

2014 Brookwood Invitational Scholars Bowl

Round 8

Written and edited by Mostafa Bhuiyan, Alex Liu, Joey Reifenberger, Adam Silverman, and Brady Weiler

1. **This artist used extremely shallow carvings, or schiacciato, for the first time on a relief made of St. George slaying a dragon. Louis Vauxcelles coined the name “Fauvism” in a review decrying this artist “among the beasts!” This artist sculpted a man wearing a laurel hat, with his left hand on his hip, stepping on a winged helmet. Habakkuk was the model for his (\*) *Zuccone*, and Erasmo de Narni is the subject of his equestrian statue *Gattemelata*. Goliath is trampled underfoot by the title girlish youth in his best known sculpture. For 10 points, name this Renaissance sculptor who made a freestanding bronze nude of *David*.**

ANSWER: **Donatello** [or **Donato** di Niccolo di Betto Bardi]

2. **Description acceptable. Near this building at night, blue flames glow to indicate buried treasure. A Gypsy peasant is devoured by wolves in this building’s courtyard. This building’s owner also purchases the manor of Carfax, in London, from Mr. Hawkins. A bedroom in this building, accessible only by climbing exterior walls, contains (\*) fifty boxes of earth. The “Weird Sisters” torment an inhabitant of this locale, after he discovers that this residence has no mirrors. Van Helsing and Mina visit this residence after Jonathan Harker is trapped there. For 10 points, name this building in Transylvania where a vampire created by Bram Stoker lives.**

ANSWER: Count **Dracula**’s **castle** [or equivalents like **Castle Dracula**; or **Dracula**’s manor/house/estate/residence or similar answers]

3. **This actress starred in a frame-for-frame remake of the *Hart to Hart* intro on Adult Swim’s *The Greatest Event in Television History*. This actress played the wife of her then-real-life husband Will Arnett on *Arrested Development* and from 2004 to 2006 she served as co-anchor of *Weekend Update* with (\*) Tina Fey. This actress currently plays a character who marries the Adam Scott-played Ben Wyatt while serving in the Pawnee, Indiana local government. For 10 points, name this former SNL cast member who stars as Leslie Knope in *Parks and Recreation* and who hosted the Golden Globes with best-friend Tina Fey.**

ANSWER: Amy **Poehler**

4. **The British bombed the Shell House, Gestapo headquarters in this city, during WWII. The accession criteria to the European Union are named for this city. In a battle named for this city, Horatio Nelson held his blind eye to a telescope to avoid defying orders. Werner Heisenberg met Niels Bohr in this city in 1934. A 2009 conference in this city failed to reach any consensus on (\*) climate change. This city, which expanded dramatically under king Christian IV, was connected to Malmo by bridge in 2000. For 10 points, name this home of the Tivoli Gardens amusement park and the Little Mermaid statue, the largest city in Denmark.**

ANSWER: **Copenhagen**, Denmark

5. **The Nice model explains the migration of these objects. The Chamblerin-Moulton hypothesis explained the formation of these objects from “infinitesimals” after a molecular cloud collapses into their namesake “proto” accretion disc. The square of the period of these objects is proportional to their semimajor axis cubed according to the “harmonic law”. These objects must be in hydrostatic equilibrium, and also must clear the (\*) neighborhood of their orbits, according to criteria formulated by the IAU in 2006. Kepler formulated three laws governing their motion. For 10 points, name these objects which include Mars and Jupiter.**

ANSWER: **planets** [or proto**planetary** disk; accept **dwarf planet** before “IAU”, but not afterwards; prompt on **satellites**]

6. **This character is told, “If you’re ever in Cody, Wyoming, just ask for Wild Bob!” In the novel’s closing line, a bird tells this character, “Poo-tee-weet?” This character’s wife dies of carbon monoxide poisoning coming to the hospital to visit him after his plane crashes into a mountain. This character graduated from the Ilium School of (\*) Optometry. Eliot Rosewater introduces this man to the works of Kilgore Trout. He is shown in a zoo with Montana Wildhack on the planet of Tralfamadore. This character gets unstuck in time after the firebombing of Dresden. For 10 points, name this protagonist of *Slaughterhouse-Five*.**

ANSWER: **Billy** Pilgrim [or Billy **Pilgrim**]

7. **Ronald Ross won a Nobel Prize for his work studying this disease. Henry Heimlich advocated the use of this disease to treat AIDS. The Centers for Disease Control originally stemmed from a wartime organization to prevent this disease. DDT was originally designed to stop outbreaks of this disease. Peruvian (\*) bark was once used to treat it. An outbreak of this disease, once known as the “Roman Fever”, hastened the Fall of Rome. Quinine treats it. This disease and yellow fever caused most of the deaths of workers constructing the Panama Canal. For 10 points, name this disease spread by *Anopheles* mosquitos.**

ANSWER: malaria [or Roman fever]

8. **This variable is in the denominator of the exponential of the Maxwell-Boltzmann distribution. This quantity is the partial derivative of internal energy with respect to entropy. The enthalpy of an ideal gas depends only on this quantity. For a given liquid, vapor pressure is only a function of this property. The (\*) Zeroth Law of Thermodynamics justifies devices used to measure this quantity. Molecular velocity is proportional to the square root of this quantity. The product of the gas constant and this variable is a scale unit of energy, and equals PV by the ideal gas law. For 10 points, name this quantity measured in Kelvins or degrees Celsius.**

ANSWER: absolute temperature

9. **Hedonic regressions were first used to determine prices for this good. The Case-Shiller index measures prices for this commodity. Dean Baker and Nouriel Roubini predicted a drop in the price of this commodity. In the Nixon administration, George Romney led an agency regulating this commodity. Hank Paulson engineered the (\*) takeover of two companies that offered subprime securities for purchasing this commodity: Fannie Mae and Freddie Mac. This good is publicly provided through the “projects”. A bubble in it led to the 2008 recession. For 10 points, name this good which is confiscated by the bank in a foreclosure.**

ANSWER: housing [or word forms; or real estate; or obvious equivalents; do not accept or prompt on “mortgages”]

10. **Early male gods in this mythological system had frog heads, while females had snake heads. This civilization’s creator god made a hill from a watery abyss called Nu, then had a daughter that he vomited out and a son that he spit out. This system contained an Underworld called Duat. One of its goddesses went on a rampage to destroy civilization and was pacified with (\*) red beer. The *was* and *djed* were symbols of this mythology. This culture believed that dead souls were weighed against a feather from Ma’at. Amun was syncretized with its sun god, who rode a solar barge. For 10 points, name this civilization that venerated Ra and Osiris.**

ANSWER: ancient Egyptian civilization

11. **An eleven-note cadenza by the oboe in this piece’s first movement transitions the work to the coda section. This symphony ends in C Major, the parallel major of its original key. The third movement of this piece begins with a melody partially derived from Mozart’s 40th symphony; that scherzo leads into the finale (\*) without a pause. This piece ends with 29 tonic C Major chords. The most memorable musical excerpt from this symphony was described by its composer as “fate knocking at the door.” For 10 points, name this symphony which opens with a “short-short-short-long” motif, composed by Ludwig van Beethoven.**

ANSWER: Ludwig van Beethoven’s fifth symphony [or equivalents like Beethoven 5; or Ludwig van Beethoven’s *Symphony No. 5 in C minor* after mention; or Op. 67]

12. **A spin valve consists of two materials with this property, separated by a layer lacking this property. A model of this phenomenon proposes a two-dimensional lattice of particles in one of two spin states. Materials with this property have a maximum permeability that declines as the H field increases; past saturation, this leads to (\*) hysteresis. This phenomenon disappears above the Curie temperature. This phenomenon is caused by the alignment of domains even in the absence of an external field, so the magnetic force is permanent. For 10 points, name this form of magnetism exhibited by nickel, cobalt, and iron.**

ANSWER: ferromagnetism [or word forms; prompt on magnetism before it is read]

13. This author wrote about “an imperial affliction sent us of the air” on winter afternoons. One of this poet’s speakers has “put away my labor and my leisure too,” all for the title character’s “civility.” This author wrote the line, “Parting is all we know of heaven, and all we need of hell.” A poem by this author ends, “I could not see to see” after the speaker hears a “blue--uncertain—(\*) stumbling Buzz.” Another ends with the realization that the “Horses’ heads were toward eternity” and describes a carriage which held “just ourselves, and Immortality.” For 10 points, name this dash enthusiast, the reclusive poet of “Because I could not stop for death.”  
ANSWER: Emily Dickinson

14. In January 2013, Bill 115 was struck down by this province’s government. Its current leader is openly homosexual, won the job after the resignation of Dalton McGuinty, and is named Kathleen Wynne. Chinese immigrant Olivia Chow will contest a 2014 mayoral election in this province against the brother of the current mayor, who withdrew after being diagnosed with (\*) cancer. Paul Magder sued a politician from this province over a conflict of interest related to his football foundation. That man admitted to smoking crack cocaine during one of his “drunken stupors.” For 10 points, name this province, the home of Rob Ford, mayor of Toronto.  
ANSWER: Ontario, Canada

15. Persecution of Catholics under this leader prompted the American-backed Operation Passage to Freedom. This man established the Revolutionary Youth League in Guangdong. While working as a cook in Paris, this man sent a failed petition to Woodrow Wilson at the Versailles Conference. He lived in a cave at (\*) Pac Bo after Chiang Kai-shek expelled him from China. A road running through the Annamite Mountains, used as a supply trail, was named for this politician. His government launched the Tet Offensive, though he died in 1969, before the Fall of Saigon. For 10 points, name this avuncular Vietnamese independence leader.  
ANSWER: Ho Chi Minh [or Uncle Ho]

16. “Display” of proteins by a library of these organisms is a common binding assay for high-throughput directed evolution. T4 ligase is extracted from these organisms. The agar used in the Luria-Delbruck experiment contained these organisms. They were labelled with both sulfur and phosphorus in the Hershey-Chase experiment. (\*) Transduction uses these organisms to transfer DNA. These organisms have a head, a collar, a base plate, and long spindly legs. The lambda example of these organisms is temperate, meaning it has a lysogenic cycle. For 10 points, name these viruses which infect bacteria.  
ANSWER: bacteriophages [prompt on viruses]

17. Between this play’s first two acts, a piano on set is swapped out for a writing desk and is moved to the back room. At the beginning of this play, a character insults Aunt Julie’s hideous hat. A character in this play disgracefully shoots himself in the stomach, instead of the chest, at a brothel. During an “orgy” of parties, a recovering alcoholic in this drama loses a (\*) manuscript, which is then burned by his academic rival. This play’s protagonist loves playing with her father’s pistols. Ejler Lovborg and Tesman compete both for a university position, and also for the love of the title character, in this drama. For 10 points, name this play by Henrik Ibsen.  
ANSWER: Hedda Gabler

18. This thing titles the philosophical journal founded by Alexander Bain, in which Bertrand Russell first published “On Denoting.” Allowing the independent existence of this thing is a category mistake analogized to the “ghost in the machine”, according to a 1949 book by Gilbert Ryle titled for the “concept” of it. Solipsism is the belief that this is the only thing that (\*) exists. Spinoza’s *Ethics* espoused neutral monism by arguing that this thing could not be distinct from matter, and both make up God. Cartesian dualism relies on the idea that it is separate from the body. For 10 points, name this abstract concept which is studied in psychology.  
ANSWER: the mind [do not accept or prompt on synonyms like “brain”]

19. In the background of one of this artist’s paintings, three men on a balcony watch a man in black listening to a gramophone, unaware of the men holding a net and a club just outside the room. In a painting inspired by Giorgio de Chirico, this artist attempted to depict “time stabbed by a dagger”. This painter of *The Menaced* (\*) *Assassin* depicted a train coming out of a fireplace in another painting. A giant, green apple covers all but a bowler hat in another painting by this artist of *Time Transfixed*. For 10 points, name this Belgian Surrealist artist of *The Son of Man* who claimed “this is not a pipe” in his *The Treachery of Images*.  
ANSWER: Rene Magritte

20. William Hardee refused to surrender at the end of this campaign and instead fled on a makeshift pontoon bridge. Pillagers called “bummers” stole supplies during this event. The policy of “forty acres and a mule” originates from Special Field Orders given during this event. It led to the evacuation of 10,000 men from Andersonville. After its completion, this event’s leader gave an entire city to President (\*) Lincoln as a Christmas gift. This military action ended at the Savannah River and took place after Atlanta was razed. For 10 points, name this 1864 military campaign during which William Tecumseh Sherman destroyed Georgia.

ANSWER: Sherman’s march to the sea [or Sherman’s march until mention; or the Savannah Campaign until mention; accept Sherman’s capture of Savannah and similar answers until “Pillagers” and prompt on it after; prompt on overly unspecific answers like the Civil War]

TB: A man known as Tirofijo organized the Marquetalia republic in this country in 1961. Around two hundred thousand people in this country were killed after Jorge Eliecer Gaitan was assassinated, ushering in the era of “La Violencia.” The successor state to the Viceroyalty of New Granada shares its name with this country. Alvaro (\*) Uribe, ex-president of this nation, has railed against his successor Juan Manuel Santos, for negotiating with the FARC. Panama earned its independence against what’s now this country. Pablo Escobar trafficked cocaine in this country. For 10 points, name this country whose “Gran” state was led by Simon Bolivar.

ANSWER: Colombia [or Gran Colombia; or the Republic of Colombia]

1. Wally Herbert disputed the success of this man's best-known expedition. For 10 points each:

[10] Name this African-American explorer who joined Robert Peary on several expeditions.

ANSWER: Matthew **Henson**

[10] Henson and Peary are best known for claiming to reach this geographic landmark first, in 1909, with the help of some Inuit guides.

ANSWER: the geographic **North Pole** [prompt on the **Arctic**]

[10] In a 1985 publicity stunt, this other explorer was flown with Neil Armstrong to the North Pole. His best-known expedition took place in 1953 and required the help of Tenzing Norgay.

ANSWER: Sir Edmund **Hillary**

2. French authors were not always complimentary toward the Catholic Church. Actually they pretty much never were. For 10 points each:

[10] This satirist wrote, "Écrasez l'infâme", or "crush the infamous", about the Church in many of his writings. In his best-known novella, *Candide* and Pangloss get tied up in an auto-da-fé.

ANSWER: **Voltaire** [or François-Marie **Arouet**]

[10] In this 1830 novel by Stendhal, Julien Sorel gets accused of being a Jansenist by an inflexible Church bureaucracy, before carrying on an affair with Mathilde de la Mole.

ANSWER: *The **Red and the Black*** [or *Le **rouge et le Noir***]

[10] Madame Pernelle sings the praises of this devout Christian criminal, who, in a 1664 play, is sent to prison after stealing a cashbox containing incriminating letters. Monsieur Loyal represents this villain.

ANSWER: **Tartuffe**

3. This director died on the island of Fårö, the place where his film *Through a Glass Darkly* was shot. For 10 points each:

[10] Name this director of *Wild Strawberries* and *Fanny and Alexander*. This filmmaker made a habit of setting his works in his home country of Sweden.

ANSWER: Ingmar **Bergman**

[10] Bergman's character Antonius Block engaged in this activity with Death in his film *The Seventh Seal*. This activity is the focus of the 1993 docudrama *Searching for Bobby Fischer*.

ANSWER: **chess** [accept **playing chess** and equivalents]

[10] This fellow Swede played Knight Antonius Block, as well as Henrik in *Wild Strawberries*. This actor portrayed Father Merrin in *The Exorcist*.

ANSWER: Max von **Sydow**

4. Answer the following about prophecies of the birth of Jesus, for 10 points each:

[10] This angel announced the birth to Mary. This ubiquitous angel in the Bible also reveals the Koran to Muhammad.

ANSWER: **Gabriel** [or **Jibreel**]

[10] In Luke 1:35, Gabriel tells Mary that she will conceive because this object will "come upon you" and the "power of the Most High will overshadow you". This thing takes the form of a dove during Jesus' baptism.

ANSWER: the **Holy Spirit** [or the **Holy Ghost**]

[10] A prophecy in the book of Isaiah says that the Lord will give a sign, and a virgin will conceive a child with this name, which literally translates as "God is with us."

ANSWER: **Immanuel** [or **Emmanuel**]

5. For 10 points each, clean up your lab experiment without breaking any of these pieces of glassware:

[10] These cylindrical containers are used to store reagents but almost never for carrying out reactions, unlike flasks.

ANSWER: **beakers**

[10] These concave dishes are used to store solid samples and are often left out to allow for evaporation from wet product. They're also used to cover beakers.

ANSWER: **watch glasses** [or **clock glasses**]

[10] Once you're done with all your glassware, you can wash it off with a combination of water and this other polar solvent. This ketone has formula CH<sub>3</sub>COCH<sub>3</sub>.

ANSWER: **acetone** [or **dimethyl ketone**]

6. Name some bodies of water important to petroleum trade, for 10 points each:

[10] This Mideast gulf between Iran and Saudi Arabia is home to lots of pearls in addition to two-thirds of the world's crude oil reserves.

ANSWER: Persian Gulf

[10] The Persian Gulf is connected to the Sea of Oman by this strait formed by the "point" of the United Arab Emirates. A fifth of the world's oil is thought to pass through this strait.

ANSWER: Strait of Hormuz

[10] Offshore drilling first took hold in this other body of water, which has a town called Oil Rocks built from drilling platforms. Baku became an early center of "black gold" on this body of water.

ANSWER: Caspian Sea

7. This poem's speaker promises to make, "beds of roses and a thousand fragrant posies" and a "kirtle embroider'd all with leaves of myrtle." For 10 points each:

[10] Name this poem, the subject of a "reply" by Sir Walter Raleigh, whose speaker proclaims that, "we will all the pleasures prove" if his love will live with him.

ANSWER: "The Passionate Shepherd to His Love"

[10] This English author wrote "The Passionate Shepherd to His Love", as well as dramas like *Doctor Faustus*. Some conspiracy theorists accuse this contemporary of Shakespeare of writing Shakespeare's plays.

ANSWER: Christopher Marlowe

[10] "The Passionate Shepherd" is written in tetramers of this metrical foot. Blank verse is unrhyming pentamers of this foot, which is composed of an unstressed, followed by a stressed syllable.

ANSWER: iamb [or iambic tetrameter; or iambic pentameter]

8. This king urged Henry Morton Stanley onto the Emin Pasha expedition. For 10 points each:

[10] Name this brutal king of Belgium who ordered rubber workers' hands to be cut off in the Congo.

ANSWER: Leopold II [prompt on partial answer]

[10] Somewhat less violently, Belgium's capital is the site of this organization's headquarters. This organization and military alliance countered the Warsaw Pact during the Cold War.

ANSWER: NATO [or the North Atlantic Treaty Organization]

[10] An 1830 conference in this city decided Belgium's independence from the Netherlands. One treaty signed in this European city ended the Greek War of Independence; another brought Italy onto the Entente side during WWI.

ANSWER: London

9. A generalization of this equation squares both sides and adds a "pc" squared term to account for kinetic energy of moving objects. For 10 points each:

[10] Name this equation proposed in a 1905 paper, which gives the mass defect when energy is removed from a system, and, by another application, explains how much energy is required for pair production.

ANSWER:  $E = mc^2$  [or mathematical equivalents; or energy equals mass times the speed of light squared; Einstein's mass-energy equivalence; or equivalents like mass is energy]

[10] This type of mass, often symbolized m-nought, is the same for a particle in any reference frame equivalent by a Lorentz transformation. This quantity is zero for a photon, unlike relativistic mass.

ANSWER: rest mass [or invariant mass]

[10] The "p" term corresponds to this quantity, which is symbolized p. Classically, it equals mass times velocity.

ANSWER: linear momentum [don't accept or prompt on "angular momentum"]

10. This law was passed "two years late" because its predecessor had technically run out in 2012 and it took two years for Congress to pass a replacement. For 10 points each:

[10] Name this omnibus law passed in February 2014 which resurrected agricultural subsidies to the tune of nearly a trillion dollars for the next five years.

ANSWER: the farm bill [prompt on the Agricultural Act of 2014]

[10] The newest farm bill includes cuts to this program, which provides food stamps to needy Americans.

ANSWER: Supplemental Nutrition Assistance Program [or SNAP]

[10] By far, the greatest subsidy goes to farmers who produce this crop, mostly because it's the most common one used to produce bio-ethanol in the US.

ANSWER: corn feed

11. This man implored Judge Joseph Savage to honor the memory of Bobby Franks in his closing speech at the “Trial of the Century.” For 10 points each:

[10] Name this man who successfully saved Nathan Leopold and Richard Loeb from death sentences at their murder trial. This lawyer argued against William Jennings Bryan in a case in the Tennessee criminal court in 1925.

ANSWER: Clarence **Darrow**

[10] Darrow was the defense attorney at this staged event where a substitute teacher was tried for teaching evolution in a public school, sparking modern debate on the topic.

ANSWER: **Scopes** trial [or the **Scopes monkey** trial; or *The State of Tennessee v. John Thomas Scopes*]

[10] Darrow broke with a railway corporation early to defend this activist during the Pullman Strike. This founder of the American Railway Union was imprisoned after a 1917 Supreme Court case upholding the Espionage Act.

ANSWER: Eugene Victor **Debs**

12. You’re an everyday citizen living in Airstrip One in Oceania, minding your own business. Answer the following questions about your life, for 10 points each:

[10] You’re actually a fictional character created by this author in his dystopian classic *Nineteen Eighty-Four*.

ANSWER: George **Orwell** [or Eric Arthur **Blair**]

[10] You belong to this group of people who aren’t subject to the Party’s strict lifestyle but nevertheless live in abject poverty. Winston Smith writes that “Hope lies” with these people.

ANSWER: the **proles** [or the **proletariat**; or the **proletarians**]

[10] A member of the Thought Police stops you on the side of the road and offers you a sip of the “Victory” type of this beverage. Winston compares its taste to nitric acid--which makes you wonder why he ever drank nitric acid.

ANSWER: Victory **gin**

13. This hero lost a sandal trying to escort Hera across a river, which caused Pelias to send him on a quest. For 10 points each:

[10] Name this hero, who, like Cadmus, sowed dragon’s teeth that turned into warriors, while he was on a quest in Colchis.

ANSWER: **Jason**

[10] Jason led his merry group of warriors aboard this talking ship on the quest to find the Golden Fleece.

ANSWER: **Argo** [or the **Argonauts**]

[10] This Argonaut took power in Iolcus after overthrowing Pelias’ son Acastus. Proteus gave this hero advice on how to marry the shapeshifting sea-nymph Thetis, with whom he fathered Achilles.

ANSWER: **Peleus**

14. Rather than answering a bonus about invertebrates, which are hideously boring, answer this bonus about algae, which are *so* much cooler. For 10 points each:

[10] These largest algae are heterokonts in the Phaeophyceae class. They are multicellular, unlike many other types of algae, and Sargassum is composed of them.

ANSWER: **brown** algae

[10] Red algae used to belong to this kingdom in the Linnaean taxonomy, which doesn’t really exist anymore since its only defining characteristic was that it wasn’t Monera, Plantae, Fungi, or Animalia.

ANSWER: **Protista** [or **protists**]

[10] Most green algae have two of these structures per cell, used for locomotion. Red tides are caused by protists named for these structures; such protists are often contrasted with ciliates.

ANSWER: **flagella** [or **flagellum**; or **flagellates**; or **dinoflagellates**]

15. *The Berceuse* was intended to be a central panel of a triptych, hanging between two paintings in this series. For 10 points each:

[10] Name this series of paintings made in Arles to decorate the Yellow House, the location where the artist’s friend Paul Gauguin was living.

ANSWER: the Arles **Sunflowers** [or **Tournesols**]

[10] Series depicting sunflowers and irises were made by this Dutch painter of the *Starry Night*.

ANSWER: Vincent **van Gogh**

[10] While living in an asylum at St. Remy, van Gogh made several oil paintings depicting this landscape, which he could see from his window. van Gogh painted this setting “with reaper and Sun”, at “sunrise”, and “with cypresses.”  
ANSWER: The **Wheat Field** series [prompt on partial answer; accept more specific answers like **Wheat Field with Cypresses**]

16. Name some unpleasant practices forced upon women in world history, for 10 points each:

[10] This painful Chinese custom to improve brides’ beauty wasn’t outlawed until 1912; it involved tying the namesake appendages together tightly so that they wouldn’t grow.

ANSWER: **foot-binding** [or word forms]

[10] Wives and concubines in Islamic kingdoms were often sequestered in these areas of the palace. They were also called seraglios.

ANSWER: **harems**

[10] According to this ancient Indian practice, widows flung themselves onto their husbands’ funeral pyres.

ANSWER: **sati** [or **suttee**]

17. Side-Angle-Side, Side-Side-Side, and Angle-Side-Angle postulates are enough to prove that two triangles have this property. For 10 points each:

[10] Name this property represented by a tilde over an equals sign, which means that two geometric figures have the same size and shape.

ANSWER: **congruence** [or word forms]

[10] In this branch of arithmetic, two numbers are considered congruent if, when divided by a third number, they have the same remainder. The namesake operation of this system is sometimes written using a percent sign.

ANSWER: **modular** arithmetic [or **modulus**; or **mod**; or **modulo**]

[10] This ancient algorithm for finding the greatest common denominator of two large numbers recursively calls itself on the smaller of the two numbers and on the remainder when the larger is divided by the smaller.

ANSWER: **Euclidean** algorithm [or **Euclid**’s algorithm]

18. A greenfield project is an example of this type of spending starting from the ground up. For 10 points each:

[10] Name this type of spending by which an individual acquires managerial power over a corporation in a completely different country, unlike in portfolio investment. It provides capital for many developing nations.

ANSWER: **foreign direct investment** [or **FDI**]

[10] Investment is just one factor in calculating this quantity, the “Y” in the equation “Y = C plus I plus G plus X minus M.” Effectively, it’s the value of all goods and services produced within a country’s border every year.

ANSWER: **GDP** [or the **Gross Domestic Product**]

[10] If X is less than M, then a country is in this situation, where more goods are imported than are exported. The US is in this situation with respect to China.

ANSWER: **trade deficit** [or **trade gap**]

19. This composer prominently features the tuba in his piece *Hammersmith*. For 10 points each:

[10] Name this German-English composer of *Egdon Heath*. His most famous work is a seven-movement suite based both on astronomy and astrology, *The Planets*.

ANSWER: Gustav **Holst**

[10] In this movement from *The Planets* depicting the mythological “Bringer of Jollity,” Holst used the nationalistic hymn “I Vow to Thee, My Country” as the melody for the middle section.

ANSWER: “**Jupiter**, the Bringer of Jollity”

[10] *The Planets* is bookended by “Mars” and “Neptune,” two pieces written in this meter. This meter is also the time signature for the “limping waltz” in Tchaikovsky’s *Pathetique Symphony*.

ANSWER: **5/4** (“five four”) time [or **quintuple** meter; or **quintuple** time]

20. This novel’s opening scene, originally published separately as “Battle Royale”, pits the blindfolded protagonist against a group of boys in an electrified boxing ring as they scramble to pick up gold coins. For 10 points each:

[10] Name this novel whose unnamed African-American protagonist flees underground after breaking with Ras the Exhorter’s Communist Brotherhood.

ANSWER: **Invisible Man** [do not accept or prompt on “The Invisible Man”]



[10] The Invisible Man meets Ras while working in this neighborhood of New York City. Langston Hughes was a member of this city's "Renaissance" in the 20s.

ANSWER: **Harlem**

[10] Ralph Ellison's idea of an "invisible man" borrows heavily from W.E.B. Du Bois' idea of "double consciousness", which he laid out in this 1903 essay collection.

ANSWER: *The **Souls of Black Folk***