

OOT 2017
Packet 07 - Editors 1

Edited by Oliver Clarke, George Corfield, Charlie Clegg, Daoud Jackson, Chris Stern and Spencer Weinreich.
Questions also written by Eric Mukherjee, Thomas De Bock, Isaac Brown.

The last tossup in the last packet should have been: Equilibrium

Tossups

1. **The first private railroad car was built for this person while in the United States. This person was convinced to come to America after seeing an engraved depiction of “Iranistan” on a letterhead. Some have suggested that Hans Christian Andersen modelled the Snow Queen on this person after she rejected his advances. Royal Worcester produced a terrifying range of candle snuffers in honour of this person with a bird’s head attached to a human body.** (*) P.T. Barnum organized a series of 93 concerts for this performer, during which time she married pianist Otto Goldschmidt and after which she donated her significant fee to fund schools in Scandinavia. For 10 points, name this operatic singer, the “Swedish Nightingale.”
ANSWER: Jenny Lind -Goldschmidt (accept Johanna Maria Lind; prompt on Goldschmidt before mention)

2. **Theodor Adorno divided this phenomenon into a “critical” form, which is greater than the sum of its parts, and an “apologetic” form composed of systematic changes to formulae through “standardization.” Schopenhauer argued that the “absolute” form of this phenomenon is the “answer to the mystery of life” and unique in its ability to express the will *qua* thing in itself, thus bypassing Ideas. In 2006, (*) Daniel J. Levitin wrote a book about “Your Brain on [this]” arguing against Steven Pinker’s characterization of it as “auditory cheesecake.”** For 10 points, name this phenomenon whose philosophical boundaries were tested by John Cage’s *4’33”*.
ANSWER: Music

3. **The author of this book defends his method arguing “I do my own surveys and draw my own conclusions” and recounts almost being expelled from school for punching a music teacher in the eye. He writes that he has read “hundreds of books about China over the decades” and that much “of modern art is a con, and that the most successful painters are often better (*) salesmen and promoters than they are artists.”** This work includes an eleven-step plan for business success which includes “think big” and “have fun.” For 10 points, name this book by Tony Schwartz and attributed to the 45th President of the United States.
ANSWER: *Trump: The Art of the Deal*

4. **This country is home to the world's longest continually navigable underground river. It's not Italy, but that river, the Rubicon, is fed by multiple losing streams characteristic of this country's Condros region. A boat lift in this country replaced a series of four lifts classified as a UNESCO World Heritage Site and is the tallest in Europe; that lift is located in this country's (*) Hainaut province. A canal in this country completed in 1939 joins the river Scheldt to the city of Liège.** For 10 points, name this country whose Albert Canal joins the river Meuse in Wallonia to the city of Antwerp in Flanders.
ANSWER: Belgium

5. **An artist with this surname depicted every building in the titular Suffolk village in the 123 foot long *Walberswick Scroll*. Another artist with this surname depicted Stonehenge on a stormy day and, while not born there, that artist with this surname is usually known by the epithet “of Oxford” for his residence therein and his production of numerous views of the city. Those artists with this surname are John Doman and William respectively. Another artist with this surname depicted an (*) elephant dwarfed among the Alps in *Snow Storm*. For 10 points, an artist with what surname depicted a warship being tugged to its breaking-up in *The Fighting Temeraire*.**
ANSWER: Turner

6. This work *opens* with the words “ABANDON ALL HOPE YE WHO ENTER HERE” scrawled on the side of a Chemical Bank. This novel’s protagonist finds a noodle on his shoulder which he picked up after mistaking the ethnicity of a Chinese delivery boy, before giving it to his fiancé Evelyn, whom he forces to leave her own Christmas party. In one chapter, that *Patty Winters Show*-loving protagonist describes the career of (*) Huey Lewis and the News. Penguins slap the glass of their tank as this novel’s Trump-obsessed protagonist stabs a child in the neck. For 10 points, Patrick Bateman eats nouvelle cuisine and people’s intestines in what novel by Bret Easton Ellis?

ANSWER: American Psycho [If people complain about “abandon all hope ye who enter here,” it is line 9 of canto 3 of Dante’s *Inferno*, which is really not the opening of anything.]

7. A sculptor from this country created a work described as “the most mournful and moving piece of stone in the world” by Mark Twain; it depicts a dying lion situated above a lake in Lucerne. That sculptor from this country created the sepulchral monument of Pope Pius VII said to be the only piece by a non-Catholic sculptor in St. Peter’s Basilica. The face of one work in this country was modelled on (*) ballerina Ellen Price. It has been suggested that work in this country be moved away from the Langelinie and further into the bay. For 10 points, name this home country of Bertel Thorvaldsen and Edvard Eriksen, who created the Little Mermaid.

ANSWER: Denmark

8. One poem in this language praises “Beauty / Or what we otherwise call tear.” That poem is “Beauty and the Illiterate,” whose author used this language to compose seven brief descriptions of locations, the “scenes” of “The Little Mariner.” The speaker of a poem in this language says of an object, “It was falling into the dream as I was coming out of the dream,” while another advises, “Wish always that your course be (*) long; that many there be of summer morns.” This language was used to describe “this marble head in my hands” in “Mythistorema,” also used in “Ithaka.” For 10 points, name this language of Odysseas Elytis, Giorgos Seferis, and Constantine Kavafy.

ANSWER: Modern Greek [accept “nea ellinika”; do not accept or prompt on “Ancient Greek”]

9. Oxygen impurities are found in high concentrations in crystals of these materials produced by the Czochralski [choc-ral-ski] process. When these materials are less than twice the size of their exciton’s Bohr radius, quantum confinement leads to the formation of Quantum (*) dots. Schottky barriers are formed at the junction of metals with these materials, whose conductivity increases with temperature. Doping improves the performance of these materials, whose p type have a higher concentration of holes than electrons.. For 10 points, identify these materials used in transistors with conductivity intermediate to those of insulators and conductors.

ANSWER: semiconductor (antiprompt on answers mentioning Silicon before exciton)

10. A periodic storm on this planet was used by Asaph Hall to determine its rotational period, and that storm last appeared in 2010-11. A pair of moons of this planet are unique in the Solar System for swapping their orbits every four years. The arrival of the summer solstice is thought to be behind the change in colour of one feature of this planet, the (*) north polar hexagon. The vastly differing albedo of the two hemispheres of one of this planet’s moons is due to material thrown off a more distant retrograde moon, Phoebe onto that moon, Iapetus. Name for 10 points this planet into which the Cassini probe will plunge in September, after passing within its many rings.

ANSWER: Saturn

11. The Ludlul bēl nēmeqi [nēh-meh-ki] begins with a hymn to this deity, who it thanks for their recovery. A victory of this deity was re-enacted during the festival of Zagmuk, and this deity was worshiped along with Zarpanit in the Esagil. This deity is frequently depicted with the *marru* spade and was the father of (*) Nabu. This deity has 50 names, which he received after his rise to power as depicted in the Enuma Elish where he took the Tablets of Destiny from Kingu. He was made head god by the Annunaki for using winds and an arrow to kill the dragon, Tiamat. For 10 points, name this chief deity of Babylon.

ANSWER: **Marduk** [If people give one of the 50 names neg them and then they can protest]

12. **One character in this work is inspired by a book its author later revealed to be Joris-Karl Huysmans's *Against Nature*, but this character promises to be better to his new lover Hetty Merton. The scientist Alan Campbell is blackmailed into disposing of a body in this work, while James seeks to avenge his sister's abandonment and suicide, his only clue her lover's (*) nickname of "Prince Charming."** The main character of this work falls in love with the Shakespearean actress Sibyl Vane, but she fails to impress his hedonistic friend Lord Henry Wotton. For 10 points, name this novel, in which Basil Hallward's portrait ages instead of its subject, the only novel by Oscar Wilde.

ANSWER: *The Picture of Dorian Gray*

13. **The theme of one piece by this composer consists of alternating quavers moving chromatically further apart from the opening E, giving it its nickname, "The Wedge". The principal subject of an unfinished work by this composer begins with D-A-F-D-C sharp minims and Ferruccio Busoni's (*) *Fantasia contrappuntistica* pays homage to that work. The mysterious "Flauti d'echo" appear in a set of works by this composer, the fifth of which contains a 65 bar harpsichord cadenza. This composer's cantata *Be still, stop chattering* depicts a person addicted to coffee.** For 10 points, name this German composer of *The Art of the Fugue* and the *Brandenburg Concertos*.

ANSWER: Johann Sebastian Bach

14. **The reformed pastor Alexandre Vinet convinced this man of the necessity of Church-State separation, and he later resigned from one post after the Treaty of Villafranca. This politician forged an alliance with his centre-left colleagues known as the "marriage" or *Connubio*. This man led his state into the Crimean War to gain a place at the Congress of Paris, and sent his cousin to seduce (*) Napoleon III.** This founder of the newspaper *Il Risorgimento* urged Garibaldi not to invade mainland Italy after conquering Sicily. For 10 points, name this prime minister of Piedmont-Sardinia under Vittorio Emmanuele II, the architect of Italian Unification.

ANSWER: Camillo Paolo Filippo Giulio Benso, Count of Cavour, Isolabella and Leri [accept either underlined part]

15. **This person engaged in a thirty-five year-long academic partnership with the author of *The Real Woman*, Charlotte von Kirschbaum. This author rejected his occasional partner Emil Brunner's ideas in the laconically-titled *Nein!* Karl Adam compared this author's commentary on the epistle to the Romans to a bombshell for its opposition to liberal (*) Protestant theology.** This chief author of the Barmen Declaration detailed how the Word of God is preached, written, and revealed in his magnum opus, *Church Dogmatics*. For ten points, name this Swiss minister, often called the most important theologian of the twentieth century.

ANSWER: Karl Barth

16. **In 1870, the Church of England established St. Saviour's, a mission for these people, which continued until 2014. Thomas Braidwood founded an eponymous school for these people in Hackney, whose pupils included John William Lowe, the first of these people to become a barrister. After protests by students, Irving King Jordan was the first of these people to become President of Gallaudet [Gall-you-dett] University. The Volta Institute was founded by (*) Alexander Graham Bell to aid these people, whose population on Martha's Vineyard developed a unique type of sign language.** For 10 points, name these people who suffer hearing impairments.

ANSWER: deaf people [accept "the hard of hearing" OR "the hearing-impaired" before "suffer"]

17. **MacConkey Agar turns pink if bacteria which produce this compound are present. An enzyme named for this compound can exist as five different tetramers depending on the ratio of M and H subunits. Measurement of serum troponins have superseded tests for that enzyme in detecting recent myocardial infarction. As part of the (*) Cori cycle, this compound is oxidised in the liver to form glucose for exercising**

muscle. This compound's namesake dehydrogenase regenerates NAD⁺ for the Krebs cycle by performing that oxidation to pyruvate. For 10 points, name this acid formed from the anaerobic breakdown of glucose, such as in exercising muscle.

ANSWER: **Lactic Acid** [accept **lactate** or **2-Hydroxypropanoic acid**]

18. Architectural and dress styles in the Kofun period have been studied with *haniwa* figures, which were made of this material. The town of Bishnapur in West Bengal is hom to many temples made of this substance and a piggy bank made from this material was found at Trowulan and created by the Mahapajit Empire. In 1974, farmers digging a well near Mount (*) Li discovered a huge number of artefacts made of this material and arranged into four pits, the third of which contains a command post. Those artefacts were produced with around 10 face moulds and were buried along with the emperor Qin Shi Huang Di. For 10 points, name this earthenware substance used to produce an army of figures in Xi'an.

ANSWER: **terracotta** [prompt on **clay**; prompt on **ceramic**]

19. In one work, this man calms a riot by reminding xenophobes that in another country, others "Would shark on you." The protagonist of Walker Percy's *Love in the Ruins* and *The Thanatos Syndrome* is a doctor who shares his name with this man, his ancestor. In one play, this man tells his son-in-law, Will Roper, "I give the Devil benefit of law, for my own safety's sake!" William Shakespeare is thought to be Hand D in a manuscript play about this man, whose (*) fanatical Catholicism in Hilary Mantel's *Wolf Hall* attracted controversy. For 10 points, name this Tudor statesman, the lead character of Robert Bolt's *A Man for All Seasons*, himself the author of *Utopia*.

ANSWER: Thomas **More** [accept *Sir Thomas More*]

20. A lattice based model of these molecules in solution makes use of volume fractions and has an interaction term, symbolised chi. The radius of gyration for the random flight type of these molecules, which were modelled by Flory and (*) Huggins, is proportional to the square root of their molecular mass, the distribution of which is measured by the polydispersity index. Minimal branching can be achieved by the use of Ziegler-Natta catalysts in the synthesis of these molecules from alkenes. For 10 points, name these large molecules such as teflon and PVC made up of many monomers.

ANSWER: **Polymer**s [Accept **Chains** before "random flight"]

Tiebreaker

21. This man was donated a Bluegill by Richard J. Daley, mayor of Chicago, which he then donated to a national research institute; that fish later escaped and became a hugely destructive invasive species. This man, who met his wife on a tennis court, had a pet dog called Dingo, and has conducted extensive research on the family *Gobiidae*. In August 2016 this man, made a public address about the burden that official duties have had on his failing health and political debate has raged as to whether an amendment to the Imperial Household Act would be required for this man to abdicate. For 10 points, name this only current emperor, the ruler of Japan.

ANSWER: **Akihito** [accept **heisei**]

Bonuses

1. Brett Walker has argued that Mamiya Rinzo's mapping of this island in 1808, "anticipated empire" by helping to delimit Japan's borders with Russia and the Qing Empire. For 10 points each:

[10] Name this island which Rinzo realised was an island bordered to the north by the sea of Okhotsk rather than a peninsula.

ANSWER: **Sakhalin** [accept **Kita Ezo** or **Karafuto**; do not accept Ezo or Yezo]

[10] When Rinzo realised that Sakhalin was an island he was completely alone, having rowed away from the main ship which had been blocked by a mass of this substance, known in Japanese as konbu, which was rotting.

ANSWER: **kelp** [accept **seaweed**]

[10] In 1809, Rinzo returned to Sakhalin and after making an ethnographic study of the Ainu, he made contact with Chinese administrators at Deren in this modern day province which contains China's most easterly and northerly points.

ANSWER: **Heilongjiang**

2. Hillel the Elder is usually credited with organizing this text into its six *sedarim*, or "orders," including "Seeds," "Women," "Damages," and "Holy Things." For ten points each:

[10] Name this first major piece of Rabbinic literature, a collection of oral traditions from the Tannaitic period, commented upon in the Babylonian and Jerusalem Talmuds.

ANSWER: **Mishnah** [accept **Shas**]

[10] In the Mishnah, Rabbi Hillel is often contrasted with this rigorist contemporary of his. It is said that while the school of Hillel looses, the school of this man binds.

ANSWER: **Shammai**

[10] The most cited authority in the Mishnah is a rabbi with this name shared with the leader of the Maccabean revolt; another rabbi with this name, known as "the Prince" or simply as "Rebbi," redacted the Mishnah.

ANSWER: **Judah** [accept "**Judah** bar Ilai," "**Judah** bar Ma'arava," or "**Judah** the Prince", accept "**Yehuda**" for "Judah"]

3. Sclereid cells contain high quantities of this organic polymer. For 10 points each:

[10] Name this class of crosslinked phenolic polymers. Separating this class of polymers from carbohydrates like cellulose provides a major challenge in the production of biofuels.

ANSWER: **Lignin**

[10] Despite having tissues specialised for the transport of water, these plants are deemed nonvascular because they do not contain lignin. There is debate as to whether these plants form a paraphyly including liverworts and hornworts or comprise a monophyly of just mosses

ANSWER: **Bryophytes** [prompt on lower plants]

[10] Being nonvascular plants, bryophytes do not contain these two structures for transport of water. One carries water up the plant while the other has multiple sieve tube elements.

ANSWER: **Xylem** and **Phloem**

4. Although its creation was first proposed in 1827, this city did not become its country's capital until 1960. For ten points each:

[10] Name this purpose-built South American capital city whose cathedral and National Congress building were designed by Oscar Niemeyer.

ANSWER: **Brasilia**

[10] Brasilia was commissioned as part of this President's "fifty years of prosperity in five" programme. This President's term of office between 1956 and 1961 saw relative political and financial stability in Brazil.

ANSWER: Juscelino **Kubitschek** de Oliveira (ACCEPT: "**J.K.**")

[10] Kubitschek was succeeded as President of Brazil by this man whose Zac Goldsmith-like attempt to resign and be returned by popular acclaim failed and ultimately led to the 1964 military coup.

ANSWER: Jânio da Silva **Quadros**

5. This first director of the London Fire Engine Establishment died fighting the Tooley Street Fire in 1861 when a wall collapsed on him, having earlier survived carrying two barrels of gunpowder from a burning blacksmith. For 10 points each:

[10] Name this man who saved Westminster Hall and revolutionized fire-fighting by inventing the chain ladder, employing builders in fire services and directing hoses to the centre of the blaze.

ANSWER: James **Braidwood**

[10] Braidwood's career began in this city where he battled a huge 1824 fire. This city hosted the first international Rugby Union match in 1871.

ANSWER: **Edinburgh**

[10] Braidwood was the first witness at the trial of this man, who was dissected by Alexander Monro and his skin made into a notebook, a fate avoided by his partner William Hare.

ANSWER: William **Burke**

6. For 10 points, each answer the following on literary works set in Kent:

[10] While studying at Dr. Strong's school in Canterbury, this Dickens protagonist lodges with Mr. Wickfield where he meets the paragon of "umbleness", Uriah Heep.

ANSWER: **David Copperfield** [accept either underlined part]

[10] This Marina Lewycka novel was partially inspired by *The Canterbury Tales*; it depicts economic migrants from around the globe moving around Kent, picking strawberries and living in the titular segregated accommodation.

ANSWER: ***Two Caravans***

[10] In this T. S. Eliot work the central figure, after being lured by four temptations, says that "The last temptation is the greatest treason: To do the right deed for the wrong reason."

ANSWER: ***Murder in the Cathedral***

7. This building in the Los Feliz district of Los Angeles is the last and largest of its architect's four "textile block houses", being constructed of inter-linking concrete blocks. For 10 points each:

[10] Name this house of 1923-24 used as a filming location for movies including *Blade Runner* and *House on Haunted Hill*.

ANSWER: **Ennis(-Brown) House**

[10] Ennis House is in the "Revival" style named for this Mesoamerican civilisation. Other buildings in the style of this civilisation include the Hollyhock House, Tokyo's Imperial Hotel, and Detroit's Fisher Building.

ANSWER: **Mayan**

[10] Hollyhock and Ennis Houses and the Imperial Hotel are works by this architect of "Usonian" homes such as Fallingwater.

ANSWER: Frank Lloyd **Wright**

8. This operator can be generated by performing a Legendre transformation on the Lagrangian. For 10 points each:

[10] Name this operator which can be used to determine the time dependence of a system according to the Schrödinger equation.

ANSWER: **Hamiltonian**

[10] The eigenvalues of the Hamiltonian give this quantity, whose kinetic form is equal to one half of the mass multiplied by the velocity squared.

ANSWER: **Energy**

[10] This principle states that given that the ground state of a system has the lowest energy, creating a trial wavefunction and minimizing its energy will give you a good approximation of the ground state wavefunction.

ANSWER: **Variational** principle

9. This compound was first found as an intermediate in the reaction of chlorobenzene in ammoniacal sodium amide due to the formation of two regioisomers of aniline. For 10 points each:

[10] Identify this compound with formula C_6H_4 whose highly strained sp centres make it highly reactive.

ANSWER: **Benzyne** [Do NOT accept "Benzene"]

[10] Benzyne can be coupled to other aromatic species by the addition of this metal, which is also present in a common Aluminium Hydride reducing agent.

ANSWER: **Lithium**

[10] Lithium also serves to stabilise this kind of ion, which unlike cations possess a negative charge, such as those found in enolates and by deprotonation of an alcohol.

ANSWER: **Anion**

10. This city was built below sea level by Gradlon for his daughter Dahut. For 10 points each:

[10] Name this city which is sunk when Dahut gives the key to the gate to the Devil, after the warnings of Saint Winwaloe are not heeded.

ANSWER: Ys [ee-ss] (accept Kêr-Is)

[10] After Dahut is drowned in Ys, she becomes one of these creatures whose name literally means “Sea-born”. They drown sailors and share their name with a legendary Arthurian lover of Accolon closely associated with Avalon.

ANSWER: morgan (accept Morgana, morgens or mari-morgens; prompt on mermaids)

[10] The city of Ys is a notable tale from the myth of this region of France home to a Brythonic language closely related to Cornish.

ANSWER: Brittany

11. The original score for this piece was written for string septet but has been withdrawn and replaced with a score for a string orchestra of any size. For 10 points each:

[10] Name this four movement piece which was originally titled *Wavemaker*. It gets its current name because the movement of the strings of the instruments reminded its composer of people dancing.

ANSWER: Shaker loops

[10] *Shaker Loops* was written by this American minimalist composer who also wrote *On the Transmigration of Souls*

ANSWER: John Coolidge Adams

[10] Adams' piece *A Short Ride in a Fast Machine* begins with this instrument keeping time.

ANSWER: Wood block

12. For 10 points each answer the following on people who have recently held seat 29 of the Académie française:

[10] This anti-feminist author, whom Simone de Beauvoir attacked at length in *The Second Sex*, held the seat until he shot himself in 1972. His tetralogy *Les Jeunes Filles* illustrates his reactionary views, although not his admiration for the Nazis.

ANSWER: Henri Marie Joseph Frédéric Expédite Millon de Montherlant

[10] Montherlant was succeeded by this author of the philosophical memoir *Tristes Tropiques*, which begins “I hate traveling and explorers” and describes his time studying the peoples of India and Brazil.

ANSWER: Claude Levi-Strauss

[10] Seat 29 is currently held by Amin Maalouf, the first writer from this country to be represented in the Académie française. This country was also the birthplace of the English- and Arabic-using Kahlil Gibran.

ANSWER: Lebanon [accept “Mount Lebanon Mutasarrifate” or “Lebanese Republic”]

13. This character is “praised to the skies / Such a carriage, such ease and such grace! /Such solemnity, too! One could see he was wise, The moment one looked in his face!” For 10 points each,

[10] Name this character, whose admission that “Some are Boojums” is interrupted by the Baker fainting.

ANSWER: the Bellman

[10] The Bellman leads a crew including a banker, a billiard-marker, and a beaver in pursuit of a “peculiar creature, that won't / Be caught in a commonplace way” in this Lewis Carroll poem.

ANSWER: “The Hunting of the Snark”

[10] “The Hunting of the Snark” shares many nonsense words with this earlier Carroll work, which begins “‘Twas brillig, and the slithy toves / Did gyre and gimble in the wabe.”

ANSWER: “Jabberwocky”

14. For 10 points each, answer the following on the fantastic Lychakiv Cemetery:

[10] The Lychakiv Cemetery is located in this nation's border city of Lvov which served as the capital of the Rus kingdom of Galicia–Volhynia and the site of a namesake oath by Casimir II.

ANSWER: Ukraine

[10] Perhaps the most famous individual buried in the cemetery is Ivan Franko, whose tomb and most famous poem depict a *Kamenyar*, a man in this occupation. Members of this industry were involved in the Lunigiana Revolt in Carrara, Italy.

ANSWER: **quarrymen** (accept **stone** cutters, masons, etc.)

[10] Also buried there are the Lvov Eaglets. One of them Antoni Petrykiewicz, died fighting Ukrainians at age 13. He became the youngest person to be awarded this highest Polish military decoration. The whole city of Lvov received this award after the Polish-Soviet War.

ANSWER: War Order of **Virtuti Militari** (accept Order Wojenny **Virtuti Militari**)

15. V. D. Savarkar coined this term in a 1923 pamphlet on the *Essentials of* [this ideology], and it is often seen as the official ideology of the BJP. For 10 points each:

[10] Name this term used by Savarkar to describe “Hindu-ness” centred on people whose motherland is India and whose holy land is in India. It isn’t defined by shared practice of Hinduism and thus often controversially includes Sikhs, Jains and Buddhists as Hindus.

ANSWER: **hindutva**

[10] M. S. Golwalkar led this Hindutva fascist paramilitary organisation, often considered the largest NGO in the world, whose members have included Narendra Modi and Nathuram Godse.

ANSWER: **R**ashtriya **S**wayamsevak **S**angh

[10] One area of controversy in the work of Golwalkar has been his use of this term. Dravidians have been seen as one of these pseudo-groups in India, although debate raged as to whether they were Negroid or Australoid.

ANSWER: **race**

16. Dr Bendor Grosvenor discovered this artist’s lost portrait of Bonnie Prince Charlie in Gosford House, the Earl of Wemyss’ [WEEMZ’s] house in 2014. For 10 points each:

[10] Name this Scottish portraitist, and son of a poet with the same name. This artist painted a coronation portrait of George III as well as the best-known portraits of David Hume.

ANSWER: Allan **Ramsay**

[10] Though contemporary to its foundation, Allan Ramsay was not a member of this organisation established on order of George III in 1768. Its HQ in Burlington House is the home of Michelangelo’s *Taddei Tondo*, and it was at one time headed up by Thomas Lawrence.

ANSWER: **Royal Academy** of Arts

[10] Perhaps the most famous of Ramsay’s contemporaries is this first President of the Royal Academy who painted *The Archers* and *Sarah Siddons as the Tragic Muse*.

ANSWER: Joshua **Reynolds**

17. Herodotus loved talking about big building projects. For 10 points each:

[10] This Persian monarch ordered the construction of his namesake canal, sometimes known as the Athos Canal, to prepare for an invasion of Greece in 480 BCE. He also built the Gate of All the Nations at Persepolis.

ANSWER: **Xerxes I** [or **Xerxes the Great**, prompt on “Xerxes”]

[10] It is notable that Herodotus does not mention this structure, even though for Thucydides it was already ancient. This paved trackway allowed boats to be moved over the Isthmus of Corinth.

ANSWER: The **Diolkos**

[10] This tyrant of Samos was noted by Herodotus for building three great structures – the great Heraion temple, a great mole in the harbour, and a kilometre long underground aqueduct impressively started from both ends at the same time.

ANSWER: **Polycrates**

18. Answer some questions about a type of animal in American literature, for 10 points each:

[10] Both Marianne Moore and Elizabeth Bishop wrote poems with this title; Moore’s begins “wade through black jade. / Of the crow-blue mussel-shells,” while Bishop describes a feeling of victory as “everything was rainbow, rainbow, rainbow!”

ANSWER: “The **Fish**”

[10] Give the five word sentence that comprises the entirety of chapter 19 of William Faulkner's *As I Lay Dying*, Vardaman Bundren's comment on the dead body of Addie Bundren.

ANSWER: "**My mother is a fish**" [do not accept or prompt on partial answers]

[10] This Ernest Hemingway novella tells the story of Santiago's epic battle with a giant marlin.

ANSWER: *The **Old Man and the Sea***

19. This situation can arise because the map of Euler angles to rotations is not a covering map. For 10 points each:

[10] Give this situation which can be avoided by instead using quaternions to describe rotations as they do not treat orientation as three separate related values, but rather one single value.

ANSWER: **Gimbal Lock**

[10] Gimbal lock occurs because one of these has been lost. The number of these things is the number of independent parameters needed to define a mechanical system's configuration

ANSWER: **Degrees of Freedom** [or **modes**]

[10] Rigid bodies generally have this many degrees of freedom in 3D space. This many degrees of freedom exist because a rigid body can rotate about or translate along each axis in 3D space.

ANSWER: **Six** [U/D + L/R + F/B + pitch + yaw + roll]

20. Name some actors who have played Tevye in productions of *Fiddler on the Roof*, for 10 points each:

[10] On Broadway, Tevye was played by this actor, whose other credits include originating Pseudolus in *A Funny Thing Happened on the Way to the Forum* and Max Bialystock in *The Producers*. This man was blacklisted after a raucous appearance before the House Unamerican Activities Committee.

ANSWER: Samuel Joel "Zero" **Mostel**

[10] This Israeli actor played Tevye in two West End productions, as well as in the 1971 film version, and portrayed Greek gangster Milos Columbo in the Bond film *For Your Eyes Only*.

ANSWER: Chaim **Topol**

[10] This Welsh bass-baritone is best known as a opera singer, but sang the role of Tevye in a 2015 West End revival, as well as performing the role at the 2015 BBC Proms.

ANSWER: Bryn **Terfel Jones** [accept either underlined part]