**

[10] Book III of the Cambridge Latin Course follows King Cogidubnus of the Regni as he travels to this Roman city to rid himself of illness. Caecilius' son Quintus foils Salvius' plan to kill Cogidubnus in this city.

ANSWER: **Aquae Sulis** [prompt on **Bath**] <Aqua Doggos, Miscellaneous>

15. This quantity represents the directional energy flux density of an electromagnetic field. For 10 points each:

[10] Name this quantity which macroscopically is defined as the vector product of the electric and magnetic fields.

ANSWER: **Poynting** vector

[10] In classical mechanics, dividing the time-averaged Poynting vector by the speed of light in free space gives this quantity. In quantum theory, the generation of this property relies on the intrinsic momentum of photons.

ANSWER: **radiation pressure** [or **radiative pressure**]

[10] The momentum of a photon is equal to Planck's constant divided by this quantity, symbolised lambda.

ANSWER: **wavelength** <EWL, Physics>

16. In an analogy for God, Bertrand Russell suggested that the claim "there is not a teapot orbiting between Earth and Mars" could not be established as correct by this method. For 10 points each:

[10] Name this method by which philosophical statements can be shown to be true.

ANSWER: **proof**

[10] This mathematician used 'finitary' techniques to attempt a proof of the consistency of mathematical axioms as part of his namesake 'program'; Kurt Gödel's incompleteness theorems showed this to be impossible.

ANSWER: David **Hilbert**



[10] This philosopher suggested that the only proof that something is desirable is that someone actually desires it, as part of a broader 'proof' of the 'principle of utility' in an 1863 book.

ANSWER: **John Stuart Mill** [prompt on **Mill**] <FCM, Philosophy>

17. The Variante Ascari sequence of corners is found on this circuit. For 10 points each:

[10] Name this motor racing circuit which hosts the Formula 1 Italian Grand Prix.

ANSWER: Autodromo Nazionale **Monza**

[10] Monza was also the site of Nike's Breaking2 marathon attempt, where this Kenyan runner missed out by just 26 seconds on breaking two hours.

ANSWER: Eliud **Kipchoge**

[10] In 2017, this Dutch cyclist overhauled Nairo Quintana's lead in the final stage time-trial from Monza to Milan to become the first Dutch winner of the Giro d'Italia.

ANSWER: Tom **Dumoulin** <Aqua Doggos, Trash>

18. You are a government official attempting to reduce pollution. Answer some questions about ways you can do this, for 10 points each:

[10] You might consider introducing one of these programmes, in which permits allowing firms to pollute are issued by the government and then sold on secondary markets. The EU ETS is one example of these schemes.

ANSWER: **cap** and **trade** [accept **emission trading**]

[10] Alternatively, you could impose a tax named after this economist, which would force businesses to pay the social cost of the negative externalities they generate.

ANSWER: Arthur **Pigou**

[10] You resolve to give away pollution rights, but can't decide whether they should belong to polluting firms or local households. Fortunately, this economist's namesake theorem says either will lead to an efficient outcome.

ANSWER: Ronald **Coase** <FCM, Social Science>

19. In one novel about this city, a proofreader deliberately changes the meaning of the title book to suggest that the Crusaders didn't in fact come to the aid of the siege of this city. For 10 points each:

[10] Name this city. Another novel set in this city sees the title poet befriend the ghost of his alter-ego, before putting on his jacket and following him to the graveyard.

ANSWER: **Lisbon** [or **Lisboa**]

[10] Lisbon is the setting of many of this Portuguese Nobel laureate's novels, but it is possibly not the unnamed city struck by an epidemic in this author's *Blindness*.

ANSWER: José **Saramago**

[10] This other novel by Saramago sees the entire Iberian peninsula break off and float into the Atlantic Ocean, which makes the U.S. happy, because now they can build a massive mid-Atlantic military base.

ANSWER: *The **Stone Raft*** <EWL, Literature>

20. Canals are anything but banal! For 10 points each:

[10] This waterway runs from the Mersey Estuary to the River Irwell and allowed its target city to become the third-busiest port in the UK despite being 40 miles inland. Salford Quays are located on this waterway.

ANSWER: **Manchester Ship Canal**

[10] Completed in 2002 as part of the Millennium Link project, this rotary boat lift connects the Union Canal with the Forth and Clyde Canal.

ANSWER: The **Falkirk Wheel**

[10] The Anderton Boat Lift is a two caisson lift lock that connects the Weaver Navigation and the Trent and Mersey Canal just north of this Cheshire town. Local landmarks of this town's major involvement in the salt industry includes the Lion Salt Works museum.

ANSWER: **Northwich** <Aqua Doggos/DK, Geography>