

## Spring TJ Academic Scholastic Housewrite (STASH)

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## Packet 9

### Tossups

1. **This character ridicules a writer whom he nicknames "W.C. Tuttle " during this stay at Shorthills. A group of sugarcane workers kill this character's dog Tarzan. This character quits his job at the local newspaper, *The Sentinel*, after his son Anand wins a scholarship to study in Britain. This character's father drowns after he loses a calf, fulfilling a prophecy that was made after he was born with (\*) six fingers.** While working as a sign painter, he is pressured into marrying Shama and grows to resent his in-laws, the Tulsi family. For 10 points, name this Trinidadian journalist whose struggle to find independence through owning a house is the subject of a V.S Naipaul novel.

ANSWER: Mohun Biswas [accept either underlined answer; accept Mr. Biswas] <Chen, Literature - World>

2. **A battle in this war was nicknamed the "false Nile" after one commander imitated Horatio Nelson's tactics. Alfred Thayer Mahan's *The Influence of Sea Power upon History* was inspired by Theodore Roosevelt's book about this war. The *Confiance* was captured by Thomas Macdonough at this war's Battle of Plattsburgh. Americans accused of helping enemy ships navigate during this war were nicknamed (\*) "blue lights".** A note reading "we have met the enemy and they are ours" was sent by Oliver Hazard Perry after he won the Battle of Lake Erie in this war. For 10 points, name this war in which American naval victories were unable to prevent the burning of Washington, D.C.

ANSWER: War of 1812 <Malouf, History - American>

3. **A paper by Goldwasser and Kilian produces certificates for entities with this property using elliptic curves. Counterexamples to this property are defined by Baillie and Wagstaff using Lucas sequences and are called "witnesses" or "strong liars" in one context. A paper by Agrawal, Kayal and Saxena titled for entities with "[this property] in P" introduced the (\*) AKS algorithm for testing it.** One probabilistic algorithm for testing for this property produces false positives on Carmichael numbers. That algorithm uses Fermat's little theorem and is called the Miller-Rabin test. One inefficient method of finding numbers with this property is to use the sieve of Eratosthenes. For 10 points, name this property of an integer that has no factors aside from one and itself.

ANSWER: primality [accept prime numbers; accept PRIMES] <Paul, Science - Math>

4. In a painting from this movement, a white-aproned man stands behind a counter speaking to a patron of McSorley's Bar. This movement was founded by an artist who painted a horse-drawn carriage trudging through an empty, snowy street and also wrote *The Art Spirit*. A group of nude boys prepare to dive into the water in a painting from this movement titled *Forty-two Kids*. A shirtless man falls backward into the (\*) crowd after being punched in one of many paintings of boxing matches that an artist from this movement made, including *Stag at Sharkey's*. For 10 points, name this 20th-century art movement whose members like George Bellows depicted urban life in New York.

ANSWER: Ashcan School [accept the Eight] <Calin, Fine Arts - Visual>

5. A 1914 U.S. ban on importing this product was repealed after the implementation of NAFTA, partly out of fear of retaliatory tariffs on American corn. This crop may have been first used as a substitute for *toro* in the 1960s by a Japanese chef living in Los Angeles. In 2019, a large-scale California recall of this product was implemented due to a possible (\*) *Listeria* infection. The 'Hass' cultivar is the most common variety of this crop which is sometimes called an "alligator pear." With rice and fish, this crop is a key ingredient in a California roll. Millennials are often stereotyped as eating toast topped with, for 10 points, what nutritious, fatty green fruits which are used to make guacamole?

ANSWER: avocados [accept avocado pear or ahuacatl; accept alligator pear before "alligator"; do not accept or prompt on just "pear"] <Kanigicherla, Modern World - Misc. Academic>

6. The proper activities of these people were described in the book *On the Marriage of Philology and Mercury* by Martianus Capella. In medieval times, these people were commonly divided into four "nations" representing Picardy, Normandy, England, and France and were -- like clergy -- legally protected from assaults by citizens. Historically, many of these people have resided in the Latin Quarter of Paris. In 1098, a guild of these people founded an (\*) institution in Bologna, the first of its kind in Europe. At places such as the Sorbonne, these people familiarized themselves with the trivium and quadrivium, which made up the seven liberal arts. For 10 points, name these people who attended institutions like Oxford and Cambridge to obtain a degree.

ANSWER: medieval university students [prompt on scholars] <Kaashyap, History - European>

7. A chess game distracts two lords from a battle between some of these animals and King Arthur's squires in the Welsh poem *The Dream of Rhonabwy*. Cu Chulainn realizes he is mortally wounded when one of these animals appears on his shoulder. In her role as chooser of the slain in battle, the Irish war goddess Morrigan takes this animal's form. These animals lend their name to the giant Welsh king (\*) Bran the Blessed, as well as the main trickster god of the Pacific Northwest peoples, who is often malevolent unlike the Coyote of the Pueblo. Two of these animals whose names mean "Thought" and "Memory" survey Midgard as they perch on Odin's shoulders. Huginn and Muninn are, for 10 points, what sort of bird often conflated with the crow?

ANSWER: ravens [accept corvids or Corvidae; accept crows before mention; prompt on birds] <Kaashyap, Belief - Mythology>

8. A DigiPot for scaling analog signals can be built from a number of these devices arranged into a repeating "ladder" formation. The star-mesh transform, which forms a network of these devices with one less node, is a generalization of the wye-delta transform. The fluctuation-dissipation theorem predicts that these devices produce Johnson-Nyquist noise. Three of these devices whose strengths are (\*) known, and one of them whose strength is not known, form a Wheatstone bridge. Like capacitors, the strength of these devices can be found by looking at three colored bands. The ANSI standard symbol used to represent them is a zig-zag line. For 10 points, name these circuit elements that impede current flow and have strength measured in Ohms.

ANSWER: resistors [prompt on potentiometer] <Calin, Science - Physics>

9. The philosopher Peregrinus Proteus converted from Christianity to this school of thought, which Demonax of Cyprus attempted to revive. One member of this school married Hipparchia of Maroneia, the sister of his student, Metrocles. Members of this non-Epicurean school, including the ascetic Crates of Thebes, practiced a manner of speech known as *parrhesia*. (\*) Antisthenes founded this school, whose most famous member of this school presented a plucked chicken to Plato's Academy, proclaiming "Behold a man!" to challenge Plato's definition of a man as a featherless biped, in addition to living in a wine jar and urinating in public. For ten points, name this classical school of philosophy whose "dog-like" members included Diogenes of Sinope.

ANSWER: Cynicism [accept Cynics] <Kaashyap, Thought - Philosophy>

10. Melchior accepts Dora and Nora Chance as his own during one of these events in Angela Carter's *Wise Children*. Kitty discusses her infertility with Laura before one of these events in *The Hours* by Michael Cunningham. While preparing for one of these events, a character hears the recurring sound of "leaden circles dissolved in the air" and notices the ugly Mackintosh coat worn by her daughter's tutor, (\*) Doris Kilman. Former love interests Peter Walsh and Sally Seton attend one of these events where a woman hears about the suicide of the shell-shocked Septimus Smith. For 10 points, give this type of event hosted by Mrs. Dalloway.

ANSWER: a party [accept birthday party or dinner party; prompt on dinner or gathering] <Zhang, Literature - British>

11. *Composer and genre required.* The first movement of one of these works begins with two french horns playing the melody "C, [pause] D, E, low A, [pause] B, C." Leopold Godowsky wrote a passacaglia based on the dark, *pianissimo* B-minor melody played by the cellos and basses in 3/4 time to begin another of these works. The ninth of these works was given a grandiose name to distinguish it from the sixth one in the same key of C major, and the fourth was given the name (\*) "Tragic." The finale of the eighth one of these works may have become the Entr'acte from the composer's incidental music to *Rosamunde*. For 10 points, name these orchestral works by the composer of "Erlkönig," which include a "Great" ninth and an "Unfinished" eighth.

ANSWER: symphonies by Franz Schubert [prompt on partial answer] <Prasad, Fine Arts - Auditory>

12. So-called "browsers" such as guard crabs in genus *Trapezia* feed off the mucus of these organisms without harming them. Crustose rhodophytes create these organisms' namesake cement. "Excavators" like parrotfish use focused biting of these organisms to display territoriality. Those crabs can defend these organisms from predators such as *Acanthaster planci*. Environmental conditions can cause these organisms to (\*) expel photosynthetic symbionts called Zooxanthellae. Focused biters can leave scars on these organisms' calcium carbonate skeletons. Aboard the HMS *Beagle*, Charles Darwin described these organisms in ecosystems such as atolls. For 10 points, name these cnidarians affected by bleaching that form namesake reefs.

ANSWER: coral polyps [accept coral reef] <Calin, Science - Biology>

13. A man swears on his sword Murgleis to kill this character after being offered an apple that represents the "crown of every earthly king." At the end of that work in which this character appears, a pagan queen is renamed Juliana after being baptized and the maiden Alde dies of grief after hearing that this character perished alongside the Twelve Peers. Baligant and his men support the (\*) Saracen army of King Marsila, who ambushes this man with the help of the traitor Ganelon. This wielder of Durendal summons help by blowing his oliphant so hard that his temples burst during a battle at Roncesvalles. For 10 points, name this nephew of Charlemagne who appears in a medieval French epic title for his "Song."

ANSWER: Roland [accept Orlando or Rolando] <Kevin Zhang, Literature - European>

14. The story of a eunuch from this present-day country being baptized by Philip the Evangelist after asking Philip to explain the book of Isaiah is recounted in Acts. This country's church was founded by Frumentius. According to this country's national epic, a holy object was taken from Israel to this country while a forgery was left in the Temple at Jerusalem. That national epic, the (\*) *Kebra Nagast*, describes this country's rulers as descended from King Solomon and the Queen of Sheba. Its Tewahedo Orthodox Church, which conducts rituals in the Ge'ez ("guh-uz") language, claims to possess the Ark of the Covenant. This country is the former site of Aksum. For 10 points, name this country where a translation of scripture into Amharic was sponsored by Haile Selassie.  
ANSWER: Ethiopia [accept Aksum before mention] <Prasad, Beliefs - Religion>

15. This country's efforts to join ASEAN have been hampered by its recent history of anti-Chinese riots, such as those that devastated warehouses in its city of Mount Hagen. Featuring on its flag and national emblem is this country's national bird, the Raggiana bird-of-paradise. Many of this country's Fore people formerly suffered from the neurodegenerative disease (\*) kuru, which likely spread when villagers ate a man's brain. This country borders a province formerly known as Irian Jaya to its west. Though most of this country's residents speak English, they more commonly use a pidgin language called Tok Pisin, which contains many Melanesian words. For 10 points, name this country that shares its namesake island with Indonesia with its capital at Port Moresby ("MORZ-bee").  
ANSWER: Papua New Guinea [or Papua Niugini or Independent State of Papua New Guinea; do not accept or prompt on "New Guinea"] <Lian, Modern World - Geo>

16. A type of folding-book manuscript common in this country was used to record its Three Seals Code. After a kingdom in this country was completely ransacked by a neighboring realm's Taungoo Dynasty, it was forced to cede the port of Tenasserim. This country's city of Thonburi temporarily became its capital in the 18th century during the reign of a commander of Teochew Chinese ancestry named (\*) Taksin the Great; Taksin rebuilt its strength after the collapse of the Ayutthaya Kingdom. Abraham Lincoln received an elephant from this country's king Mongkut. This country's King Bhumibol died in 2016, passing the throne to Rama X. The Chakri Dynasty rules, for 10 points, what country that is currently controlled by a military junta in Bangkok?  
ANSWER: Kingdom of Thailand [or Ratcha-anachak Thai; accept Siam or Sayam] <Nathan, History - World>

17. A 2001 Columbia release of the "complete sessions" from one of this man's albums includes the new track "Splashdown" as well as the track "Mademoiselle Mabry" first recorded for *Filles de Kilimanjaro*. Another album by this man was created for a Bill Clayton documentary about a boxer and consists of the tracks "Right Off" and "Yesternow." That album, *Jack Johnson*, like this artist's preceding Teo Macero-produced album *In a* (\*) *Silent Way*, features Chick Corea and John McLaughlin. This man's Second Great Quintet disbanded before his "electric" period, exemplified by an album beginning with a "Pharaoh's Dance" titled *Bitches Brew*. For 10 points, name this trumpeter whose First Great Quintet recorded *Kind of Blue*.  
ANSWER: Miles Dewey Davis III <Kanigicherla, Fine Arts - Other>

18. A rule used when removing these species is to set a certain device to 20, 40 and 60 degrees Celsius. These species are found along with raffinate and feed on a ternary phase diagram in the Hunter-Nash method. One method for their removal uses a pear-shaped apparatus with a stopcock and is efficient when the partition coefficient is high. A common example of these substances in green chemistry is (\*) supercritical carbon dioxide. Rotavaps remove these substances by boiling. They can be classified as either protic or aprotic. Liquid-liquid extraction is based on the immiscibility of two of these substances. Molality is defined as moles of solute divided by kilograms of this substance. For 10 points, water is a "universal" type of what substance?  
ANSWER: solvents <Calin, Science - Chemistry>

19. A play by an author with this surname ends with a woman saying that “I really believe things are about to change for the better” after seeing her veteran son Kenneth writing a suicide note. That play by an author with this surname is a sequel to Lorraine Hansberry’s *A Raisin in the Sun*. Another author with this surname wrote about the poet Presley, who follows a group of farmers as they fight against the expansion of the Southwestern Railroad company, in a novel from the (\*) *Epic of Wheat* trilogy. That author with this surname wrote a novel whose title dentist is left handcuffed to a corpse in Death Valley after killing his wife Trina. For 10 points, give this last name of the author of *The Octopus* and *McTeague*.

ANSWER: Norris [accept Bruce Norris or Frank Norris] <Xu, Literature - American>

20. Book XVII of Strabo’s *Geographica* concerns the lack of this commodity in North Africa, and the value of this good was often improved in a fumarium. The Phoenicians traded the high-quality “Byblite” variety of this commodity, the primary subject of the second book of Vergil’s *Georgics*. The Carthaginian writer Mago described the recipe for one type of this commodity called *passum*. This commodity was widely produced on Mount Vesuvius. Pliny the Elder’s *Naturalis Historia* asserts that “there is (\*) truth in” this substance. Like olive oil, this good was commonly stored in a large jar with two vertical handles called an amphora. For 10 points, name this drink associated with viticulture and often consumed at symposia.

ANSWER: wine [accept vinum] <Kaashyap, History - Ancient>

## Bonuses

1. An adaptation of a short story by Edogawa Ranpo into this medium describes the aftermath of a character's purchase of the title "human chair". For 10 points each:

[10] Name this medium. This medium, which can be found in the magazine *Shonen Jump*, has a distinctive characteristic of a black and white print.

ANSWER: **manga** [accept **manhua**, prompt on comic book or graphic novel]

[10] This manga artist wrote a manga short inspired by Edogawa Ranpo's "The Human Chair", but is more famous for a story where an earthquake leads to an appearance of a fault filled with human-shaped holes.

ANSWER: **Junji Ito**

[10] Junji Ito created manga such as "The Human Chair" and "The Enigma of Amigara Fault" in this genre. Other authors who primarily write in this genre include Stephen King.

ANSWER: **horror** [accept equivalents] <Chen, Misc. Academic>

2. This structure was built by the brothers Amphion and Zethus, as related in a digression from the first book of the *Argonautica*. For 10 points each:

[10] Identify this structure. In another story, an ally of Adrastus named Capaneus attempts to surmount this structure using a ladder, but Zeus kills him with a thunderbolt by doing so.

ANSWER: the **walls** of **Thebes** [or **Theban walls**; prompt on walls]

[10] Amphion used one of these objects to charm some stones into moving magically, helping Zethus build the walls. The first of these objects was made by Hermes, who traded it to Apollo in exchange for a herd of cattle.

ANSWER: a **lyre** [or **lyra**; prompt on musical instruments]

[10] Amphion and Zethus's walls enclosed a citadel named for this Phoenician prince, who was the legendary founder of Thebes and husband of Harmonia.

ANSWER: **Cadmus** [or **Kadmos**] <Kaashyap, Belief - Mythology>

3. A girl in this story notes that "everything tastes of licorice" after sipping a glass of Anis del Toro. For 10 points each:

[10] Name this short story in which the American tries to convince Jig to get an abortion while waiting at a train station.

ANSWER: "**Hills like White Elephants**"

[10] This American author wrote "Hills Like White Elephants". His time as an ambulance driver in World War I formed the basis for his novel *A Farewell to Arms*.

ANSWER: Ernest **Hemingway**

[10] The story "Hills Like White Elephants" exemplifies this minimalistic writing technique used by Hemingway, in which the key themes of a story are not mentioned, but are conveyed to the reader implicitly.

ANSWER: **iceberg** theory [accept theory of omission] <Xu, Literature - American>

4. This event is commemorated by the Day of the African Child, and a photograph of this event was taken by Sam Nzima. For ten points each:

[10] Name this 1976 protest in a Johannesburg township that began after schools began to teach in Afrikaans.

ANSWER: **Soweto** Uprising

[10] This bishop of Lesotho also expressed his resentment over the decree that led to the Soweto Uprising by calling Afrikaans "the language of the oppressor".

ANSWER: Desmond Mpilo **Tutu**

[10] This politician was prime minister of South Africa during the Soweto riots. He was later forced to resign as president after being found to have illegally used government funds to promote apartheid in the Muldergate scandal.

ANSWER: John **Vorster** [or Balthazar Johannes **Vorster**] <Lee, History - World>

5. Mob relaxases nick DNA at oriT sites to initiate this process by the Tra operon. For 10 points each:

[10] Name this function of type IV secretory systems that can occur if the fertility factor is integrated into the donor's genome to make Hfr strains. It occurs through a pilus.

ANSWER: bacterial **conjugation** [prompt on horizontal gene transfer]

[10] The genome of E. coli was originally mapped using one of these devices to disrupt the cell pairs during conjugation in an experiment by Jacob and Wollman. One of these devices was used to agitate bacteriophages in the Hershey–Chase experiment.

ANSWER: kitchen **blender** [accept **Waring blender**]

[10] The fertility factor used in bacterial conjugation is one of these short, circular segments of DNA.

ANSWER: **plasmid** <Calin, Science - Biology>

6. A swan suspended in mid-flight appears behind this woman in the painting *Leda Atomica* while another portrait of her depicts her face composed as a matrix of spheres. For 10 points each:

[10] Name this woman who poses as Mary Magdalene and stares up at Christ in *Corpus Hypercubus*.

ANSWER: **Gala** Dali [prompt on Dali or Dali's wife; do not accept Galatea]

[10] Salvador Dali's *Dream Caused by the Flight of a Bee* depicts two of these creatures pouncing on a sleeping Gala. Another of these animals is surprised by a flash of lightning during a tropical storm in a painting by Henri Rousseau.

ANSWER: **tiger**

[10] A floating Gala appears with a hole in her torso in a painting set by the coast of Port Lligat that depicts her as this holy figure. This woman watches two infants play with a goldfinch in a Raphael painting.

ANSWER: **Madonna** [or the Virgin **Mary**; or the **Virgin**] <Li, Fine Arts - Visual>

7. For 10 points each, name these countries which have been accused of falsifying GDP:

[10] Satellite data tracking lights at night has been used to accuse this country of GDP falsification. This country operates a special industrial park near its southern border that opened in part thanks to the Sunshine Policy.

ANSWER: **North Korea** [or **DPRK**, or **Democratic People's Republic of Korea**, or **Chosŏn** Minjujuŭi Inmin Konghwaguk; do not accept or prompt on "Korea"]

[10] In 2019, this country's Audit Chamber estimated that GDP growth the previous year had been 1.5%, significantly lower than official statistics. This country's currency is the ruble.

ANSWER: **Russia** [or **Russian Federation** or **Rossiyskaya Federatsiya**]

[10] For many years, this country's INDEC statistics ministry blatantly falsified GDP and especially inflation data under directive from the Justicialist government; however, its current Justicialist government has not done so.

ANSWER: **Argentina** [or **Argentine Republic**, or República **Argentina**] <Prasad, CE>

8. One figure with this name argued that Adam was a worse sinner than Eve, since she was tempted by the Devil, but he was tempted by a mere mortal. For ten points each:

[10] Give the last name of this pair of sisters from South Carolina. They were forced to leave their Quaker community in Pennsylvania because they made public speeches against slavery.

ANSWER: **Grimké** [or the **Grimké** sisters; accept Sarah Moore **Grimké**; accept Angelina Emily **Grimké**]

[10] This other abolitionist attended the World Anti-Slavery Convention in 1840 and wrote the Declaration of Sentiments in 1848.

ANSWER: Elizabeth Cady **Stanton**

[10] Stanton presented her Declaration of Sentiments at the Seneca Falls Convention, a gathering to support this cause. It finally succeeded after the passage of the 19th Amendment.

ANSWER: **women's suffrage** [accept descriptive answers mentioning the right to **vote** for **women**; prompt on partial answer] <Kaashyap, History - American>

9. The modern word for algebra comes from the title of one of this man's books *Al-jabr*, which describes such operations as completing the square. For 10 points each:

[10] Name this Abbasid mathematician who wrote *The Compendious Book on Calculation by Completion and Balancing* and edited Ptolemy's *Geography*.

ANSWER: Muḥammad ibn Mūsā **al-Khwārizmī** [or **Algoritmi**]

[10] Al-Khwarizmi's book *Algorithmo de Numero Indorum* introduced this decimal positional numeral system which replaced the Roman one in Europe.

ANSWER: Hindu-**Arabic** numeral system [or Indo-**Arabic** numeral system]

[10] This man introduced the concept of zero in the Hindu-Arabic numeral system in his "Correctly Established Doctrine" which also introduced a formula for finding the area of a cyclic quadrilateral.

ANSWER: **Brahmagupta** <Calin, Science - History>

10. New Left historian E.P. Thompson analyzed the Luddite movement in a book on the "making of" this group in England. For 10 points each:

[10] Name this group whose "condition" in England was reported on in an 1845 book that preceded its author's tract *The Communist Manifesto*.

ANSWER: the **working class** [accept **proletariat** or the **labouring class**]

[10] This man published *The Condition of the Working Class in England* after researching there, though he is probably better known for collaborating with Karl Marx on the *Communist Manifesto*.

ANSWER: Friedrich **Engels** [accept Frederick **Engels**]

[10] Marx and Engels claimed in *The German Ideology* that self-proclaimed German "true socialists" often attempt to "eulogise" this term. Socialism described by this term is most commonly contrasted with Utopian socialism.

ANSWER: **science** [accept "German **science**" or **scientific**] <Lee, Thought - Philosophy>

11. The main character of this work is arrested for holding hands with the painter Reza, whom she later divorces. For 10 points each:

[10] Name this autobiographical work by Marjane Satrapi that describes her upbringing during the Iranian Revolution.

ANSWER: **Persepolis**

[10] In *Persepolis*, Satrapi wants to be this type of person until the execution of her uncle Anoosh changes her mind. This type of person shares a series of fables with a crowd of people while waiting to board a ship in Orphalese.

ANSWER: **prophet**

[10] *Persepolis* is this type of work. Another example of this type of work is Art Spiegelman's book *Maus*, which depicts dialogue using speech bubbles.

ANSWER: **graphic novel** [accept answers mentioning **comics**] <Chen, Literature - World>

12. These two factions in Bologna and Modena fought in the War of the Oaken Bucket, and one of them split into White and Black branches. For 10 points each:

[10] Name these two factions whose conflict dominated politics in 13th century Italy. One of them supported the Pope during the Investiture Controversy and the other had sided with the Holy Roman Emperor.

ANSWER: **Guelphs** and **Ghibellines** [accept in either order]

[10] The Guelphs grew out of the Lombard League, formed to resist this Holy Roman Emperor's influence in Italy. This emperor drowned in the Saleph River while leading the Third Crusade.

ANSWER: **Frederick I** [or **Frederick Barbarossa**; or **Friedrich I**; or **Friedrich Barbarossa**; prompt on **Frederick**; prompt on **Freidrich**]

[10] After the Guelphs defeated the Ghibellines in the 1280s, they broke into "Black" and "White" factions based on whether they supported this pope or not. He declared "outside the church, there is no salvation" in *Unam sanctam*.



ANSWER: **Boniface VIII** [or **Bonifacius VIII**, or Benedetto **Caetani**; prompt on Boniface or Bonifacius]  
<Kaashyap, History - European>

13. This architect designed the Bilbao Airport's main terminal. For 10 points each:

[10] Name this Spanish architect known for his curving structures. His more famous structures include the harp-like Puente del Alamillo in Seville and the Milwaukee Art Museum.

ANSWER: Santiago **Calatrava**

[10] Calatrava designed the Turning Torso, a tower that resembles a twisted spinal column, in this country's city of Malmö. Nicodemus Tessin the Younger designed many Baroque buildings in this country's capital of Stockholm.

ANSWER: **Sweden**

[10] Calatrava has also designed many of these buildings. His early work included remodeling one of them named Stadelhofen in Zurich as well as a French one at Lyon St-Exupéry Airport.

ANSWER: **railway station** (accept **train station** or equivalents; prompt on partial answer) <Kreider, Fine Arts - Other>

14. In octahedral complexes with this many  $d$  electrons, the CFSE equals negative three fifths times the splitting parameter. For 10 points each:

[10] Identify this number of  $d$  electrons in complexes that were discovered to split their degenerate e-sub-g orbitals in the Jahn–Teller effect. This number is one less than the number of electrons in a set of completely filled  $d$  orbitals.

ANSWER: **nine** [or  $d^9$  (“d-nine”)]

[10] The ground term for  $d^1$  (“d-one”) complexes is the same as  $d^9$  complexes, obviating the need for one of these diagrams. The axes of these doubly-eponymous diagrams used in crystal field theory are scaled by the Racah  $B$  parameter.

ANSWER: **Tanabe–Sugano** diagrams

[10] The Tanabe–Sugano diagram for this geometry is not needed because it is similar to the one for octahedral. This molecular geometry is possessed by compounds with four substituents bonded to a central atom.

ANSWER: **tetrahedral** <Calin, Science - Chemistry>

15. Answer some questions about literary representations of science. For 10 points each:

[10] An unnamed biographer chronicles Isaac Newton's mental breakdown in this British author's novella *The Newton Letter*. The art historian Max Morden reflects on his life in this author's novel *The Sea*.

ANSWER: John **Banville**

[10] Niels Bohr and Werner Heisenberg debate the implications of nuclear power in a play by Michael Frayn that is titled for this capital city of Denmark.

ANSWER: **Copenhagen**

[10] In this play, Thomasina Coverly lectures her tutor on thermodynamics while drawing a diagram of a steam engine. This play follows Hannah Jarvis and the biologist Valentine as they uncover the history of Sidley Park.

ANSWER: **Arcadia** <Li, Literature - British>

16. The resolving power in a microscope is given by lambda over two times the numerical aperture as defined by this scientist. For 10 points each:

[10] Name this scientist who worked in optics, creating his namesake condenser used for microscopic illumination.

ANSWER: Ernst Karl **Abbe** [accept **Abbe** limit; accept **Abbe** condenser]

[10] Abbe defined the numerical aperture as the  $n$  times this function of  $\theta$ . Abbe names a condition that applies to “small-angle” paraxial rays, which are approximated by truncating this function's Taylor series to one term.

ANSWER: **sine** [accept Abbe **sine** condition]

[10] The Abbe sine condition was formulated in the context of microscopes which use these devices. The Abbe condenser consists of two convex examples of these optical devices that focus light through refraction.

ANSWER: **lenses** <Calin, Science - Physics>

17. Early Chinese examples of these objects were called “ant-nosed”. For ten points each:

[10] Name this form of metal currency produced at a mint.

ANSWER: coins [accept coinage]

[10] The invention of coinage in Europe is credited to this Anatolian kingdom. Gold coins named for this kingdom’s King Croesus were produced in its capital of Sardis.

ANSWER: Lydia

[10] The Umayyad caliph Abd al-Malik first issued this silver coin, based on Sassanid weight standards. It shares its name with the current currency of Morocco.

ANSWER: dirham <Kaashyap, History - Misc.>

18. Some groups of these people became known as *hanare*, or “separated,” because they did not abandon their syncretic practices such as using imagery of bodhisattvas. For 10 points each:

[10] Name these people who, if discovered, were frequently tortured using the method of *ana-tsurushi*, in which victims were tied by their feet and lowered into a pit filled with excrement.

ANSWER: kakure kirishitan [accept hidden Christians or mukashi kirishitan; prompt on Christians or Japanese Christians by saying “we want a specific term from the time period”]

[10] Built in this city after the end of *sakoku*, the Ōura Church was established to honor the 26 Martyrs of Japan, and was damaged by atomic bombing on August 9th, 1945, soon after Hiroshima. After the Ōura Church opened, many *kakure kirishitan* began openly rejoining the Catholic Church.

ANSWER: Nagasaki

[10] The Christian faith was first introduced to Japan when people such as this Jesuit missionary landed in Kagoshima. He earlier conducted missions in Goa, India, and is considered to be the patron saint of missionaries.

ANSWER: Francis Xavier <Kanigicherla, Belief - Religion>

19. They're not clefs, but a table in J.S. Bach's *Notebook for Wilhelm Friedemann* provides examples of these things, such as the “doppelt-cadence” and the “falling accent.” For 10 points each:

[10] Give the term for these devices meant to add interest to a musical work. In the Baroque period, performers were typically expected to improvise various types of these things, which included turns and mordents.

ANSWER: ornaments [or ornamentation or embellishments; anti-prompt on but DO NOT REVEAL trills]

[10] This ornament was the first entry in Bach’s table. This rapid alternation between two notes frequently ended Baroque cadences and often begins on the upper auxiliary note. In modern notation, it is denoted by the letters “tr.”

ANSWER: trills

[10] This Italian advised musicians to only apply trills “as one uses salt in eating.” This composer wrote the G-minor violin sonata featuring many virtuosic double-stops nicknamed the “Devil’s Trill.”

ANSWER: Giuseppe Tartini <Kreider, Fine Arts - Auditory>

20. This author paid homage to Franz Kafka with a short story about a boy who suspects that his father has transformed into a cockroach. For 10 points each:

[10] Name this author. The young boy Jozef narrates his father’s descent into madness in a series of short stories from this author’s collection *The Street of Crocodiles*.

ANSWER: Bruno Schulz

[10] Bruno Schulz was from this Eastern European country. A group of writers from this country were nicknamed The Generation of Columbuses following the 1939 Nazi invasion of this country.

ANSWER: Poland [or Polska]

[10] This other Polish-born author wrote a story set in Frampol where the baker Gimpel is told by the Spirit of Evil to urinate in his town’s bread supply.

ANSWER: Isaac Bashevis Singer [or Icek Hersz Zynger]

<Chen, Literature - European>