

Editors: Taylor Harvey, Alex Shaw, Jonathen Settle, Peter Torres

Writers: Taylor Harvey, Alex Shaw, Jonathen Settle, Peter Torres, Katia Diamond, Yonathan Stone, Zach Foster, Tracy Mirkin, Leo Law, Bradley Kirksey, and Chandler West

Toss Ups:

1. The author of this work notes that one of the ideas he describes was given to him by a native of the island of Formosa named Psalmanazar. Earlier in this work, the author describes groups of people who leave their country to fight for the Pretender of Spain or sell themselves to the Barbadoes. This work, in which the author proudly presents a method of (*) reducing the number of papists in his country, notes that the central figures “will serve equally in a fricasse or ragout (rah-GOO),” whether “stewed, roasted, baked, or boiled.” For 10 points, name this satirical essay by Jonathan Swift proposing that children be eaten.

ANSWER: “A Modest Proposal” <Alex/Ed. AS>

2. A philosopher from this nation interpreted Comte’s logical positivism as a racial science, determining people from this nation were the so-called “cosmic race.” During one conflict, persecuted people in this nation founded the LNDLR, which attempted to use United States ambassador Dwight Morrow as an intermediary. Under fanatical atheist Plutarco (*) Calles, Catholics in this country were persecuted in the incredibly violent Cristero War. During the Ten Tragic Days, people in this country split into two groups either siding with General Bernardo Reyes or President Francisco Madero. This country is home to both the PRI and PAN political parties. For 10 points, identify this country whose states include Oaxaca and Hidalgo.

ANSWER: Mexico [accept United Mexican States; accept *Estados Unidos* Mexicanos] <Zach/Ed. TH>

3. This letter denotes a topology of the real numbers defined as all Euclidean open subsets of \mathbb{R} unioned with the difference of \mathbb{R} and the set one over n , where n is a positive natural number. This letter and alpha refer to x-rays emitted when an electron transitions from the second shell to the innermost shell. In SI units, one over four pi times the permittivity of (*) free space equals a constant represented by this letter. In ecology, this letter denotes the quantity that is the horizontal asymptote of the logistic growth model, which is the size at which a population will stabilize. For 10 points, name this letter which denotes the proportionality constant in Coulomb’s law, the carrying capacity, and the equilibrium constant.

ANSWER: k [accept K-topology; accept K-alpha; accept k_e; accept K_{eq}] <Leo/Ed. JS>

4. A poem in this language notes “my only star is dead, and my constellated lute / bears the Black Sun of Melancholy.” That poem, which begins “I am the Dark One, - the widower, - The Unconsoled” is called “El Desdichado.” A different poet who wrote in this language assigned the color black to A and red to I in his poem “Vowels” and described haulers who yelping redskins had taken as targets in (*) “The Drunken Boat.” Yet another poet who wrote in this language included poems like “Invitation to the Voyage” and “The Albatross” in his collection *The Flowers of Evil*, which kicked off the symbolist movement in this language. For 10 points, name this language used by the poets Gerard de Nerval, Arthur Rimbaud, and Charles Baudelaire.

ANSWER: French [accept français] <Taylor/Ed. AS>

5. A king of Norway and Northumbria with this first name had his English lands taken over by Edred after his death, and was nicknamed “Bloodaxe.” A king of this name implemented the Sound Dues, a tax on ships sailing between Sealand and Scania, after defeating the Hanseatic league in 1427. A ruler of this name was the first male leader of the Kalmar Union, succeeding his mother (*) Margaret. That Danish King was the seventh of his name, though he is usually named for the fact that he ruled Pomerania after being deposed. An earlier leader of this name founded the first Norse settlement in Greenland. For 10 points, give this first name of a Viking known as “the Red,” the father of Leif Erikson.

ANSWER: Eric [or Erik] <Taylor/Ed. PT>

6. The Bantu language exhibits a “mirror” system of these linguistic entities wherein the languages of the northwestern Bantu people are opposite to those of other regions. The term “terracing” is used to refer to the natural tendency for variation in some types of these linguistic entities. Mandarin Chinese makes use of (*) 4 of these linguistic entities, Thai has 5, and Vietnamese and Cantonese each have 6. The “contour” types of these entities can be classified as “rising,” “level,” or “falling.” The English language does not make use of—for 10 points—what linguistic features which can change meaning by modulating pitch?

Answer: tones [accept intonations even though it isn't quite the same thing] <Katia/Ed.AS>

7. Famous contemporary players of this instrument include Sabine Meyer and Julian Bliss. Two movements separated by a cadenza for this instrument are featured in a Latin jazz-tinged concerto for it by Aaron Copland. As a show of gratitude to Werner Reinhart, Stravinsky composed *Three Pieces for this instrument*, which today remains one of the most famous unaccompanied pieces for this instrument. A concerto for this instrument was written for (*) Anton Stadler by Mozart. A glissando on this instrument famously opens Gershwin's *Rhapsody in Blue*. The ‘bass’ version of this instrument typically has a curved metal neck with a wooden body. For 10 points, name this single-reeded B-flat woodwind instrument.

ANSWER: clarinet <Alex/Ed. TH>

8. Butterfly McQueen was controversially banned from attending the premier of this film, and a young Martin Luther King Jr. sang in front of the theater at the release of this film. NBC paid \$5 million for a one-off TV airing of this film in 1976. Carlton Moses called this film “A rear attack on the Negro people” and Walter Francis White accused a certain woman of being “An Uncle Tom” for accepting an Oscar for her involvement in this film. This film controversially burned props from *King Kong* and *The Garden of Allah* for a major scene, using all (*) seven of Hollywood's color cameras, delaying filming on *The Wizard of Oz*. The Orpheum Theater cancelled screenings of this film after the Charlottesville rallies. For 10 points, name this film that portrayed the racist Scarlett O'Hara, based off Margaret Mitchell's book of the same name.

ANSWER: Gone with the Wind <Brad/Ed. PT>

9. In a play by this man based on his short story “Oriflamme,” a 15-year-old corpse is discovered by a switchboard operator named Madelain. An “invisible” emperor arrives to give a speech in one of his plays, much to the delight of the protagonists. In a one act play by this author, “the Pupil” is stabbed by “The Professor,” after which the maid brings in the next pupil to restart the cycle. An old (*) couple commits suicide by defenestrating themselves one of his plays, and in another of his plays the Fire Chief solves the great doorbell debate. The recurring character Beringer was created by--for 10 points--what absurdist playwright of *The Chairs*, *The Bald Soprano* and *Rhinoceros*?

ANSWER: Eugene Ionesco <Peter/Ed. AS>

10. Karas and Hillenbrand discovered one technique used to perform this process when they mixed alanine with tryptophan. The presence of an aromatic matrix in that technique causes molecules with large molecular weights to undergo this process instead of decomposition. The adiabatic form of this process transitions between two ground states and can change molecular geometry. The energy of the (*) HOMO is equal to this process' energy, which is also equal to hc times Rydberg's constant divided by n squared. Water has a non-zero conductivity since two water molecules undergo this process to yield H_3O^+ and OH^- . For 10 points, name this process in which neutral atoms or molecules acquire charge by gaining or losing electrons.

ANSWER: ionization [accept MALDI; accept matrix-assisted laser desorption/ionization; accept self-ionization] <Jonathon/Ed. JS>

11. Maria Martinez is best known for her work in this medium, in which she pioneered its “Black on Black” style. Camille Le Tallec made works in this medium in the Vincennes and Sevres styles. The Moche culture of Peru produced detailed types of these works in the shapes of human heads. Shoji Hamada work mostly in this medium, and the Jomon period of Japanese history was renowned for its works of art in this medium. The Etruscans produced types of this artwork called *Bucchero*. The (*) Andokides Painter may have invented the red-figure style used on Greek examples of these works called amphoras. For 10 points, name these vessels that can be created by using clay with a wheel and firing it in a kiln.

ANSWER: **pottery** [accept **ceramics**; accept **vases** or **vase** painting; accept **porcelain**] <Taylor/Ed. TH>

12. This physicist names an equation that says the partial time derivative of f plus the Poisson bracket of f and H equals the collision integral of f . Loschmidt published an objection to this man’s proof that the volume integral of the distribution function times the log of the distribution function always decreases with time. This developer of a namesake transport equation and the H-theorem also showed that entropy is proportional to the (*) logarithm of the number of microstates, which is engraved on his tombstone. This physicist is the alphabetically former namesake of a distribution that predicts the most probable speed of a gas particle to be the square root of $2 RT$ over M . The gas constant divided by Avogadro’s constant gives this physicist’s constant. For 10 points, name this physicist who conames a distribution with Maxwell.

ANSWER: Ludwig **Boltzmann** <Jonathen/Ed. JS>

13. Yushkep Kamui is an Ainu goddess associated with this animal, who is also known as the Long-fingered woman. In Navajo myth a man and woman named for this animal introduced the loom to mankind. In a different myth system, one of these animals captures a leopard, a python, and some hornets and trades with the sky god (*) Nyame in exchange for all the world’s stories. That animal of this type also dropped a pot full of the wisdom of the world while climbing a tree after his son Ntikuma told him the right way to carry the pot. In Greek myth, a boastful woman is turned into this animal after winning a weaving contest against Athena. For 10 points, name this type of animal represented by Anansi and Arachne.

ANSWER: **spider** [accept **arachnid** before “Arachne”] <Taylor/Ed. TH>

14. This class of molecules is dissolved in glacial acetic acid, stained with Sudan dyes, and then heated in a technique used to diagnose steatorrhea. ACC is a key enzyme for the biosynthesis of this class of molecules because it catalyzes the production of malonyl-CoA. Members of this class of molecules undergo oxidation at the (*) beta carbon which generates acetyl-CoA for use in the citric acid cycle. Molecules with four fused rings make up one class of these molecules that includes cholesterol. Other members of this class of molecules are esters derived from glycerol and three fatty acids. Steroids are an example of—for 10 points—what molecules stored in adipose tissue that include waxes and fats.?

ANSWER: **lipids** [accept **fatty acid**s before mentioned, prompt after; accept **steroid**s before mentioned, prompt after; accept **triglyceride**s or **TG**s; accept **triacylglyceride**s or **triacylglycerol**s or **TAG**s; prompt on **fats**] <Jonathen/Ed. JS>

15. This character sends a letter stating that she has moved to Coalmont and is in desperate need of money, which leads to her receiving \$4,000 from the narrator. At one point, this character attends the Beardsley school, and she appears in a production of *The Enchanted Huntress*, which shares its name with a hotel in the novel in which she appears. This character declines an offer to appear in a (*) pornographic film from a playwright named Clare Quilty. This character, whose real name is Dolores Haze, is the subject of infatuation of a man who calls her the “light of my life, fire of my loins.” For 10 points, name this girl lusted after by Humbert Humbert, the title “nymphet” from a novel by Vladimir Nabokov.

ANSWER: **Lolita** [accept **Dolores Haze** (either name) before mention, prompt afterward] <Alex/Ed. AS>

16. This person reportedly responded to a fire in a stable by asking if any people, but not horses, were hurt, demonstrating the importance of people over property. He theorized that political disorder could be caused by a failure to call things by their proper names, and he emphasized five key relationships including ruler to subject and parent to child. This man, who developed the doctrine of (*) rectification of names, compiled the Five Classics as well as the *Spring and Autumn Annals*. A disciple of this man is sometimes referred to as the “second Sage.” Mencius studied under this philosopher, who taught concepts such as *li* and *ren*. For 10 points, name this ancient Chinese philosopher who wrote the *Analects*.

ANSWER: Confucius [or Kong Fuzi or Kong Zi or Zhongni or Kong Qiu] <Alex/Ed. AS>

17. One player on this team was stabbed 11 times at a club in 2000; that player would earn his beloved nickname after dropping 42 points at the Staples Center the following season. In game 3 of the 2002 Eastern Conference Finals, this team came back from a 26 points deficit to beat the Nets. In 2017, this team traded away the number (*) 1 pick in the NBA draft for number 3, which they then used to draft Jayson Tatum. This team is currently coached by Brad Stevens. For 10 points, name this NBA team that recently retired Paul Pierce’s jersey, who play their home games at the TD Garden in Massachusetts.

ANSWER: Boston Celtics [accept either underlined portion] <Leo/Ed. TH>

18. A site near this structure known as Coria is where its namesake “Hoard” was found, which contained discarded spearheads and cuirasses. The last of the Vindolanda tablets that were discovered by Keith Liddell recount this structure’s erection. Support troops known as the Vangiones garrisoned at this structure were supposedly encouraged to worship a minor deity known as (*) Disciplina. Mile castles built with this structure were often manned by regular infantry known as Limitanei, while castle headquarters were at a fort of Petrianis. This structure also known as Vallum Aelium was superseded by a 63 kilometer structure built by Antoninus Pius. For 10 points, name this structure built by the title emperor in England meant to keep Picts out of Roman Britain.

ANSWER: Hadrian’s Wall <Peter/Ed. PT>

19. A 30 foot sculpture of one of these animals by John Kindness is found at Donegall Quay in Belfast. Salvador Dali’s *Dream Caused by the Flight of a Bee* depicts a tiger being eaten by one of these animals. These animals often appear in the still lives of Willem Ormea. A Pieter Bruegel the Elder engraving shows several small examples of these animals emerging from the mouth of a large one while a man cuts into the large one with a huge knife. A mobile by Alexander Calder pairs the (*) tail of one of these animals with a lobster trap. The left side of a Masaccio fresco in the Brancacci Chapel shows a man in blue retrieving a coin from the mouth of one of these animals. The painting *The Tribute Money* contains—for 10 points—what aquatic animals often depicted in East Asian art in koi ponds?

Answer: fish [accept specific types of fish] <Chandler/Ed. TH>

20. The founding story of Evesham, England involves a keeper of these animals seeing a vision of the Virgin Mary and leading a bishop back to the spot of that vision. A god in the form of one of these animals battled the demon Hiranyaksha for 1000 years. The third avatar of Vishnu, Varaha, was one of these animals. After being exorcised by Jesus, the group of demons called (*) Legion enter the bodies of some of these animals and run into the sea. The Prodigal Son tended these animals after running out of his father’s money. In the Sermon on the Mount, Jesus says not to cast your pearls before—for 10 points—what mammal that is not to be eaten according to Jewish and Islamic dietary law because of its unclean nature?

ANSWER: pigs [accept boars or swine] <Taylor/Ed. TH>

Bonuses:

1. Gustave Le Bon is a social psychologist best known for his studies of these entities, which he believed were animated by the simplified idea of a great individual thinker, as presented by a leader. For 10 points each:

[10] Name these entities whose “extraordinary popular delusions and madness” were written about by Charles Mackay.

ANSWER: **crowds** [accept *The Crowd*]

[10] Gustave Le Bon argued that the crowd did not represent the sum of its individual parts but instead seemed to be animated by this thing. Carl Jung posited that humans draw from this shared ancestral memory, which is distinct from individual experience.

ANSWER: the **collective unconscious**

[10] Theories of the collective unconscious are prominent in this school of psychology founded by Sigmund Freud. This school focuses on unconscious desires from the id that are mediated by the ego.

ANSWER: **psychoanalysis** <Taylor/Ed. AS>

2. These people were not able to own property under a certain regime and were forced to work 10 hour days while the motto about them was "To keep you is no benefit. To destroy you is no loss." For 10 points each:

[10] Name these subset of people who typically came from urban areas of Cambodia and were persecuted by the Khmer Rouge in the late 1970s.

ANSWER: **New People**

[10] Many New People were killed in Security Prison 21 in Tuol Sleng, which was one of these institutions of education before the Khmer Rouge.

ANSWER: **Schools** [accept **High School**]

[10] Many prisoners of S-21 were taken to the these killing fields outside of Phnom Penh, forming massive gravesites. A Buddhist Stupa here today displays many of the actual human skulls of those killed at this site in a tower made of acrylic glass.

ANSWER: **Choeung Ek** <Peter/Ed. PT>

3. In a play by this author, members of the Pludek family repeatedly use a series of nonsensical proverbs like “lentils are lentils and oats are oats” and “Not even a hag would go in the woods without a clamp!." For 10 points each:

[10] Name this playwright who often satirized bureaucracy in his plays like *The Memorandum* and *The Garden Party*.

ANSWER: Vaclav **Havel**

[10] Havel wrote in this European language also used by Bohumil Hrabal and Milan Kundera.

ANSWER: **Czech**

[10] The plot of Havel’s *The Memorandum* revolves around the creation of a constructed one of these things called Ptydepe for beucractic use. Other fictional examples of these things include Quenya and Lapine.

ANSWER: (constructed or fictional) **languages** <Taylor/Ed. AS>

4. In late 2017 Wu Xiangyang was sentenced to five and a half years in jail for selling software used to circumvent this protocol. For 10 points each:

[10] Name this system, a component of the wider reaching Golden Shield Project. This system is often circumvented by using VPNs in the country where it is in place.

ANSWER: The **Great Firewall** of China [accept answers indicating a **firewall** that blocks websites in **China**]

[10] The number of websites and services blocked by The Great Firewall has increased under this current president of China. In late January 2018 this man was unanimously elected as the deputy to the 13th national People's Congress.

ANSWER: **Xi Jinping**

[10] This company upset Chinese civil rights advocates by wiping over 600 apps used to circumvent the Great Firewall. In January of 2018, this company provided all of its Chinese users’ data to the state owned Guizhou-Cloud Big Data organization.

ANSWER: **Apple Inc.** <Taylor/Ed. TH>

5. Answer some questions about the largest cities in the world...in 2000 B.C. For 10 points each:

[10] The largest city at that time was this Sumerian city with a population of eighty thousand. This city is not to be confused with the similarly named second biggest city in the world at the time, Ur.

ANSWER: **Uruk**

[10] The city of Memphis was the fourth largest city at the time, with about thirty thousand residents. Memphis was found on the northern portion of this river, which the Nubians controlled the southern portion of at the time.

ANSWER: **Nile** River

[10] This city in the Indus Valley Civilization had the third highest population with around forty thousand. This city notably contained early public baths and was the site of a namesake Dancing Girl artifact.

ANSWER: **Mohenjo-daro** <Taylor/Ed. PT>

6. Give some terms from Hindu metaphysics, for 10 points each:

[10] This sanskrit word is often translated as "divine spirit," and Hindus believe that this thing is both the source of and the substance of all existence. It is not to be confused with a similarly named Hindu creator god.

ANSWER: **brahman** [do not accept "Brahma"]

[10] When manifested as the individual self of a living being, brahman is referred to by this word, which is often rendered as "soul" in English. The ultimate spiritual goal of Hinduism is to recognize that there is no difference between this thing and brahman.

ANSWER: **atman**

[10] This concept common among several eastern religions is the moral consequences of every act done by an individual in life. One's path through the life and death cycle of samsara is determined by this thing.

ANSWER: **karma** <Taylor/Ed. TH>

7. His namesake points in an orbit are where small objects can remain stable due to the gravitational force of two other objects. For 10 points each:

[10] Identify this physicist who names an equation used to solve optimization problems along with Euler. The Hamiltonian is the Legendre transform of his namesake functional, which is the difference between kinetic energy and potential energy.

ANSWER: Joseph-Louis **Lagrange** [accept **Lagrangian**]

[10] Equation of motion in classical mechanics can be derived by minimizing this quantity according to Hamilton's principle. This quantity is defined as the integral of the Lagrangian.

ANSWER: **action**

[10] Action is the integral of the Lagrangian over this quantity. Final velocity equals initial velocity plus acceleration multiplied by this quantity whose SI unit is the second.

ANSWER: **time** <Leo/Ed. JS>

8. The B form of this molecule contains about 10.4 base pairs per turn of its double helix structure. For 10 points each:

[10] Identify this molecule which contains phosphodiester bonds linking pentoses in its backbone. Nitrogenous bases in this molecule include adenine, guanine, cytosine, and thymine, but not uracil.

ANSWER: **DeoxyriboNucleic Acid**

[10] When strained, DNA undergoes this phenomenon where DNA is over- or underwound, which can be described by the linking number. The solenoidal form of this phenomenon is easier to compact than its plectonemic form.

ANSWER: DNA **supercoiling** [accept word forms]

[10] The double helix structure of DNA was proposed by Watson and Crick after analyzing the images of the molecule made by Rosalind Franklin using this technique. This technique measures the scattering angle and energy of high energy photons in shot into a material.

ANSWER: **x-ray diffraction** [or **x-ray crystallography**] <Taylor/Ed. JS>

9. This artist was inspired by the theosophy movement in his spiritual depictions of wildly colored animals like his *Deer in the Forest* series. For 10 points each:

[10] Name this German expressionist painter killed in World War I, who painted works like *Blue Horses* and *Fate of the Animals*.

ANSWER: Franz **Marc**

[10] Marc was considered a part of this loose movement of German painters including August Macke. Its name comes from a painting of a horseman by its founder Wassily Kandinsky.

ANSWER: Der **Blaue Reiter** [or The **Blue Rider**]

[10] Unlike Marc, Most of Kandinsky's paintings did not attempt to depict an objective image, meaning they had this general quality. Jackson Pollock practiced this kind of "expressionism."

ANSWER: **abstract** [accept **abstraction**] <Taylor/Ed. TH>

10. This concept's originator used a thought experiment involving a beetle in a box to explain why these entities are incoherent. For 10 points each:

[10] Name these systems of communication that are understood by only a single person.

ANSWER: **private language** [prompt on partial answer]

[10] The beetle in a box thought experiment is presented in this philosopher's *Philosophical Investigations*. This thinker put forth his "picture theory" of language in *Tractatus Logico Philosophicus*.

ANSWER: Ludvig Josef Johann **Wittgenstein**

[10] While he wasn't a member, Wittgenstien often associated with a "circle" of philosophers, including Moritz Schlick and Rudolf Carnap, based in this European city.

ANSWER: **Vienna** [accept **Vienna Circle**] <Alex/Ed. AS>

11. Answer some question about pieces of music inspired by classical mythology, for 10 points each:

[10] This English composer drew on the beginning of *The Aeneid* for his opera *Dido and Aeneas*. He drew on his own country's myths for his other operas *King Arthur* and *The Faerie Queene*.

ANSWER: Henry **Purcell**

[10] This Belgian composer used a myth from *The Golden Ass* for his symphonic poem *Psyche and Eros*. He also used themes of Catholic mysticism in his *Symphony in D Minor*.

ANSWER: Cesar **Franck**

[10] This composer drew on the Prometheus myth for his ballet *Creatures of Prometheus*, though he is much better known for his nine symphonies, the fifth of which contains a "fate knocking at the door" motif.

ANSWER: Ludwig van **Beethoven** <Taylor/Ed. TH>

12. Answer some questions about films from the Italian Neorealist movement, for 10 points each:

[10] This film by Vittorio de Sica focuses on an impoverished family in post World War II Rome. In it, the title object is stolen while a father is putting up film posters.

ANSWER: **Bicycle Thieves** [accept *The Bicycle Thief*, accept *Ladri di biciclette*]

[10] This man's early film *Nights of Cabiria* is considered a neorealist film, though he employed a more baroque and impressionistic style in films like *8 ½* and *La Dolce Vita*.

ANSWER: Federico **Fellini**

[10] Another neorealist was this director of *Rome, Open City* and *Stromboli*, the latter of which starred this man's lover Ingrid Bergman.

ANSWER: Roberto **Rossellini** <Taylor/Ed. TH>

13. During a strike involving this crop, the agricultural company Schenley sprayed protesters with agricultural poisons before being forced to sign a contract with the NFWA. For 10 point each:

[10] Name this crop which was left to rot by striking farm workers and longshoremen in a Delano, California protest. The strike against picking this crop was led in part by Cesar Chavez, and saw the creation of United Farmer Workers.

ANSWER: **grapes** [accept Delano **grape** strike]

[10] The Delano grape strike took place in this decade, which also saw protests over the US involvement in the Vietnam War, and the Stonewall Riot.

ANSWER: **1960s** [accept the **sixties**]

[10] After being granted union rights, the workers involved in the Delano strike chose representation with the NFWA rather than this other union which represents a broad range of blue collar workers, but originally focused on truck drivers.

ANSWER: International Brotherhood of **Teamsters** [accept **IBT**] <Taylor/Ed. PT>

14. Answer the following about *In Search of Lost Time*, also known as *Remembrance of Things Past*, for 10 points each:

[10] It was written by this Frenchman who also wrote several essays in opposition to the title literary critic in *Contra Saint-Beuve*.

ANSWER: Marcel **Proust**

[10] One of the most widely discussed scenes from the work involves a involuntary memory being triggered by a madeleine cake dipped in this beverage.

ANSWER: **tea**

[10] The first volume of *In Search of Lost Time*, titled *Swann's Way*, opens with the narrator noting that "for a long time [he] used to" perform this action early.

ANSWER: going to **bed** [or going to **sleep**; accept word forms] <Alex>

15. This type of structure was built to maximize the *enfilade*, or flanking fire, while some of them were built by Michelangelo in the 16th century to protect Florence. For 10 points each:

[10] Name this type of fortification also called "the Italian outline" due to its use on the peninsula. Normally, this type of fortress is either in a hexagonal or pentagonal shape.

ANSWER: **Star** Fort [or **Bastion** Fort]

[10] This military engineer under Louis XIV created the star fortress at Lille. He also went on to create the Landau system after the War of the Grand Alliance

ANSWER: Sébastien Le Prestre de **Vauban**

[10] The Order of Saint John built two star forts on this Mediterranean archipelago south of Sicily. This archipelago's flag features the George's Cross for their service and it is centred on Valletta.

ANSWER: **Malta** <Peter/Ed. PT>

16. This poem features many amusing *kennings*, or compound words used to replace a regular noun like "whale-road" for sea and "wave-floater" for ship. For 10 points each:

[10] Identify this poem which has been translated by J.R.R. Tolkien, who wrote "The Monster and the Critics" about it.

ANSWER: **Beowulf**

[10] The first violent episode in Beowulf features Beowulf defeating this monster by tearing off his arm. John Gardner wrote a novel retelling the poem from this creature's perspective.

ANSWER: **Grendel**

[10] *Beowulf* was composed in this language. Other works in this extinct language include the Exeter Book and Waldere.

ANSWER: **Old English** [prompt on just **English**] <Taylor/Ed. AS>

17. Electrowinning is used to extract metals after they have been dissolved via this process. For 10 points each:

[10] Name this hydrometallurgical process where the desired metallic compound is selectively dissolved from an ore or concentrate. The MacArthur-Forrest process uses cyanide to extract gold via this process.

ANSWER: **leaching**

[10] Bauxite can be purified into this element via the Bayer process. Hall and Heroult simultaneously pioneered the use of cryolite in an electrolytic process to isolate this element from this element's oxide.

ANSWER: **aluminum** [accept **aluminium**]

[10] The Downs cell is used to isolate this element from the molten form of this element's chloride, which is commonly known as table salt.

ANSWER: **sodium** <Jonathen/Ed. JS>

18. This region's geologic activity lead to a dry climate cut off from westerly winds, which evolutionary biologists cite as a reason for the development of bipedalism in this region. For 10 points:

[10] Name this geographic region of East Africa where the first humans evolved. This region's large lakes include Lake Malawi and Lake Victoria.

ANSWER: East African **Great Rift** Valley

[10] The important archaeological site of Olduvai Gorge is in this East African country, whose largest city is Dar es Salaam. This country features Lake Tanganyika in its west and controls the island of Zanzibar.

ANSWER: **Tanzania**

[10] Another important Rift Valley archaeological site is Kabwe in Zambia, where the first example of this species was discovered. This early human species is alternatively named for a German city or a former African colony, and it is the evolutionary link between *Homo erectus* and Neanderthals.

ANSWER: *Homo* **heidelbergensis** [or *Homo* **Rhodesiensis**] <Taylor/Ed. TH>

19. For 10 points each, answer some questions about the concept of the "superfluous man" in Russian literature:

[10] The term for cynical, existentially bored characters was popularized by this man's *Diary of a Superfluous Man*. This man also wrote about serfdom in his collection *A Sportsman's Sketches*.

ANSWER: Ivan **Turgenev**

[10] The superfluous man can be thought of as an extension of the hero named for this English poet of *Childe Harold's Pilgrimage* and *Don Juan*.

ANSWER: Lord **Byron** [Accept George **Gordon**]

[10] The character type itself may originate with this character, who titles a verse novel in which he shoots Lensky in a duel after dancing with his fiancée Olga.

ANSWER: **Eugene Onegin** [Accept either; accept **Yevgeny** Onegin] <Yonathan/Ed. AS>

20. Machines that simulate other machines are an important tool in computer science. Answer some questions about them, for 10 points each:

[10] In order for a computer to run this popular object oriented language, created by Sun Microsystems, it must have its namesake virtual machine, which simulates programs written in it.

ANSWER: **Java**

[10] The universal one of these models of computation can simulate any of these models. The languages accepted by read-only versions of these models are equivalent to regular languages.

ANSWER: **Turing machines**

[10] Software like Docker creates containers, which all share this part of the operating system, unlike virtual machines. User-space processes communicate with this part of the operating system via system calls.

Answer: **kernels** <Katia>