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THE ANSWER TO THE LAST TOSS-UP SHOULD HAVE BEEN: Song dynasty

Packet 5

Toss-ups:

1. This book argues that 'changes of diet are more important than changes of dynasty or even of religion' and wondered why statues commemorate politicians rather than bacon-curers and cooks. This book's publisher, Victor Gollancz [guh-LANTS], added a foreword objecting that its author 'does not once define what he *means* by' a certain political movement, referring to the second of this book's two parts. This book opens with a portrayal of the relatively wealthy Booker family, while subsequent chapters discuss the poor housing and working conditions of coal miners. Taking its title from a jokingly-named 'tumble-down' structure on a 'muddy little canal' in the North, for 10 points, name this sociological and political essay by George Orwell.
ANSWER: *The **Road to Wigan Pier*** <AH>

2. Whittaker *et al* devised a namesake immaturity speciation pulse model to describe evolution in these ecosystems. Losos and colleagues found that *Anolis* ecomorphs, including the crown-giant and trunk-ground, have evolved convergently in these ecosystems. A study on hydraulic failure in *Argyranthemum* suggests that the tendency for plants to evolve woodiness in these ecosystems is an adaptation to drought resistance. Species area curves were devised by MacArthur and Wilson as part of their theory of the biogeography of these places. Haast's eagle is an example of Foster's Rule, which states that in these ecosystems, animals tend to evolve to extreme body sizes. For 10 points, name these ecosystems, many of which exhibit adaptive radiations such as Darwin's finches.
ANSWER: **island**s [anti-prompt on the <u>Canary Island</u>s, <u>New Zealand</u>, <u>Greater Antilles</u>, <u>Caribbean island</u>s, or <u>Galápagos</u>; prompt on the <u>Caribbean</u>] <LC>

3. In one scene in a programme set in this city, a naked boy is thrown out of his own house by a squatter. In that programme set in this city, one character impresses a room of privately-educated girls by singing 'God Only Knows' in falsetto, while in another scene a drug dealer called 'The Mad Twatter' smashes a clarinet. In one scene in a film produced in this city, one character inspires another to escape a farm with stories of the RAF in Colditz Castle: that film was the highest grossing stop-motion film in history. A scene in one TV show set in this city sees Cook, Freddy, and JJ following Elly to school from this city's College Green. For 10 points, name this city, the home of *Skins* and Aardman Animations.
ANSWER**: Bristol** <BP>

4. The second part of this work opens by discussing whether life has a final end and cites Boethius's description of the 'thorny path of care' in rejecting the idea that happiness consists in power. In this work, the acts of the will with regard to means are split into choice, counsel, consent, and use. A certain concept 'ordered towards the common good' is divided into human, eternal, and natural forms in a section of this work called the 'Treatise on Law'. The principle that grace perfects nature governs this work, being first

expressed in Question 1, Article 8 of its *Prima Pars*. This work cites how an arrow is directed by an archer to illustrate the teleological argument. Demonstrating God's existence in 'Five Ways', for 10 points name this main work of Thomas Aquinas.
ANSWER: *Summa Theologica* [or *Summa Theologiae*] <AP>

5. The rebellion of Baldwin de Redvers took place during this conflict, and Robert of Torigni wrote about the construction of many 'adulterine' castles during it. After one battle in this conflict, Countess Amabel secretly traded her husband for another prisoner. The frequent changing of sides and outlaw activity by Geoffrey of Mandeville during this conflict led to its most famous description in the *Peterborough Chronicle* that 'for nineteen years, Christ and his saints slept'. Robert of Gloucester was captured during this conflict's Rout of Winchester, while the leader of one side later made an escape across a frozen river. Sparked by the death of William Adelin, for 10 points, name this civil war between Empress Matilda and Stephen of Blois.
ANSWER: the **Anarchy** <CJ>

6. One author from an offshoot of this movement wrote the poetry collection *Plumb*; that is the Romanian George Bacovia. A poem from this movement tells of a dead poet whose 'naked sword provokes his century'. An author from this movement wrote a sonnet that uses a difficult-to-translate word spelt 'p-t-y-x', while another author wrote a poem in which the narrator claims that 'the long sobs of autumn violins wound my heart'. The author of 'Edgar Allen Poe's Tomb' was associated with this movement, as was a poet who wrote that the title object is 'as fragile as a May butterfly' in 'The Drunken Boat'. For 10 points, name this French literary movement whose authors included Stéphane Mallarmé ['mall-arm-AY'], Paul Verlaine and Arthur Rimbaud ['ram-BOH'].
ANSWER: **symbolism** <GDC>

7. This leader pursued a campaign against the 'seven foreign devils', which included landlords and farm owners. John Subritzky wrote a book titled for *Confronting [this leader]*, which details a conflict known as the *Konfrontasi* between this leader's northern neighbour and their country. The CIA claimed that the Gestapu incident, which involved the murder of six generals in this leader's army, was orchestrated by this leader via the 30th September Movement. This leader advocated for a national philosophy known as Pancasila, implemented 'guided democracy', and was later overthrown by Suharto. For 10 points, name this first President of Indonesia.
ANSWER: **Sukarno** <GDC>

8. One sculpture by this artist was purchased to replace the looted *Apollo Belvedere* and depicts a man in a winged helmet looking at a severed head. A bronze cast of another sculpture by this artist in Milan was made from the cannons of the Castel St Angelo, while the sister of the subject of that sculpture was herself depicted by this artist reclining naked and holding an apple against her thigh. In this artist's best-known work, which has handles, a jar lies behind a nude woman who reaches up to hold the head of a figure leaning directly over her. Wellington acquired this artist's larger-than-life nude Napoleon, while they depicted Pauline Bonaparte as *Venus Victrix*. For 10 points, name this Neoclassical sculptor of *Psyche Revived by Cupid's Kiss*.
ANSWER: Antonio **Canova** <AP>

9. The Kondo effect predicts a contribution to this quantity which is proportional to the logarithm of inverse temperature. The ratio of this quantity at room temperature to the residual form is an important measure of the purity of samples. Bob Laughlin explained a phenomenon in which the transverse form of the inverse of

this quantity is quantised in units of the electric charge squared over h bar. That transverse form of this quantity is the Hall form. The Drude [DROO-duh] model predicts that the longitudinal form of this quantity is inversely proportional to the scattering time of electrons. For 10 points, name this quantity, whose inverse is conductivity, and which is particularly low for copper.
ANSWER: **resistivity** [accept **resistance** before 'conductivity'] <LW>

10.In a regional model of this process, the Negishi algorithm is used to maximise a Bergson-Samuelson social welfare function. As a result of the fact that the marginal cost curve of this process is relatively flat, the Weitzman diagram illustrates that a price instrument is likely to be more effective at dealing with this process. A report about this process, which is the subject of the RICE model, was criticised for its use of a low discount rate by Wilhelm Nordhaus, who won the Nobel Prize in Economics for his work analysing the possible mitigation of this process. This process was also the subject of the Stern review. For 10 points, name this process, the rise in global average temperatures as a result of man-made carbon emissions.
ANSWER: **climate change** [accept **global warming**] <GDC>

11. One work by this person claims that the modern writer 'insists on going directly to life for everything' and is set in a Nottinghamshire library. Another work by this writer argues that Thomas Griffiths Wainewright's literary qualities are strengthened by his being a murderer. This author of 'Pen, Pencil and Poison' wrote one work as a dialogue between Cyril and Vivian, in which they argue that 'Life imitates Art far more than Art imitates Life'. This person's role in the Aesthetic movement led them to adopt the slogan 'art for art's sake', which plays an important role in their only novel about the painter Basil Hallward. For 10 points, name this author of 'The Decay of Lying' whose ideas underpinned works such as *The Picture of Dorian Gray*.
ANSWER: Oscar **Wilde** <AH>

12. A cello theme in this work rises with a C, F, long A-flat, then falls with a dotted G, F, long A-flat, while its Scherzo begins with staccato notes D, F-sharp, A in the French horns. This work's first movement ends with a sforzando pizzicato D-sharp in the lower strings, while a D-major chorale in its second movement forms the basis for its contrapuntal finale. It's not by Beethoven, but a short, short, short, long rhythm, played in the solo trumpet, opens this work's Funeral March first movement.Its fourth movement is scored only for strings and harp, and was supposedly written for the composer's wife Alma. For 10 points, name this Mahler symphony famous for its fourth movement adagietto.
ANSWER: Gustav Mahler's *Symphony No.* **5** [**Mahler** required before mention] <AP>

13. Compounds containing this anion were first found on the surface of Mars in 2008, which is considered evidence for the presence of liquid water. This anion is related to a functional group of the same name which may be prepared from phosgene. When used to treat bipolar disorders, lithium is administered as its salt with this anion. Unlike another trigonal planar oxyanion to which this anion is isoelectronic, salts of this anion are generally poorly soluble in water. This anion thermally decomposes to give off carbon dioxide. For 10 points, identify this anion, found in coral skeletons, mollusc shells, and limestone, with chemical formula 'C O three two minus'.
ANSWER: **carbonate** [accept **C O three two minus** before the end; do NOT accept 'bicarbonate' or 'hydrogencarbonate'] <AG>

14. A note on the back of one portrait by this artist notes that it 'was done in one hour and forty minutes', and an engraving based on that portrait was later used for the published *Letters of the Late Ignatius Sancho, an*

African. Another portrait by this artist depicts its subject holding both a blooming rose and a pink rosebud while wearing an exceptionally large black hat that took the name of this artist. As well as that portrait of Georgiana, Duchess of Devonshire, this artist produced portraits such as one showing a husband standing with a gun beside his seated wife in a sky-blue dress, as well as another painting located in the Huntington Library that may depict Jonathan Buttle. For 10 points, name this artist of *Mr and Mrs Andrews* and *The Blue Boy*.
ANSWER: Thomas **Gainsborough** <OSC>

15. A disputed hadith regarding this institution claims that it 'causes the Throne of Allah to shake', while a particular form of this institution was not considered legal until the time of the Caliph Umar. Shia forms of this practice generally require witnesses to be present, and Shias also do not accept a conditional form of it that historically could function as both a threat or a promise. The 'triple' form of this action allows one individual to do at once what normally requires a waiting period, or *iddah*. The judicial form of this practice is known at *tatliq*, while *khul* requires mutual consent. For 10 points, name this institution, in which a man can repeat '*talaq*' three times to repudiate his wife.
ANSWER: **divorce** <OSC>

16. The diplomat David Patterson derided the 'culture of violence' on this island, which was forced to give up territory on the mainland after the Abushiri Revolt. A powerful figure who served the rulers of this island was nicknamed 'Tippu Tib' for the sound his guns made. On this island, Basil Cave scolded Khalid bin Barghash to 'do as you are told' before the destruction of the HHS *Glasgow*. British consuls forced the Busaidi dynasty to end this island's slave trade, which supported its exports of cloves and coral. This island's city of Stone Town briefly became the capital of the Sultanate of Oman, and it fought a war with Britain that lasted just 38 minutes. For 10 points, name this East African island that later formed a union with Tanganyika.
ANSWER: **Zanzibar** [accept **Unguja**] <CJ>

17. Abraham Verghese's *Cutting for Stone* follows an Ethiopian immigrant to the U.S. working in this profession. The wife of one character with this profession believes that his letters were written by a 'sadistic and psychotic forger'. Benway holds this profession in *Naked Lunch*, and when not working as a tour guide, Mr Kapasi is employed by a man with this occupation. Another character with this profession plans to work in Wheatsylvania, North Dakota, after insulting his mentor, Max Gottlieb. Along with Daneeka in *Catch-22*, Martin in Sinclair Lewis' *Arrowsmith* holds, for 10 points, which profession, in which he treats a Caribbean outbreak of bubonic plague?
ANSWER: **doctor**s [accept **obstetrician** or **paediatrician**; accept **medic**al profession] <AH>

18. Nancy Johnson in the U.S. and Agnes Marshall in the U.K. patented early machines used in the making of this product. The Soviet industry of this product, which was sold by companies like Plombir and Lakomata, was renowned for its high quality. A traditional Iranian version of this food product is made from rice noodles and is often served alongside another variety of this food called *kulfi*, which was also popular at the Mughal court and today is usually formed in a cylindrical mold and served on a stick. While working as a chemist, Margaret Thatcher reportedly helped invent a variety of this product. For 10 points, name this frozen dairy dessert, sold in the U.K. by Mr. Whippy.
ANSWER: **ice cream** <CJ>

19. Both Plutarch and Cicero mention a member of this family who chose to kill a male serpent over a female, dooming him but saving his wife. One of that man's sons was the first to scale Carthage's walls in the Third Punic War, but was asked by his mother why she was called Scipio's mother-in-law, rather than the mother of this family. Another member of this family committed suicide when their armed uprising in support of political reform was put down with the passing of the first *Senatus consultum ultimum.* That man's older brother had proposed a redistribution of the public land as tribune of the plebs, leading to their murder at the hands of the Senate. For 10 points, name this Roman family of the failed populist reformers Tiberius and Gaius.

ANSWER: Sempronii **Gracchi** (accept Tiberius or Gaius **Gracchus,** prompt on Sempronii)<OSC>

20. In *La Géométrie*, Descartes showed that the intersections of this shape with a circle give the roots of the Trisection Equation. Lambert's Theorem states that the focus of this shape lies on the circumcircle of the triangle formed by three tangents to this shape. A second-order partial differential equation is named after this shape if the coefficient of the mixed partial derivative squared is equal to the product of the coefficients of the other two second-order derivatives. In polar coordinates, this shape has the formula r equals semi latus rectum over 1 minus cosine theta. For 10 points, name this conic section with eccentricity 1, described by the formula y equals x squared.

ANSWER: **parabola** [or **parabolic**; prompt on conic section before mention]<DD>

Bonuses:

1. The first occurrence of this process in mammalian development produces trophoblasts, which are defined by C.d.x.2 expression. For 10 points each:
[10] Name this process by which cells change identity, usually becoming more specialised in function, and resulting in a reduction in cell potency.
ANSWER: cellular **differentiation**
[10] Unlike somatic cells, these cells express active telomerase. These cells can differentiate into other cell types, for instance during haematopoiesis [hee-mah-to-poy-EE-sis], and their 'embryonic' type could be used in medicine.
ANSWER: **stem** cells [accept specific types of stem cell such as **pluripotent stem** cells]
[10] The transcription factor NANOG [NA-nog] helps to maintain pluripotency in embryonic stem cells, while other genes in this group specify regions of the body plan along the anterior-posterior axis. This collinearly expressed group of genes includes Antennapedia in fruit flies.
ANSWER: **Homeobox** Genes [accept **Hox** genes] <ML>

2. Alfio and Turiddu take part in this activity at the end of Verga's *Cavalleria rusticana* after Lola dreams of black grapes, foretelling disaster. For 10 points each:
[10] Name this activity. Casanova wrote an autobiographical novel titled for this activity, while in *The Brothers Karamazov* the Elder Zosima decided to become a monk while taking part in this activity.
ANSWER: **duel**ling
[10] Many of Verga's short stories are set among the poor of this largest Italian island, which is also the setting of Lampedusa's *The Leopard*.
ANSWER: **Sicily**
[10] Verga, along with Luigi Capuana, was a proponent of this specific Italian literary movement, which drew on, but did not wholly agree with, a similar movement led by Emile Zola.
ANSWER: **verismo** [do not accept 'naturalism'; prompt on realism] <AP>

3. The soprano solos in the 'Christe eleison' and 'Et incarnatus est' sections of the *Great Mass in C Minor* were written to be performed by this person. For 10 points each:
[10] Name this singer, who collaborated with Franz Xaver Niemetschek on a biography of her first husband.
ANSWER: Maria **Constanze** Cäcilia Josepha Johanna Aloysia **Weber** or **Mozart** or **von Nissen** [prompt on Weber, Constanze, or 'Mozart's wife']
[10] Josepha, the eldest of Constanze's sisters, premiered coloratura arias such as 'Der Hölle Rache' as this character in *The Magic Flute*.
ANSWER: The **Queen of the Night** [or **Astrifiammante** or die **Königin der Nacht**]
[10] Before courting Constanze, Mozart wrote many pieces for her sister Aloysia, including the exceptionally high aria 'Popoli di Tessaglia!', an insert for this composer's opera *Alceste*. After this composer suffered a stroke, their protégé Salieri took over the composition of *Les Danaïdes*.
ANSWER: Christoph Willibald **Gluck** <AP>

4. Meditation practices in this faith involve visualization of Sukhavati, which is understood to be distinct from the eastern Abhirati. For 10 points each:
[10] Name this branch of Buddhism in which adherents seek to escape the cycle of rebirth by practicing *nianfo*, or repetition of the name of Amitabha.

ANSWER: **Pure Land** [prompt on, but do NOT reveal, Mahayana]
[10] Pure Land Buddhism is a sect of this major tradition of Buddhism, known as the 'Greater Vehicle'.
ANSWER: **Mahayana**
[10] This other Mahayana Buddhist tradition was brought to China by Bodhidharma and is one of the two monastic varieties of Buddhism there along with Pure Land. In Japan, this school is known as 'Zen'.
ANSWER: **Chan** <CJ>

5. Swear words in this language include *blood claat*, the equivalent of the British *bloody*, and it also contains the Hindi loanword *ganja*. For 10 points each:
[10] Name this creole language mostly of Akan origin widely spoken in Jamaica and among the Jamaican diaspora.
ANSWER: **patois** [pat-wah]
[10] This form of English, mostly spoken by urban youth in Britain's capital city, is sometimes known as 'Jafaican' in the press despite its well-documented roots in Cockney and South Asian as well as Caribbean slang.
ANSWER: **M**ulticultural **L**ondon **E**nglish
[10] Like African-American Vernacular English, this other language spoken in the Lowcountry region of the Carolinas, Georgia, and northern Florida may derive from a common 'plantation creole' spoken by enslaved Africans, though this creole contains far more African loanwords and personal names.
ANSWER: **Gullah** [accept **Geechee**] <CJ>

6. This composer set Apollinaire's 'L'adieu du cavalier' in memory of Francois Poulenc. For 10 points each:
[10] Name this composer of the *Sonate champêtre* for clarinet, oboe, bassoon, and piano and the song cycle *Pancarte pour une porte d'entrée* [don-TRAY], many of whose works were only published posthumously.
ANSWER: Marcelle Germaine **Tailleferre** [TIE-fer]
[10] Tailleferre and Poulenc were members of *Les Six* ['cease'], along with this Swiss composer of the *Symphonie Liturgique* and the train-inspired *Pacific 231*.
ANSWER: Oscar-Arthur **Honegger**
[10] Tailleferre collaborated with four members of *Les Six* on a ballet about a surreal wedding breakfast at this Parisian building. Charles Gounod was among its opponents when it was built for the 1889 World's Fair.
ANSWER: **Eiffel Tower** [accept *Les mariés de la **tour Eiffel***] <AP>

7. IEEE [I-triple-E] 754 defines the two most common implementations of this data type to have 32 and 64 bits, respectively. For 10 points each:
[10] Name this general data type useful for data that takes on real values. Operations on this data type are limited by the machine precision.
ANSWER: **float**ing point number [accept **double**]
[10] Floating point numbers are comprised of two numbers: an exponent to which a base is raised, and this other number that multiplies the result. This number contains the significant digits and an IEEE [I-triple-E] standard double precision float has 53 of its 64 bits dedicated to this number.
ANSWER: **mantissa** [accept **significand**; accept **coefficient**]
[10] The standard defines five ways for floating point numbers to be converted to the integer data type by performing this task, which typically requires a rule for breaking a tie if given a number such as 0.5.
ANSWER: **rounding** [anti-prompt on flooring, ceilinging, or truncating] <LM>

8. This organisation unexpectedly succeeded in raising a large amount of money soon after it was launched at the Royal Albert Hall on 19th May 1919. For 10 points each:
[10] Name this organisation jointly founded by Dorothy Buxton and Eglantyne Jebb in order to alleviate the starvation caused by the Allied blockade of Germany.
ANSWER: **Save the Children** Fund
[10] Jebb was partially inspired to set up Save the Children by her 1913 trip to this region. Serbia annexed this region in the First Balkan War, and their refusal to divide it with Bulgaria sparked the Second Balkan War.
ANSWER: **Macedonia**
[10] Dorothy's husband Charles Buxton survived an assassination attempt while travelling to secure Bulgarian neutrality in the First World War. Although he later became a Labour MP, Buxton was first elected as a member of this party, which won a landslide in 1906 under the leadership of Campbell-Bannerman.
ANSWER: **Liberal** Party [or **Liberal**s] <AH>

9. This poet made their name when their *Poems on Various Subjects, Religious and Moral* were published in London. For 10 points each:
[10] Name this author, who claimed in one poem that 'A monarch's smile can set his subjects free!' and another poem, stated that ''Twas mercy brought me from my pagan land'.
ANSWER: Phyllis **Wheatley**
[10] Wheatley addressed 'To the King's Most Excellent Majesty' to this ruler to thank them for repealing the Stamp Act. Wheatley's schedule did not allow time to meet this king when she visited London shortly before the American War of Independence.
ANSWER: **George III** [prompt on George]
[10] This poet worried that Wheatley had surrendered to pagan influences in London and encouraged her to return to a Christian path in 'An Address to Miss Phillis Wheatley'. This poet delivered their 'Address to Negroes of the State of New-York' while still enslaved, aged 76.
ANSWER: Jupiter **Hammon** <AH>

10. The Haber process is thought to be responsible for nearly 50% of the nitrogen present in humans globally, and as such, its catalysis has been crucial to development over the 20th century. For 10 points each:
[10] Name this first-row transition metal, which forms the basis of most catalysts of the Haber process. This metal oxidises in a process called rusting.
ANSWER: **iron** [accept **Fe**]
[10] The catalysis of a gas phase reaction, such as the Haber process, by a solid catalyst is given this name. More generally, this term refers to reactions in which the catalyst is in a different phase to the reactants and products.
ANSWER: **heterogeneous** catalysis
[10] This is the rate-limiting step of the Haber process. It involves strengthening the bonds between nitrogen and the iron's surface, while simultaneously breaking the nitrogen-nitrogen bond.
ANSWER: **dissociative chemisorption** [accept an answer including both **dissociation** and **chemisorption**, but do NOT prompt on incomplete answers] <AG>

11. Holy Roman Emperor Henry VII and his brother Baldwin, Archbishop of Trier, masterminded the rapid ascent of this family from insignificance at the turn of the fourteenth century. For 10 points each:
[10] Name this German family that came to rule the Holy Roman Empire, Bohemia, Hungary, and Brandenburg in addition to its namesake territory. Its last Emperor, Sigismund, saw the Western Schism end.

ANSWER: House of **Luxemburg**
[10] Henry VII's son, John 'the Blind' of Bohemia, was not elected Emperor, but this grandson of his was. This ruler issued the Golden Bull and remodelled Prague, also selling off many Imperial lands.
ANSWER: **Charles IV** [prompt on Charles]
[10] Sigismund had no male heirs, and his only daughter Elizabeth married into this family. The subsequent Luxemburg inheritance underpinned this family's extension of power across the Empire and eventually to Spain.
ANSWER: House of **Habsburg** <AP>

12. In one scene in this novel, a character remarks to a friend of his return to his childhood home of Berlin that 'it meant nothing to [him] whatever', though equally that he should never have left. For 10 points each:
[10] Name this 1989 novel about Hartmann and Fibich, German refugees who come to Britain on the Kindertransport and maintain a lifelong friendship, despite their differing personalities.
ANSWER: ***Latecomers***
[10] This author of *Latecomers* is best known for winning the 1984 Booker Prize for a novel about Edith Hope being shunned by her friends after having an affair with a married man, *Hotel du Lac*.
ANSWER: Anita **Brookner**
[10] *Hotel du Lac* is set at this lake in the north Alps, which is shared by Switzerland and France. Villa Diodati, a mansion close to this lake, was rented by Lord Byron and was where Mary Shelley began writing *Frankenstein*.
ANSWER: Lake **Geneva** <SR>

13. Echoing Machievelli, this work argues that 'the prince should establish and maintain dominion, but with what design can hardly be sure'. For 10 points each:
[10] Name this work, which foreshadows J.S. Mill by arguing that freedom of expression is important because 'those whose judgment is free and unbiased can attain success in' the arts and sciences.
ANSWER: ***Tractatus Theologico-Politicus*** [accept **Spinoza's** *Tractatus* or *Tractatus Politicus*]
[10] *Tractatus Theologico-Politicus* is a work by this Dutch philosopher, who also wrote *Ethics* and was expelled from the Jewish community in Amsterdam for his 'abominable heresies that he practised and taught'.
ANSWER: Banuch **Spinoza**
[10] Spinoza was sometimes thought to be an atheist, in part because he claimed that 'neither intellect nor [this concept] pertain to the nature of God'. Arthur Schopenhauer held that this concept was a mindless, aimless, non-rational impulse.
ANSWER: the **will** <GDC>

14. Mrs Ples and Little Foot are two fossils discovered in this complex, a UNESCO World Heritage Site. For 10 points each:
[10] Name this collection of paleoanthropological sites, where the new species *Homo naledi* was discovered deep within the Rising Star Cave in 2013.
ANSWER: **Cradle of Humankind** [accept the **Fossil Hominid Sites of South Africa**]
[10] The Cradle of Humankind site is centred on the Sterkfontein Caves in this country, where the Taung child was first described by Raymond Dart of the University of the Witwatersrand [vit-vates-rant] in Johannesburg.
ANSWER: **South Africa**
[10] This material was used in the Blombos Cave in Western Cape to create the earliest known drawing, a red

cross-hatched design, during the Late Pleistocene. This material was also later used to create handprints at Pech Merle in France.
ANSWER: **ochre** <OSC>

15. A series of open doors leading into each other appears in the background of this artist's *Birthday*, and a flying monkey appears in the foreground, along with a self-portrait of the artist baring their chest. For 10 points each:
[10] Name this artist, whose 2018 retrospective at the Tate Modern included *Hotel du Pavot, Chambre 202,* an installation of five three-dimensional fabric bodies coming out of the walls of a hotel room.
ANSWER: Dorothea **Tanning**
[10] In 1946, Tanning married this artist, the inventor of the techniques 'frottage' and 'grattage', which are demonstrated in their works *Ubu Imperator* and *The Elephant Celebes* [SEH-leh-beez].
ANSWER: Max **Ernst**
[10] Both Tanning and Ernst were members of this cultural movement led by André Breton which is characterised by unexpected juxtapositions. Other notable artists from this movement include Salvador Dalí.
ANSWER: **surrealism** <SR>

16. This man is set to net a bonus of $346 million if the company of which he is CEO maintains its current stock price for the next 6 months. For 10 points each:
[10] Name this CEO of The Boring Company, SpaceX and Tesla, who smoked marijuana on a podcast in September 2018 and tweeted that he would take his company private at $420 a share.
ANSWER: Elon **Musk**
[10] In November 2019 Musk announced plans to open a factory in this European capital, in the vicinity of a long-postponed new airport. Bombadier Transportation, the world's fourth largest railway equipment manufacturer, also has its headquarters here.
ANSWER: **Berlin**
[10] Tesla is currently in talks to buy Cobalt from this controversial Swiss commodities trader. Founded by Marc Rich, it has come under fire for dealing with the government of the DRC, polluting via its mines in Zambia and Peru, and allegedly violating UN embargoes by buying oil from Saddam Hussein's regime.
ANSWER: **Glencore** Plc. [accept **Glencore Xstrata**) <BP>

17. Unusually, this Greek tragedy begins with a prologue featuring two gods, Athene and Poseidon. For 10 points each:
[10] Name this tragedy by Euripides, which includes several appearances by the herald Talthybius. This play ends with a city collapsing into flames, and it originally appeared in a trilogy with *Alexander* and *Palamedes*.
ANSWER: *Trojan Women* [or *Troades*]
[10] In *Trojan Women*, this character fails to persuade Menelaus to kill Helen. In a different play by Euripides, this figure blinds Polymestor in revenge for the murder of Polydorus.
ANSWER: **Hecabe** [or **Hecuba**]
[10] This character also appears in *Trojan Women*. She sings a crazed wedding-hymn and foretells Agamemnon's death. As usual, nobody believes this character's prophecies.
ANSWER: **Cassandra** <AH>

18. The 'third wave' of this form of therapy describes a process by which other, similar forms of therapy are incorporated within it. For 10 points each:

[10] Name this form of therapy, often used to treat anxiety, which involves modifying dysfunctional thinking by talking about problems the patient currently faces.
ANSWER: **cognitive behavioural therapy** [or **CBT**]
[10] CBT is now sometimes used to treat this disorder, characterised by persistent low mood and loss of interest in activities.
ANSWER: **depression** [or **MDD**]
[10] Another treatment for depression is this structured therapy method, which centres on the notion that when a person is able to interact more effectively with others, their psychological symptoms often improve.
ANSWER: **interpersonal psychotherapy** [or **IPT**] <GDC>

19. This event supposedly began when the deaf Black Coyote refused to give up his rifle while some tribesmen began performing the Ghost Dance. For 10 points each:
[10] Name this December 1890 massacre of several hundred mostly unarmed Lakota by the U.S. Army near a namesake frozen creek.
ANSWER: **Wounded Knee** Massacre
[10] The Wounded Knee massacre occurred on this reservation in South Dakota. Chief Spotted Elk, who was killed by U.S. troops, had led his band to this reservation to seek sanctuary after fleeing from nearby Standing Rock.
ANSWER: **Pine Ridge** Indian Reservation
[10] Spotted Elk's band left for Pine Ridge because of the assassination at Standing Rock of this other Lakota leader, whom the federal government feared would join the Ghost Dance movement. Earlier in his life, this leader won a victory over government forces at the Crow Reservation in Montana.
ANSWER: **Sitting Bull** <CJ>

20. Systems should be described using this type of space in quantum field theory. For 10 points each:
[10] Name this type of abstract vector space of multiparticle states. Formally, it is a direct sum of tensor products of single particle Hilbert spaces.
ANSWER: **Fock** space
[10] One way to think of quantum fields is in terms of an infinite collection of these systems. In these systems, the restoring force is proportional to and oppositely directed to the displacement.
ANSWER: simple or quantum **harmonic oscillator**s
[10] Second quantisation involves the use of these pairs of operators, which are commonly first encountered when studying the quantum harmonic oscillator. These operators are used to add or remove quanta of energy from the system, which can be thought of as adding or removing particles.
ANSWER: **creation** and **annihilation** operators [accept **ladder** operators; accept **raising** and **lowering** operators] <LW>