

Chicago Open 2015

Packet by Biz Casual Kamikaze Werewolf (Will Alston, Jason Asher, Andrew Wang, and Richard Yu)

1. This problem can be solved in exponential time on d for a sparse, d -degenerate input, improving on a more common algorithm that takes exponential time on the size of the input. Considering the complement of the input to this problem allows one to show that this problem is reducible to the vertex-cover problem. Using the highest degree node as a pivot vertex optimizes the Bron-Kerbosch algorithm for this problem. Richard Karp nested this problem, (*) along with 3-SAT and 0-1 integer programming, directly below the Boolean satisfiability problem in his seminal 1972 paper "Reducibility among Combinatorial Problems". The brute force method of solving this problem generates all possible subgraphs and can be optimized by considering only the set of edges and only maximal subgraphs. For 10 points, name this NP-complete problem in graph theory that seeks to find the largest set of mutually adjacent vertices of a graph.

ANSWER: maximum clique problem [or maximal clique problem]

2. This man's translation of *Murder in the Cathedral* was published the same year as a collection that greatly resembled Eliot's *Four Quartets*. In a poem by this man, the speaker "can't remember which murky river it was/that carried us away" and opens with the image of "Leaves like rusty tin." This author's poems "On a Sliver of Winter," "On Stage," and "Summer Solstice" make up his *Three Secret Poems*. Another poem by this author contains sections like Sensual Elpenor, and The house near the sea, and in it, the title bird says "Don't talk to me about the nightingale or the lark or the little wagtail." This poet of "Thrush" (*) wrote of how the title object takes root in the earth and becomes "a den of of secret water," in a poem titled "The Cistern." This man is the subject of a Roderick Beaton biography subtitled "Waiting for the Angel," which references a poem which opens "The angel - three years we waited for him." That poem contains the line "I woke with this marble head in my hands," and was read at the 2004 Olympics. For 10 points, identify the this poet of "Mythistorema," the first Greek to win a Nobel Prize in Literature.

ANSWER: Giorgos Seferis [or George Seferis or Georgios Seferiades]

3. This man become involved in a succession crisis after the death of his father that ended in defeat for the general John Dunne. Following that battle, Bartle Frere began a campaign to depict this man as a despot. After this man's rise to prominence and eventual defeat, he was escorted by Henry Flynn to a city several months before his death named for the wind blowing through its Dhlinda Forest. That death was declared to be the cause of "syncope" of the heart, despite the belief by many that it was by poison. This man, who was crowned by Theophilus Shepstone, commanded the uSuthus against (*) Zibhebu kaMipitha in one conflict. This man's success was short lived when one opponent ignored a ceasefire in order to avoid losing his command to Garnet Wolseley. In that battle, this man was captured at Ngome forest after a square of gatling guns overpowered the muskets this man supplied his army. For 10 points, name this victor at the Battle of Ndondakusuka over Mbuyazi, a Zulu chief that won at Isandlwana before being overwhelmed by Lord Chelmsford at Ulundi.

ANSWER: Cetshwayo

4. This character is told to go to Media in order to collect some silver his father had left there before he is to be taught to properly bury his father. He is not Samuel, but this character's mother Hannah brings home a goat one day, which his father assumes was stolen. Raguel orders the filling of a grave for this character that he had secretly dug because Raguel had assumed this character would have an identical fate to his seven previous sons-in-law. While he is washing his feet, this character nearly gets his foot (*) bitten off by a large fish, and he is instructed to take its heart, liver, and gallbladder. This character uses the gallbladder of that fish to cure his father's blindness, and burns the heart and liver on his wedding night to Sarah. This character is accompanied by Azariah, who is actually the archangel Raphael, who has been following him around the whole time so he could drive away Asmodeus. For 10 points, name this character whose travels are recorded in the Apocryphal book named for his father Tobit.

ANSWER: Tobias [or Tobiah]

5. In this opera's final act, a group of flower-bearing girls sing a folk song about a girl who asks her mother to make her a new dress on her wedding day. This opera opens with a repetitive cimbalom-like xylophone melody representing the turning of a mill. Based on a play by Gabriela Preissova, this opera was played its entirety on piano by the composer for his dying daughter Olga days before her death. A woman in this opera

echoes a man's parting promise to return soon in her aria "Co chvila," in which she resolves to commit a terrible (*) crime. In its second act, the main character of this opera sings a version of *Salve regina* to pray for her newborn son. Steva abandons this opera's title character after she is disfigured by Laca, who slashes her face with a knife. In its second act, Kostelnička tries to ensure that the title character will be able to marry by taking her child and drowning it. For 10 points, name this opera about a Moravian peasant girl, composed by Leos Janacek.

ANSWER: Jenufa [or Její pastorkyna; or Her Stepdaughter]

6. One supernatural creature in this myth system has half a head, half a body, one arm, and one leg, and is created as an offspring of a Shiqq and a human. A goddess of fate in this myth system was worshipped by shaving one's head and standing in front of her statue. An edifice dedicated to one deity in this myth system had its right hand cut off and replaced with gold, and was used for divination by throwing arrows at it. An edifice to a moon deity in this myth system was originally surrounded by (*) 360 idols, and another group of creatures in this myth system are born from smokeless fire. Besides that deity, Hubal, a trio of female deities in this myth system were named Manat, Al-lat, and Al-Uzza, who were invoked in the Satanic Verses. For 10 points, name this myth system which also includes spirits called Djinn.

ANSWER: Arabic myth [accept pre-Islamic myth]

7. One algorithm used for computing this quantity relies on a random walk to produce a flat histogram; that algorithm, named after Wang and Landau, is useful when using the multicanonical ensemble, as it uses the inverse of this quantity for the sampling distribution. For a particle in a 3-dimensional box, this quantity can be visualized as the surface area of an octant of a sphere, and in N dimensional k-space it can be visualized as the shell of an N-1 dimensional sphere. (*) By considering a chain of atoms, this value for phonons in 1 dimension can be found to be the inverse of the quantity pi times the group velocity. This quantity is constant for electrons confined to two dimensions, and varies directly with the applied magnetic field within the Landau levels induced during the de Haas-van Alphen effect. The integral of the product of the distribution function with this quantity with respect to energy yields the particle number. For 10 points, name this quantity, which describes the configurational size of a region in energy space.

ANSWER: density of states

8. Upon reaching the seashore, this character makes an allegorical complaint to Neptune, begging for a port in the "huge sea of sorrow, and tempestuous grief." This character has a dream about a flaming tempest which awakens a threatening crocodile before it is subdued by a statue of Isis, which then gives birth to a powerful lion. This character observes a set of tapestries depicting the love affairs of the Greek gods after passing through a wall of flames, and then finds a room heavily inscribed with the words "Be bold." Upon being invited into Castle Joyous, this character fends off the advances of Lady Malecasta. This character wields a powerful enchanted (*) spear, and defeats the wizard Busirane to save Amoret, the lover of Scudamore. This character falls in love with Artegal after seeing him in the magic mirror of Merlin, who claims the two will begin a genealogy leading to Queen Elizabeth. For 10 points, name this hero of Book III of *The Faerie Queene*, a chaste female knight.

ANSWER: Britomart [or Britomartis]

9. This group was once depicted in a James Walker painting defending a monastery. During one conflict, this group threatened to open fire upon their allies so that they would keep fighting instead of risking capture when blocked off at a series of now-abandoned mines. This group was honored by a recent head of state for "adhering to their highest ideals", despite having earlier fought against that man's country. This group was forced to dig each other's graves and every surviving member was eventually branded with a "D". This group's flag was green (*) with a harp in the center, was led by a man that stated "you will not find a people more friendly and hospitable" than their greatest allies. This group, which was led by John C. Riley, was massacred and hanged on the orders of Winfield Scott after fighting at Matamoros, Angostura, and Chapultepec. For 10 points, name this group of Irish soldiers which fought for Mexico during the Mexican-American War.

ANSWER: Saint Patrick's Battalion [or Batallón de San Patricio]

10. In response to Mademoiselle Lange rejecting one of his paintings, this artist spent a few days in order to paint her nude with gold coins falling onto her, calling her out as a whore. In one of this artist's three failed attempts to win the Prix de Rome, he was disqualified due to keeping smuggled drawings on himself, but he

eventually won with his painting *Joseph Recognized by his Brothers*. In Rome, this artist created a painting where Zephyr appears on the left to pull back foliage as moon beams shine onto the sleeping body of the effeminate central figure, whose pose resembles that of Drouais' *Dying Athlete*. Another painting by this artist depicts a rather well-endowed figure leaning on the bust of Guillaume Reynal. This artist of *Citizen Belley*, and (*) *The Sleep of Endymion*, frequently wrote to Julie Candeille, who liked him despite once walking in on him sodomizing one of the Mamelukes who modelled for his painting of *The Revolt of Cairo*. Perhaps the most famous painting by this artist has a verse from Job inscribed on a cave's wall, and depicts Father Aubry and Chactas performing the title action. For 10 points, name this pupil of David who painted *The Burial of Atala*.

ANSWER: Anne-Louis Girodet

11. This character observes that the young use pornographic playing cards as a substitute for real experience, while the old use real experience as a substitute for fantasies. After telling a long story, he sarcastically asks if he could sell it to *Reader's Digest* for their section "The Most Unforgettable Character I've Ever Met." This character asks a man if his favorite writers are Baudelaire and J.P. Marquand after learning that he owns two cats and two parakeets. He calls God "a colored queen who wears a kimono and plucks his eyebrows" at the end of a monologue about his attempt to use (*) poisoned hamburger meat to kill an enormous black dog. At the end of the play he appears in, this character forces a man off of a bench in Central Park and tells him to fight for it. He then pulls out a knife and tells that man to pick it up before impaling himself on it. For 10 points, name this character who has a one-sided conversation with Peter throughout Edward Albee's play *The Zoo Story*.

ANSWER: Jerry

12. Gram-positive bacteria use S and T box elements to regulate this event. Xrn2 or Rat1 is recruited in the torpedo model of this event in eukaryotes. This event is prevented when a boxB sequence is bound by the lambda phage protein N. A protein that triggers this event binds to cytosine-rich rut sites, and, like Sen1p, is a helicase. Successful translation of the leader peptide causes this to occur via the formation of a 3:4 secondary structure. An intrinsic mechanism for this event involves a (*) T stretch and a U track forming an attenuator hairpin. In prokaryotes, it can occur in rho-dependent or independent fashions. After this specific event, 5' ["5-prime"] capping and polyadenylation occur along with the release of RNA polymerase from its substrate. For 10 points, name this event during which synthesis of mRNA from a DNA template ends.

ANSWER transcription termination [prompt on "transcription"]

13. An attempt to crown this ruler was thwarted by opposition that sprung up in London as a result of the decision to impose additional taxes. A fake story about this ruler's father having a deathbed change of heart, despite forcing his prelates to swear loyalty to this ruler three times, was used to get the Archbishop of Canterbury to crown a rival. In the wake of the accession of William Clito, this ruler's second marriage was negotiated in an alliance with Count Fulk V. This ruler supposedly used a white cape as a disguise in the snow to escape Wallingford Castle, where a later treaty secured the rulership of England for this ruler's son. Robert of Gloucester (*) was the half-brother and primary commander of the forces of of this ruler, whose brother died in the White Ship Incident, prompting the father of this wife of Geoffrey Plantagenet to attempt to secure her succession to the throne. For 10 points, name this woman who struggled against Stephen of Blois, the first female ruler of England.

ANSWER: Empress Matilda [or Matilda of England; or Maude]

14. Four angels, two of which carry spears, flank a depiction of this scene from a triptych whose left panel shows the donor kneeling with a dog beneath two dead thieves. A small mullein plant appears at the lower left in a depiction of this scene commissioned by Girolamo or Alessandro Vittrice. The face of the central figure in this scene is largely obscured by a man in orange in a depiction of this scene by Titian found in the Louvre. This scene, which forms the center of Robert Campin's (*) Seilern Triptych, is the subject of a painting now found in the Pinacoteca that was originally created for a chapel in the Chiesa Nuova. Three lamenting women, including a hysterical Mary of Cleophas raising her hands in the air, appear in that painting, which shows John the Evangelist and Nicodemus lowering the central character. For 10 points, identify this scene depicted in a Caravaggio painting that shows Christ being placed beneath a slab.

ANSWER: The Entombment of Christ [or The Burial of Christ; or really anything similar involving Jesus being stuck into the ground or having a big rock-like thing put over him; grudgingly accept Deposition after "mullein"]

since the Caravaggio painting is often called that even though the term usually just refers to taking him off the cross rather than putting him in the ground]

15. This phrase titles the chapter of *The Education of Henry Adams* in which Adams praises the “artistic skill” of John Hay in the midst of the Spanish-American War. In a novel with this title, the botany-loving Baron von Risach welcomes a young man travelling the Alps into his estate. In a different novel with this title, the “white desolation” of the town of Haddam East Village is recalled by Mr. Waters, a priest who befriends the protagonist. Friedrich Nietzsche praised a *bildungsroman* with this title about Heinrich Drenhof, written by (*) Adalbert Stifter. In a novel with this title, a carriage crash leaves its protagonist bedridden, after which he and Imogene Graham break up due to their twenty-year age difference. This two-word phrase also appears in the title of an interlude that comes after *The Man of Property* in *The Forsyte Saga*. In a novel with this title, an American travels to Florence, where he falls in love with the widow Lina Bowen. For 10 points, give this period of weather which titles a novel about Theodore Colville written by William Dean Howells.

ANSWER: Indian Summer [or *Der Nachsommer*]

16. Beverly Fehr applied prototype theory to this concept in experiments that asked subjects to identify its salient features. Sydney Mellen wrote a book examining the evolution of this concept, which is commonly measured using a 42-question scale developed by Hendrick and Hendrick, the LAS. William Proxmire’s first Golden Fleece award targeted Ellen Berscheid’s research on this phenomenon. An experiment testing what areas of the brain lit up in people in this state was conducted by Lucy Brown, (*) Arthur Aron, and Helen Fisher, who wrote a book about its “anatomy.” John Lee identified six styles of this phenomenon, including ludus and storge, in a book that compared its styles to a color wheel. It’s not intelligence, but Robert Sternberg developed a triangular theory of this phenomenon, which claimed that its three major components are commitment, passion, and intimacy. For 10 points, name this emotional state whose “art” was described in a book by Erich Fromm.

ANSWER: love [accept word forms]

17. Compounds that perform this interaction including TAMRA and MGB are usually present on the three-prime end of a TaqMan probe used in real-time PCR. Compounds that are involved in this interaction include Dabsyl and QXL. For a solution of quinine, chloride ions are often used to perform this action. The concentration of a substance which causes this interaction is found in the Stern-Volmer relationship, and a short range interaction of this type is called the (*) Dexter electron transfer. Molecular oxygen participates in this interaction easily due to its triplet ground state. Compounds that are involved in this interaction typically can participate in non-radiative interactions, or convert excited state energy into heat, in which case they are considered “dark”. This kind of interaction will lower the quantum yield of other processes. For 10 points, name this kind of process that lowers the fluorescence of a substance.

ANSWER: quenching

18. The British historian Shane O’Rourke, whose two books are about the history of these people, has argued that certain ethnic assimilation measures directed at them could constitute genocide. Helmuth von Pannwitz established a volunteer force of these people who were incorporated into the Waffen SS against his will in February 1945. In an event called the “betrayal” of these people during Operation Keelhaul, a number of POWs who were these people were executed in Judenberg after the British turned them over (*) in accordance with terms agreed to at Yalta. The executives of the *khutor* and *stanitsa* communities in which most of these people lived were given orders to extirpate them as an independent group during the Russian Civil War. These people organized themselves in councils called *rada* which elected leaders called atamans. Many of them defected from the Soviet Union to serve in German cavalry units during World War II. For 10 points, name these militaristic East Slavic peoples, many of whom lived along the Don River.

ANSWER: Cossacks [or Kazaki; accept specific groups of Cossacks, such as Don Cossacks; prompt on “German soldiers” or “Russians” or “enemies of the Soviet Union” or “Communist opponents”]

19. A 1963 paper about these concepts by Anthony Kenney was one of the first to argue that these concepts possessed intentionality. In a book titled after “The Structure of” these concepts, Robert Gordon argued that most of these are factive propositional attitudes. These concepts are at the core of the non-propositional appraisal theory developed by Jese Prinz. Paul Griffiths classified six of these concepts as basic evolutionary homologues in a work whose title claims to say “What” these concepts “Really Are.” In an essay whose title

asks “What is” one of these concepts, William James (*) drew on Darwin's work on these concepts to argue that they represented the awareness of a “bodily sounding board.” Antonio Damasio's book *Descartes' Error* develops the “somatic marker” hypothesis of these concepts and argues against a theory of them that Descartes developed in a 1649 work. According to Hume, reason is merely the servant of these concepts. For 10 points, identify these concepts that include fear, joy, and sadness.

ANSWER: emotions [accept “passions” or “feelings”]

20. The fact that one piece in this genre was composed on a retreat in Hardanger may be why it quotes extensively from the composer's song “Spillemaend,” which tells of the water spirit Hulder. Gerald Abraham argued that that piece influenced a different piece in this genre by Debussy written in the same key whose first movement contains harmonies inspired by modes from Gamelan Gong Kebyar. The second movement of a piece in this genre contains instructions for the (*) viola to play “quasi tromba” and uses a number of double-stops to imitate a folk accordion. Edvard Grieg and Claude Debussy each only completed one surviving piece in this genre, both of which are in G minor. A second movement polka representing the composer's youth is included in a semi-autobiographical piece in this genre, whose fourth movement contains a piercing high E on the first violin representing the composer's deafness. For 10 points, identify this genre which includes Bedrich Smetana's “From My Life.”

ANSWER: string quartets

1. In this novel, the narrator and his friend Frederick visit the estate of Hippolytus S., where they attempt to engineer a match between Karol and Henia, though the latter is engaged to Albert. For 10 points each:

[10] Identify this novel which ends with Karol's murder of Albert after the latter assumes the identity of Siemian, a Home Army soldier. The narrator and Frederick convince Karol that Albert must be killed before he can reveal vital information to the Germans.

ANSWER: **Pornografia**

[10] *Pornografia* was written by this Polish author, who wrote of Johnnie Kowalski's regression to adolescence and torment at the hands of Professor Pimko in his best known work, *Ferdydurke*.

ANSWER: Witold **Gombrowicz**

[10] A major episode in Gombrowicz's novel *Cosmos* occurs when the narrator, also named Witold, kills one of these animals belonging to Lena. The death and dissection of one of these animals is a central episode in *The Sailor Who Fell From Grace With the Sea*, and Thomas Gray wrote an ode to one "Drowned in a Tub of Goldfishes."

ANSWER: **cat** [accept **kitten**]

2. Wang's resin is commonly used in this procedure, although the original resin used for this procedure was a polystyrene derivative. For 10 points each:

[10] Name this organic chemistry procedure that, unlike nature, synthesizes a certain type of molecule starting at the C-terminus.

ANSWER: solid phase **peptide synthesis** [accept **SPPS** or the **Merrifield** Synthesis]

[10] This coupling agent produces the carcinogenic HMPA due to its dimethylamino groups. A safe modification of this reagent with "Py" in front of its name has those groups replaced with pyrrolidines.

ANSWER: Py**BOP** [or **Benzotriazole-1-yl-oxy-tris-(dimethylamino)-phosphonium hexafluorophosphate**]

[10] In SPPS, this compound is used in the Kaiser test to determine whether a peptide has been deprotected, or if coupling has been completed due to the fact it forms Ruhemann's purple in the presence of primary amines.

ANSWER: **ninhydrin**

3. This ruler, who introduced jousting and other Western European traditions to his kingdom, was hailed as a chivalric model by contemporaries, such as his chronicler John Kinnamos. For 10 points each:

[10] Identify this grandson of Alexius I, a Byzantine emperor who attempted an alliance with the papacy under Adrian IV. His attempt to regain Anatolia was halted at the Battle of Myriokephalon.

ANSWER: **Manuel I** Komnenos [or **Manuel Komnenos**]

[10] Manuel established a protectorate over this Crusader-held Syrian city, which was ruled by Raynald of Chatillon from 1153 to 1160. This city, where the word "Christian" was first used, is the center of the Maronite church.

ANSWER: **Antioch** [or **Antiochia**; or **Antiocheia**; or **Antakya**]

[10] The brutality of Raynald's raid on Byzantine Cyprus was chronicled by this author of the *Historia Ierosolimitana*, who discovered that Baldwin IV of Jerusalem was a leper while serving as his tutor.

ANSWER: **William of Tyre** [or **William II**]

5. This woman came up with the game "Badger in the Bag" in order to escape one marriage. For 10 points each:

[10] Name this woman, a cognate figure with the horse goddess Epona, who gave birth to the hero Pryderi with her husband Pwyll as recounted in the Mabinogion.

ANSWER: **Rhiannon**

[10] Rhiannon befell this trickery after Pryderi went missing immediately after his birth. This action was carried out by Rhiannon's six maids and led to Pwyll facing penance in Rhiannon's place.

ANSWER: puppy **blood** was **smear**ed on her **face** [accept clear-knowledge equivalents, prompt on "accused of cannibalism / eating her son" or equivalents]

[10] After Rhiannon's husband Pwyll was killed, she returned as one of the Seven Survivors of war in Ireland, and Pryderi arranged her marriage to this other survivor who had helped her bury Bran the Blessed previously.

ANSWER: **Manawydan**

6. This structure is a textbook example of the *tholos* or "beehive" style of underground tomb, which used corbelling used in the construction of a false dome. For 10 points each:

[10] Name this structure at Panagitsa Hill, first mentioned by Pausanias, whose name is a false attribution of its construction to a Mycenaean king. The lintel of its doorway weighs a massive 120 tons.

ANSWER: **Treasury of Atreus** [or **Tomb of Agamemnon**]

[10] Besides the Treasury of Atreus, another great architectural achievement of Mycenaean culture was a “gate” named for two of these animals. The heart of the Alhambra features a court which prominently depicts them.

ANSWER: **lion(s)** [accept **Court of the Lions**]

[10] The Mycenaeans incorporated this style of architecture into the Lion Gate as well as many of their other architectural achievements. This style involved taking huge rocks, frequently of limestone, and placing them together without mortar, and took its name from the Greek belief that no human was able to lift those rocks.

ANSWER: **Cyclopean** masonry

7. There are only three men in the history of the United States that have served in all three branches of government as well as serving as governors. For 10 point each:

[10] This one-time governor of Ohio and Treasury secretary drafted the platform for the Free-Soil movement. He swore a very drunk Andrew Johnson into office as Chief Justice of the Supreme Court.

ANSWER: Salmon P. **Chase**

[10] This one-time governor of New Hampshire served in the cabinet of three presidents, taking on the roles of Secretary of the Navy and Secretary of the Treasury, resulting in the panic of 1837 after his heavy support of “hard money.”

ANSWER: Levi **Woodbury**

[10] This one-time governor of South Carolina converted to Episcopalianism from Catholicism at an early age to avoid southern bigotry before being mentored by “Pitchfork Ben” Tillman. This man went on to advise FDR.

ANSWER: James F. **Byrnes**

8. In this novel, Sisa goes insane and dies after her sons Crispin and Basilio are accused of stealing from a convent. For 10 points each:

[10] Name this novel, which ends with the death of the revolutionary Elias. It focuses on the relationship between Maria Clara and Cristostomo Ibarra, who is jailed after being falsely accused of being the mastermind behind a revolt.

ANSWER: **Noli Me Tangere**

[10] *Noli Me Tangere* was written by this Filipino nationalist, who also wrote *El Filibusterismo* before being shot by a firing squad in 1896.

ANSWER: Jose **Rizal**

[10] This antagonist of *Noli Me Tangere* excommunicates Ibarra after goading him to violence by insulting his father. This corrupt, fat friar is also the illegitimate father of Maria Clara.

ANSWER: Padre **Damaso** Verdolagas [or Father **Damaso** Verdolagas; or Damaso **Verdolagas**]

9. These constructs can be created using software like ExPASy ProtScale and can use the Hopp-Woods index. For 10 points each:

[10] Name these graphs that are used to predict membrane-spanning regions of proteins. They plot amino acid number against a measure of how that amino acid interacts with water.

ANSWER: **hydropathy** plots [or **hydrophobicity** plots or **hydropathicity** plots or **hydrophilicity** plots]

[10] Hydropathy plots are useful for predicting the structures of these proteins that allow charged atoms to move in and out of cells. Neurotransmitters bind to these proteins to cause changes in membrane potential.

ANSWER: **ion channel**

[10] When using this particular scale, a positive hydropathy score indicates hydrophobicity, as opposed to the Hopp-Woods, which is used for hydrophilic residues.

ANSWER: **Kyte-Doolittle** scale

10. Climbers use this term to refer to the main body of a mountain. For 10 points each:

[10] Identify this term used to identify a fault-ridden section of crust or a group of connected mountains, such as the “Central” one in the Auvergne region. The “Southeast Asian” one is often discussed as a cultural area.

ANSWER: **massif** [accept **Massif Central** or **Southeast Asian Massif**]

[10] This geographic term was coined by van Schendel to refer to the areas of the Southeast Asian Massif that are difficult to govern. It consists of pretty much all of Laos and Tibet and much of Vietnam, Burma, and Thailand.

ANSWER: **Zomia**

[10] James Scott's book, *The Art of Being Governed*, is a study of why the peoples of Zomia have voluntarily remained in this stateless political condition advocated by Pierre-Joseph Proudhon.

ANSWER: **anarchy**

11. Using a Bell Opticon projector, Willem de Kooning magnified this artist's works to unrecognizable size, leading him to begin painting black-on-white works such as *Hazelton*. For 10 points each:

[10] Identify this American artist, who denied that Japanese calligraphy influenced those black-on-white paintings.

ANSWER: Franz **Kline**

[10] Kline and De Kooning both belonged to this mid-century American art movement, whose members typically believed the canvas was an arena on which painters acted. Its offshoots include Color Field painting.

ANSWER: **Abstract expressionism**

[10] De Kooning and Kline both presented their first solo exhibitions at this gallery on East Street, which served as a springboard for much Abstract Expressionist art. Isamu Noguchi designed most of the lighting for this gallery.

ANSWER: Charles **Egan** Gallery

12. Early 20th century ultranationalist historian Shin Chaeho denounced this text for disregarding Manchurian kingdoms as ethnically-Korean, and affirming an ideology of servitude to China called *sadaejui*. For 10 points each:

[10] Name this 12th century text compiled by Kim Busik, the oldest extant chronicle of Korean history. A later text describes the "memorabilia" or *yusa* of the same era of history that this book records.

ANSWER: **Samguk Sagi** [or **History of the Three Kingdoms**]

[10] The *Samguk Sagi* was compiled on behalf of this dynasty's king Injong. This dynasty, which the term "Korea" is derived from, was overthrown by its general Yi Songgye, who founded the Joseon dynasty.

ANSWER: **Goryeo** dynasty [or **Koryŏ** dynasty]

[10] The Goryeo dynasty saw the rise of this hereditary aristocracy, whose name means "two sides", referring to its division between military and civil officials. The Donghak revolt targeted this caste, leading to its abolishment in the 1894 Gabo Reform.

ANSWER: **yangban**

13. This building's substitution of elevators and escalators for natural human movement is described as an instance of the "autoreferentiality of all modern culture". For 10 points each:

[10] Name this John Portman-designed hotel in Los Angeles whose interior is an example of a "new hyperspace" that exceeds the human capacity for comprehending volume and location.

ANSWER: Westin **Bonaventure** Hotel [or **Bonaventura**, in the text]

[10] The Westin Bonaventure is analyzed by Fredric Jameson in a book discussing this movement as "the Cultural Logic of Late Capitalism." Jameson describes how the loss of the individual subject as part of this movement gave rise to the use of pastiche.

ANSWER: **postmodernism** [or **Postmodernism, or, the Cultural Logic of Late Capitalism**]

[10] Jameson uses this thinker's theory of ideology to argue for creating a cognitive map of the present. This French philosopher wrote the collection *Lenin and Philosophy* and worked with Etienne Balibar and others to analyze Karl Marx in the book *Reading Capital*.

ANSWER: Louis Pierre **Althusser**

14. Neal Koblitz has done work with these shapes in the field of cryptography. For 10 points each:

[10] Name these curves modelled by the formula " $y^2 = x^3 + ax + b$." Every one of these over the rationals is modular, according to the Taniyama-Shimura conjecture.

ANSWER: **elliptic curves**

[10] Henrik Lenstra names a method that uses elliptic curves in order to do this action. It can also be done via Dixon's method or Pollard's rho algorithm.

ANSWER: prime **factorization**

[10] Elliptic curves are central to this unproven conjecture which connects the behavior of a curve's L-function, analogous to the zeta to the number of rational solutions for an elliptic curve modulo a large prime p .

ANSWER: **Birch-Swinnerton-Dyer** conjecture [or **BSD** conjecture; note that Swinnerton-Dyer is one person]

15. This character keeps a copy of *The Notebooks of Malte Laurids Brigge* in his peacoat and reads it aloud to passengers on San Francisco public buses. For 10 points each:

[10] Name this man who is fired from his job for putting Barbie dolls in sexual postures. He marries the white girl Taña to avoid the Vietnam draft, and gives a rambling talk about race after putting on a three-day long play.

ANSWER: Wittman Ah Sing [accept either name]

[10] Wittman Ah Sing appears in *Tripmaster Monkey*, a novel by this Chinese-American author of *The Woman Warrior*.

ANSWER: Maxine Hong Kingston

[10] In *The Woman Warrior*, Kingston describes perceiving Americans as these figures after immigrating as a child. In Amy Tan's novel *The Hundred Secret Senses*, Kwan tells her sister Olivia that she has "yin eyes," enabling her to talk to these beings.

ANSWER: ghosts

16. When playing around with the Schwarzschild metric and this equation, you can show the conservation of energy per unit mass. For 10 points each:

[10] Name this equation which is derived by setting the derivative of the action functional to zero, which is central to the calculus of variations.

ANSWER: Euler-Lagrange equation

[10] The Einstein field equations are obtained by applying the Euler-Lagrange equations to the action for general relativity, which is typically written as equal to some constant times the integral of the product of the square of minus the determinant of the metric and this quantity.

ANSWER: Ricci scalar or scalar curvature

[10] The experimentally determined value of the vacuum energy density in the Lambda-CDM model is about 0.73 relative to this quantity, at which the global geometry of the universe is flat.

ANSWER: critical density

17. The protagonist of this novel describes her time at Madame Schreck's Museum of Women Monsters while telling her life story to the journalist Jack Walser. For 10 points each:

[10] Name this novel about Sophie Fevvers, an *aerialiste* in Colonel Kearney's troupe, who is known as the "Cockney Venus," and is famous for having a set of wings.

ANSWER: Nights at the Circus

[10] *Nights at the Circus* won the James Tait Black Memorial Prize for this English author of *The Bloody Chamber* and *The Infernal Desire Machines of Doctor Hoffman*.

ANSWER: Angela Carter

[10] Carter praised this author as a "moral pornographer" in an essay analyzing his works, which include *Philosophy in the Bedroom* and *Juliette*.

ANSWER: Marquis de Sade

18. This composer's earliest compositions are found in *Nannerl's Music Book*, which was originally written by his father Leopold for his sister, Maria Anna, to learn from. For 10 points each:

[10] Identify this composer, whose compositions were numbered by Ludwig von Köchel.

ANSWER: Wolfgang Amadeus Mozart

[10] This composition by Mozart contains a second-movement *Romanze* in B-flat minor in five-part rondo form that is abruptly interrupted by a rapid passage in G major. It plays during the ending and credits of *Amadeus*.

ANSWER: Piano Concerto No. 20 in D minor [or K. 466]

[10] The third movement of Mozart's Piano Concerto No. 20 employs this musical device, a rapidly ascending arpeggio often combined with a crescendo. This device was championed by a school of composers that included Johann Stamitz and Christian Cannabich.

ANSWER: Mannheim Rocket

19. Barbara Vaughn seeks to pass this structure to visit a man excavating the Dead Sea Scrolls in a novel by Muriel Spark. For 10 points each:

[10] Name this gate on the Green Line that separated the Israeli and Jordanian-held sections of Jerusalem after the 1948 Arab-Israeli War.

ANSWER: Mandelbaum Gate

[10] The Mandelbaum Gate was dismantled following Israel's victory in this brief 1967 conflict.

ANSWER: **Six-Day** War

[10] After the 1948 war, these Palestinian guerrillas raided Israeli settlements from Jordan and Egypt, leading to Israel's retaliatory strike on Kerameh. Jordan's King Hussein tried to diffuse the Black September civil war by proclaiming "we have come to the point...where we are all" these people.

ANSWER: **fedayeen** [or **fida'i**yun]

20. This work outlines the hierarchy of the five spiritual levels, starting at Dharam Khand and ending at Sach Khand. For 10 points each:

[10] Name this morning prayer whose opening part is the Mool Mantar. It's first words are Ik Onkar, meaning "one god".

ANSWER: **Japji** Saab

[10] The Japji Saab is found in this text, whose compilation was begun by Guru Nanak's successor Angad.

ANSWER: **Adi Granth** [or **Guru Granth Sahib**]

[10] Like the Punjabi language, the Adi Granth is written in this script developed by Guru Angad. It's name literally means "from the mouth of the Guru".

ANSWER: **Gurmukhi**