

### ACF Fall 2013

Packet by Caltech A (John Christian, Eric Bobrow, Webster Guan)

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1. At this opera's premiere, a portion of it written by Franco Alfano was not performed. One character in this opera remains faithful to her master because a prince smiled at her. The title character of this opera sings "In questa reggia," and is advised by three men named Ping, Pang and Pong. The Prince of Persia is executed near the start of this opera, in which Calaf successfully answers three riddles and sings this work's most famous aria, whose name translates to "None shall sleep." For 10 points, name this opera about Calaf's love for the title Chinese princess, a work by Giacomo Puccini that features the aria "Nessun dorma."

ANSWER: **Turandot**

2. One side in this battle employed the tactic of "hugging the enemy," where fighting from close range minimized the effectiveness of long-range firepower. Prior to this battle, one side's orders declared "Not a step back." In this battle, an apartment building was held for two months through an anti-tank rifle mounted on the roof at Pavlov's House. This battle featured an assault on the Romanian 3rd Army to allow the encirclement of the German 6th Army of General Paulus in Operation Uranus. This battle reversed the eastward momentum of Operation Barbarossa. For 10 points, name this battle in which German forces were unable to capture and hold a Russian city on the Volga River.

ANSWER: Battle of **Stalingrad**

3. The Aztec one of these gods was the dedicatee of the month of Panquetzaliztli, and warred with the Four Hundred Southerners shortly after his birth, brought about by his mother's impregnation by a ball of feathers. That son of Coatlicue was also responsible for the creation of the moon when he killed his sister and threw her head up into the sky, and was known as the "left-handed hummingbird." In addition to Huitzilopochtli, these figures include one who raped a daughter of King Numitor of Alba Longa, fathering a pair of twins on Rhea Silvia. Those twins were suckled by a wolf before founding Rome. For 10 points, name these gods that include Mars, who loves combat.

ANSWER: **war** gods [Accept anything related to battles or fighting. Accept **Huitzilopochtli** before mention.]

4. This man called for justices to travel the land and issue writs of *Quo Warranto* to inquire into the legal rights of the lords through the Statute of Gloucester. Prior to his ascension to the throne, this man and Gilbert de Clare won the Battle of Evesham, ending the Second Barons' War. This king arranged a truce with Philip the Fair and returned to England following news of defeat at the Battle of Stirling Bridge. Upon his return, he organized an invasion that secured victory at Falkirk, where he defeated the forces of William Wallace. For 10 points, identify this English king who succeeded Henry III and was known as "Hammer of the Scots."

ANSWER: **Edward I** [Accept **Edward Longshanks**.]

5. A theory of "multiple" types of this quality was proposed in the 1983 book *Frames of Mind* by Howard Gardner. The Three Stratum and Cattell-Horn-Carroll theories break this quality down into "fluid" and "crystallized" types. Raven's Progressive Matrices are used to measure Charles Spearman's "g factor" for this quality, which is constantly rising in a phenomenon known as the Flynn effect. Richard Herrnstein and Charles Murray argued that genetics and environment account for racial differences in measurements of this quality in *The Bell Curve*. The Stanford-Binet test is one common measure of it. For 10 points, name this mental faculty measured in a "quotient."

ANSWER: **intelligence** [Accept more specific terms such as **intelligence quotient** or **fluid intelligence** or **multiple intelligences**. Prompt on **IQ**.]

6. This man secretly funded and helped organize the plaintiff's case in *Giles v. Harris*. In one speech, he mentioned the possibility of being "as separate as the fingers, yet one as the hand" and instructed his audience to "cast down your bucket where you are." The Niagara Movement condemned this man's speech in Piedmont Park as the "Atlanta Compromise," and called this author of *Up From Slavery* the "Great Accommodator" because he was willing to allow whites to continue to dominate politics. For 10 points, name this founder of the Tuskegee Institute and rival of W. E. B. Dubois.

ANSWER: Booker Taliaferro Washington

7. In this novel, Varenekha's shadow ceases to be visible after he is bitten by a young redhead vampire. Hella, that character's companion, goes by Koroviev and meets the landlord Bosoi after Berlioz is decapitated by a streetcar. A literary union called MASSOLIT opposes the work of this novel's first title character, who rewrites the story of the trial of Jesus and later meets Ivan Bezdomny in an insane asylum. A massive cat in this work named Behemoth accompanies a strange professor named Woland, who is really Satan in disguise and hosts a ball attended by the second title character. For 10 points, name this satire of the Soviet Union, a novel by Mikhail Bulgakov.

ANSWER: *The Master and Margarita*

8. This work's narrator takes on a job previously held by a Dane named Fresleven who died in a dispute over some hens. The narrator of this work notes that "the snake had charmed me" in reference to a map he pored over as a child. A Russian assistant to this work's protagonist is called "Harlequin" because of his multicolored clothing. Another character in this work paints a dark portrait of his fiance and ends a report with the line "Exterminate all the Brutes!" This work takes place aboard the *Nellie* as Charles Marlow describes a man whose last words were "The horror, the horror!" For 10 points, name this work by Joseph Conrad about a voyage up the Congo to find Kurtz.

ANSWER: *Heart of Darkness*

9. In a CCD, correlated double sampling can be used to reduce the presence of this phenomenon. In capacitors, a type of this phenomenon with mean square voltage equal to Boltzmann's constant times temperature over capacitance is caused by thermal excitation of electrons and is known as its Johnson-Nyquist variety. The shot variety of this phenomenon results from slightly different arrival times of discrete inputs to a system. A lock-in amplifier can be used to maximize the ratio of signal to this phenomenon, which is called "white" when its power spectrum is constant. For 10 points, give this term for unwanted disturbances in signals due to random fluctuations.

ANSWER: noise [accept Johnson-Nyquist noise; or shot noise; or white noise]

10. This work compares politicians to quarreling sailors on a ship who cannot navigate, while the true navigator is a stargazer. The soul's immortality is espoused in a story in this work about Lady Necessity doling out lottery tickets determining future lives, the Myth of Er. In this work, Glaucon argues that morality is a product of fear by telling the story of an object that makes its wearer invisible, the Ring of Gyges. Prisoners who can see only shadows have reality slowly revealed to them so they may reach the "Form of the Good" in this work's "Allegory of the Cave." For 10 points, name this Platonic dialogue that outlines the ideal, just society run by philosopher-kings.

ANSWER: *The Republic* [or *Politeia*]

11. This process begins with an aldol condensation of a thioester to form cis-acconitate. Plants use glyoxylate rather than undergoing the two consecutive decarboxylations which transform a tricarboxylic acid into succinate during this process. Flavin adenine dinucleotide, or FAD, is doubly reduced in this pathway. In this process' first step, acetyl coenzyme A reacts with oxaloacetate to form this pathway's namesake compound, which is oxidized several times to produce NADH for the electron transport chain. For 10 points, name this metabolic cycle which occurs in the mitochondrial matrix during cellular respiration.

ANSWER: Szent-Gyorgi-Krebs cycle [Accept citric acid cycle; accept tricarboxylic acid cycle before it's mentioned, prompt after.]

12. This literary character has five crates of oranges and lemons delivered to his doorstep every week. When he asks an orchestra to play Tostoff's *Jazz History of the World*, women swoon and fall silent. Lucille suggests that this man might be a German spy during a party this character hosts. Mentored by Dan Cody in his youth, this graduate of St. Olaf's frequently gazes at a bright green light at the end of the dock from his home in West Egg. This man is shot and killed by the husband of Myrtle Wilson, who is run over by his love Daisy Buchanan. For 10 points, name this title character of a novel narrated by his neighbor Nick Carraway, a creation of F. Scott Fitzgerald.

ANSWER: Jay Gatsby [Accept *The Great Gatsby*.]

13. A woman arranges flowers over a bowl of fruit in this man's first major painting, *The Dinner Table*, while a view of boats on a pink sea dominates his work *The Open Window*. He pasted uniformly colored rectangles into a spiral in *The Snail*, an example of his paper cuts. Another of his paintings is sometimes called *The Dessert* and shows a room in which the wall and the tablecloth are the same color. The background of this man's *The Joy of Life* includes the scene from his most famous work, in which five figures hold hands in front of a blue and green background. For 10 points, name this artist of *The Red Room* and *The Dance*, an important figure in the Fauvist movement.

ANSWER: Henri-Émile-Benoît Matisse

14. The maar type of these objects results when groundwater comes into contact with hot magma. A landform sometimes referred to by this name is formed by erosion in the Negev desert of Israel. That object is also called a makhtesh. These objects frequently have a "breccia lens" at their base, composed of rocks broken during their formation. Mimas, one of Saturn's moons, features a distinctive one of these objects named Herschel. The collapse of Mount Mazama in Oregon created one of these objects that now holds a lake. For 10 points, name these large bowl-shaped depressions in the ground which commonly result from volcanic eruptions or meteor impacts.

ANSWER: crater

15. These compounds can be formed by reacting acyl halides with lithium dialkylcuprates. The ozonolysis of tetra-substituted alkenes results in two molecules with this functional group. Reacting these compounds with hydrazine and a strong base results in their complete conversion to alkanes. Acids or bases can catalyze their tautomerization into enols, and they can be synthesized by the oxidation of secondary alcohols. The simplest one of these is used to clean glassware in chemistry labs and is also found in nail polish remover. For 10 points, name this type of compound exemplified by acetone that contains a carbonyl attached to two alkyl groups.

ANSWER: ketone [Prompt on "carbonyls."]

16. Tertullian called penance and this process the two "planks" on which people may be saved from shipwrecks, in his book titled for it. Catechumens have never undergone this process. In the Bible, an instance of this process leads to the line, "This is my beloved Son, in whom I am well pleased." Variants of this practice include affusion and aspersion. Matthew 3:11 mentions that "he that cometh after me" will perform this with the Holy Ghost and with fire, instead of "in the name of the Father, the Son, and the Holy Ghost." A namesake font is used for this practice. For 10 points, name this first sacrament, a ritual that John performed on Jesus by pouring water on him.

ANSWER: baptism

17. Shortly after taking power, this ruler defeated the Shardana sea pirates, many of whom joined in this man's personal bodyguard. This man memorialized the conquest of Nubia in the walls of the Beit el-Wali temple complex. He secured food aid for the people with whom he signed the first recorded peace treaty in history, and he led troops for his father Seti I. He celebrated the Sed Festival to mark the 30th year of his 66-year reign and ordered great building projects like the tomb of his consort Nefertari and the temple complex of Abu Simbel. This pharaoh also fought Muwatallis and the Hittites at the Battle of Kadesh. For 10 points, name this New Kingdom pharaoh.

ANSWER: **Ramses II** [Accept **Ramses the Great** or **Ramesses II**. Prompt on “Ramses.”]

18. The composer of this work was inspired in its composition by Alan Leo’s book *The Art of Synthesis*. Originally titled Seven Orchestral Pieces, it was partially written while the composer taught at a school in Dulwich. One theme from it was transformed into the song “I vow to thee, my country.” Its last section features an off-stage women’s choir that gradually fades away, while its first section was the result of its composer’s disgust with war. Its sections have subtitles like “the Mystic” and “the Bringer of Jollity.” For 10 points, name this suite by Gustav Holst whose sections have names like “Neptune,” “Jupiter,” and “Mars.”

ANSWER: *The **Planets**, Op. 32*

19. One character on this show distinguishes between reputations that are “solid” and those that are “only rumors.” Another character becomes the hero of the Mudders of Canton by inadvertently delivering a large windfall to them. One character repeats the phrase “two by two, hands of blue,” a reference to her time in a secret government project. In this show’s pilot episode, Wash successfully avoids a Reaver attack, and Mal Reynolds reluctantly agrees to take on Simon and River Tam. For 10 points, name this Joss Whedon-created TV series cancelled by Fox after one season, which starred Nathan Fillion and focused on the adventures of the spaceship *Serenity*.

ANSWER: **Firefly**

20. A title character of one work by this author wears the costumes of his own characters, who include a boy who seeks revenge on the rats that ate his sister. Don Fermin’s past as a prominent member of the underworld is revealed to his son in a novel by this author which recounts the meeting of Ambrosio and Santiago Zavala in a bar. This author of *Conversation in the Cathedral* also wrote about the cadets at the Leoncio Prado Academy in *The Time of the Hero*. In another work he interwove the romance of an employee of Radio Panamericana with the radio plays of Pedro Camacho. For 10 points, name this author of *Aunt Julia and the Scriptwriter*, a Nobel Laureate from Peru.

ANSWER: Mario **Vargas Llosa**

21. The delta of this country’s principal river contains the El Pao Iron Mine on a mountain known as El Florero. In 2004, this country declared a state of emergency when 18% of its largest lake’s surface became infested with *Lemnoideae*, or duckweed. Air masses bounded by the Perijá Mountains and the Cordillera de Mérida produce storms that generate over 200 lightning strikes per hour near the mouth of this country’s Catatumbo River. The Churún River flows over the Auyán tepui in this country, producing a feature named for an American aviator that is the world’s tallest waterfall. For 10 points, name this country home to Lake Maracaibo, Angel Falls, and Caracas.

ANSWER: Bolivarian Republic of **Venezuela**

X. A site at Wairau Bar exemplifies this people’s *kainga* settlement. The first groups of these people preyed upon the moa and Haast eagle, and they displaced their native kumara tubers with potatoes following European contact. Robert Fitzroy’s installation of a certain structure induced these people to fight in a war that led to Korareka’s burning, a conflict incited by Hone Heke. These participants in the Flagstaff and Musket Wars are divided into *iwi* led by chiefs called *rangatira*, and a group of them who migrated to the Chathams became the Moriori. These people signed the Treaty of Waitangi with William Hobson. For 10 points, name these indigenous people of New Zealand.

ANSWER: **Maori**

X. The EnzCheck and PiPer assays are two methods of spectrophotometrically determining the concentration of this ion. Two of these ions are attached to dimethylallyl and isopentenyl groups in precursors of terpene; when dimerized in that way, this ion is prefixed with “pyro.” Kinases append these molecules to certain amino acid residues on proteins, and electrophoresis works by using a voltage to drive these ions in DNA toward the positive ends of the

gel. This anion forms a weak triprotic acid, and the breaking of bonds to it often provides the energy for biochemical processes. For 10 points, name this ion found once in the structure of AMP and three times in ATP.

ANSWER: phosphate ion [or PO<sub>4</sub><sup>3-</sup>]

X. This novella's protagonist shows disgust at a man with seal rings on his forefingers while riding a motorboat from Pola. Prior to his trip, that man in this work sequesters himself at home in an obsessive attempt to maximize his work. This work's protagonist gains royal honors after writing a prose epic about Frederick the Great and is told to worry about a sirocco, but not a cholera outbreak. A child in this novella loses a wrestling bout against Jaschiu. This work's protagonist dies after eating overripe strawberries, ending his pursuit of the young Tazio. For 10 points, name this novella by Thomas Mann about the demise of Gustav von Aschenbach while on vacation in Italy.

ANSWER: Death in Venice

1. This author wrote about a man who tries to pass his failures off as "spiritual victories" in *The True Story of Ah Q*. For 10 points each:

[10] Name this Chinese author, who included *The True Story of Ah Q* and a short story about a failed applicant to the civil service, "Kong Yiji," in his collection *Call to Arms*.

ANSWER: Lu Xun [Accept Lu Hsün or Zhou Shuren.]

[10] Lu's "A Madman's Diary," in which a man finds cannibalistic messages in texts, was inspired by this Russian's "Diary of a Madman." Akaky asks a "Very Important Person" to find the title object in this author's "The Overcoat."

ANSWER: Nikolai Vasilievich Gogol

[10] In a short story by Gogol, Kovalyov notices that this organ is missing from his body and parading around St. Petersburg. A Buddhist priest obsesses over the size of this organ in an Akutagawa short story named for it.

ANSWER: nose

2. Name the following about the bridges of Paris. For 10 points each:

[10] Paris contains 37 bridges that span this river, which flows through the city on its way to the English Channel.

ANSWER: the Seine [or La Seine]

[10] The Pont Neuf, Paris's oldest bridge, consists of two separate spans that join at the Ile de la Cité, which houses this Gothic cathedral.

ANSWER: Notre Dame de Paris [or Notre Dame Cathedral]

[10] The Grand Palais is located next to this bridge, which is surrounded by four gilt bronze statues and named after the Russian tsar who formed an alliance with France in 1892.

ANSWER: Pont Alexandre III [or the Alexander III Bridge. Prompt on Alexander Bridge.]

3. In one portrait, this man is seated at a desk, staring at the viewer with his chin in his right hand. For 10 points each:

[10] Identify this silversmith, who is shown in that portrait with a teapot in his left hand. A large church spire dominates the left side of a Grant Wood painting depicting this man's most famous action.

ANSWER: Paul Revere

[10] The *Portrait of Paul Revere* was painted by this American artist, who showed two men trying to rescue a man about to be eaten by the title animal in *Watson and the Shark*.

ANSWER: John Singleton Copley

[10] Gilbert Stuart is best known for his unfinished portrait of this other Revolutionary War figure. This man is shown in heaven in Constantino Brumini's painting of his apotheosis.

ANSWER: George Washington

4. While serving in this position, J. Lee Rankin argued for reversal of the lower court's decision as amici curiae for the ACLU in the case of *Gideon v. Wainwright*. For 10 points each:

[10] Name this position whose responsibilities were previously held by the Attorney General. The holder of this position supervises litigation for and represents the government in relevant Supreme Court cases.

ANSWER: **Solicitor General** of the United States

[10] This Solicitor General became Acting Attorney General after he acceded to Nixon's order to fire Archibald Cox during the Saturday Night Massacre. His nomination by Reagan to the Supreme Court was shot down by the Senate.

ANSWER: Robert **Bork**

[10] The Saturday Night Massacre occurred during this scandal. It involved wiretapping and burglary in the namesake office complex, eventually leading to the resignation of Richard Nixon.

ANSWER: **Watergate** Scandal

5. A bright point that appears in one form of this phenomenon is known as an Arago spot. For 10 points each:

[10] Name this effect, also observed in the double-slit experiment, which involves the bending of a wave around a boundary.

ANSWER: **diffraction**

[10] This type of diffraction occurs in the near field, where the wavelength is comparable to or larger than the square aperture radius divided by its distance. It is contrasted with far-field, or Fraunhofer, diffraction.

ANSWER: **Fresnel** diffraction

[10] The diffraction-limiting of an imaging system's angular resolution is described by this rule, which sets the angular resolution equal to 1.22 times the ratio of the light's wavelength to the diameter of the lens aperture.

ANSWER: **Rayleigh** criterion

[Note to moderator: Do not read out the alternate answer lines for the first part.]

6. This organization procured a copy of Nikita Khrushchev's Secret Speech and sent it to the US to be published, and it executed two bus hijackers without trial in the Kav 300 Affair. For 10 points each:

[10] Identify this organization, which, along with Mossad and Aman, constitutes the intelligence service of a certain nation. It is currently directed by Yoram Cohen.

ANSWER: **Shin Bet** [Accept **Shabak**, **Israel Security Agency**, or **Sherut haBitachon haKlali**, or **General Security Service**.]

[10] Shin Bet is the domestic intelligence agency of this country, which has been involved in disputes over the area of Palestine with its Arab neighbors since it was created in 1948. It has capital at Jerusalem.

ANSWER: State of **Israel** [or *Medīnat Yisrā'el*]

[10] Under one of this man's terms as Prime Minister of Israel, the Mossad captured Nazi Adolf Eichmann in Argentina and brought him to trial in Israel. This founder of the Rafi Party served as the first prime minister of Israel.

ANSWER: David **Ben-Gurion**

7. After this man returns from the Trojan War, he is murdered by his wife Clytemnestra so that Aegisthus can take the throne. For 10 points each:

[10] Name this member of the House of Atreus whose name titles the first part of the *Oresteia*. His death is avenged by his children, Orestes and Electra.

ANSWER: **Agamemnon**

[10] *Agamemnon* and the rest of the *Oresteia* are tragedies by this Greek playwright. Eteocles and Polynices feud for the throne in his play *Seven Against Thebes*.

ANSWER: **Aeschylus**

[10] In the final play of the *Oresteia*, the Furies torment Orestes for his role in the death of his mother, and take him to this hill, where Athena convenes a jury. A pamphlet opposing censorship by John Milton is named for this place.

ANSWER: the Areopagus

8. One thinker from this country wrote that “positive thinking and neo-positivist philosophy” provide support for a technological society that makes us wealthier but not happier. For 10 points each:

[10] Name this country whose philosophers included Walter Benjamin, Theodor Adorno, and Max Horkheimer.

ANSWER: Germany

[10] This is the aforementioned thinker, who argued that consumerist society places people in a state of “unfreedom” in *One-Dimensional Man*. He also wrote *Eros and Civilization*.

ANSWER: Herbert Marcuse

[10] *Eros and Civilization* alludes to this Austrian psychoanalyst’s book *Civilization and its Discontents*. This man also came up with the Oedipus Complex.

ANSWER: Sigmund Freud

9. This man stopped the advance of the Teutonic Knights through his victory on the frozen Lake Peipus in the Battle of the Ice. For 10 points each:

[10] Name this Prince of Novgorod who relieved Pskov from the Teutonic Knights and prevented a northern invasion at the Battle of the Neva.

ANSWER: Alexander Yaroslavich Nevsky

[10] Alexander Nevsky paid tribute to avoid conflict with this Khanate, founded by Batu Khan. It continued its dominance over the Russians until held off by Ivan III at the Ugra River.

ANSWER: Golden Horde [Accept Kipchak Khanate or Ulus of Jochi.]

[10] Alexander Nevsky fought the Swedes in a battle near the Neva River, which now runs through this city named after an 18th century “great” tsar of Russia. It was known as Leningrad under the Soviet Union.

ANSWER: St. Petersburg

10. This process often uses a discrete cosine transform to express data points in terms of cosine functions of various frequencies. For 10 points each:

[10] Identify this process of reducing the number of bits used to encode a piece of information.

ANSWER: data compression

[10] This term refers to compression algorithms that allow one to perfectly reconstruct the original data file. FLAC is a standard for this type of audio compression.

ANSWER: lossless compression

[10] Compression algorithms often use the Y-Cb-Cr method of representing this property, rather than other formats that use more data to describe differences in it that are not perceptible by humans.

ANSWER: color

11. In this process, Okazaki fragments are created when synthesizing the lagging strand. For 10 points each:

[10] Name this process which doubles the amount of genetic material in a cell.

ANSWER: DNA replication [Prompt on “S phase.”]

[10] Okazaki fragments are necessary because DNA polymerase can only add nucleotides to the free hydroxyl at this numbered carbon for a deoxyribose sugar. DNA is *read* from the direction of this carbon atom to the five prime end.

ANSWER: 3 carbon [Read as “three-prime carbon.”]

[10] The leading and lagging strands branch off at this structure, created by helicases unraveling the strand. It moves in the same direction as the leading strand.

ANSWER: replication fork

12. This man’s CCA party triumphed in the June 2013 elections over Mohammed Bagher Ghalibaf’s Islamic Society of Engineers. For 10 points each:

[10] Name this current president of Iran who was once nicknamed the “Diplomat Sheikh.”

ANSWER: Hassan **Rouhani** [or Hassan **Rohani**]

[10] Rohani succeeded this Holocaust-denying, 9/11-crackpot-spouting president of Iran who constantly conflicted with Supreme Leader Khomeini.

ANSWER: Mahmoud **Ahmadinejad**

[10] Rohani waltzed into the job, after this government body permitted just eight to run of the 680 who applied. This twelve-member body consists of jurists, picked half by the Supreme Leader and half by the legislature.

ANSWER: **Guardian Council** of the Constitution [or **Shora-ye Negahban** or close phonetic equivalents]

13. In one of his recurring performances, this man changed his persona each time he took a mask on and off. For 10 points each:

[10] Name this Frenchman who depicted the progression of a human through birth, adulthood, old age and death while portraying his most famous character, Bip the Clown.

ANSWER: Marcel **Marceau**

[10] Marceau was a performance actor of this type. These performers paint their faces black and white and portray events and personalities without the usage of sound, stereotypically attempting to escape invisible boxes.

ANSWER: **mimes**

[10] Another man who often performed as a mime was Charlie Chaplin, who portrayed this character in films such as *Modern Times* and *City Lights*. This character’s trademarks include a mustache and bowler hat.

ANSWER: The Little **Tramp**

14. During an attack on this city, one of the assailants shocked Athena by eating the brains of Melanippus, thinking that they would heal him. For 10 points each:

[10] Name this seven-gated city founded by Cadmus. It was also the home of Oedipus and Jocasta.

ANSWER: **Thebes**

[10] Polynices traveled to this city, which was ruled by Adrastus at the time, in order to recruit the Seven Against Thebes. It was founded either by the river god Inachus or his son Phoroneus.

ANSWER: **Argos**

[10] The aforementioned cannibal, Tydeus, was the father of this Greek hero, better known for leading Argos in the Trojan War. He helped Odysseus to steal the horses of Rhesus and the Palladium.

ANSWER: **Diomedes**

15. This law is used to measure the concentration of protein in a sample with a spectrophotometer. For 10 points each:

[10] Name this law that states that the absorbance of light through a sample is linearly proportional to the product of the concentration of the sample, and the length of the cuvette.

ANSWER: **Beer-Lambert-Bouguer Law** [or **Beer’s Law**]

[10] This quantity measures how well a sample absorbs light, and is the coefficient of proportionality relating absorbance to concentration in the Beer-Lambert Law.

ANSWER: molar **extinction coefficient** [Accept molar **absorption coefficient** or molar **absorptivity**.]

[10] Beer’s Law is typically used with spectrophotometers operating in the visible region and this neighboring region of the spectrum, which has smaller wavelengths and higher frequency than visible light.

ANSWER: **ultraviolet** [or **UV**]

16. The narrator of this author’s only novel travels aboard the doomed ships *Grampus* and *Jane Guy* with Dirk Peters in search of the South Pole. For 10 points each:

[10] Name this author of *The Narrative of Arthur Gordon Pym*. The detective C. Auguste Dupin learns that an “Ourang-Outang” killed Madame L’Espanaye and her daughter in his story “The Murders in the Rue Morgue.”



ANSWER: Edgar Allan **Poe**

[10] In this Poe short story, a prince hides from the title disease inside his abbey. He and the other nobles survive until a personification of the plague attends a masquerade ball.

ANSWER: “The **Masque of the Red Death**”

[10] In this other short story, Poe’s characters demonstrate the technique of letter frequency analysis to decrypt the location of Captain Kidd’s buried treasure.

ANSWER: “The **Gold-Bug**”

17. The Castle Hill Rebellion in this penal colony increased suspicion of the Irish. For 10 points each:

[10] Name this colony and present-day nation where Great Britain sent many convicts during the 19th century. Initially, Britain included the current New Zealand as part of the claim, but withdrew that claim in 1817.

ANSWER: **Australia** [be lenient and accept **New South Wales**, since that was the actual colony]

[10] James Cook favored this bay in present-day Sydney as the ideal place to launch a new colony. It was where the *HMS Endeavour* first made landfall after circumnavigating the continent.

ANSWER: **Botany** Bay

[10] The first circumnavigator of Australia, Matthew Flinders, was later imprisoned on this island. This island in the Indian Ocean was once home to the dodo bird.

ANSWER: **Mauritius**

18. Name these cities holy to Islam. For 10 points each:

[10] The prophet Muhammad was born in this holiest city of Islam, where he also received his first revelation of the Quran. The Hajj is an obligatory pilgrimage to this city.

ANSWER: **Mecca** [or **Makkah**]

[10] Initially, Muslims prayed facing toward this city instead of Mecca. According to tradition, the Dome of the Rock in this city stands over the spot from which Muhammad ascended to heaven.

ANSWER: **Jerusalem**

[10] This city in Iraq is home to the Imam Hussein Shrine, and is the site of a battle where Hussein ibn Ali was martyred. Many Shi’a Muslims want to be buried here, as Hussein’s tomb is considered a gate to paradise.

ANSWER: Al-**Karbala** [Accept **Karbala** al-Muqaddasah.]

19. Answer the following about a string instrument. For 10 points each:

[10] J.S. Bach’s sixth “Brandenburg Concerto” features two of these instruments in place of the violin. A musician playing one of these generally joins two violinists and a cellist in a string quartet.

ANSWER: **viola** da braccio [Do not accept “viola da gamba” or “viol.”]

[10] This composer’s second symphony makes extensive use of the viola to represent the title character and was written for Paganini. That work, *Harold in Italy*, includes the “Pilgrim’s March” and the “Orgy of Brigands.”

ANSWER: Hector **Berlioz**

[10] This skilled violist premiered Walton’s viola concerto. His own works include *Der Schwanendreher*, an important concerto in the viola repertoire, and the opera *Mathis der Maler*.

ANSWER: Paul **Hindemith**

20. This type of economic policy is “neutral” if it affects only prices and not quantity variables. For 10 points each:

[10] Name this type of policy, which uses interest rates, reserve requirements, and discounting, and is sometimes contrasted with fiscal policy.

ANSWER: **monetary** policy

[10] This advocate of monetary policy co-wrote a *Monetary History of the United States* with Anna Schwartz and trumpeted free-market principles in his 1962 book *Capitalism and Freedom*.

ANSWER: Milton **Friedman**

[10] This three-word term denotes the mechanism by which a central bank controls interest rates and the money supply by selling securities during monetary contraction and purchasing securities in an expansion.

ANSWER: **open market operations** [accept **OMO**]

21. The central group in this poem is described as having ridden “into the jaws of Death” after being urged to “Charge for the guns!” For 10 points each:

[10] Name this Tennyson poem about six hundred soldiers that lead a persistent, but ultimately disastrous, military offensive. It opens with the line “Half a league, half a league / half a league onward.”

ANSWER: “The **Charge of the Light Brigade**”

[10] This poet described prayers and bells as “mockeries” for the title group, whose members “die as cattle” in “Anthem for Doomed Youth.” He also wrote “Dulce et decorum est” about a gas attack.

ANSWER: Wilfred Edward Salter **Owen**

[10] The title figure ponders, “If I should die, think only this of me / that there’s some corner of a foreign field / that is forever England” in this British poet’s “The Soldier.”

ANSWER: Rupert **Brooke**

X. This structure is connected to the diaphragm by the ligament of Treitz and connected to the stomach by the pylorus. For 10 points each:

[10] Name this 10-15 inch long section of a larger organ that is responsible for the breakdown of food and connects the stomach to the jejunum.

ANSWER: **duodenum**

[10] The duodenum, jejunum, and ileum are the sections of this larger organ that connects the stomach to this organ’s “large” counterpart.

ANSWER: **small intestine**

[10] This semifluid substance is produced in the stomach by breakdown of a bolus and passed into the duodenum. It is highly acidic, so bile is added to it in the duodenum to neutralize it.

ANSWER: **chyme**

X. This play features a clown named Feste, who goes as Sir Topas to see an imprisoned character who receives a fake love letter asking him to abuse the other servants. For 10 points each:

[10] Name this play in which Viola marries Orsino, whose lackey Malvolio is fooled by Sir Toby Belch and others into pursuing Olivia. One of its cases of switched identities delays Viola’s reunion with her twin, Sebastian.

ANSWER: **Twelfth Night**

[10] *Twelfth Night* is by this British playwright, who also wrote *Othello*.

ANSWER: William **Shakespeare**

[10] In a famous line from *Twelfth Night*, Sir Toby asks, “Dost thou think, because thou art virtuous, there shall be no more” of these two objects. They title a W. Somerset Maugham novel about author William Ashenden.

ANSWER: **cakes** and **ale**

X. Name some folks who received the guillotine treatment during the French Revolution for 10 points each.

[10] There is no evidence that this queen of Louis XVI actually said “let them eat cake,” but popular culture never let that stop them.

ANSWER: **Marie Antoinette**

[10] This revolutionary Montagnard leader, who led a faction known as the indulgent party, was executed by the Committee of Public Safety. Shortly before his death, he declared that Robespierre would undergo a similar fate.

ANSWER: Georges Jacques **Danton**

[10] This collaborator of Maximilien Robespierre, known as the “Angel of Death,” was guillotined alongside him following the Thermidorean Reaction.

ANSWER: Louis Antoine Léon de **Saint-Just**