

OOT 2020: [The Search for a Middle Clue]

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THE ANSWER TO THE LAST TOSS-UP SHOULD HAVE BEEN: *Rebecca*

Packet 3

Toss-ups:

1. A Hahn echo is observed in this technique when inversion causes a refocusing of a dephased signal, which depends on Larmor precession. In metals, a Knight shift is observed using this technique, while aromatic molecules are affected by ring currents. Broadband decoupling is used to simplify spectra in one version of this technique, but in another version this is not necessary, as the satellite peaks are small due to relative isotopic abundance. Often carried out in a deuterated solvent, for 10 points, name this technique that observes the chemical environment of nuclei with non-zero spin, such as protons and carbon-13.

ANSWER: **N**uclear **M**agnetic **R**esonance spectroscopy [accept **E**lectron **P**aramagnetic **R**esonance or **E**lectron **S**pin **R**esonance until 'decoupling'] <AG>

2. This poem demonstrates the influence of Dante's *Inferno* in its image of 'the tumid river' and also quotes a line from *An Outcast of the Islands* by Joseph Conrad. When asked if they would write certain lines in this poem again, its author argued that today those lines would be too strongly associated with 'the H-bomb'. This poem hears 'Voices [...] More distant and more solemn / Than a fading star' and describes the title figures' voices 'quiet and meaningless / As wind in dry grass'. The fifth and final part of this poem repeats the line 'Falls the shadow' and ends by claiming that 'the world ends / Not with a bang but a whimper'. For 10 points, name this poem published after *The Waste Land* by T. S. Eliot.

ANSWER: *The **Hollow Men*** <AH>

3. Judith Williamson wrote a book that 'decodes' the ideology of this activity. A model by Phillip Nelson is employed to show that the amount of information this activity provides depends on the importance of 'search qualities'. An article examining this activity argues that it produces works that represent a 'hyper ritualisation' of reality: that analysis of how this activity intersects with gender is by Erving Goffman. It's not propaganda, but a nephew of Sigmund Freud claimed that this activity could exploit the 'herd mentality' of the masses. Edward Bernays is often seen as the American father of this activity, while J.K. Galbraith said that it 'manufactures demand'. For 10 points, name this activity done to encourage consumers to buy a product.

ANSWER: **advertising** [accept **public relations**] <GDC>

4. A line in this song was borrowed from the fifteenth-century song 'Riddles Wisely Expounded'. Bob Dylan drew heavily on this song and quoted a lyric from it in his own song 'Girl from the North Country'. The best-known recording of this song caused a rift by failing to credit Martin Carthy, whose original source may have been a Teesdale miner, and paired it with 'Canticle' in the lead track of a 1966 album. The impossible tasks mentioned in this song include making an object with no seam or needlework. Mentioning a cambric shirt and featuring the refrain 'parsley, sage, rosemary and thyme', for 10 points, name this traditional English

ballad which asks the listener about the title location in Yorkshire.

ANSWER: **Scarborough Fair** <AH>

5. Successful workers in this industry were sometimes called 'three day millionaires'. Lillian Bilocca was a campaigner in this industry who responded to a 1968 disaster in it. A type of worker in this industry was informally known as a 'bobber'. Operation Dewey was an action in a conflict relating to this industry, in which one side used the 'warp cutter' to great effect. A conflict relating to this industry resulted in the C.S. Forester incident and was part of a series of 1970s 'wars' relating to this industry that resulted in Iceland temporarily suspending diplomatic relations with the United Kingdom. For 10 points, name this industry, whose decline in the UK has led to a large reduction in the number of trawlers operating in the North Sea.

ANSWER: **fishing** [accept more specific versions e.g. **cod fishing**, **trawling**] <GDC>

6. A character created by this author is disappointed when people in her neighbourhood are only interested in the sexual passages from a book she has written. Another novel by this author closes with the protagonist being mailed two dolls that she had failed to retrieve from a loan shark. Another of this author's characters is thrown through a glass window by her father for taking the middle school exam. In a novel by this author, the teacher Maestra Oliviero encourages the protagonist not to associate with 'plebs' like the prodigy Lila. Speculation surrounding this author has connected their identity to Anita Raja, among others. For 10 points, name this author who included *The Story of a New Name* and *My Brilliant Friend* in their *Neapolitan Novels*.

ANSWER: Elena **Ferrante** [glare at them and prompt on Marcella **Marmo**, Domenico **Starnone** or Anita **Raja** before mentioned] <AH>

7. A 1981 paper by Caldeira and Leggett discusses the impact of damping on this phenomenon in macroscopic systems. The time for this process limits to a finite constant in apparent violation of relativity in the Hartman effect. Cooper pairs exhibit this phenomenon in the Josephson effect. The rate of this phenomenon is governed by the Gamow factor. This phenomenon is represented by a shift from a sinusoidal to a decaying exponential solution for the Schrödinger equation. For 10 points, name this phenomenon in which a particle passes through a classically impenetrable barrier.

ANSWER: quantum **tunneling** <LM>

8. This country intervened in one war and won the Battle of the Sound. During one period, this country was led by its Grand Pensionary, and this country unknowingly agreed to exclude one person from its leadership in the Act of Seclusion. This country fought three wars with another country after the passage of the Navigation Acts. After being humiliated by Holmes's Bonfire, this country's navy attacked the Chatham Dockyards in the Raid on the Medway. The de Witt brothers were lynched during its 'Disaster Year'. Earlier, the Treaty of Münster guaranteed the independence of this country's United Provinces from Spain at the end of the Eighty Years' War. For 10 points, name this home country of William of Orange.

ANSWER: the **Netherlands** [accept the **Dutch Republic**; prompt on **Holland**] <CJ>

9. The middle movement of this composer's *Piano Concerto* uses the folk song 'Sweet Primroses'. The Chinese play *The Orphan of Zhao* features in this composer's opera about the canal builder Zhao Lin. Jessye Norman commissioned this composer's song cycle on texts by Maya Angelou, Clarissa Pinkola Estés, and Toni Morrison, *women.life.song*, while this composer of *A Night at the Chinese Opera* was inspired by Emily Dickinson for their 'concerto for ten instruments', *Musicians Wrestle Everywhere*. Writing *Praise Him with Trumpets* for the

500th anniversary of Hampton Court Palace, this composer also arranged 'God Save the Queen' for the reburial of Richard III. For 10 points, name this composer, the current Master of the Queen's Music.

ANSWER: Judith **Weir** <AP>

10. People living in this place mix dried meat with water to create a dish called 'tidkit'. An evening dance ceremony practiced by a people who live in this place is called *takkēt*. A festival celebrating the culture of this place occurs in the city of Douz and includes hunting using *sloughi* [sloo-ghee] dogs. A preparation of tea in front of guests that originated among a people from this place is called *atai*. A people from this place who sometimes call themselves the Imouhur wear the Tagelmust, from which their nickname of 'blue people' arises due to its colour. *Ahaket* are tents used in this place by the Tuareg. For 10 points, name this desert in Northern Africa, the largest hot desert in the world.

ANSWER: **Sahara** <GDC>

11. This word is repeated at the end of the 'Leaden Echo', where its final syllable becomes the first word of the 'Golden Echo'. This word names a giant married to Diffidence in *The Pilgrim's Progress*, while in *Paradise Lost* both 'wrath' and this word are modified by 'infinite' immediately before Satan declares 'Which way I fly is Hell'. Gerard Manley Hopkins considers this word 'carrion comfort', while Tennyson describes it as 'divine' in the second line of 'Tears, Idle Tears'. Shakespeare's Sonnet 114 describes 'two loves', of 'comfort' and of '[this word]', while on the eve of the Battle of Bosworth, a series of ghosts urge Richard III to '[do this] and die'. For 10 points, what word ends the line, 'Look on my works, ye mighty, and [...]?'

ANSWER: **despair** <AP>

12. One building constructed by this ruler has artwork depicting King Parehu and Queen Ati of a land to the south of this ruler's. They're not Tutankhamun, but Howard Carter stopped looting an unused tomb meant for this ruler built into a cliff face. A *damnatio memoriae* against this ruler was only carried out by their successor 20 years after their death, and saw this ruler's monuments reinscribed with the names of their predecessors Thutmose I and II. This ruler's mortuary temple at Deir el-Bahri depicts an expedition bringing back gold from the land of Punt. Officially first a regent and then co-ruler with their nephew and stepson, Thutmose III for at least a decade, for 10 points, name this pharaoh of the 18th dynasty, the second woman to rule Egypt.

ANSWER: **Hatshepsut** <OSC>

13. In a Dürer panel painting, this figure holds a large closed book while standing opposite a red-cloaked St John. A black-winged angel supports Jesus as he gestures towards a near-nude depiction of this figure in the first version of a scene from their life, which was rejected by Cardinal Cerasi [che-RAH-zi] for Santa Maria del Popolo. The replacement version of that scene is dominated by their horse while this figure is shown, extremely foreshortened, on the ground with their arms outstretched. This figure is depicted as a brightly-illuminated unconscious Roman soldier in that painting, which is paired with the same artist's *Crucifixion of St Peter*. For 10 points, name this figure painted by Caravaggio 'on the Way to Damascus'.

ANSWER: St. **Paul** or **Saul** [prompt on *The Conversion on the Way to Damascus*] <AP>

14. Along with a cauldron, this object is referred to in the slogan 'Deg Togh Fateh', and two of these objects are crossed in order to represent the concept of Miri-Piri, or temporal and spiritual authority. During an initiation ceremony, this object is used to stir a mixture of sugar and water in a steel vessel, while in daily services these objects touch a sweet pudding before it is distributed to the congregation. The use of this object is central to the notion of the 'saint-soldier' developed after the execution of one religious leader, and

wearing this object became mandatory in 1699 in order for the *Khalsa* to be able to defend the needy and oppressed. For 10 points, name this member of the ‘five Ks’, a dagger worn by Sikhs.

ANSWER: **kirpan** [prompt on knife, sword, dagger or equivalent before ‘dagger’] <CJ>

15. One species of this type of organism is a well-known example of sympatric speciation, driven by a shift from native hawthorn to introduced apple hosts within the last 200 years. That species is *Rhagoletis pomonella*. The family Nycteribiidae [nye-ktiri-BYE-iday] is a wingless bat parasite in this order. Bateman’s Principle, that variability in reproductive success is greater in males than females, was derived from experiments using these organisms. In a model organism in this order, Morgan discovered sex linkage by studying the association between possessing white eyes and being male. For 10 points, name this insect order with one pair of wings, which includes *Drosophila melanogaster*.

ANSWER: **diptera** [or **fly** or **flies**; accept stalk-eyed **flies** or apple maggot **flies** or fruit **flies**; accept ***Rhagoletis pomonella*** or ***R. pomonella*** before mention; accept ***Drosophila melanogaster*** or ***D. melanogaster*** before mention] <LC>

16. A member of this family commanded the army that captured David II of Scotland in one battle. Another member of this house married Joan Beaufort and received the title Earl of Westmoreland from Richard II. One woman born into this house was known as the ‘Rose of Raby’ after its ancestral castle and lost her husband at the Battle of Wakefield. From its base in County Durham, this house feuded with the Percys of Northumberland. One member of this family married their daughters to Edward of Westminster and the Duke of Clarence during a rebellion that saw that member of this family win a victory at Edgecote Moore before being killed at Barnet. For 10 points, name this family of Richard, known as ‘Warwick the Kingmaker’.

ANSWER: **Neville** <CJ>

17. A woman in this city spends time at the Tropicana with her boyfriend Freddie, who later marries Nancy and becomes a politician in this city. Marie Tomlinson criticises Mr. Green and spies on the protagonist during their time living in this city. One character is driven to a private club on Victoria Island by an ex-lover she calls ‘ceiling’ in this city, which is also the setting of *Jagna Nana*. After working as a cleaner in London, Obinze returns to this city and eventually reunites with Ifemelu. The ending of *Americanah* is set in this city, and Ozu moves to this city from England in *No Longer At Ease*. For 10 points, name this largest city in Nigeria.

ANSWER: **Lagos** <GDC>

18. This character is represented by a theme in the strings beginning with an E-flat, an inverted turn on E-flat, and then a C, but is first introduced by a dotted theme beginning G, C, G, C, E, C in the trombones. This character later arrives at the end of a chorus based on that theme, breathlessly asking for help with the words ‘Shield me and help in my greatest need!’ while fleeing their father. This character sings ‘Hail to you, O Sun!’ upon waking, having been put to sleep while being addressed in the aria ‘Leb wohl’ by Wotan in a previous opera. This character commits suicide in their Immolation Scene, destroying the Ring. The lover of Siegfried, for 10 points, name this renegade Valkyrie.

ANSWER: **Brünnhilde** [prompt on ‘the Valkyrie’ before mention] <AP>

19. This operator can be raised to a fractional power by diagonalising it using Hermite functions, and doing so gives the fractional form of this operation, which uses the Mehler kernel. The Wiener-Khinchin theorem states that the spectral power is related to the autocorrelation in this way. This operation is a unitary operator

on the Hilbert space of square integrable functions on the real line according to Plancherel's theorem. An algorithm for performing this task numerically works best on grid sizes that are a power of 2 and was invented by Cooley and Tukey. This operation can be considered a two-sided Laplace transform with an imaginary frequency. For 10 points, name this integral transform that returns the frequency spectrum of a signal.

ANSWER: **Fourier transform** [accept Discrete **Fourier transform** or **DFT**; accept Fast **Fourier Transform** or **FFT**; prompt on Fourier series] <JR>

20. A work titled for the 'philosophy' of this thinker argues that their claim that 'The Ego is a substance' is incompatible with the claim that 'perception yields knowledge of an external world'. This thinker argued that 'primitive forces can be nothing but the tendentia of simple substance' in correspondence with Burchard de Volder. This thinker asserted that one substance has 'no real influence' on another to argue for the concept of 'pre-established harmony'. This thinker, who attempted to refute Locke in *New Essays on Human Understanding*, claimed in their *Discourse on Metaphysics* that 'God has chosen the most perfect world'. For 10 points, name this German philosopher of *Monadology*, who also co-discovered calculus.

ANSWER: Gottfried **Leibniz** <GDC>

Bonuses:

1. One of these works is nicknamed 'The Joke' due to the increasingly long pauses at the end of its last movement. For 10 points each:

[10] Name these works and their composer. Other nicknamed examples include 'The Lark' and 'The Frog'.

ANSWER: Joseph **Haydn's string quartets**

[10] The last movement of this Haydn symphony requires the strings to stop and re-tune after the opening phrase. This six-movement symphony incorporates incidental music to a namesake play and quotes the 'Farewell' symphony.

ANSWER: Symphony No. **60**, 'Il **Distratto**' [accept either description]

[10] Haydn's crassest musical joke is the use of this low double-reed instrument in a 'fart' near the end of the Adagio of his Symphony No. 93.

ANSWER: **bassoon** <AP>

2. In this technique, electrophysiologists must obtain a seal between a glass micropipette and the cell membrane. For 10 points each:

[10] Name this technique, developed by Erwin Neher and Bert Sakmann, which enabled the first recordings of single ion channel currents. Variations on this technique include cell-attached and inside-out.

ANSWER: **patch clamp** [prompt on patch or patching; prompt on voltage clamp or current clamp]

[10] An early application of the voltage clamp was to a giant, unmyelinated example of this structure in squid. Alan Hodgkin and Andrew Huxley took advantage of its large diameter to insert electrodes inside the lumen and thus elucidate the mechanism of action potential propagation.

ANSWER: **axon** [prompt on neuron]

[10] Action potentials propagate along the axon via an influx of these cations through voltage-gated ion channels, causing depolarisation of the cell membrane. After this ion's channels close, potassium is released from the cell to restore it to its resting potential.

ANSWER: **sodium** ions <ML>

3. One section of this work describes a priest's murder in the lines 'But a man was killed, I am told, in a place where I saw / Something; a man was killed, I am told, and I saw something.' For 10 points each:

[10] Name this verse novel structured as a series of letters between the indecisive Claude and his friend Eustace.

ANSWER: ***Amours de Voyage***

[10] *Amours de Voyage* is a work by this poet, who wrote 'Honor thy parents; that is, all / From whom promotion may befall' in 'The Latest Decalogue'. The elegy *Thyrsis* was written in their memory.

ANSWER: Arthur Hugh **Clough**

[10] As well as describing Oxford as 'that sweet city with her dreaming spires' in *Thyrsis*, this poet also wrote about how the world seems 'so various, so beautiful, so new' in 'Dover Beach'.

ANSWER: Matthew **Arnold** <AP>

4. This performer may have appeared in a 1915 Mary Pickford film alongside their sister Adele. For 10 points each:

[10] Name this artist and entertainer whose partners later in life included Eleanor Powell in *Broadway Melody of 1940*.

ANSWER: Fred **Astaire** [accept Frederick **Austerlitz**]

[10] Astaire was accomplished in this percussive style of dance in which performers wear metal tips on the heels and toes of their shoes, and whose techniques include the cramp roll, buffalo, and Maxi Ford.

ANSWER: **tap** dancing

[10] This musical opens with the curtain rising on a massive tap number, an audition scene for the musical *Pretty Lady*, to which the protagonist Peggy Sawyer arrives late.

ANSWER: **42nd Street** <CJ>

5. At the end of a work by this author, two men deface a painting with a blue felt-tip pen. For 10 points each:

[10] Name this author. In another of their plays, Annette vomits on a coffee table during a meeting about how her son knocked out another boy's teeth during an argument.

ANSWER: Yasmina **Reza**

[10] Yasmina Reza is from this country. Her play, *Conversations After a Burial*, won the Molière award, which is the national theatre award of this country.

ANSWER: **France**

[10] Reza claimed that there is nothing more French than this other author, who left France for several years after calling Islam the 'stupid religion' in a promotion tour for their book *Platform*. They also wrote *Elementary Particles*.

ANSWER: Michel **Houellebecq** [ooh-el-BECK] <GDC>

6. This essay argues that Hume discovered the survival of 'obligation' long after the abandonment of the divine law that made it 'really intelligible'. For 10 points each:

[10] Name this essay, which claims that 'The differences between the well-known English writers on moral philosophy from Sidgwick to the present day are of little importance'.

ANSWER: **Modern Moral Philosophy**

[10] *Modern Moral Philosophy* is a work by this author, a British ethical philosopher who reintroduced virtue ethics into Western philosophy and coined the term 'consequentialism'.

ANSWER: Gertrude Elizabeth Margaret **Anscombe**

[10] In outlining her theory of virtue ethics, Anscombe drew heavily on the ideas of this Greek philosopher, who outlined their account of morality in *Nicomachean Ethics*.

ANSWER: **Aristotle** <GDC>

7. With the input of scholars like Claude Levi-Strauss, this institution released a much-criticized statement known as *The Race Question* in 1950, and undertook the Nubian Campaign a decade later. For 10 points each:

[10] Name this institution that needed more than thirty years to complete its ambitious and monumental *History of Mankind* project.

ANSWER: **U**nited **N**ations **E**ducational, **S**cientific, and **C**ultural **O**rganization [prompt on **U**nited **N**ations]

[10] A scientist from this family was appointed UNESCO's first Director-General and feuded with Lucian Febvre over the *History of Mankind* project. Another scientist from this family was the man known as 'Darwin's bulldog'.

ANSWER: **Huxley** (Julian, Aldous, and Thomas Henry)

[10] One of Huxley's allies in the early stages of the *History of Mankind* was Joseph Needham, best known for his studies on the science and technology of this country. In 2004, the ongoing encyclopedia project begun by Needham stopped using the Wade-Giles system to transliterate this country's pictographic writing system.

ANSWER: **China** [accept **Zhongguo**] <CJ>

8. For a harmonic oscillator this coordinate equals the energy, and for other one-dimensional problems equals the phase space area enclosed by a curve of constant Hamiltonian. For 10 points each:

[10] Name these n symplectic coordinates on a $2n$ dimensional phase space such that the Hamiltonian is only a function of them and not the remaining n variables. Another quantity with this name is equal to the time integral of the Lagrangian.

ANSWER: **actions** [prompt on action-angle coordinates by asking ‘which one?’]

[10] Actions are useful in part because they are this type of function, which remains roughly constant as system parameters are slowly varied. The magnetic moment of a particle in a magnetic field is a well-known example of these functions.

ANSWER: **adiabatic invariant** [prompt on invariant]

[10] Actions can be considered this sort of coordinate that is canonically conjugate to a position coordinate. For a Newtonian particle this value is simply given as the product of mass and velocity.

ANSWER: **momentum** <JR>

9. The three criteria for these objects are that they are exogenous, that they obey the exclusion restriction, and that they are relevant. For 10 points each:

[10] Name these objects, the ‘weak’ form of which can be tested for using the Paitnik-Nagar method.

ANSWER: **instrumental variables** [or **instruments** or **IV**]

[10] Instrumental variables are a method of dealing with problems of endogeneity within this mathematical technique. The logistic model uses this technique to model a binary dependent variable.

ANSWER: **regression** [accept **linear regression**]

[10] Another way of dealing with problems of endogeneity is to use the ‘natural’ form of these procedures to make causal inferences. In science, these empirical procedures are used to arbitrate between competing empirical hypotheses, sometimes by changing a single independent variable and observing its causal effect.

ANSWER: **experiments** <GDC>

10. In honor of the 2019 general election, we momentarily interrupt this quiz bowl tournament to bring you a preview of the long-awaited Constituency Bowl. For 10 points each:

[10] One of the few bright spots for Labour in the election was holding this seat in Kent. Rosie Duffield enlarged her margin of victory in this constituency from 187 votes in 2017 to nearly 2,000.

ANSWER: **Canterbury**

[10] An first sign on election night of the crumbling of the ‘red wall’ in the north of England was a Tory victory in this seat in Northumberland, which had voted Labour in every election since its creation in 1950.

ANSWER: **Blyth Valley** [prompt on Blyth]

[10] In Northern Ireland, the Alliance Party’s only success was this traditionally wealthy, unionist seat, where Stephen Farry pulled off a surprising victory over the DUP. Before the election, this constituency had been represented by Sylvia Hermon, the only Independent in Northern Ireland.

ANSWER: **North Down** <CJ>

11. A mixture of 96% ethanol and 4% water forms a classic example of one of these systems. For 10 points each:

[10] Name these systems, which violate Raoult’s Law. A mixture of chloroform and methanol can form the ‘positive’ type of these systems.

ANSWER: **azeotropes** [or **constant boiling point mixtures**; accept positive or negative **azeotropes**]

[10] As azeotropes have a constant boiling point, their constituents cannot be separated by the simple form of this process. This process involves boiling followed by condensation, and can be carried out in 'fractional' form.

ANSWER: **distillation**

[10] This design problem, initially posed by Doherty and Malone, illustrates the difficulty of distilling azeotropes. This problem involves separating methanol, isopropanol, and water, and is named for the student who first developed a successful setup.

ANSWER: **DeRosier** Problem <AH>

12. Works in this medium at Chartres [shart] Cathedral are characteristically blue, while the development of the Gothic style allowed for greater expanses of it to be displayed. For 10 points each:

[10] Name this medium, very commonly used for the decoration of religious buildings to control light.

ANSWER: **stained glass** [prompt on glass; prompt on window]

[10] This building's Great East Window is the world's largest expanse of medieval stained glass. It also contains exceptionally complex lancets known as the Five Sisters, and its south transept was damaged in a 1984 fire.

ANSWER: **York Minster** [or the **Cathedral** of St Peter in **York**]

[10] Derived from a passage in Isaiah, this image was common in stained glass. Its title figure is generally depicted sleeping, as at the bottom of one of the west windows of Chartres, and at the centre of the northern rose window in the Abbey of St-Denis.

ANSWER: **Tree** of **Jesse** [JEH-see] [prompt on partial answer; prompt on descriptions such as family tree of Jesus] <AP>

13. Cimon [Ki-MOAN] of Athens, the *proxenos* of this city, showed his admiration for it by naming one of his sons in honour of it. For 10 points each:

[10] Name this city, to which Cimon was sent to help by Athens following an earthquake and subsequent revolt of its helots, who fortified themselves on Mt Ithome in Messenia.

ANSWER: **Sparta**

[10] Lacedaemonius, that son of Cimon, was involved in the preliminary skirmishes of the Peloponnesian War fought between the island of Corcyra and this other Greek city, which, according to Thucydides, urged the Spartans to declare war on the Athenians.

ANSWER: **Corinth**

[10] Plutarch tells the story that Cimon dedicated his bridle at the Acropolis to show his support for Themistocles prior to this battle earlier in his career. Cimon's death was hidden from his forces to keep morale high prior to a battle at a city in Cyprus with this name.

ANSWER: **Salamis** <OSC>

14. The Eyre Highway, named for the first European to cross this region, includes a '90 Mile Straight', one of the longest in the world. For 10 points each:

[10] Name this plain, a vast region of exposed limestone whose flat, featureless karst landscape ends at the Bunda cliffs, the longest in the world.

ANSWER: **Nullarbor**

[10] Deserts and xeric shrublands like the Nullarbor and this South American high plateau are often sparsely inhabited by humans and other fauna. Humans have settled in this driest desert on earth for the purposes of mining sodium nitrate and copper, while Andean flamingos live in its salt flats.

ANSWER: **Atacama**

[10] Irrigation of deserts, such as in this desert's Coachella and Imperial valleys, can support greater human settlement and agriculture. Engineers accidentally created the Salton Sea in this desert in the early twentieth century while redirecting water from its namesake river.

ANSWER: **Colorado** Desert <OSC>

15. This town was created by Sir Fredrick Lawley in the nineteenth century. For 10 points each:

[10] Name this town. In one novel, Rajam realises that starting a cricket team is 'the most complicated problem on Earth', while in another the holy man Raju fasts on the banks of the river Sarayu, which runs through this town.

ANSWER: **Malgudi**

[10] Malgudi is the creation of this Indian author, who wrote about Margayya giving advice to the people of the town in *The Financial Expert*. This author also wrote *The Guide* and *The Painter of Signs*.

ANSWER: R. K. **Narayan**

[10] Jagan, the protagonist in Narayan's *Vendor of Sweets*, is an ardent follower of this Indian statesman, whose fictional visit to Malgudi is depicted in *Waiting for Mahatma*.

ANSWER: Mahatma **Gandhi** [or Mohandas Karamchand **Gandhi**] <GDC>

16. This book was written after the Babylonian Captivity and refers to that period as the time when 'the land had enjoyed her Sabbaths'. For 10 points each:

[10] Name this book. The last book in the Tanakh, it focuses almost exclusively on the Kingdom of Judah, and its first nine chapters are taken up with an elaborate genealogy from Adam.

ANSWER: (First and Second) Book(s) of **Chronicles** / **Dibrê Hayyâmîm** / **Paralipomenon**

[10] The history recounted in the Book of Chronicles repeats, but is distinct from, the historical works attributed to a Biblical source associated with this book of the Bible, in which Moses dies.

ANSWER: **Deuteronomy** [or **Devarim**]

[10] The documentary hypothesis suggested that the Deuteronomist, Jahwist, Elohist, and Priestly sources were all combined to form this first section of the Tanakh, comprising the five books from Genesis to Deuteronomy.

ANSWER: **Torah** [accept **Pentateuch**] <AP>

17. Some of the victims of this event were driven into the Omaheke Desert after losing the Battle of Waterberg, while others were subjected to forced labor and experimentation on Shark Island. For 10 points each:

[10] Name this 1905-1908 event that attempted to exterminate the peoples of the coastal and southern areas of one modern-day country after a series of failed rebellions against German colonial rule.

ANSWER: **Herero**-Nama genocide

[10] The Herero-Nama genocide was perpetrated in this modern-day country, then known as German South West Africa. Windhoek [VIND-heck] has been the capital of this country since its independence from South Africa in 1990.

ANSWER: **Namibia**

[10] Another rebellion against German imperial rule in Africa was this nearly simultaneous one in German East Africa, in which the spiritual leader Bokero gave his followers a namesake mixture of water, castor oil, and millet seeds that he told them would turn German bullets into water.

ANSWER: **Maji Maji** Rebellion <CJ>

18. A critical essay claims that this novel 'scored 114 offenses against literary art out of a possible 115. It breaks the record.' For 10 points each:

[10] Name this novel in which 'Floating Tom' Hutter is scalped alive. The previously mentioned essay attacked this novel's unrealistic scenes, including one in which the protagonist knocks a nail into a piece of wood by shooting it with a bullet.

ANSWER: *The **Deerslayer**, or The First War-Path*

[10] That critical essay was 'Fenimore Cooper's Literary Offenses', by this author, who presumably avoided any offences against literary art in their novels about Tom Sawyer and Huckleberry Finn.

ANSWER: Mark **Twain** [or Samuel Langhorne **Clemens**]

[10] In his letters, Twain argued that this other author's prose was unreadable, although narrowly better than Jane Austen's. This author of the novel *The Narrative of Arthur Gordon Pym of Nantucket* also wrote the short story 'Berenice'.

ANSWER: Edgar Allan **Poe** <AH>

19. With Renyi, this mathematician names a random graph where each edge has a fixed probability of being present or absent, independent of the realisation of other edges. For 10 points each:

[10] Name this mathematician, who also names a theorem with Stone that generalises Turán's theorem to non-complete graphs.

ANSWER: Paul **Erdos**

[10] The original specification of the Erdos-Renyi model involved a graph being chosen uniformly from all graphs with a given number of edges and a given number of these objects. These indivisible objects are linked by edges in a graph.

ANSWER: **vertices** [or **nodes**]

[10] The expected number of edges in an Erdos-Renyi graph is p times n choose 2. The 'strong' form of this widely applicable theorem states in this instance that the actual number of edges will approach that expected value for large values of n .

ANSWER: **law of large numbers** <GDC>

20. In 1396, one of these animals spent 146 days in the prison of the Norman town of Pont-de-l'Arche for eating a child. For 10 points each:

[10] Name these animals. The most common animals publicly executed in the Middle Ages, these animals were also iconographically associated with bagpipes, despite bagpipes almost never being made from them.

ANSWER: **pigs**

[10] For an execution, communities were expected to provide these pieces of clothing for the executioner. The giving of one of these items of clothing from a lord to a vassal was often a symbol of accepting homage, and gauntlets are armoured examples of them.

ANSWER: **gloves**

[10] Many of the surviving records of animal executions come from the *Chambre des comptes* of this region of eastern France. Centred on the city of Dijon, its duke John the Fearless was assassinated on the Bridge of Montereau in 1419.

ANSWER: **Burgundy** <AP>