

Don't Underestimate Our Set (DUOS) Packet 7

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1. **A form of this value between two variables appears in the numerator of a ratio that yields Pearson's correlation coefficient. Data for which a residual plot shows no apparent pattern have a uniform value for this quantity and are thus homoscedastic ["HO-mo-skuh-DAS-tic"]. This quantity is calculated by subtracting the expected value of squared data from the squared expected value of that data. The amount of this quantity for one variable that can be attributed to (*) dependence on another variable is described by R-squared, or the coefficient of determination. This quantity is calculated by squaring the standard deviation of the dependent variable. For 10 points, name this value which quantifies the dispersion of data from the mean.**

ANSWER: **variance** <Tegulla - Other Science>

2. **Walter Legge served as the first conductor for one orchestra based in this city, which once hosted "André Previn's Music Night" in honor of the longest serving music director of another of its orchestras. Valery Gergiev was succeeded by Simon Rattle as the director of an orchestra based in this city. Cheap standing tickets are offered at an annual concert in this city that features a "Last Night" that includes a performance of Henry Wood's (*) *Sea Songs*. That concert based in this city traditionally ends with the "Land of Hope and Glory." Each summer, an eight week classical concert known as the Proms is hosted in this city. For 10 points, the Royal Albert Hall is located in what capital city where concerts are hosted by the BBC?**

ANSWER: **London**, England <Ganeshan - Auditory Fine Arts>

3. **A counter-revolution in this polity was led by a man nicknamed its "Iron Duke," Robert Wilcox. Rule of this polity was the subject of the Newlands Resolution. The Morgan Report reversed the earlier Blount Report, which found the U.S. minister to this country guilty of lawless activities. A document restricting the authority of leaders of this polity was named because David Kalakaua signed it at gunpoint. A coup in this polity was perpetrated by the Committee of Safety, which was led by (*) Lorrin Thurston. The Bayonet Constitution in this polity was supported by Sanford Dole, who led it after the overthrow of its Queen Liliuokalani (li-li-uh-WOAH-kuh-LA-ni). For 10 points, what kingdom ruled from Oahu later became the fiftieth US state?**

ANSWER: Kingdom of **Hawai'i** [accept Moku'āina o **Hawai'i**] <Prasanna - American History>

4. **One work titled after this concept contrasts truly animalistic behavior from the human trait of *akrasia*. The 20th century "aretic turn" revived one form of this discipline through works by people such as Alasdair MacIntyre and Elizabeth Ascombe. The activity of the mind is said to differentiate "adequate" and "inadequate" ideas in one work titled after this concept. (*) Deontology and consequentialism are two approaches to developing the normative theories of this discipline's "virtue" form. Arguments on this subject are presented "in geometric order" in a namesake tract by Baruch Spinoza. The highest state of human happiness, or *eudaimonia*, is discussed in a work centered around the *Nichomachean* form of this discipline by Aristotle. For 10 points, name this branch of philosophy which concerns right and wrong.**

ANSWER: **ethics** [accept moral **ethics**, virtue **ethics**, and normative **ethics**; accept *Eudemian Ethics*, *Nicomachean Ethics*, *Ethics: Demonstrated in Geometrical Order*; prompt on moral philosophy or *Modern Moral Philosophy*] <Tegulla - Philosophy>

5. **In a novel by this author, a woman has visions of a "white fountain" while suffering a near death experience and a girl tells her parents about a "talking light." The protagonist of a novel by this author serves as a psychologist on an Arctic expedition and forces another character to read a parody of "Ash Wednesday." In that novel by this author, a character considers drowning his wife at Hourglass Lake and believes he is followed by Inspector Trapp in an Aztec Red Convertible. Gradus ["grah-dooz"] escapes to New Wye in a novel by this author containing a poem that begins (*) "I was the shadow of the waxwing slain." That novel by this author is structured as Charles Kinbote's ["kin-bough-tay"] commentary on a John Shade poem. The protagonist of a novel by this author shoots Clare Quilty in a production of *The Enchanted Hunters* and is obsessed with the title "nymphet." For 10 points, name this author of *Pale Fire* and *Lolita*.**

ANSWER: Vladimir **Nabokov** <Ganeshan - European Literature>

6. **One form of this quantity is found by integrating over the distance to an element denoted dA ; that form of this quantity is its “polar form.” Routh’s rule states that this quantity is invariant for a deformation that “stretches” or “compresses” an object. The rank-2 tensor representing this quantity can be diagonalized to compute three “principal” values, one of which is characterized by unstable motion according to the tennis racket theorem. For a sphere, this quantity equals two-fifth times (*) mr -squared. This quantity can be computed for a point outside of the center of mass using the parallel axis theorem. This quantity times angular acceleration equals torque. For 10 points, name this rotational analogue of mass which describes an object's resistance to changes in its rate of rotation.**

ANSWER: moment of inertia [accept polar moment of inertia; do NOT accept or prompt on “inertia” alone] <Tegulla - Physics>

7. **This brand planted an easter egg in one of its products by depicting the helmet of a famous protagonist on that product's PSU. In 2018, this brand launched its namesake “Adaptive Controller” at the behest of its current head, Phil Spencer. A hardware issue with this brand’s devices involves three-quarters of the power button appearing as the so-called “Red Ring of Death.” This brand collaborated with 343 Industries to remaster old iterations of an exclusive game franchise and released them as the (*) “Master Chief Collection.” Some games on this brand’s older devices had to be played using an external motion sensor and webcam device called the Kinect. This brand’s newer consoles feature a subscription that grants hundreds of free video games called “Game Pass Ultimate.” For 10 points, name this Microsoft-owned console line with “360,” “One,” and “Series X” editions.**

ANSWER: Xbox [accept Xbox One, Xbox 360, Xbox Series X; prompt on Microsoft] <Gollamudi - General Knowledge>

8. **While staying at one of these places, the protagonist of a novel evades a food poisoning outbreak caused by poisoned crabmeat. The protagonist of a novel primarily set in one of these places reveals his whale-covered boxer shorts and offers Juicy Fruit to the narrator. The protagonist of that novel set in one of these places organizes a fishing trip and watches the World Series with the Acutes. The protagonist loses her virginity to Irwin and dumps Buddy Willard in a novel centering on these places. A character slits himself in the throat after sleeping with (*) Candy at one of these locations, where authority forces are referred to as “The Combine.” A novel set in “the summer when they electrocuted the Rosenbergs” depicts Esther Greenwood’s time at one of these places. *The Bell Jar* and *One Flew Over the Cuckoo’s Nest* are both set in, for 10 points, what centers for mental illness treatment?**

ANSWER: mental asylums [prompt on hospital; accept insane asylum, psychiatric hospital, or mental institutions] <Ganeshan - American Literature>

9. **This ruler began construction of the Aqua Anio Novus and the Aqua Claudia, which were regarded as two of the four great aqueducts of Rome. A purple cloak may have caused this ruler to have Ptolemy of Mauretania executed, after which annexed his territory. This ruler tried to spite a soothsayer by building a pontoon bridge across the Bay of Baiae to ride across. This ruler may have had an incestuous relationship with (*) Agrippina the Younger, his sister. This son of Germanicus purportedly ordered his legions to stab the water and collect seashells on the shores of the English Channel during a planned expedition to Britannia. Supposedly, this ruler attempted to name his horse Incitatus a consul. For 10 points, name this insane Roman emperor that succeeded Tiberius, whose nickname means “Little Boots.”**

ANSWER: Caligula [or Gaius Julius Caesar Augustus Germanicus; do not accept or prompt on partial answers] <Crowell - Ancient/Other History>

10. **Any epenthetic process which adds one of these things is referred to as an “anaptyxis [“en-ep-TIK-sis”].” Relation of these entities can cause them to assimilate through a phenomenon called their namesake “harmony.” Glides are composed of a combination of the “semi-” type of these things which, unlike their generic counterpart, do not serve as the nuclei of (*) syllables. Rhotic types of these things contain a sound similar to that of the letter R at the end of them. Two of these things are combined within one phoneme to create a diphthong. Between the 15th and 18th centuries, Middle English experienced a “Great Shift” in the pronunciation of these things. For 10 points, name these linguistic elements which are contrasted with consonants.**

ANSWER: vowels <Tegulla - Social Science>

11. **Cyclist and Picking Apples** were both painted by an artist from this country, where the Target Exhibition was held as the first showing of Rayonism. Another artist from this country painted a red triangle inserted into a white circle in a propaganda poster titled **Beat the Whites With the Red Wedge** and belonged to a movement whose founder layered similarly colored squares in his (*) *White on White* series. That movement is Suprematism. An expatriate artist originally from this country co-founded a movement in pre-war Germany with Franz Marc named for a painting that depicts a man cloaked in the title color mounted on a white steed. For 10 points, name this home of Natalia Goncharova, El Lissitzky, Kazimir Malevich, and the founder of Der Blaue Reiter, Wasily Kandinsky.

ANSWER: **Russia** [accept **USSR** or **Soviet Union**] <Crowell - Visual Fine Arts>

12. A restaurant in this city named “Viana, [this city]” is home to the “bravas” variety of a certain food usually served with a tomato based spicy aioli. Raw sauteed cod is incorporated into the Esqueixada [“es-kay-see-ah-dah”] salad native to the region this city is located in. A massive food festival is hosted on a broad street in this city named “La Rambla,” which marks an end of its Gothic Quarter. An amusement park sits next to the Tibidabo hill in this city, where a “sandwich park” is located near a mosaic salamander in its (*) Parc Guell [“gway”]. This city contains a religious structure with Nativity and Passion facades whose 18 spires are meant to represent holy figures. That structure in this city scheduled to complete around 2026 was built by its native architect Antoni Gaudí. For 10 points, name this Spanish city where various restaurants sit next to the massive Sagrada Familia.

ANSWER: **Barcelona**, Spain (Note: the salad is endemic to Catalonia) <Ganeshan - Geography>

13. The industrial synthesis of this compound involves the use of a palladium catalyst to hydrogenate 2-alkyl-anthraquinone. One solution used to oxidize wastewater contaminants is made by adding this compound to iron (II) sulfate to create Fenton’s reagent. Diatomic oxygen and this molecule are the products of a disproportionation carried out by the biological enzyme superoxide dismutase. Another biological enzyme, found in (*) peroxisomes, splits this molecule into water and oxygen; that enzyme is catalase. Because ultraviolet light can cause this unstable compound to form hydroxyl radicals, it is often stored in opaque, brown bottles. For 10 points, name this molecule whose chemical formula is H₂O₂ and is sometimes used as an antiseptic for wounds.

ANSWER: **hydrogen peroxide** [accept **H₂O₂** until mentioned; prompt on **peroxide**] <Tegulla - Chemistry>

14. A group of documents about this region was opposed by a man of indigenous descent who held up a feather and filibustered to prevent its ratification. The radical Paul Rose, a member of the Chénier Cell, was arrested for his role in an event in this region. A political party founded by Lucien Bouchard is called the “Bloc” of this region, whose government was almost influenced by the Meech Lake Accord. This region underwent a period of liberalization in the (*) Quiet Revolution. Supporters of this region’s independence movement kidnapped James Cross and Pierre Laporte, leading to the signing of the War Measures Act by Pierre Trudeau. For 10 points, name this French-speaking Canadian province home to Montreal.

ANSWER: **Québec** <Kher - World History>

15. One character in this novel discovers a cave behind a waterfall to become the leader of his clan and makes the cave his home. That character is a companion of a man originally named the “Golden Cicada” and decides to use a nine-ton pillar as a weapon. The protagonists come across a kingdom of entirely women in this novel, where one character is beaten 800 times for shattering a crystal goblet. A character in this novel referred to as “the idiot” carries a nine-toothed iron rake. The protagonist of this novel becomes (*) immortal after successfully erasing his name from the Book of Life and Death. A character in this novel who hatches from a stone egg is trapped under a mountain for 500 years and travels with companions like Pigsy and Sandy. For 10 points, name this Chinese novel, one of the Four Great Classics, in which the monk Tang Sanzang [“tahng sahn-zahng”] accompanies the monkey king Sun Wukong [“sun woo-kong”] as he travels to India.

ANSWER: **Journey to the West** [or **Xī Yóu Jī**, prompt on **Monkey**] <Morales - Other Literature>

16. **One building of this type contains a reference desk nicknamed the “Mixing Chamber” connected to its “Living Room” by illuminated yellow escalators. One of these buildings commissioned by Pope Clement VII was constructed in the Mannerist style and contains a vestibule staircase with a section consisting of layered ovals. An all-glass exterior features in a Rem Koolhaas building of this type designed for the city of Seattle. Michelangelo designed a (*) Laurentian structure of this type. I.M. Pei designed a structure of this type in Boston dedicated to John F. Kennedy, and lion statues nicknamed Patience and Fortitude flank the entrance of one in New York. For 10 points, name these buildings where one can use a reading room to peruse one of the many housed books.**

ANSWER: library [accept public library, presidential library] <Crowell - Other Fine Arts>

17. **This movement was supported by a rebellion in which residents of a city boycotted tobacco and drove out Joseph Radetzky. A supporter of this cause resigned after two nations signed the Treaty of Villafranca. A nation fought the Battle of Magenta in support of this movement after making the Pact of Plombières. A battle that advanced this movement inspired Henri Dunant to found the Red Cross. This cause was supported by a secret society of (*) “charcoal burners” called the Carbonari. A leader of this movement gained military experience fighting in the Uruguayan Civil War and led the Redshirts during the Expedition of a Thousand. Count Cavour and Giuseppe Garibaldi were supporters of, for 10 points, what movement to unify a country with a capital at Rome?**

ANSWER: Italian unification [or Risorgimento; accept creation of Italy or equivalents] <Abel - European History>

18. **One practice in which followers of this religion are “possessed” by their deities occurs to *chual* and is known as the “mounting of the horse.” According to this religion, the soul is divided into two parts known as the “big good angel” and the “little good angel.” Practitioners of this religion believe in an ancestral land called Ginen. Petro, Ghede, and Rada are different classifications for spirits in this religion, which employs (*) hounsans and mambos as the priests of this religion. Followers of this religion may communicate with the supreme god Bondye through *loas* like Papa Legba and Baron Samedi. For 10 points, identify this syncretic Haitian religion that is often associated with a namesake doll.**

ANSWER: voodoo [accept alternate spellings/pronunciations] <Gollamudi - Religion>

19. **A poem by this author describes the “twenty-nine” distinct damnations” of a “text in Galatians” after opening with the line “Gr-r-r--there go, my heart’s abhorrence!” The narrator of a poem by this author claims he does not have the “skill in speech... to make [his] will quite clear” while his wife chooses “never to stoop.” This author depicts the “sullen wind” and “the rain that set in early tonight” in a poem which concludes “and yet God has not said a word!” In that poem by this author, a woman is (*) strangled to death by “one long yellow string” of her hair. This author of “Soliloquy of the Spanish Cloister” ended a poem with the depiction of a bronze statue painted by Claus of Innsbruck. In that poem by this author, Fra Pandolf’s portrait of a lady possesses a “heart too soon made glad.” For 10 points, name this English poet of “Porphyria’s [“pour-fee-ree-ah”] Lover” and “My Last Duchess.”**

ANSWER: Robert Browning [prompt on Browning; do NOT accept “Elizabeth Barrett Browning”] <Memon - British Literature>

20. **One test for detecting this process relies on the affinity of phosphatidylserine [“fos-fah-ti-DYL-sir-eeen”] for the annexin A5 protein. APAF-1 is a human gene regulator of this process analogous to one found in experimental studies on *C. elegans*. In one pathway for initiating this process, the formation of a DISC complex allows ligands to bind to their appropriate Fas receptors. Bax and Bak comprise a group of proteins that control this process called the (*) Bcl-2 family. This process is promoted by degradation of proteins via caspases, and cell membrane “blebs” form during this process. The release of cytochrome c from the mitochondria triggers, 10 points, what process of programmed cell death?**

ANSWER: apoptosis <Morales - Biology>