

OOT 2017
Packet 14 - Editors 8

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: Haydn

Tossups

1. **Disney Cruise Liners abandoned a controversial plan to build a cruise ship port on an uninhabited islet in this country, which home to a large number of domesticated chickens, Egg Island. Over 60,000 flamingos live on Inagua island in this country, where the Eleutheran Adventurers settled. Its capital is home to Fort Fincastle and is located on New Providence, although the largest island in this country is (*) Andros Island. Sidney Poitier grew up on Cat Island in this country. The Lucayan Archipelago is formed of this country and the Turks and Caicos Islands. For 10 points, name this West Indian country north of the Caribbean with its capital at Nassau.**

ANSWER: The Bahamas

2. **In a postscript to this novel, a corrupt billionaire is found shot to death in Marbella [mar-beya]. Pernilla [per-nill-a] identifies what are thought to be phone numbers as passages from Leviticus, found in a journal belonging to a girl who disappeared 36 years prior to the events of this novel. Two photographs reveal Harriet's fear of a young man in a blue blazer, discovered to be her abusive brother (*) Martin Vanger, who kills himself on Hedeby Island at the climax of this novel. For 10 points, name this first book of the *Millennium* series, in which journalist Mikael Blomkvist is assisted by the hacker Lisbeth Salander in solving a harrowing mystery, a thriller by Stieg Larsson.**

ANSWER: *The Girl with the Dragon Tattoo* [or Män som hatar kvinnor; accept Men Who Hate Women]

3. **The first five Huzita–Hatori axioms can be used to construct a set of numbers equivalently defined by their connection with these items. Though they are usually used together, the Mohr–Mascheroni theorem states that, in fact, only one of these things is ever needed; that one of these items is used in Napoleon's problem. The fact that the square root of pi is (*) unconstructable is equivalent to the fact that this pair of objects cannot be used to complete a certain task. Pierre Wantzel proved that these two objects cannot be used to trisect an arbitrary angle, although bisecting an angle is trivial. For 10 points, name these two devices used in the construction problems of classical Greek geometry.**

ANSWER: Compass and straightedge [or ruler and compass; accept answers in any order]

4. **Ethyl Methane Sulfonate is a compound used to induce these phenomena in the TILLING technique. The fact that the number of colonies showing evidence of these phenomena varied hugely between different agar plates showed that they occur in the absence of selective pressures in the (*) Luria-Delbruck experiment. Muller developed a way of classifying the effects of these phenomena in *Drosophila* - his namesake "morphs". When these events alter the primary structure of a protein or introduce a premature stop codon, they are respectively known as missense or nonsense. For 10 points, give these events which change the nucleotide sequence of a gene.**

ANSWER: DNA mutations

5. **One composer who was born in this country wrote a work for 13 percussionists that include parts for a lion's roar, castanets and a whip. Another work by a composer from this country includes sections titled "The Furious Craftsmanship" and "Hangmen of Solitude". Those pieces are *Ionisation* and (*) *Hammer without a Master*. Frank Zappa idolised a composer who was born in this country. While incarcerated in a concentration camp, one composer from this country wrote a birdsong inspired piece for clarinet, piano, violin and cello; the *Quartet for the End of Time*. For 10 points name this birth country of Edgard Varèse, Pierre Boulez and Olivier Messiaen.**

ANSWER: France

6. **One woman born to this family gained the nickname “the King of France’s mare” for her affair with Francis I; she was later exiled from court for her secret marriage to William Stafford. One member of this family was made earl of Wiltshire and Ormond, subsequently passing on to his son his former title of Viscount Rochford. Eustace Chapuys [shap-PWE] opposed the rise of this family, whose protégées included (*) Thomas Cranmer. Hever Castle was the seat of this family, two members of which were executed amid charges of incest in 1536. For 10 points, name this English noble family, which furnished Henry VIII with his second wife, Anne.**

ANSWER: The Boleyn family

7. **This work describes how “barred clouds bloom the soft-dying day” and “full-grown lambs loud bleat from hilly bourn,” inspired by what its author called “chaste weather—Dian skies.” Set partly in “the stubble-plains,” Helen Vendler calls this poem an allegory for artistic creation, while Harold Bloom focuses on this poem’s depiction of an “exhausted landscape.” The speaker of this poem asks the title figure, (*) “Who hath not seen thee oft amid thy store?”, calling it “Close bosom-friend of the maturing sun / Conspiring with him how to load and bless.” For 10 points, name this John Keats poem, addressed to the “Season of mists and mellow fruitfulness.”**

ANSWER: “To Autumn” [do not accept or prompt on “Ode to Autumn”]

8. **This man’s father turns himself from a pig into a person so that the punishment for killing him will be greater. This figure then sends the sons of Tuireann [toor-an] to fetch him seven fantastic objects as compensation, including the dog Failinis. This owner of the horse Enbarr gains entrance to (*) Tara after listing all his skills and defeats his grandfather Balor by knocking his poisonous eye into the back of his skull thus poisoning the Formorians, who fight against this figure’s Tuatha De Danann [tu-ah duh dan-an]. For 10 points, name this “master of the arts”, a god and father of Cu Chulainn [coo cull-en].**

ANSWER: Lugh [loo]

9. **One form of this phenomenon resulting from interactions with sound waves is named for Schäfer and Bergmann. The intensity of this phenomenon is proportional to a sinc [sink] function squared. The first zero of that Airy disk gives (*) angular resolution due to this phenomenon and can be approximated as 1.22 lambda over D, the Rayleigh criterion. The Laue form of this phenomenon is described by the equation $2d \sin \theta = n \lambda$, also known as Bragg’s law, which describes the use of this phenomenon in X Ray crystallography. For 10 points, name this phenomenon in which light bends round objects or apertures.**

ANSWER: Diffraction [accept more specific examples such as Laue diffraction]

10. **Joseph Merrill Currier constructed a house in this city for his wife which he gave the name *Gorfwyssfa*. The Stony Monday Riot took place in this city in opposition to Lord Elgin. The Relief Camp Workers’ Union organized a strike headed for this city which effectively ended in a riot in Regina. This city was originally named for John By who superintended the construction of the (*) Rideau Canal which linked this city with Richmond, before this city’s name was changed to one based on the Algonquin word for “to trade.” For 10 points, name this city which, because it is roughly halfway between Quebec City and Toronto was chosen as the capital city of Canada.**

ANSWER: Ottawa (accept Bytown before “Union”)

11. **One character in this work recounts leaving a foreign country after a child prostitute tried to pull down his trousers, while another changes her dress after a “no-necked monster” drops a hot buttered biscuit on her. One character in this play is on crutches, having broken his ankle hurdling at night, and is teased by his brother “Gooper”. (*) Skipper’s friendship with that character may not have been platonic, one reason Brick doesn’t sleep with his wife Maggie. For 10 points, name this play, at the end of which Maggie lies about being pregnant to secure an inheritance from plantation owner Big Daddy Pollitt, who is finally told he is dying of cancer, a work by Tennessee Williams.**

ANSWER: Cat on a Hot Tin Roof

12. Umberto Eco, in “No Embryos in Paradise,” discussed this work’s treatment of unborn children, including the statement that original sin is transmitted through semen. According to this text, after the end of the world, nothing will be left but inorganic matter illuminated by the fires of the Apocalypse. This text, which refers to Ulpian as (*) “the Legal Expert,” states that the greatest happiness is the beatific vision and defines law as “an ordinance of reason for the common good.” This work sets out the doctrine of double effect and proves the existence of God in its “five ways” or *quinque viae*. This is, for 10 points, what massive work of Scholastic theology by Thomas Aquinas?

ANSWER: Summa Theologiae [or Summa Theologica, accept Thomas Aquinas until “this work’s”]

13. This object was supposedly lost five times, but only once during a victory, the battle of Mons-en-Pévèle, and Geoffroi de Charny died defending it. The counts of Vexin were the traditional bearers of this object, the use of which was a sign that no quarter would be given, and one legend links it to a flame-throwing lance belonging to Charlemagne. The red color of this object, sometimes called the Montjoie, was attributed to the blood of (*) St. Denis; it was eventually replaced with the (*) white flag of Joan of Arc. For 10 points, name this banner, the royal standard of the medieval kings of France.

ANSWER: the Oriflamme [be lenient on pronunciation, accept Montjoie before mentioned]

14. During this battle the leader of one commander’s bodyguard, Captain O’Shea, ordered that commander to be taken off the field after stating “all is going to pot”. Francis Towneley commanded the Manchester Regiment, which was dispersed at this battle. “Run, you cowardly Italian!” was reportedly shouted by Lord Elcho at his own commander during this battle. In the wake of this battle, a remnant of the losing side was led to (*) Ruthven Barracks by Lord George Murray while Charles Edward Stuart fled to the Hebrides. The Duke of Cumberland led the defeat of the last Jacobite Rebellion at, for 10 points, what battle of 1746?

ANSWER: Battle of Culloden

15. With Dick Barbour and Rolf Stommelen, this man finished second in the 1979 24 Hours of le Mans, and at the age of 70, this man became the oldest person to win his class in a major motor race in the 1995 24 Hours of Daytona. In 2006, this man voiced a Hudson Hornet in the film *Cars*. That role was the last in this man’s filmography, which included a role in which this man tells Tom Cruise that “pool excellence is not about excellent pool”. This man played (*) “Fast Eddie” Felson in *The Hustler* and *The Color of Money*, for which he won the Academy Award for Best Actor. For 10 points, name this American actor who played the title character in *Cool Hand Luke*.

ANSWER: Paul Leonard Newman

16. In this technique, high symmetry environments are necessary to cancel out electric field gradients, stopping quadrupolar relaxation. Due to a $3 \cos^2 \theta - 1$ dependency, dipolar couplings in this technique can be removed by a field applied at 54.7 degrees, the (*) “magic angle”. The Karplus curve describes three bond couplings in this technique based on the dihedral angle. TMS is commonly used as a chemical shift reference in the proton and carbon 13 forms of this technique. For 10 points, name this spectroscopic technique which uses an applied magnetic field to determine the structure of a molecule.

ANSWER: Nuclear Magnetic Resonance

17. Works in this language include the story collection *Waves*, the essay collections *Blue House* and *Midnight’s Gate*, and a play that can be performed in any space, *The Other Shore*. “The dark night gave me black eyes, / But I use them to seek the light” is the entirety of “A Generation,” a poem written in this language. A move from objective to subjective realism characterized this language’s twentieth-century (*) “misty poets,” who emerged among the “sent-down youth.” A false cancer diagnosis inspired one user of this language to create the character “You,” who searches for Lingshan in *Soul Mountain*. For 10 points, this is what mother tongue of Bei Dao, Gu Cheng, and Gao Xingjian?

ANSWER: Written vernacular **Chinese** [accept “**Mandarin**,” “Modern **Chinese**,” “Standard **Chinese**,” or “**baihuawen**”]

18. **This artist depicted Adam and Eve in a symmetrical composition below an owl as part of his “Creation” series. An Indonesian shadow puppet can be seen in the background of a self-portrait by this artist inspired by Parmigianino’s *Self-Portrait in a Convex Mirror*. This artist made multiple sketches of the tiles of the (*) Alhambra Palace and later included similar patterns in such works as *Reptiles*. This artist took inspiration from Piranesi in such as works *Relativity*. Artist of *Hand with a Reflecting Sphere*, for 10 points, name this Dutch artist noted for his use of optical illusions and his depictions of impossible continuous water-flows and staircases.**

ANSWER: Maurits Cornelius **Escher**

19. **The composer of this film’s score originally intended to use solely human voices, but instead wrote an orchestral score inspired by Gustav Mahler. A sense of foreboding is created in this film by repeated shots of Cumulonimbus clouds. In the final shot of this film, a character accidentally drops a scroll from a battlement and, in this film, a sonic signature is created for Lady Kaede [ka-e-de] by the swish of her kimono. Distinct (*) colours are used for the armies of three warring brothers in this movie. With a title meaning “chaos”, Tatsuya Nakadi plays Great Lord Hidetora Ichimonji in, for 10 points, what 1985 adaptation of King Lear by Akira Kurosawa?**

ANSWER: **Ran**

20. **Marija Gimbutas’s study of tumuli led her to hypothesise that this place was in the Pontic steppe, whence androcentric warrior groups spread their culture. Colin Renfrew has argued that people left this place which was situated in Anatolia and from there spread out, along with contemporaneous advances in farming. That argument for the location of this place has been criticized because it requires people to have dispersed too (*) early, based on analysis of a number of words derived from the stem *ǵeu-g- [yohwg], which denotes yoke. The most widely accepted theory derives its name from a Russian word for tomb, *Kurgan*. For 10 points, name this conceptual place of debatable location, where the common ancestor of Slovak, Scots, Hindi and Hittite was spoken.**

ANSWER: Proto-**Indo-European Homeland** [accept Proto-**Indo-European urheimat**]

Tiebreaker

21. Magni receives one of these animals as a reward for lifting Hrungrir’s leg off of Thor. Helhest, a three-legged one of these animals, was associated with death and illness, and when a group of these animals is driven into deep water, Grani is the only one not to swim to land, then being given to Sigurd. Two of these animals who help carry the sun across the sky were fitted with bellows to keep them cool. Loki takes the shape of one of these animals to seduce another being used in construction, giving birth to an eight-legged specimen. For 10 points, name this animal, mythical examples of which include Gullfaxi and Sleipnir, the mount of Odin.

ANSWER: **horse**

Bonuses

1. Answer some questions about the various times that a Pragmatic Sanction decreed the permissibility of a crown being inherited by a daughter rather than a son. For 10 points each:

[10] The most famous Pragmatic Sanction was that of 1713, issued by Charles VI to ensure that this daughter of his could inherit the lands of the Habsburg dynasty.

ANSWER: **Maria Theresa** Walburga Amalia Christina

[10] The previous year, the parliament of this Habsburg dominion had voted for its own Sanction. The first king of this polity was Tomislav, and it ceased to be independent with a 1102 union with Hungary,

ANSWER: **Croatia** [or **Hrvatska**]

[10] A later Pragmatic Sanction came in 1830 to grant the Spanish throne to this daughter of Ferdinand VII, a succession disputed by the Carlists.

ANSWER: **Isabella II** [Prompt on “Isabel” or “Isabella”]

2. Hammond’s postulate states that these entities most closely resemble either the reactants or products of a reaction depending on which they are closer in energy to. For 10 points each:

[10] Located by searching for first order saddle points on a potential energy surface, name these entities which occur at the highest potential energy along a reaction coordinate.

ANSWER: **Transition State**

[10] This central equation of Transition State Theory relates the rate of a reaction to the Gibbs Free Energy of the reactants and the transition state in addition to factors such as Temperature.

ANSWER: **Eyring**-Polanyi equation

[10] The difference in Gibbs Free energy of reactants and the transition state is given this name. Catalysts operate by lowering this quantity, which is the minimum energy required for a reaction to proceed.

ANSWER: **Activation Energy**

3. In one work, this artist depicted Bartel Flatheads in front of a flowering aubergine plant. For 10 points each:

[10] Name this artist of the series *One Hundred Famous Views of Edo*, which was completed by his son of the same name.

ANSWER: Utagawa/Ando **Hiroshige**

[10] Probably the most notable European exponent of the woodcut was this German Renaissance artist who used the technique for multiple series of Bible illustrations. He also engraved *Knight, Death, and the Devil*.

ANSWER: Albrecht **Dürer**

[10] This English artist used woodcuts to produce the *Six Rivers around London* series and the original illustrations for *The Cambridge Book of Poetry for Children*. She also wrote the memoir *Period Piece*.

ANSWER: Gwen Mary **Raverat**

4. Birmingham was once at the heart of British politics. For 10 points each, answer the following about Brummie politicians:

[10] This man made his name before entering parliament as part of the National Education League, and then as Mayor of Birmingham, advocating “Municipal Socialism”.

ANSWER: **Joseph Chamberlain**

[10] Joseph’s elder son, Austen, made his maiden speech in parliament opposing the second Bill proposing this sort of constitutional arrangement for Ireland. John Bright mocked this proposal suggesting that Ireland’s catholic majority would make it “Rome Rule.”

ANSWER: Irish **Home Rule** (prompt on “Ireland having its own parliament” or equivalents because the bill itself was unclear)

[10] His younger son and later prime minister Neville, defeated by this man, who would go on to leave the labour party and lead the British Union of Fascists, by only 77 votes in Birmingham Ladywood in 1924.

ANSWER: Oswald **Mosley**

5. The author of this work called the orange tree “the fairest, the noblest, the most generous, it is the most surprising and abundant of all trees which the Lord God caused to grow eastward in Eden”. For 10 points each:

[10] Name this memoir by Harriet Beecher Stowe about wintering in the city of Mandarin, having bought an orange plantation to save her son Fred from alcoholism and opiate addiction after the American Civil War.

ANSWER: **Palmetto Leaves**

[10] *Palmetto Leaves* is set in this state, also the setting for *Their Eyes Were Watching God* and Marjorie Rawling’s *The Yearling*.

ANSWER: **Florida**

[10] Beecher Stowe had earned the money to pay for her house in Mandarin by writing this bestseller, which prompted a whole genre of response novels such as *The Sword and the Distaff* and *White Acre vs. Black Acre*.

ANSWER: Uncle Tom's Cabin; or Life Among the Lowly [accept either underlined part]

6. Answer the following on the menstrual cycle. For 10 points each:

[10] This process typically occurs on day 14 of the human menstrual cycle. It is hypothesised that humans find sex pleasurable because this process is visibly advertised, unlike other apes such as bonobos

ANSWER: Ovulation

[10] Approximately 24 hours before ovulation, there is a surge in this pituitary hormone. This hormone stimulates the production of oestrogen by theca cells in the ovaries and testosterone in the Leydig cells of the testes

ANSWER: Luteinising Hormone [or lutropin or lutrophin]

[10] In men, luteinising hormone stimulates the production of testosterone by these cells.

ANSWER: Leydig cells

7. Along with František Bartoš [Fran-ti-shek Bar-tosh], this person became a prolific collector of his native country's folk music. For 10 points each:

[10] Name this Moravian composer of the *Glagolitic Mass* and the operas *Jenůfa* and *The Cunning Little Vixen*.

ANSWER: Leoš Janáček

[10] This Janáček work was inspired by and named for a novella in turn named for Beethoven's Opus 47.

Despite its name, this piece is, in fact, Janáček's first string quartet.

ANSWER: Kreutzer Sonata

[10] Based on a folk song from which it derives its name, Janáček originally intended this piece to be performed as the overture to *Jenůfa*, but he reused it as a concert overture.

ANSWER: Žárlivost [or Jealousy]

8. For 10 points each, answer the following on the philosophy of tickling:

[10] Jacques Lacan characterized *jouissance* as tickling and linked it to this philosopher's distinction between *titilatio* or "pleasure" and *hilaritas* or "well-being" in part III of this author's *Ethics*.

ANSWER: Baruch Spinoza [accept Benedito de Espinoza, accept "Benedict" for Baruch]

[10] Derrida uses the example of Pierrot tickling his wife Columbine to death in a discussion of this Platonic concept, which titles a major study on the "representation of reality" by Erich Auerbach.

ANSWER: mimesis

[10] This thinker argued that "when people are tickled, they quickly burst into laughter, and this is because the motion quickly penetrates" the body, in his *Parts of Animals*.

ANSWER: Aristotle

9. The earliest of these machines dates to around 1300 B.C. in Egypt and Henry Maudslay developed the first practical one of these machines for screw-cutting. For 10 points each:

[10] Name these machines used in wood and metal-working that rotate a work-piece around an axis so as to create symmetry in the piece. In woodworking, this is the main tool in spindle-turning.

ANSWER: lathe

[10] The by-product of shavings from lathing, known as "sawdust" when applied to wood, is known by what mass noun when applied generally to any material?

ANSWER: swarf

[10] When lathing, it would be ill-advised to use this type of chisel whose distinct curved blade and cross section is more suited to stationary workpieces.

ANSWER: gouge

10. Herman Rosenblat's *Angel at the Fence* was a fictitious memoir of his time at Schlieben, an outpost of this location. For 10 points each:

[10] Name this location, whose inmates between 1937 and 1945 included Elie Wiesel. Wiesel described his liberation from this place by American soldiers in *Night*.

ANSWER: Buchenwald concentration camp [or Konzentrationslager Buchenwald]

[10] Buchenwald is one of the concentration camps where the young Budapest-born György “Gyuri” Köves is imprisoned in this 1975 semi-autobiographical novel.

ANSWER: **Fatelessness** [accept **Fateless** or **Sorstalanság**]

[10] Imre Kertész, the author of *Fatelessness*, criticized as “kitsch” Steven Spielberg’s adaptation of this Thomas Keneally novel about a German businessman who saved more than a thousand Polish Jews.

ANSWER: **Schindler’s Ark** or **Schindler’s List**

11. R.C.Zaehner has argued that a form of heresy named for this deity became the dominant religious position in the Sassanid empire and as almost as widespread in the Achaemenid empire. For 10 points each:

[10] Name this Iranian deity whose name literally means “time” and who was seen as the progenitor of the twin spirits of good and evil.

ANSWER: **Zurvan**

[10] The philosophical centrality of Zurvan was problematic because it undermined the independence of Ahriman and this rival deity of Zoroastrians whose name can literally be translated as “the Lord Wisdom.”

ANSWER: **Ahura Mazda**

[10] Geo Widengren has argued that the aesthetic form of Zurvanism bears resemblance to the portrayal of Prajapati in this Indic text which contains the Gayatri Mantra.

ANSWER: **Rigveda** (prompt on Vedas)

12. This man wrote of a gathering “on behalf / Of love according to the gospel / Of the radio-phonograph,” in which “Jack likes Jill who worships George / Who has the hots for Jack.” For 10 points each:

[10] Name this poet of “The Love Feast,” whose prose was collected in *The Dyer’s Hand*, and who played a recording of Verdi’s *Falstaff* rather than lecture on *The Merry Wives of Windsor*.

ANSWER: Wystan Hugh **Auden**

[10] Auden wrote the plays *The Dog Beneath the Skin*, *The Ascent of F6*, and *On the Frontier* with this man, better known for the novel *A Single Man* and for *The Berlin Stories*, a pair of novellas that inspired the musical *Cabaret*.

ANSWER: Christopher William Bradshaw **Isherwood**

[10] Auden and Isherwood were mocked as “two despicable poets, Parsnip and Pimpernel” in *Put Out More Flags*, a novel by this author of *A Handful of Dust*.

ANSWER: Arthur Evelyn St. John **Waugh**

13. For 10 points, each answer the following on the scene MT38a:

[10] MT38a depicts mythological paddlers and was carved into a bone in the tomb of Jasaw Chaan K’awil, an Ajaw of Tikal, a city whose ruins are found on the Yucatan peninsula, near the border with Mexico, in this country.

ANSWER: **Guatemala**

[10] The Paddlers, who sit at the front and back of the boat in MT38a, were patron deities of this ritual activity. The stingray spine in the nose of the back paddler was probably used in this ritual, usually done to the lips or penis.

ANSWER: **bloodletting** [prompt on **piercing**]

[10] At the centre of the craft in MT38a is a god of this substance. The Hero Twins are sometimes seen as aspects and sons of the god of this substance, represented in the Aztec pantheon by Centeotl [sen-tay-otl].

ANSWER: **maize** [accept **corn**]

14. Answer some questions about the long history of the harmonious and loving relationship between Russia and Georgia, for 10 points each:

[10] Georgia was annexed to the Russian Empire under this tsar, who went to war with the French Republic over Malta, whose namesake knights had made him their protector.

ANSWER: **Paul I** [accept **Pavel** for Paul, accept **Pavel Petrovich**]

[10] The 1922 Georgian Affair saw Stalin condemned for “Great Russia chauvinism” in this document, which recommended removing him as General Secretary of the Communist Party” and replacing him with Leon Trotsky.

ANSWER: Vladimir I. **Lenin’s Testament** [accept “**Last Testament**” or “**Lenin’s Will**,” and other equivalents; do not accept “Lenin’s Political Testament”]

[10] McDonald’s Peace Theory was disproved in 2008 when Russia invaded Georgia to assist these two self-proclaimed breakaway republics. Name either.

ANSWER: **South Ossetia** or **Abkhazia**

15. EuroSION, the European initiative for sustainable coastal management, has outlined 5 major strategies for coastal management. For 10 points each:

[10] One strategy is managed retreat where defences are removed and some areas are allowed to be flooded. The pioneering example is Abbot’s Hall Farm which borders this sea which separates Britain from Scandinavia

ANSWER: **North Sea**

[10] The most common strategy is holding the line through seawalls or breakwaters which can be armoured with rubble known by this name. The minimum size of these rocks can be determined by Hudson’s equation.

ANSWER: **riprap** or **shotrock**

[10] In addition to hard engineering, soft techniques can be used such as stabilisation of this habitat using plants whose species depends on this habitat’s gradient and level of halinity. Marram Grass is useful either way.

ANSWER: **sand dune** (prompt on beaches)

16. This complex was established in 1869 by Emperor Meiji, with the Chinreisha building, dedicated to all those who died in World War Two, of whatever nationality, added in 1965. For 10 points each,

[10] Name this Shinto temple in Tokyo, controversial for commemorating some 1,068 war criminals.

ANSWER: Imperial Shrine of **Yasukuni** [or “**Yasukuni** Jinja”]

[10] Often accused of war crimes himself, this former emperor of Japan boycotted Yasukuni from 1978 until his death, over the decision to enshrine Class-A war criminals like Yosuke Matsuoka.

ANSWER: **Hirohito** [accept **Shōwa**]

[10] Controversy surrounds Japanese textbooks’ treatment of issues like Yasukuni and this biological warfare unit, led by Shiro Ishii, which between 1935 and 1945, carried out human experimentation and other war crimes from its base at Pingfang in Harbin.

ANSWER: Unit **731** [or “**Nana-san-ichi** Butai,” accept “**Epidemic Prevention and Water Purification Department** of the Kwantung Army” or “Kantōgun **Bōeki Kyūsuibu Honbu**”]

17. The first of these numbers over the second is proportional to the spectral frequency cubed. For 10 points each:

[10] Name these numbers, which describe the rates of stimulated emission and spontaneous emission of electrons from excited states.

ANSWER: **Einstein** A and B **coefficients** [prompt on **A** and **B** coefficients]

[10] The Einstein coefficients can also be used to describe these devices, which use stimulated emission to produce light at a single frequency.

ANSWER: **Laser** [accept [**Light amplification by stimulated emission by radiation**]

[10] Since the A coefficient describes both stimulated emission and absorption, this phenomenon, in which the excited state is more occupied than the ground state must be in place for amplification to occur.

ANSWER: **Population Inversion**

18. *Shikasta*, *The Sirian Experiments*, and *The Sentimental Agents in the Volyen Empire* were among the novels of this author’s *Canopus in Argos: Archives* science fiction sequence. For 10 points each:

[10] Name this novelist who was inspired by Sufi mysticism to write “inner space fiction” like *Briefing for a Descent into Hell* and *Memoirs of a Survivor*.

ANSWER: Doris May **Lessing** [accept Doris May **Tayler**]

[10] The best known of Lessing's "inner space fiction" is this novel, made up of the five color-coded journals of Rhodesian writer Anna Wulf, interspersed with a narrative entitled *Free Women*.

ANSWER: *The Golden Notebook*

[10] Lessing's "Children of Violence" series follows the story of this woman, who titles the first book. *The Four-Gated City*, the last volume of the series, moves this woman to a dystopian London, where she witnesses World War Three.

ANSWER: Martha Quest [accept either underlined part]

19. These phenomena arise through the sudden displacement of water rather than due to gravitational pulls and winds. For 10 points each:

[10] Name these phenomena which may arise following underwater volcanic eruptions or earthquakes.

ANSWER: Tsunami [or seismic sea waves]

[10] If the trough of a tsunami encounters the coast before a peak, this phenomenon will occur where the shoreline rapidly recedes.

ANSWER: Drawback

[10] Over deep ocean, tsunamis have a very low amplitude, but as they reach shallower waters, it dramatically increases due to this effect. This effect is explained by a decrease in transport speed requiring an increased energy density to maintain overall energy flux.

ANSWER: Wave shoaling

20. Answer some questions about the homoeroticism and homosociability of Donatello's art, for 10 points each:

[10] Name this statue, probably the most obviously homoerotic of Donatello's works, in which the feather of Goliath's helmet reaches all the way to the subject's groin.

ANSWER: David [accept Mercury or Mercurio]

[10] According to Benvenuto Cellini, Donatello's statue of this figure for the Orsanmichele made Florence's women *and* men swoon. A relief on the base of the niche shows this saint on horseback, his usual pose in art.

ANSWER: George [or Giorgio, accept "Saint George and the Dragon"]

[10] Donatello went on a tour to the countryside with this close friend and collaborator, a student of Ghiberti best known for designing the Palazzo Medici Ricciardi.

ANSWER: Michelozzo di Bartolommeo Michelozzi [accept either underlined part]