



NASAT 2016
Round 7

1. Thiourea catalysts rely on these phenomena to accelerate reactions. The tetrahedral intermediate formed in the chymotrypsin mechanism is stabilized by these phenomena in the oxyanion hole. In solution, carboxylic acid dimers occur because of these phenomena. The Grotthuss mechanism involves diffusion through a network of them. Polar solvents that *do not* exhibit these phenomena, like DMF and DMSO, are favorable for SN2 reactions. Molecules that exhibit them, such as ethanol, have extremely broad peaks to the left of 3000 wavenumbers on an IR diagram. Three of them occur between guanine and cytosine and two occur between adenine and thymine. The existence of these phenomena explains why ice floats and why water has an unusually high heat capacity. For 10 points, name these intermolecular bonds formed by a namesake element.

ANSWER: hydrogen bonds [or H bonds] <Nagari>

2. The title character of a poem by this author keeps his wife "in his mammoth fold" and fastens his children in the pen on an election day back when "people were not democrats". Another of his poems describes "gulfs enchanted... where the cold sea-maids rise to sun their streaming hair". This author of "The Dorchester Giant" and coiner of the term "Boston Brahmin" praised a "meteor of the ocean air" whose "thunders shook the mighty deep" in a poem whose speaker exclaims, "Tear her tattered ensign down!". This poet described a "ship of pearl" in a poem in which he hears a voice singing, "Build thee more stately mansions, O my soul". For 10 points, name this author of "Old Ironsides" and "The Chambered Nautilus".

ANSWER: Oliver Wendell Holmes, Sr. <Sy>

3. A pharmaceutical company in this city accidentally contaminated polio vaccines with live polio virus, infecting thousands of children with the virus in the Cutter Incident. Protesters mourning the death of James Rector were bombed with tear gas canisters dropped from helicopters in this city's People's Park. In 1974, the Symbionese Liberation Army abducted Patty Hearst from her apartment in this city. In one photo taken in this city, suit-clad students march through Sather Gate holding a poster reading "Free Speech". Mario Savio delivered the "Bodies Upon the Gears" speech on the steps of Sproul Hall in this city, which two years earlier saw the triumph of the Free Speech Movement. For 10 points, name this city home to the flagship campus of the University of California.

ANSWER: Berkeley <Lou>

4. This piece begins with two quarter note Gs and a mordent on A. It includes a canon at the unison, a canon at the second, and so on, all the way up to a canon at the ninth. The last movement of this piece is marked "da capo", and is thus an exact repeat of its first movement. A slow section of this piece in G minor, the parallel key, was described as its "black pearl" by Wanda Landowska (Vanda lan-DOFF-skah), who was the first to record it on period instrumentation. This piece's definitive recording was made by Canadian pianist Glenn Gould. It ends with a quodlibet, has a canon every three movements, and begins with an aria written to cure the insomnia of Count Keyserlingk. For 10 points, name this collection of variations for harpsichord written by J. S. Bach.

ANSWER: Goldberg Variations [or Goldberg-Variationen] <Kim>

5. In her book on these things, Sissela Bok, the daughter of Gunnar Myrdal, writes about the "publicity test". In his 1797 periodical *France*, the philosopher Benjamin Constant defended the right of people to create these things. An 1873 essay whose title has these things as the second noun claims that "a mobile army of metaphors" and metonyms is the definition of truth. Kant's response to Constant described the supposed right to create them "from benevolent motives", instead arguing these things were always a violation of the principle of right, even if there was a murderer at your door. Nietzsche wrote an essay about truth and these things "in a nonmoral sense". For 10 points, Augustine defined what things as words that are said "with purpose to deceive?".

ANSWER: lies [or obvious equivalents] <Cheyne>

6. This man's cunning is heavily played up in Jacob Robinson's book *And the Crooked Shall Be Made Straight*. He claimed that *Lolita* was "quite an unwholesome book" after being given it for relaxation purposes. A former traveling salesman for the Vacuum Oil Company, he was "blown into History", according to a study. A book about this man argues that he was a joiner, noting his attempts to join groups like the Schlaraffia and Wandervogel. That book controversially called him a more of a "clown" and peripheral bystander, not a monster. That book named for this man also argued that he was inherently unremarkable and introduced the phrase "banality of evil". For 10 points, Hannah Arendt analyzed the trial of what former Nazi in Jerusalem?

ANSWER: Adolf Eichmann (IKE-mahn) [or Otto Adolf Eichmann; or Eichmann in Jerusalem: A Report on the Banality of Evil] <Cheyne>

7. A finite extension field is described by this adjective if it is a separable splitting field over its base field. A topological space possesses this separation property if for any pair of disjoint closed subsets there exist two disjoint open sets each of which contains one of the closed sets. Ideals are the ring-theoretic analogues of subgroups of this type, which have coinciding left and right cosets that form the elements of factor groups. The equation of a plane can be calculated with a point on the plane and this type of vector relative to the plane. The z-score can be used to standardize a probability distribution described by this adjective. For 10 points, give this adjective that names a bell-shaped distribution also called Gaussian.

ANSWER: normal <Collins>

8. In a lyric sequence, this poet wrote that "death will not appal one who, past doubtings all, waits in unhope". This poet wrote, "Well, World, you have kept faith with me", at the beginning of a poem labeled "a reflection on my eighty-sixth birthday". This poet of "In Tenebris" and "He Never Expected Much" wrote, "The land's sharp features seemed to be the Century's corpse outleant", in a poem about a time when "every spirit upon earth seemed fervourless as I". In that poem of his, the singing of the title bird conveys "some blessed Hope, whereof he knew and I was unaware". For 10 points, name this Victorian poet of "The Darkling Thrush" also known for such novels as *Far from the Madding Crowd* and *Tess of the d'Urbervilles*.

ANSWER: Thomas **Hardy** <Casalaspì>

9. The governor of an occupied territory in this war garnered support by immediately promising all of his subjects a free color television to watch the World Cup. Peter Holdgate's photograph of a marine with a flag attached to his radio aerial, *The Yomper*, was taken during this war. In the Black Bucks raids, one side in this war used Vulcan Bombers to destroy an enemy airfield. Torpedoes from a nuclear submarine sunk the *General Belgrano* during this conflict. Fighting at Goose Green preceded the fall of Port Stanley in this war, causing an effective end of hostilities and the resignation of Leopoldo Galtieri from office. For 10 points, name this war in which British troops were ordered by Margaret Thatcher to reclaim an archipelago from Argentina.

ANSWER: **Falklands** War [or **South Atlantic** War; or Guerra del **Atlántico Sur**] <Droge>

10. The Franciscan friar Francesco Calcagno was executed for suggesting that this book features a homoerotic relationship between two men. In an odd aside near the end of this book, the author refutes the claim that a man would never die, analyzing the phrase "if it is my will that he remain until I come, what is that to you?". Theories regarding the identity of a mysterious, unnamed person in this book include Lazarus, Mary Magdalene, and the host of the Last Supper. That figure in this book is told "Here is your mother" by Jesus at the crucifixion, referring to the Virgin Mary. Prominently featuring the "beloved disciple", this book begins with the line "In the beginning was the word". For 10 points, what gospel is believed to be written by a son of Zebedee and is a non-synoptic text?

ANSWER: Gospel According to **John** <Marvin>

11. This province was home to tribes such as the Lillooet who lived in pithouses called quiggies. The Dakelh, or Carrier people in the interior of this province traded in nutritious oolichan fat using "grease trails". Salmon fishways were built after rail construction obstructed flow through this province's Hells Gate. The rape of a Nlaka'pamux (in-kluh-CAP-muh) woman precipitated a war with white miners who had traveled to this province following announcements of gold by governor James Douglas, who later negotiated with Winfield Scott during a conflict over whether Britain or the United States owned the San Juan Islands off the coast of this province. This province's Fraser River passes west of the Canadian Cascades before emptying into the Pacific near Vancouver. For 10 points, name this Canadian province directly north of Washington state.

ANSWER: **British Columbia** <Smart>

12. These buildings are called "instruments of service" in a manifesto written by John Entenza. Two headlights from a Ford Model A decorate the stairwell of an International Style building of this type designed by Richard Neutra. *Arts & Architecture Magazine* sponsored the Eameses to design the eighth of many experimental "case study" buildings of this type. Approximately sixty L-shaped examples of these buildings were termed "Usonian", by an architect who created one nicknamed the "steamship" near the University of Chicago in his Prairie style, and designed a cantilevered one in rural Pennsylvania above a waterfall. For 10 points, identify this type of building, American examples of which include Frank Lloyd Wright's "Robie" one and Fallingwater.

ANSWER: houses [or homes; or residences] <Gupta>

13. The linear stability of a fluid in this configuration is governed by the Orr–Sommerfeld equation, which can be used to derive Squire's theorem for this configuration. Dendritic growth and viscous fingering is a feature of a fluid in this configuration in a cell named for Henry Selby Hele-Shaw, of variable-pitch propeller fame. It is used to approximate flow between two cylinders when analyzing Couette flow. Quantum vacuum fluctuations of the electromagnetic field create a small attractive force when this configuration exists in a vacuum. Part of it is replaced by an electrolyte in e-caps. A measure for this configuration is equal to permittivity times area over separation and can be scaled up by including a dielectric inside this configuration. For 10 points, name this configuration used by many capacitors.

ANSWER: between parallel plates [or parallel flow; or two-dimensional flow; or flow with no z-component until "create a small attractive force" is read] <Voight>

14. A play by this author calls for an actor to hand a piece of knitting belonging to a deceased woman to a male audience member, making him complicit in the plot of the drama. In that play of his, a man who is in love with the prostitute Vertu dons shoe polish before committing a rape and a murder. A character created by this author refuses to act like Saint Theresa, preferring to remain the bookkeeper while spying on the visitors at an establishment referred to as the House of Illusions. He wrote a drama in which a Bishop, a Judge, and a General are among the clients of Irma, who transforms into the Queen during the course of a violent revolution outside of her brothel. For 10 points, name this French absurdist playwright of *The Blacks* and *The Balcony*.

ANSWER: Jean Genet (john juh-NAY) <Droge>

15. A king of this name and number executed the March Across the Belts as part of his series of attacks on Copenhagen. That king of this name and number House of Palatinate-Zweibrücken (ts-FYE-brook-en) to rule his country and instigated the Second Northern War after he succeeded Queen Christina in Sweden. Jean-Baptiste de Villèle (vih-LEL) passed the Anti-Sacrilege Act during the reign of a different monarch of this name and number, who incited a revolution by announcing the Ordinances of Saint-Cloud (san-CLOO). Jules de Polignac (po-leen-YOCK) served as Prime Minister under a king of this name and number, who succeeded his brother Louis XVIII as ruler of France. For 10 points, give this name and number of the monarch who was deposed in the July Revolution.

ANSWER: Charles X [prompt on Charles] <Droge>

16. Aminias committed suicide after receiving one of these objects from Adonis. Another one of these objects saves Yamato-takeru from a treacherously-set grassfire. The river Van was created when one of these objects was placed in the mouth of Fenrir. Svafrlami forced the dwarves Dvalinn and Durin to make one of these objects, which was cursed to kill a man every time it was used, named Tyrfing. Amaterasu used one of these objects to create the Three Goddesses of Munakata in a competition with Susanoo. Another one of them was retrieved by Susanoo from the tail of the dragon Orochi and was named Kusanagi. A king received one of these weapons from the Lady of the Lake. For 10 points, name this weapon, one of which Arthur pulls from a stone.

ANSWER: swords <Nagari>

17. In a riot against one of these businesses owned by Alexander Contee Hanson in Baltimore in 1812, Light-Horse Harry Lee was severely injured. The German immigrant Wilhelm Pratt fled Baltimore after his business of this type was targeted by participants in the Pratt Street riots. The mythical Argus was the namesake of one of these businesses founded by Kitchen Cabinet member Amos Kendall. An abolitionist who ran one of these businesses was put in Boston's Leverett Street Jail for his own protection against a mob in 1835. A mob in Alton, Illinois, destroyed one of these businesses and killed its owner. Businesses of this type were run by Elijah Lovejoy and William Lloyd Garrison. For 10 points, name these businesses, exemplified by the *New York Tribune*.

ANSWER: newspapers [prompt on printing press] <Bentley>

18. In this painting, the artist's signature is written on a blade that sits next to a match container and a rolled up newspaper in the foreground. The table in this painting closest to the viewer is connected by a plank to another table on which a glass pitcher atop a silver platter obscures a woman's arm. The woman in this painting also modeled for Edouard Manet's thematically-similar *The Plum*. This painting, originally titled "A Sketch of a French Café", was rechristened in 1893 and shown to English audiences, who reacted with moral outrage. In this painting, the actress Ellen Andrée wears a white headpiece and stares morosely at an untouched glass of the title alcohol. For 10 points, name this painting by Edgar Degas.

ANSWER: *L'Absinthe* (lob-SANT) [or *Glass of Absinthe*; or *The Absinthe Drinker*; or *A Sketch of a French Café* until it is read; or *Figures at Café* until "A Sketch of a French Café" is read] <Gupta>

19. Tetrahydro-biopterin is a cofactor for aromatic amino acid hydroxylases, AGMO, and the synthase for this molecule. NADPH and O₂ undergo redox reactions to produce citrulline and this molecule from arginine by a namesake enzyme that also binds FMN, FAD, heme, and calmodulin. This signaling molecule can be made using neuronal, cytokine-inducible, and endothelial isozymes. This cGMP-stimulating molecule can synergize with Viagra to relax penile smooth muscle and facilitate erections. The cardioprotective effects of nitroglycerine arise from its conversion to this gaseous molecule, which is necessary for vasodilation. For 10 points, name this diatomic gaseous molecule that has one fewer nitrogen than nitrous oxide.

ANSWER: nitric oxide [or NO; or nitrogen monoxide] <Smart>

20. The speaker of a poem by this author thinks of "men like Hawkins, Walter Raleigh, Drake, ancestral murderers and poets, more perplexed in memory now by every ulcerous crime". In that poem, he described how "a smell of dead limes quickens in the nose", representing "the leprosy of empire" recalled by the "disjecta membra" of the title place. The speaker of another poem by this author alludes to "the ancient war between obsession and responsibility" and declares, "The classics can console. But not enough". This poet of "Ruins of a Great House" and "Sea Grapes" included the blind man Seven Seas in an epic poem in which Hector and the fisherman Achille fight for the love of Helen. For 10 points, name this poet from St. Lucia who wrote the epic poem *Omeros*.

ANSWER: Derek **Walcott** [or Derek Alton **Walcott**] <O'Rourke>

21. This person implemented the Rolls of Oleron, one of the first European maritime laws. While accompanying this non-Spaniard, the mercenary Mercadier was slain. In a likely false story, this person is said to have penetrated a labyrinth and forced Rosamund Clifford to kill herself. William of Tyre blamed the size of this person's baggage train for a disastrous campaign in the Holy Land. According to Andreas Capellanus, the "Court of Love" at Poitiers was where this person and Countess Marie of Champagne taught chivalry. This person legendarily dressed like an Amazon during the failed Second Crusade. A few weeks after her marriage to Louis VII was annulled, she married Henry II. For 10 points, what Duchess of Aquitaine was married to kings of both France and England?

ANSWER: **Eleanor** of Aquitaine <Cheyne>

1. This essay claims that "Poets are damned but they are not blind, they see with the eyes of angels". For 10 points each:

[10] Name this short essay by the author of *Asphodel, That Greeny Flower* that ends with the warning, "Hold back the edges of your gowns, Ladies, we are going through hell".

ANSWER: William Carlos **Williams' introduction to *Howl*** and *Other Poem* [or obvious equivalents]

[10] This Beat poet included "Transcription of Organ Music" and "A Supermarket in California" in his collection *Howl and Other Poems*.

ANSWER: Allen **Ginsberg**

[10] This poem was inspired by a hallucination Ginsberg had while reading William Blake, of whom he is reminded by the title plant, which is asked "when did you look at your skin and decide you were an impotent dirty old locomotive?".

ANSWER: "**Sunflower Sutra**" <Kendrick>

2. Two straight-line sections on this diagram can be back-extrapolated to find the exchange current density. For 10 points each:

[10] Name this diagram that plots overpotential against the logarithm of current density.

ANSWER: **Tafel** (TOFF-el) plot [or **Tafel** diagram]

[10] The x -coordinate of the intersection of the extrapolated straight-line sections on Tafel diagrams is this value. This value is equal to the negative Gibbs free energy change of the reaction over the Faraday constant times the number of electrons transferred.

ANSWER: standard **cell potential** [or standard **electrode potential**; or standard **reduction potential**; or **E -zero**; prompt on **potential**]

[10] Tafel diagrams are particularly useful in studying this oxidative electrochemical process. Stainless steel is resistant to this process.

ANSWER: **corrosion** [or **rusting**] <MacAulay>

3. This title refers to a Hebrew word that means arrogance or pride. For 10 points each:

[10] What term was used in a more approving way to refer to brilliant rabbis in various time periods? In the 1700s, Elijah ben Solomon Zalman was one of these people in Vilnius.

ANSWER: **gaon** (gah-OWN) [or **geonim**]

[10] The Vilna Gaon was an expert of this text in Judaism which consists of the Mishnah and Gemara. It is the basis of Jewish law.

ANSWER: **Talmud** [or **Shas**]

[10] The Vilna Gaon was a member of the mitnagdim, who were opposed to this Jewish sect founded by Ba'al Shem Tov.

ANSWER: **Hasidic** Judaism [or **Hasidism**] <Cheyne>

4. This thing was established by a 1976 constitutional amendment, and in 2015 was the source of a 2,072-dollar dividend given to every person in the state. For 10 points each:

[10] Identify this fund, which receives 25 percent of the state's annual oil royalties.

ANSWER: Alaska Permanent Fund

[10] Alaska's governor, Bill Walker, ran as an independent after leaving this party. A former governor of Alaska who belonged to this party started her career as Mayor of Wasilla.

ANSWER: Republican Party [or GOP; or Grand Old Party]

[10] Walker controversially wants to introduce one of these things to Alaska. Bill Gates, Sr. led an unsuccessful campaign to introduce one of these things in Washington state in 2010 through Initiative 1098, arguing that it was more progressive than the current system.

ANSWER: a state income tax <Bentley>

5. This colony was led for a time by the Council of Twelve Men and led attacks on Pavonia and Corlear's Hook. For 10 points each:

[10] Name this colony which fought with the Algonquin in the Peach Tree War while being led by a man with a pegleg.

ANSWER: New Netherland [or New Netherlands; or Nova Belgica; or Novum Belgium]

[10] This peg-legged Director-General of New Netherland petitioned for religious freedom in the Flushing Remonstrance.

ANSWER: Peter Stuyvesant

[10] This director of New Netherland preceded Stuyvesant and provoked a namesake war with the Lenape in 1643.

ANSWER: William Kieft <Mehr>

6. The director of this film was hospitalized for a month after being attacked by the son of a man he had interviewed using hidden cameras. For 10 points each:

[10] Name this nine-hour-and-twenty-three-minute documentary directed by Claude Lanzmann that chronicles the events of the Holocaust at several concentration camps.

ANSWER: Shoah

[10] Authorities from this country were incensed at the film's supposed portrayal of its complicity in the Holocaust. The film *The Pianist* dramatizes the life of a musician from this country who survived the Holocaust.

ANSWER: Poland [or Polska; or Republic of Poland; or Rzeczpospolita Polska]

[10] Unlike his partner Gene Siskel, this longtime film critic for the *Chicago Sun-Times* declined to rank *Shoah* because he felt that it belonged to a class of its own.

ANSWER: Roger Ebert [or Roger Joseph Ebert] <Cheyne>

7. Harold Hobson wrote a belated positive review of this play, "The Screw Turns Again", which improved its reputation after a disastrous eight-performance run during its London debut. For 10 points each:

[10] Name this play in which Goldberg and McCann show up at a boarding house run by Meg and Petey Boles, apparently in search of piano player Stanley Webber, disrupting the title event.

ANSWER: *The Birthday Party*

[10] *The Birthday Party* was written by this British playwright who also wrote *The Dumb Waiter*.

ANSWER: Harold Pinter

[10] Irving Wardle wrote a 1958 review for *Encore* magazine that coined what three-word phrase for plays such as *The Birthday Party*, *The Room*, and *The Dumb Waiter*? This phrase, which suggests banal terror, was later retracted by Wardle as not applying to an author's plays after all.

ANSWER: comedy of menace [or comedies of menace] <Cheyne>

8. Consider a metric space equipped with metric function d . Suppose you have a sequence x -sub- n that converges to a limit L . For 10 points each:

[10] Because you are in a metric space, what property does this limit have?

ANSWER: it is unique [or there is only one limit]

[10] For the real numbers, a sequence converges if it is a Cauchy (koh-SHEE) sequence because the reals possess this property, meaning that every Cauchy sequence converges. A Hilbert space is an inner product space with this property.

ANSWER: complete

[10] If you consider the sequence one over n , you see that as n gets large, the denominator gets really big while the numerator remains constant, implying that the sequence one over n converges to this number.

ANSWER: zero <Collins>

9. This man outlived his son, military commander Ibrahim Pasha, by only a few months. For 10 points each,

[10] Name this leader who fought the Ottomans in a war that was ended by the Convention of Kutahya. The Treaty of Balta Liman effectively ended this leader's cotton monopoly.

ANSWER: Muhammad Ali Pasha [or Mehmet Ali Pasha; prompt on Ali]

[10] This title was used by Muhammad Ali and other members of his dynasty, such as Ibrahim Pasha, to refer to their status of ruler of Egypt.

ANSWER: Khedive (kay-DEEV) [or Khédive; or Hıdiv]

[10] The Treaty of Balta Liman was signed by the Ottomans and by this power, which ruled Egypt around the turn of the 20th century under the "veiled protectorate". Anthony Eden, a prime minister of this country, resigned after the Suez Crisis.

ANSWER: England [or Great Britain; or the United Kingdom] <Droge>

10. This character declares that wandering is his joy in the *lied* "Das Wandern", but later is driven jealous when a green-clad hunter wins the affections of the title woman. For 10 points each:

[10] Name this unnamed character who is later sung an E major lullaby by the brook in which he drowns himself.

ANSWER: the **miller** from *Die schöne Müllerin* [or the **protagonist** of *Die schöne Müllerin*; or the **narrator** of *Die schöne Müllerin*; or Der **Müller**; or obvious equivalents; do not accept "*Die schöne Müllerin*" or "the miller's daughter"]

[10] In this other song cycle, the narrator departs his beloved during a frigid night in the title time period, only to encounter a destitute hurdy-gurdy player and a linden tree that nostalgically beckons to him.

ANSWER: **Winterreise** (VIN-tuh-RYE-zuh)

[10] This Viennese composer wrote the song cycles *Die schöne Müllerin* (dee SHER-nuh MYOO-luh-rin) and *Winterreise* in addition to the *Unfinished Symphony*.

ANSWER: Franz **Schubert** [or Franz Peter **Schubert**] <Kim>

11. In one part of this experiment, men were given a Thematic Apperception Test and were assessed by how sexual they believed the images in the test appeared. For 10 points:

[10] Name this study conducted by Dutton and Aron in which men were more likely to be attracted to a woman after completing an anxiety-inducing task.

ANSWER: suspension **bridge** experiment [or shaky **bridge** experiment]

[10] Dutton and Aron's bridge experiment was a crucial piece of research demonstrating this concept, in which people mistakenly ascribe certain motivations. The first experiments about this concept were conducted by Schachter and Singer.

ANSWER: **misattribution of arousal** [do not accept "attraction" or "emotions"]

[10] Schachter and Singer's study of misattribution of arousal led them to create a two-factor theory of these phenomena, based on physiological arousal and cognitive labelling. Cannon-Bard and James-Lange are two other theories of these phenomena.

ANSWER: **emotions** <Mehr>

12. Answer the following about the consequences of lusting after Greek goddesses, for 10 points each.

[10] This Lapith king lusted so hard for Hera, that he had sex with a cloud shaped like her.

Unfortunately for him, Zeus created that cloud, and bound this idiot to a winged fiery wheel for eternity.

ANSWER: **Ixion**

[10] Actaeon was turned into a stag and torn apart by his own hounds after seeing this goddess of the hunt in the nude.

ANSWER: **Artemis**

[10] A race of centaurs on this island, the birthplace of Adonis's father Cinyras, was born when Zeus attempted to rape the goddess who had a cult site here, but his seed spilled on the ground. This time, though, there were no consequences because Zeus could do whatever he wanted.

ANSWER: **Cyprus** <Gupta>

13. A seventy-year-old man marries a fifteen-year-old girl and dies of jealousy in "The Jealous Extremaduran", a story from this collection. For 10 points each:

[10] Name this collection of twelve pieces of fiction. It includes "The Deceitful Marriage", in which Campuzano is robbed by his wife Doña Estefanía and ends up in the hospital, where he overhears a conversation between two dogs.

ANSWER: Exemplary Novels [or Novelas Ejemplares]

[10] The *Exemplary Novels* were written by this novelist, who also created a man who is defeated by the Knight of the White Moon.

ANSWER: Miguel de Cervantes

[10] Cervantes is best known for this novel in which the title delusional knight befriends Sancho Panza and rides the horse Rocinante.

ANSWER: Don Quixote [or *The Ingenious Gentleman Don Quixote of La Mancha*; or *El ingenioso hidalgo don Quijote de la Mancha*] <Collins>

14. Answer the following about things tangentially related to fluoropolymers! For 10 points each:

[10] Unusually, the piezoelectric polymer PVDF has a d33 value with property. Also unusually, auxetic materials have a Poisson ratio with this property, meaning they become thicker when stretched.

ANSWER: they are negative

[10] PVDF's inertness makes it popular in semiconductor foundries as a carrier for this type of water, which has been treated to remove nearly all contaminants.

ANSWER: deionized water [or DI water; or ultrapure water; or high-purity water]

[10] Microporous examples of this fluoropolymer can be made auxetic. This fluoropolymer has an extremely low coefficient of friction and is a popular coating on cookware.

ANSWER: Teflon [or PTFE; or polytetrafluoroethylene] <Voight>

15. Answer the following about speeches given on June 18, 1940, for 10 points each.

[10] This man delivered the "Appeal of 18 June" speech the day after France's capitulation to Germany, in which he asserted that "France is not alone" and urged the French to resist the German occupation.

ANSWER: Charles André Joseph Marie de Gaulle

[10] On the same day that the Appeal of 18 June speech was given, this speech was delivered by Winston Churchill. Its title comes from its last sentence, which imagines what men will say "if the British Empire and its Commonwealth last for a thousand years".

ANSWER: "this was their finest hour"

[10] The "finest hour" speech warned that if Britain was subjugated by Germany, then "the whole world... will sink into the abyss of a new dark age made more sinister, and perhaps more protracted, by the lights of" this two-word phrase.

ANSWER: "perverted science" <Lou>

16. After leaving the studio of the Cavaliere d'Arpino, the artist tried to make his independent mark with this painting, which features a still life with a backgammon board in the bottom-left. For 10 points each:

[10] Name this painting, often grouped with its artist's *The Fortune Teller*, as both depict people being duped. In this painting, the trick is carried out by a boy with a dagger at his side and a few extra objects tucked in his belt.

ANSWER: *The Cardsharps* [or Bari]

[10] This Baroque Italian painter illustrated genre scenes like *The Cardsharps* and emotional religious scenes replete with chiaroscuro (KYAR-oh-SKOO-roh), such as *The Calling of Saint Matthew*.

ANSWER: Caravaggio [or Michelangelo da Merisi; or Michelangelo da Merigi; or Michael Angelo Amerighi; do not accept or prompt on "Michelangelo"]

[10] Caravaggio frequently alluded to this profession in many genre scenes, as with the objects in a pile behind Cupid in *Amor Vincit Omnia*, with his painting of an androgynous boy sitting at a carpeted table, and with his 1595 group portrait of four classically-attired semi-nude youths, one reaching for a bunch of grapes.

ANSWER: musicians [or answers alluding to specific instruments, such as lute players, luthiers, or lutenists; prompt on performers or artists] <Gupta>

17. David II of Scotland was captured at this battle, at which the victors were commanded by William Zouche. For 10 points each:

[10] Identify this battle named after a religious monument erected in its aftermath by one of the nobles on the winning side.

ANSWER: Battle of Neville's Cross

[10] At the time, William Zouche was the archbishop of this city, once called Eboracum, making him the second-most important church official in England behind the Archbishop of Canterbury.

ANSWER: York

[10] Edward III's main force was unable to fight at Neville's Cross because it was besieging this French port city. Six magistrates offered to be executed in order to spare the city, but were saved by Philippa of Hainault's (ay-NOH) intervention.

ANSWER: Calais (kah-LAY) <Droge>

18. This book claims that "with the Lord a day is like a thousand years". For 10 points each:

[10] What New Testament epistle notes that Paul writes "some things that are hard to understand" and specifically claims that Paul's writings are Scriptures. It is widely regarded not to be written by its namesake.

ANSWER: Second Epistle of Peter

[10] Much of Second Peter is the same as this other New Testament epistle. Its namesake is a brother of Jesus, although some believe it to also be an apostle of Jesus who is the patron saint of lost causes.

ANSWER: Epistle of Jude

[10] Tradition holds that Peter was the first man to hold this religious position and that Francis is his direct successor.

ANSWER: pope [or papa; or Bishop of Rome] <Cheyne>

19. This character was born in Tennessee during a meteor shower. For 10 points each:

[10] Identify this unnamed character who meets Toadvine in Nacogdoches (NACK-uh-DOH-chiss). At the end of the novel in which he appears, some men recoil in horror when they find this corpse in an outhouse in Fort Griffin, Texas.

ANSWER: the **kid** [prompt on the man]

[10] The kid is the protagonist of this author's novel *Blood Meridian*. He won the U.S. National Book Award for *All the Pretty Horses* and has also written about hitman Anton Chigurh in *No Country for Old Men*.

ANSWER: Cormac **McCarthy** [or Charles **McCarthy**]

[10] In *Blood Meridian*, the kid frequently encounters a tall, hairless man named Holden who goes by this title. The villainous Jaffrey Pyncheon has this title in Hawthorne's *The House of the Seven Gables*.

ANSWER: **judge** <Cheyne>

20. A cube filtering wavelengths outside the 460 to 490 nanometer band is named for the iso-thio-cyanate derivative of this fluoro-phore. For 10 points each:

[10] Name this green-emitting compound used in fluorescence microscopy. Derivatives of it include FITC and rose bengal, which is used as a stain for visualizing damaged parts of the eye.

ANSWER: **fluorescein** (floor-ESS-ee-in)

[10] The Y and B types of this fluorescein (floor-ESS-ee-in) derivative are used to stain basic compounds red or pink. It is used as a counterstain to hematoxylin.

ANSWER: **eosin**

[10] Eosin Y is made by adding this halogen to the 3, 4, 5, and 6 positions of fluorescein. A salt of ethidium and this element's anion is used as a fluorescent intercalating agent. It's a "fuming" red-brown liquid at room temperature.

ANSWER: **bromine** <Smart>

21. This quantity is defined as the second partial derivative of flux with respect to the solid angle and the projected area. For 10 points each:

[10] Name this directional quantity, the power of light per unit area incident on a surface. It is denoted by big L -sub- e -comma- ω to distinguish it from photometric quantities, such as luminance.

ANSWER: **radiance**

[10] The units of radiance are watts over this dimensionless unit times over a square meter. A solid angle is represented as this unit multiplied by the spherical cap surface area and divided by the radius squared.

ANSWER: **steradians** [prompt on sr]

[10] This number times pi steradians is the maximum solid angle subtended by a curved surface. Many physics equations feature this number times pi due to integral formulations in spherical coordinates, including the denominator of Coulomb's law.

ANSWER: **four** <Smart>