

MKULTRA II: A Fucking Didactic Educational .docx File

The Milton Keynes Ultimate Liaison of Trash and Academia

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Round 12 - Packet by Editors

Tossups

1. OATP1C1 is involved in the transport of one of this organ's products across the blood-brain barrier. One disease of this organ is treated with Methimazole which facilitates the addition of tyrosine residues to a hormone precursor. In some people, this organ has an additional lobe called Lalouette's pyramid. The parafollicular cells of this organ produce a hormone that has the opposing effect of (*) PTH. This organ is regulated by TSH, and is mostly located below the cricoid cartilage. Hashimoto's disease and Graves' disease affect this organ, and this organ's C cells produce calcitonin. The follicular cells in this gland produce two iodine containing hormones, and an iodine deficiency can cause this gland to enlarge and form a goitre. For 10 points, name this endocrine gland in the neck.

ANSWER: Thyroid [do not accept 'parathyroid']

2. The Doué River is a branch of this river that forms the island of Morfil. In its upper reaches, this river flows through the Talari Gorges and over the Gouina Falls. 2014 saw the completion of the Félou Hydroelectric Plant on this river, and this river is formed by the confluence of the Bafing and Bakoy rivers at Bafoulabé. The city of Saint-Louis ["SANT-loo-WEE"] is situated on an island near this river's mouth, and this river brings much needed water to communities in the (*) Ferlo Desert. The Langue de Barbarie is a long sandy peninsula that separates this river's estuary from the Atlantic Ocean, and this river forms much of the southern border of Mauritania. For 10 points, name this west African river that shares its name with a country with capital Dakar.

ANSWER: Senegal River or Fleuve Sénégal

3. In *Final Fantasy V*, the pirate Faris initially seeks to conceal this attribute from the other characters. The first *Sonic the Hedgehog* character to have this characteristic is kidnapped by Metal Sonic in *Sonic CD*. Garrus Vakarian is introduced as a potential love interest if this characteristic is selected in character creation in one game. A completion time of under three hours reveals that, in contrast to the statement of the NES instruction booklet, the space hunter (*) Samus Aran has this characteristic in *Metroid*. The ability to see one's own character model reveals that the player character has this characteristic in *Portal*. Lieutenant Commander Shepard in *Mass Effect* can optionally be played with, for 10 points, what notable characteristic shared by video game protagonists such as *Tomb Raider*'s Lara Croft?

ANSWER: being female (or they are women; accept descriptive answers)

4. In one novel by this author, an ugly private investigator tracks a female fitness instructor who assassinates men guilty of unpunished domestic violence by inserting a needle into the base of their skulls. In that novel by this author the assassin has a 'virgin pregnancy' caused by a maths teacher who has published, but not written, *The (*) Air Chrysalis*. This author created a character who learns to read dreams from the skulls of unicorns and a man with an ear fetish who is hired to search for a sheep with a peculiar birthmark. This author of *Hard-Boiled Wonderland and the End of the World* and *The Wild Sheep Chase* wrote a novel about Toru Okada repeatedly hearing the sound of the title toy animal. For 10 points name this author of *1Q84* and *The Wind-up Bird Chronicle*.

ANSWER: Haruki Murakami

5. The first proof of the Gibbard-Satterthwaite theorem was by reference to this related theorem, which shows that no one system can satisfy conditions which include a weak Pareto condition, non-dictatorship and the independence of irrelevant alternatives. This theorem was solved by Duncan Black for cases involving single-peaked preferences and an odd number of (*) decision-makers. This theorem was

introduced in the work *A Difficulty in the Concept of Social Welfare* and requires a decision-making body to have at least three members and three options to decide from. For 10 points, name this eponymous economic theory which demonstrates the failure of certain voting systems to represent collective preferences "fairly".

ANSWER: Arrow's impossibility theorem (prompt on impossibility theorem)

6. A series of falling fourths make up a prophecy leitmotif in an opera by this composer which also includes a famous chord consisting of dominant seventh on A merged with a F sharp major chord. A four note tuba leitmotif in parallel fifths mocks (*) "Doktor Dehring" in the second movement of a work by this composer which later uses a violin solo to represent his Beloved, Pauline de Ahna. A dawn motif consisting of a spread open fifth in the winds and brass opens a tone poem by this composer and was later used as the opening to *2001: A Space Odyssey*. For 10 points identify this composer of *Salome*, *Ein Heldenleben*, and *Also sprach Zarathustra*.

ANSWER: Richard Strauss

7. The prison ship *HMS Argenta* was once moored in a sea inlet leading to this city, and internees later called the "Magnificent Seven" escaped from internment on board the *Maidstone* in this city's harbour. The Arnon Street massacre of civilians by police took place in this city, as did the murder of the McMahon family. One major company in this city expanded its facilities at Queen's Island, and after the "Cotton Famine" during the American Civil War, this city grew to dominate the world (*) linen industry. In this city's City Hall, Edward Carson to make the first signature on a Covenant named for this city's region that opposed the 1912 Home Rule Bill. The Harland and Woolf shipyards built the *Titanic* in, for 10 points, what largest city in Ulster?

ANSWER: Belfast (or Béal Feirste)

8. Květa Peschke and Katarina Srebotnik defeated Samantha Stosur and a player from this nation in the 2011 final of the Wimbledon Women's Doubles; two years later in the Women's Singles at Wimbledon that same player from this nation knocked out Serena Williams in the fourth round but lost to Marion Bartoli in the final. Another player from this nation knocked Johanna Konta out in the (*) semifinals of the 2016 Australian Open, before going on to win in the final to claim her first Grand Slam title. This nation's previous Grand Slam Women's Singles title came at the 1999 French Open, which set an Open Era record for Grand Slam Singles titles won by an individual at 22. Sabine Lisicki, Angelique Kerber and Steffi Graf are, for ten points, tennis players from which European nation?

ANSWER: Federal Republic of Germany or Bundesrepublik Deutschland

9. One author from this country wrote a novel in which a retired police inspector is so desperate to solve his last case that he buys a gas station and hires a housekeeper whose daughter matches the victim profile. Another author from this country wrote a novel about a UNESCO engineer who starts sleeping with Sabeth before he finds out she is his daughter. This country is home to the author of (*) *Homo Faber* and a playwright who wrote about spies infiltrating a sanatorium by pretending they think they are Newton and Einstein. Max Frisch is from this country as is the author of *The Pledge* and *The Physicists*, Friedrich Durrenmatt. A children's novel from this country is about a young girl who befriends Peter the goatherd. For 10 points name this country of Johanna Spyri, the author of *Heidi*.

ANSWER: Switzerland

10. The eggs of sooty and roseate terns are targeted by collectors in the West Indies due to the belief they are one of these substances. An article by an anthropologist disputes claims by a Slovenian magazine that "salamander brandy", a liqueur made by adding live salamanders to fermenting fruit, is one of these substances. In west Africa, extracts from (*) yohimbe bark are used as one of these substances. Chemical burns is one potential side effect of using cantharidin as one of these substances, resulting in the prohibition of sale in many countries of genuine "Spanish fly". Allegedly, the similarity in appearance to a vulva led to oysters being considered one of these substances. For 10 points, name these substances that increase libido.

ANSWER: aphrodisiacs [accept clear-knowledge equivalents]

11. In addition to being the MC at a strip club, this figure works as a bartender and agrees that the girl Ignacio is with is 'crazy stupid fine.' This figure is found at the same mental institution as Erik Selvig, and in an earlier film, he crashes the wedding of two protagonists. At a party, this figure is mistaken for Hugh Hefner, and he is later used as a Larry King lookalike. A young (*) Matt Murdock stops this figure from walking out into traffic whilst reading a newspaper. Despite having broken his pickup truck attempting to move Mjolnir, this figure calls the Avengers a hoax. For 10 points, name this comic book writer who has cameoed in many Marvel movies.

ANSWER: Stan Lee

12. With Petterson, one of this man's sons names an effect that causes a tilted accretion disc around a rotating black hole to warp into the equatorial plane of the black hole. The Little-Parks experiment provides evidence for certain entities described in a theory for which this man is the alphabetically first namesake. That theory describes how, in a crystal lattice close to the Fermi level, electrons (*) pair up and condense into a bosonic state, allowing resistance to vanish below a critical temperature. As well as proposing that microscopic theory of type-I superconductivity with Leon Cooper and John Robert Schrieffer, this scientist earlier worked with Walter Brattain and William Shockley on the development of the transistor. For 10 points, which American is the only person to win the Nobel Prize in Physics twice?

ANSWER: John Bardeen

13. 1,000 of these figures emerge during each era, and they commonly prove their arrival by performing the Twin Miracle. In one tradition, these figures rule over 'pure lands' such as Abhirati and Tushita. The next one of these figures is predicted to emerge in a time when the oceans have receded and humans will live to the age of 80,000, and he will teach the doctrine of the ten virtuous and non-virtuous deeds. As well as (*) Maitreya, one of these figures was the son of the Princess Maya, and his conception was heralded by her dream of a white elephant with six tusks. For 10 points, name this group of religious figures, whose name translates as 'awakened one', and whose most recent member was Siddharta Gautama, founder of an eponymous religion.

ANSWER: Buddhas [prompt on 'Buddhism']

14. Alexander Hamilton expressed his opposition to this document in Federalist No. 84 on the grounds it was only a "parchment barrier". Adoption of this document was originally suggested by George Mason, proposed by Elbridge Gerry, and then defeated by unanimous vote, partly because James Wilson argued that it could be interpreted as an exhaustive (*) enumeration. However, contentious debates in Massachusetts, Virginia and New York rediscovered the need for this document. For 10 points, name this document containing in ten clauses the phrases "establishment of religion", a "well-regulated Militia", "unreasonable searches and seizures" and "cruel and unusual punishment".

ANSWER: The Bill of Rights [prompt on 'US Constitution', do not accept 'British Bill of Rights']

15. This man builds a temple gate out of a huge tree taken from the Cedar Forest, although he would later curse it on his deathbed, and he created the constellation of Ursa Major by throwing the right thigh of a bull at a goddess. This man was made out of clay and saliva by the goddess Aruru, although he would later be adopted by Ninsun. This man becomes civilised when animals become scared of his scent, after he spends a full week (*) making love to the temple prostitute Shamhat. This man interprets dreams about being crushed by a mountain and seized by a fire-breathing bird as good omens, which proves correct when his pep talks help his friend to kill Humbaba. For 10 points, name this wild man of Sumerian myth, created to occupy the attention of the oppressive king who would become his best friend, Gilgamesh.

ANSWER: Enkidu [accept Enkimdu, Enkita, or Eabani]

16. A double peak is located at the centre of this body's Urvara crater, while its Oxo ["OSH-u"] crater features a large "slump" in its crater rim. Bright surface features known as faculae, such as "Spot 5" in this body's Occator crater, have been found to be associated with ammonia-rich clays and the presence of

salts. **“Region A” is one of two dark regions on this body from which emissions of water vapour have been detected. This body’s highest point is (*) Ahuna Mons.** It’s not Uranus, but the existence of this body was predicted by the now-discredited Titius–Bode law before its discovery by Giuseppe Piazzi in 1801. NASA’s *Dawn* space probe is currently orbiting this body, having previously visited Vesta. For 10 points, which dwarf planet is estimated to account for approximately one third of the mass of the asteroid belt?

ANSWER: Ceres

17. **William Empson wrote an essay arguing that this author believed the existence of other planets meant there was more than one Christ, titled “[this poet] the space man”. This author wrote "Hope not for mind in women; at their best / Sweetness and wit, they're but mummy possess'd" in a poem about "Some that have deeper digg'd love's mine than I" called(*) *Love's Alchemy*.** This author ended a poem that mentions the Seven Sleepers’ den with “Whatever dies, was not mixed equally; / If our two loves be one, or, thou and I / Love so alike, that none do slacken, none can die”. This author wrote the lines “Thy firmness makes my circle just / And makes me end where I begun” in a poem which compares two lovers to a pair of compasses. For 10 points, name this author of *The Good Morrow* and *A Valediction: Forbidding Mourning*.

ANSWER: John Donne

18. **This ruler’s treatment of traders lead to the French warships *Berceau* and *Zelee* and the British frigate *Conway* attacking a fort and town controlled by Hova guardsman. This ruler’s reliance on divination-boards known as sikidy was reported by James Sibree. After Jean Laborde was shipwrecked, this ruler bought him and made him (*) her chief engineer and cannon-maker.** This ruler was described as the cruellest woman on the face of the earth by Ida Pfeiffer, and she ordered the deaths of at least a third of her subjects. Helped by Andriamihaja, this Queen succeeded her husband Radama I, outlawed Christianity and kept order through the tangena ordeal. The first female sovereign of the Kingdom of Imerina, for 10 points name this bloodthirsty queen of Madagascar.

ANSWER: Ranavalona I [prompt on partial answers]

19. **This artist painted the fury Alecto recoiling as the goddess Minerva, dressed in armour, drives Mars away from Pax. A small niche displays the statue of Venus and Cupid in the background of a painting by this artist in which soldiers wait in a doorway as a slumped, muscular figure has his hair cut by candle light. This artist ended one cycle of 24 paintings with *The Triumph of Truth*, in which the title patron reconciles with her son (*) Louis XIII before heaven.** This artist oriented the *Elevation of the Cross* along the full diagonal of the panel in a work originally paired in Antwerp Cathedral with another in which eight figures are arrayed vertically by two ladders as they lower a corpse. For 10 points, name this painter of the *Marie de Medici Cycle* and *The Descent from the Cross*.

ANSWER: Peter Paul Rubens

20. **Drugs such as procainamide and hydralazine have been linked to causing this disease. Scales such as ECLAM and BILAG measure the severity of this disease whose patients typically have large ratios of CD4 to CD8. It isn’t RA, but the antimalarial hydroxychloroquine is prescribed universally to delay organ damage due to this disease, half of whose patients develop a namesake (*) nephritis.** The anti-BAFF drug Belimumab was the first approved by the FDA in 50 years for this condition. In the UK this disease has a 6 to 1 female-to-male ratio, and serum antinuclear antibodies are often present. For 10 points, identify this autoimmune disease, characterised by a butterfly rash, which shares its name with the Latin for ‘wolf’.

ANSWER: Systemic Lupus Erythematosus (accept Drug-Induced Lupus Erythematosus early)

Bonuses

1. This author's 'Last Testament' was the subject of a novel by Peter Ackroyd. For 10 points each:

[10] Name this author who wrote 'Yet each man kills the thing he loves / By each let this be heard / Some do it with a bitter look / Some with a flattering word.' in his final poem.

ANSWER: Oscar Fingal O'Flahertie Wills **Wilde**

[10] This play by Wilde features a fictitious invalid called Bunbury, whose ill-health is used by another character to avoid social engagements.

ANSWER: **The Importance of Being Earnest**

[10] In The Importance of Being Earnest, Algernon eats all of these food items which he has specially ordered for his aunt.

ANSWER: **Cucumber sandwiches**

2. This quantity is defined as the integral of a system's Lagrangian between two points in time. For 10 points each:

[10] Name this physical quantity, usually symbolised by a capital S. The Euler–Lagrange equations can be derived from the assumption that this quantity is stationary.

ANSWER: **action**

[10] This Irish mathematician and physicist adapted the principle of stationary action for his own reformulation of Newtonian mechanics in terms of generalised coordinates and their conjugate momenta. He is also known for inventing quaternions and carving their defining equation into a Dublin bridge.

ANSWER: William Rowan **Hamilton**

[10] The Hamiltonian of a system, which often corresponds to its total energy, can be also be derived from the Lagrangian via a transform named for this French mathematician.

ANSWER: Adrien-Marie **Legendre**

3. According to Philo, this practice "is a symbol of a man's knowing himself". For 10 points each:

[10] Name this practice, common to Islamic and Jewish law, which is not considered halakhically complete unless a drop of blood has been drawn.

ANSWER: **Circumcision** [accept but do not otherwise offer **bris**, **bris milah** or **brit milah**]

[10] Under strict interpretations of the Torah, the infant's father is called upon to perform circumcision. However, in practice, the majority of fathers delegate the duty to one of these trained individuals, who are often rabbis or doctors.

ANSWER: **Mohalim** [accept **mohel**]

[10] A growing alternative Jewish movement in the United States practices this bloodless alternative to circumcision, often including washing of the feet, whose name translates as 'covenant of peace'.

ANSWER: **Brit shalom** [accept **brit rechitzah**, **brit ben**, **brit chayim** or **brit tikkun**]

4. Canada retaliated against this act with tariffs on products amounting to 30% of US exports and developed closer ties with Britain. For 10 points each:

[10] This disastrous tariff act was named after a Utah senator and Oregon representative, both of whom lost their seats in the 1932 congressional elections.

ANSWER: **Hawley-Smoot** Tariff Act

[10] This president signed the Hawley-Smoot Tariff Act into law eight months after the Wall Street Crash and started many public works programs to counteract the Great Depression though not as many as his successor, Franklin D Roosevelt, to whom he lost the 1932 presidential election.

ANSWER: Herbert **Hoover**

[10] The first of Roosevelt's three vice-presidents was this Texan, nicknamed 'Cactus Jack', who served for eight years but later declared that the role was "not worth a bucket of warm piss".

ANSWER: John Nance **Garner**

5. This city is home to the Plaza de Mayo square and the Teatro Colón opera house and is subdivided into barrios. For 10 points each:

[10] Name this capital city of Argentina.

ANSWER: **Buenos Aires**

[10] The historic street of Caminito is located in this barrio of Buenos Aires, many early settlers of which came from Genoa. Sports fans may know this barrio better for being home to the Estadio Alberto J. Armando, also called *La Bombonera* or “chocolate box”.

ANSWER: **La Boca** (prompt on “Boca Juniors”)

[10] The notorious Villa 31 shantytown is located on the edge of this otherwise wealthy barrio. Landmarks in this barrio include the Torre Monumental clock tower (known as the Torre de los Ingleses until the Falklands War) and the Art Deco Kavanagh Building.

ANSWER: **Retiro**

6. John Barth's *Coming Soon!!!* explores the links between James Adams Floating Theatre and this novel. For 10 points each:

[10] Name this novel in which Captain Andy Hawks buys the title object, Cotton Blossom. Subplots involve a gambler called Gaylord, and a mixed race marriage.

ANSWER: **Show Boat**

[10] *Show Boat* is by this author of the novels *Giant* and *Cimarron* who co-wrote the play *Stage Door*.

ANSWER: Edna **Ferber**

[10] This other novel by Ferber takes its title from the nickname of Selina and Purvis' baby Dirk, meant to indicate his size.

ANSWER: **So Big**

7. This psychologist developed a lie detector as part of his PhD, but lost interest in the area following a dispute with Carl Jung. For 10 points each:

[10] Name this psychologist who discovered the phi phenomenon, in which stationary objects viewed in quick succession appear to be moving.

ANSWER: Max **Wertheimer**

[10] Wertheimer is among the founders of this school of psychology, which considers the whole as different from the sum of its parts.

ANSWER: **gestalt**

[10] Along with his wife Laura, this psychiatrist developed a system of therapy based on gestalt. He is also known for writing a so-called gestalt prayer that begins “I do my thing and you do your thing.”

ANSWER: Fritz **Perls**

8. Pliny states that this general was born by caesarean section. For 10 points each:

[10] Name this Roman who defeated Hannibal Barca at the Battle of Zama.

ANSWER: Publius Cornelius **Scipio Africanus** [prompt on ‘Scipio’]

[10] Zama was the last battle in this war between Rome and Carthage.

ANSWER: The **Second Punic War** [prompt on ‘Punic War’]

[10] Earlier in the war, Hannibal’s brother Hasdrubal was killed at this battle.

ANSWER: The Battle of **Metaurus**

9. The weeks since the EU referendum haven’t run smoothly for Jeremy Corbyn. For 10 points each, answer these questions on some of the challenges he has faced:

[10] Early on Sunday 26th June, Corbyn sacked this MP for Leeds Central as Shadow Foreign Secretary after he told Corbyn that Labour MPs and shadow cabinet ministers had no confidence in his leadership.

ANSWER: Hilary (James Wedgwood) **Benn**

[10] Corbyn was criticised for announcing this former director of civil liberties advocacy group Liberty as Labour’s only appointment to the House of Lords in August 2016, just two months after she published an inquiry into accusations into antisemitism in the Labour Party.

ANSWER: (Sharmishta) “Shami” **Chakrabarti**

[10] Corbyn was also criticised for his treatment of this Bristol West MP after she only found she had been appointed as Shadow Arts and Culture Minister when a journalist contacted her while she received treatment for cancer. She was then told six weeks later that the appointment was mistaken.

ANSWER: Thangam (Rachel) **Debbonaire**

10. Lord George Paget rode into this action while smoking a cheroot. For 10 points each:

[10] Name this military manoeuvre led by Lord Cardigan against the Russian forces at the Battle of Balaclava.

ANSWER: The **Charge of the Light Brigade**

[10] This British historian wrote a popular history of the Charge called “The Reason Why”.

ANSWER: Cecil Blanche **Woodham-Smith**

[10] This veteran of the Napoleonic Wars was in command of the Russian forces at the Battle of Balaclava.

ANSWER: General Pavel Petrovich **Liprandi**

11. Answer some questions about an Academy Award winning rap song, for 10 points each:

[10] Name this Eminem song, which won the 2003 Academy Award for Best Original Song for the film *8 Mile*. It includes the line: “Snap back to reality/Oh, there goes gravity.”

ANSWER: **‘Lose Yourself’**

[10] Lose Yourself provided the backing track to a Cassetteboy parody rap by this politician, which contains the lines “I’m hardcore and I know the score/ And I am disgusted by the poor.”

ANSWER: David **Cameron**

[10] ‘Lose Yourself’ also provided the music to this *Eastenders* character’s trailer. His character arcs have included helping Ben Mitchell cover up the murder of Heather Trott, and having a brief relationship with 14 year old Linzi Bragg.

ANSWER: **Jay Brown** (accept either underlined portion)

12. In one text, this period is referred to as “an axe age, a sword age...a wind age, a wolf age” that will “paint red the powers’ homes with crimson gore”. For 10 points each:

[10] In the *Völuspá*, these descriptions refer to this cataclysmic period, when the world will sink into the sea and most of the gods will die in various dramatic ways, including Thor dying in combat with the world serpent Jörmungandr.

ANSWER: **Ragnarök** [accept **Ragnarøkkr**]

[10] Before Thor’s death, Odin has already met an equally metal end by being swallowed whole by this monstrous wolf, credited in some sources with having just eaten the sun.

ANSWER: **Fenrir** [accept **Fenrisúlfr**, **Hróðvitnir** or **Vánagandr**]

[10] Immediately following these events, this half-giant son of Odin would avenge his father by kicking Fenrir in the mouth with a shoe made of all the spare shoe-leather ever thrown away, before tearing him apart with his bare hands. Unlike most of his fellows, this god will survive Ragnarok unscathed.

ANSWER: **Viðarr**

13. This composer wrote 126 works for baryton trio for his patron, Prince Nickolaus Esterhazy. For 10 points each:

[10] Name this Austrian “Father of the String Quartet.”

ANSWER: Joseph **Haydn**

[10] This Haydn string quartet in C major contains a set of variations on *Gott erhalte Franz den Kaiser*, a melody later used for the German national Anthem.

ANSWER: **Emperor** quartet (accept but don’t reveal **Op. 76 no. 3**)

[10] The Emperor quartet is part of this set of 6 string quartets, the last that Haydn completed, which also includes the “Fifths” and “Sunrise” quartets.

ANSWER: **Erdödy** quartets (accept **Op. 76**)

14. This poet was a huge admirer of Joseph Stalin, and wrote an ode to him which is normally not included in collections of his work. For 10 points each:

[10] Name this author of *Twenty Love Poems and a Song of Despair* and *The Heights of Machu Pichu*

ANSWER: Pablo **Neruda** (Accept Ricardo Eliécer Neftalí Reyes **Basoalto**)

[10] “The Earth’s Name is Juan” is the eighth section of this Neruda poem, in which he praises Stalin because “punishment is needed”.

ANSWER: ***Canto General***

[10] This collection by Neruda contains poems addressed to Conger Chowder, and a Large Tuna in the Market.

ANSWER: ***Elemental Odes*** (Accept ***Odas Elementales***)

15. In this film, the grandfather is almost crushed as the body of a dead sumo wrestler is being ineptly lowered with a rope from an upstairs window. For 10 points each:

[10] Name this Japanese zombie musical in which the title family find that guests at their inn keep dying.

ANSWER: ***The Happiness of the Katakuris*** (or ***Katakuri-ke no koufuku***)

[10] *The Happiness of the Katakuris* is a work by this prolific director who created the romantic horror film *Audition*, the violent manga adaptation *Ichii the Killer*, and the notoriously bizarre *Visitor Q*.

ANSWER: Takashi **Miike** [mee-ee-kay] (accept names in either order)

[10] A claymation segment in *The Happiness of the Katakuris* shows how Pochi, one of these family pets, is miraculously saved from a volcano. In Takashi Miike’s *Gozu*, it is decided to off a *yakuza* boss after he kills one of these animals and then swings it into a window with its leash.

ANSWER: **dog(s)**

16. The two skyscrapers forming this structure are inclined at 15 degrees towards each other, making them the first inclined skyscrapers in the world. For 10 points each:

[10] Name this structure, designed by Philip Johnson and John Burgee and completed in 1996.

ANSWER: ***Gate of Europe*** (or ***Puerta de Europa***; accept ***KIO Towers*** or ***Torres KIO***)

[10] The Gate of Europe is located in this city, whose earlier civic developments include the open, arcaded Plaza Mayor [PLAH-vah MIE-yor] built during the reign of Philip III.

ANSWER: ***Madrid***

[10] The partnership of this British architect received the 2006 Stirling Prize for the design of Terminal 4 at Madrid’s Barajas Airport, in which “canyons” admit natural light and colour gradation guides passengers. This architect also designed the Millennium Dome.

ANSWER: Richard George **Rogers**, Baron Rogers of Riverside (accept Lord **Rogers**)

17. This spectroscopic technique is used to study the chemical environment of atoms such as 1-H and 13-C. for 10 points each:

[10] Name this form of spectroscopy in which effects like shielding and neighbouring group effects can influence the measured chemical shift for an atomic nucleus.

ANSWER: ***NMR*** spectroscopy [or ***nuclear magnetic resonance*** (spectroscopy)]

[10] The deuterated form of this solvent is commonly used in NMR, leading to a triplet peak at 77 parts-per-million in the carbon-13 spectrum. Treating this solvent with strong base yields a carbene.

ANSWER: ***chloroform*** [accept ***CHCl3*** or ***CDCl3*** or ***trichloromethane***]

[10] Peak widths in the NMR spectrum depend on the rate of re-equilibration of sample magnetisation after an excitation. The T1 [“tee one”] time measures the rate of this mechanism in which magnetisation parallel to the applied field reaches equilibrium with its surroundings.

ANSWER: ***spin-lattice*** relaxation [do not accept or prompt on “spin-spin relaxation”]

18. Sometimes there’s nothing better than spending an afternoon duelling intellectually with your friends over a strategy board game. For 10 points each, answer these questions on such games.

[10] This board game, developed by Klaus Teuber, uses a board formed from hexagonal tiles on which players use resource cards to build roads and settlements. Expansions of this board game include *Seafarers* and *Traders & Barbarians*.

ANSWER: *The Settlers of* Catan or *Die* Siedler von Catan

[10] Unlike *Settlers of Catan*, this 2008 board game is a cooperative rather than competitive game, as it sees players work together in randomly selected roles to contain and cure four infectious diseases that have broken out around the world.

ANSWER: Pandemic

[10] In this game by Friedemann Friese, players represent electricity companies who compete to build plants and supply cities with electricity. Unusually, rather than maintaining the same turn order throughout the game, this game sees turn order decided each turn by the number of cities each player has connected.

ANSWER: Power Grid or Funkenschlag

19. A pair of praetorian guards suggest this person as emperor after deciding incorrectly that he is a simpleton. For 10 points each:

[10] Name this stammerer who survives the reigns of three emperors before succeeding Caligula in a pair of eponymous books by Robert Graves..

ANSWER: Claudius

[10] Claudius' first wife is this giant woman who he gets along with by a mutual show of considerate indifference.

ANSWER: Urgulanilla

[10] Claudius survives so long by playing the fool, a strategy first suggested by this historian, who guesses that Claudius is reading some romantic rubbish on their first meeting, despite it being one of their own works.

ANSWER: Asinius Pollio

20. Bacteriophages that reproduce solely by this cycle are known as virulent phages. For 10 points each:

[10] Name this cycle of viral reproduction, contrasted with the lysogenic cycle, in which the virus degrades the host cell's DNA before synthesizing the viral genomes. Its name refers to the final stage when the host cell breaks open and releases the phages produced in the cell.

ANSWER: lytic cycle

[10] Unlike the lytic cycle, the lysogenic cycle doesn't kill the host cell. Instead, the phage DNA is integrated to the bacterial chromosome which replicates normally and transmits the phage's DNA to daughter cells. This name is given to the viral DNA when it has been incorporated by the host.

ANSWER: prophage

[10] Bacteriophages that use lysogenic cycle as well as the lytic cycle are called temperate phages and may remain dormant in their hosts. An example of a temperate phage is the lambda phage, which infects the cells of this rod-shaped gram negative bacterium and important model organism.

ANSWER: Escherichia coli