

BHSAT XX (2011): This One Doesn't Bilow, We Promise!
Written by Y. Student Academic Competitions

Round 7 Tossups

1. One opponent of this pact called it “null, void, invalid, iniquitous, unjust, damnable, reprobate, inane,” and “empty of meaning and effect for all times.” Its mediators included Fabio Chigi, sent by Innocent X, and it divided a region containing Stettin and Bremen known as Pomerania. Its components included the Treaties of Munster and Osnabruck, and it initiated the diplomatic congress format later used at Vienna and Berlin. It added Calvinism to the acceptable religions a German prince could choose, expanding the earlier Peace of Augsburg. Signed to end the conflict in which Gustavus Adolphus died, for 10 points, name this 1648 pact ending the Thirty Years' War.
ANSWER: Peace of Westphalia [accept equivalents like “Treaty of Westphalia”]

2. Chume is the assistant of the title character of one this author's plays about an evangelical preacher and con man; that play is *The Trials of Brother Jero*. Cripple, Blindman, Goyi, and Aafaa are mendicants who gamble their bodies in a game of dice, while Dr. Bero imprisons his father in this author's *Madmen and Specialists*. More famous plays include one in which the teacher Lakunle and the chieftain Baroka vie for the hand of Sidi, and one in which Simon Pilkings prevents Elesin from committing the ritual suicide required by tribal tradition. For 10 points, name this Nigerian playwright of *The Lion and the Jewel* and *Death and the King's Horseman*.
ANSWER: Wole Soyinka

3. His namesake numbers, used in pseudo-random number generators, take the form 2 to the 2-to-the-nth power plus 1. A result by this man, generalized by Carmichael's theorem and Euler's totient theorem, states that A raised to the power p , where p is prime, is congruent to A , modulo p . He's not Leibniz, but Newton acknowledge this man's earlier method of differentiation, and this man noted in the margin of a copy of Diophantus' *Arithmetica* that no integer n greater than 2 solves the equation “ a to the n plus b to the n equals c to the n ”, which Andrew Wiles proved in 1993. For 10 points, name this 17th-century French mathematician known for his “little” and “last” theorems.
ANSWER: Pierre de Fermat

4. This artist's architectural work includes the Palazzo Farnese in Rome and the Medici Chapel and Laurentian Library of the Basilica San Lorenzo in Florence. A monkey grasps the leg of a figure whose arm is bound to his back in a statue this artist created for the tomb of Pope Julius II, *The Dying Slave*. A peculiar translation from the Vulgate resulted in his statue of *Moses* having horns. In 1547, he succeeded Sangallo the Younger as chief architect of St. Peter's Basilica, which also houses his statue of Mary bearing the body of Jesus on her lap after the Crucifixion. For 10 points, name this artist of a famous *Pietà* and a marble *David*.
ANSWER: Michelangelo di Lodovico Buonarroti Simoni

5. This activity occurs between the 8th and 12th days of the last month of a certain purely lunar calendar. Similar to the umrah, activities in this ceremony include running between the hills of Safa and Marwah, a ritual throwing of stones in Muna, and drinking from the well of Zamzam. Participants are in a state of ritual purity, or ihram, and wear simple white garments in which they circle a black cubical shrine called the Ka'aba seven times. Required at least once in the lifetime, for 10 points, name this fifth pillar of Islam, a ritual pilgrimage to Mecca.
ANSWER: the hajj

6. This man founded his nation's CHP, or Republican People's Party; that party's flag is largely red with white symbols indicating ideological principles such as revolutionism, populism, and statism, this man's Six Arrows. This predecessor of Ismet Inonu opposed the oppressive Treaty of Sevres, and successfully defended his homeland against the British at Gallipoli. He introduced the Latin alphabet and banned religious garb as part of his reforms in the 1920s. For 10 points, name this secular founder of the Turkish Republic whose nickname meant “Father Turk.”
ANSWER: Mustafa Kemal Atatürk [accept either underlined word or both]

7. After this novel's protagonist is expelled for refusing to follow the standard practices in his field, he goes to New York City to work for Henry Cameron. His best friend joins a major New York firm, and he falls in love with the niece of a Socialist leader. The protagonist later agrees to help his college friend build Cortlandt Homes, but when his friend Peter Keating does not follow his directions, he detonates the project with the help of his future wife, Dominique Francon. For 10 points, name this novel about rogue architect Howard Roark, a work by Ayn Rand.

ANSWER: The *Fountainhead*

8. This scientist was the first to explain optical isomerism by proposing that carbon is tetrahedral. He stated that a reaction's standard enthalpy change divided by the product of R and temperature equals the log of the equilibrium constant in his namesake equation. A dimensionless number named for him gives the number of particles per formula unit of solute, and is used in equations for colligative properties such as boiling-point elevation and osmotic pressure; that number, often symbolized lower-case i, is his namesake "factor". For 10 points, name this first winner of the Nobel Prize in Chemistry, a Dutch chemist.

ANSWER: Jacobus Henricus van 't Hoff

9. In Donizetti's *The Elixir of Love*, the aria "Una furtiva lagrima" opens with a solo by this instrument, and Mozart's only concerto for it is in B-flat major. This instrument has the first full statement of the main melody of *The Sorcerer's Apprentice* by Paul Dukas. Tchaikovsky's "Pathetique" Symphony and Stravinsky's *The Rite of Spring* both open with solos for this instrument, and in Prokofiev's *Peter and the Wolf* it represents the grandfather. For 10 points, name this double-reed instrument whose "contra" variety is the lowest-pitched woodwind in the standard symphony orchestra.

ANSWER: bassoon

10. Practitioners of this art include Victor Powered, Kazuki Muto, and other users of artificial hearts called *kakugane* in Nobuhiro Watsuki's manga *Buso Renkin*. In one game series, King Hydros explains to Felix's party that a seal on this force shrinks the world of Weyard; Kraden studies that force, a stronger form of Psynergy emitted by the Golden Sun. This force also trapped the soul of Alphonse in a suit of steel armor when used by his brother, Edward Elric. For 10 points, name this magical pseudoscience whose "fullmetal" practitioners might fight a Homunculus or create the Philosopher's Stone using transmutation circles.

ANSWER: alchemy [accept buso renkin until read]

11. Its tributaries include the Mascoma and Mill rivers. The Westfield River meets up with this river near a non-Illinois Springfield, and the Deerfield River meets it just upstream. Interstate 81 crosses this river in the north, while Interstate 90 crosses it near the Chicopee. Its name is Algonquian for "long tidal river", and the "Great Attack" occurred at Essex along this river during the War of 1812. Named for a state which has had former governors Lowell Wicker, John Roland, and Jodi Rell, this is, for 10 points, what New England river which passes through Hartford to the Long Island Sound?

ANSWER: Connecticut River

12. This man's defenders included Luther Martin, and he presided over the conviction of the drunk John Pickering and the acquittal of another judge, Samuel Chase, at impeachments. He supported the nascent Manhattan Company as the most prominent non-member ally of the Tammany Society, and inspired the Twelfth Amendment by winning as many electoral votes as his party's presidential candidate. His alleged plot to steal land from the Louisiana Purchase led to his trial for treason. For 10 points, name this vice president of Thomas Jefferson who dueled with and killed Alexander Hamilton.

ANSWER: Aaron Burr, Jr.

13. Often translated by Walter Kauffman, this man acknowledged his debt to Schopenhauer by including the essay "Schopenhauer as Educator" in his *Untimely Meditations*. In one work that begins "Suppose Truth is a woman, what then?" he criticizes anti-semitic interpretations of his work, before turning to religion, anticipating his later concept of master-slave morality. In another work, he claimed that man was only a bridge to the "Ubersch." For 10 points, name this German philosopher, who famously stated "God is Dead" and wrote *Beyond Good and Evil*.

ANSWER: Freidrich Nietzsche

14. The supply-side analogue of these markets is rare today, though they used to be common in company towns. One variety of these arises in the sale of goods that are excludable but not rival. Because demand in these markets is not perfectly elastic, these markets produce less of a good than a perfectly-competing firm would, thus engendering their namesake “excess burden.” While they are sometimes forbidden by antitrust law, legal examples include most public utilities as well as the former British East India Company. For 10 points, identify this market that is characterized by a single firm being the only supplier in its industry.

ANSWER: **monopoly** [accept word forms; do *not* accept “monopolistic competition” or “oligopoly” or “monopsony”]

15. This author wrote a satirical pamphlet from the point of view of a Church of England official, asking for complete suppression of Non-Conformists in *The Shortest Way with the Dissenters*. The title character of one of his novels accidentally marries her own half-brother in Virginia, after being released from Newgate Prison for being pregnant. The protagonist of another of his novels founds a plantation in Brazil, after escaping from a Moor who enslaved him. That character, based on Alexander Selkirk, is shipwrecked in a later journey, which sees him rescue a native from cannibals, whom he dubs Friday. For 10 points, name this author of *Moll Flanders* and *Robinson Crusoe*.

ANSWER: Daniel **Defoe**

16. This condition can result from upregulation of the Ras pathway, and the onset of this condition is described by Alfred Knudson’s two-hit hypothesis. This disease’s byproducts are suppressed by the proteins pRb and p53; histological grading can determine how anaplastic, or poorly differentiated, those byproducts are on a scale from 1 to 4. Cells affected by this can produce excess telomerase. Associated with the mutation of proto-oncogenes, and spread via metastasis [*accent on “ta” as in “tap”*], for 10 points, name this malignant disease state where excessive cell growth causes the formation of tumors after exposure to carcinogens.

ANSWER: **cancer** [accept **cancerous** or **malignant neoplasm**; prompt “carcinoma,” “sarcoma,” “blastoma,” or “tumor” formation]

17. A thin, serious-looking man with a pince nez sits in front of geometrical drawings in this artist’s *The Mathematician*. A crowd of people drink and don skull masks to celebrate the title holiday in another work. Workers in the Ford Motor Company are depicted in a fresco series by this man. Those works are *The Day of the Dead* and *Detroit Industry*. A depiction of Lenin caused Nelson Rockefeller to have this artist’s most famous work destroyed, though it was later remade, depicting the title figure as “*Controller of the Universe*”. For 10 points, name this Mexican painter and muralist of *Man at the Crossroads*, the husband of Frida Kahlo.

ANSWER: Diego **Rivera**

18. The goddess Macha in the Ulster cycle is associated with this species of animal. The Rig Veda explains how to ritually sacrifice this animal and a common epithet in the *Iliad* primarily describes Hector as their “breaker”. The tenth avatar of Vishnu, Kalki, will possess a white version of this animal, and in Shinto, Susanoo throws a flayed carcass of this animal at his sister’s loom. Heracles tamed four flesh-eating ones of Diomedes; Loki was impregnated to bear Sleipnir, Odin’s eight-legged one; and the Lapiths fought a race of beings with the bodies of these animals, led by Chiron. For 10 points, name this animal, whose rare winged examples include Pegasus.

ANSWER: **horses** [prompt “mares”]

19. One proximate cause of this event was the arrest and acquittal at trial of the Seven Bishops, and it inspired a conflict which ended at Aughrim and included the Battle of the Boyne. It involved a skirmish on Broad Street in Reading [*RED-ding*]. Preceded by the repeal of the Test Acts and the reissuing of the Declaration of Indulgence, this event supported by John Locke was followed by the drafting of a monarch-restricting Bill of Rights. For 10 points, name this ouster of the Catholic James II, in which Dutch king William III and Queen Mary II took the English throne with little violence in 1688.

ANSWER: **Glorious Revolution** [accept **Revolution of 1688** until “1688” is read; prompt “Bloodless Revolution” even though it wasn’t actually bloodless]

20. One character in this novel has "as God wills" said to him by peasants while plowing his field. One character is openly snubbed at a theater and uses morphine to help that character to sleep, and another character breaks his horse Frou-Frou during a steeple chase. Levin tells another character to leave after he is seen openly flirting with the pregnant Kitty, Levin's wife. An "evil omen" at the beginning of the work is paralleled at the end, as the title character, angry at her husband Vronsky, commits suicide by throwing herself under a train. For 10 points, what is this work by Leo Tolstoy?

ANSWER: **Anna Karenina**

TB. In the photoelectric effect, the maximum value of this quantity for the released particles is proportional to frequency of the incoming particles, provided that the frequency is above the threshold frequency. Usually symbolized T in the Lagrangian and Hamiltonian formulas, its average value for a mole of ideal gas is three-halves the constant R times temperature. Work done by a net force is equal to change in this quantity, whose rotational form is moment of inertia times angular velocity over two. For 10 points, name this quantity classically equal to one-half mass times velocity squared, which is measured in joules and contrasted with potential energy in moving objects.

ANSWER: **kinetic energy** [prompt "T" until read; prompt "E sub K;" prompt "energy of motion"]

Round 7 Bonuses

1. The Siberian and Deccan traps produced continent-sized floods of lava that solidified to produce this extrusive rock. For 10 points each:

[10] Identify this mafic igneous rock which constitutes most of the seafloor.

ANSWER: basalt

[10] Like all mafic rocks, basalt is rich in magnesium and this other element, whose ores include limonite and hematite. Its “pig” variety must be purified before being made into steel.

ANSWER: iron [prompt on Fe]

[10] This ultramafic, potassium-rich intrusive rock hosts valuable xenoliths such as diamond in vertical deposits known as its namesake “pipes”.

ANSWER: kimberlite

2. The title entities of this novel are owned by Korbochka and Sobakievich. For 10 points each:

[10] This is what novel in Chichikhov attempts to acquire land by purchasing the legal rights to deceased serfs?

ANSWER: Dead Souls [or Myortvyje Dushi]

[10] *Dead Souls* is by this Ukrainian author, who wrote about Major Kovalyov, whose nose absconds from his face in *The Nose*.

ANSWER: Nikolai Gogol

[10] Gogol also wrote about this fecally-named character, who saves up money to buy the title article of clothing from the tailor Petrovich in *The Overcoat*.

ANSWER: Akaky Akakievich Bashmachkin [accept any of the three names]

3. It warns Christians to be prepared for the coming Day of Judgment, with the arriving bridegroom representing Christ’s return to earth. For 10 points each:

[10] Name this parable of Jesus, in which half of the titular figures prepare extra vessels of lamp oil, while half run out of oil and are barred from attending a wedding.

ANSWER: Parable of the Ten Virgins or Wise and Foolish Virgins [prompt on “virgins”]

[10] The Parable of the Ten Virgins is only found in this synoptic gospel, which begins with a triple genealogy of Jesus and contains a full transcription of the Sermon on the Mount.

ANSWER: Gospel According to Matthew

[10] The Gospel of Matthew does not mention this man as the cousin of Jesus, though it does speak of his encounter with Jesus before the latter’s forty days in the wilderness. Beheaded by Herod the Tetrarch, this son of Zacharias and Elizabeth is worshipped as supreme prophet by the Mandaeans, and may be related to Elijah.

ANSWER: John the Baptist [accept Iohannan or Iokannan; do not accept “John the Evangelist”]

4. For 10 points each, name these governors of California.

[10] This 33rd governor, a former actor, later succeeded Jimmy Carter as President of the United States in 1980.

ANSWER: Ronald Reagan

[10] This governor served three consecutive terms, and was nominated by both major parties in 1946. As Chief Justice of the Supreme Court, he presided over *Miranda v. Arizona* and *Brown v. Board of Education*.

ANSWER: Earl Warren

[10] This isolationist governor was later Teddy Roosevelt’s 1912 vice-presidential candidate. He modified the California proposition system to add initiative referendum, and recall to the California state government. Oops.

ANSWER: Hiram Johnson

5. A character in this opera disguises himself as the student Lindoro and later as a singing tutor in order to gain entrance into Bartolo’s house. For 10 points each:

[10] Name this opera in which the title character, Figaro, sings the aria “Largo al factotum” and helps Count Almaviva win the hand of Rosina.

ANSWER: *The* Barber of Seville [or *Il barbiere di Siviglia*]

[10] This Italian composed *The Barber of Seville*, as well as the operas *Cinderella* and *William Tell*.

ANSWER: Gioacchino Rossini

[10] Ninetta is mistakenly sentenced to death because of a missing spoon and fork that was actually stolen by the title animal in this Rossini opera now best known for its overture, which has a prominent part for snare drum.

ANSWER: *The* Thieving Magpie [or *La gazza ladra*]

6. Answer some questions about ska music, for 10 points each.

[10] Ska originated alongside reggae, a form exemplified by this Jamaican whose compilation *Legend* includes the original “I Shot the Sheriff,” “One Love,” and “No Woman No Cry” backed up by the Wailers.

ANSWER: **Bob Marley** (prompt on Marley)

[10] One third-wave ska band is named for a “Reel Big” one of these creatures. Another band named for a misspelling of them includes Trey Anastasio and improvises Grateful Dead-like jams.

ANSWER: a **fish** [accept **Phish**]

[10] This American ska band included the “Would You Be Impressed?” and “A Moment of Silence” on their albums *Everything Goes Numb* and *Somewhere in the Between*. They released *99 Songs for Revolution: Vol. 1* in 2010.

ANSWER: **Streetlight Manifesto**

7. Answer these questions about functional groups, for 10 points each:

[10] Azides, pyridines, and amines all contain this element, which is bonded to carbon in cyanide. Its gaseous form contains a triple bond between two atoms of it.

ANSWER: **nitrogen** [prompt on “N”]

[10] This functional group, symbolized C-O-O-H, names a class of acids whose examples include formic acid and acetic acid. Amino acids also contain this group.

ANSWER: **carboxyl** group [accept **carboxylic acids**]

[10] Derived from the condensation of a carboxylic acid and an alcohol, these compounds are often found in fatty acids and fruit-derived fragrances.

ANSWER: **ester**

8. Answer these questions about Venezuelan water, for 10 points each:

[10] This river system drains most of Venezuela, emptying into the Caribbean in the country’s northeast.

ANSWER: **Orinoco** River

[10] This is Venezuela’s second-largest city. It is adjacent to a namesake so-called “lake” where a large surface layer of invasive duckweed interferes with Venezuelan oil extraction.

ANSWER: **Maracaibo**

[10] Maracaibo is the capital of this western-most Venezuelan state.

ANSWER: **Zulia**

9. Though he wrote works such as *Beyond Freedom and Dignity* and *Walden Two*, he is perhaps better known as a behavioral psychologist. For 10 points each:

[10] Identify this Harvard professor whose namesake box was used to study the effect of reinforcement on behavior.

ANSWER: Burrhus Frederic **Skinner**

[10] Skinner boxes are used to study this process, whereby positive and negative forms of punishment and reinforcement are used to modify behavior. It is distinct from a similarly-named process studied by Pavlov.

ANSWER: **operant** conditioning [prompt on “conditioning”; do not prompt or accept any answer containing “classical”]

[10] This term refers to the sudden and seemingly inexplicable restoration of a conditioned behavior or response after it has undergone extinction.

ANSWER: **spontaneous recovery** [accept word forms, but do not accept synonyms]

10. Answer the following composers of marches, for 10 points each.

[10] The *Prince of Denmark’s March* by Jeremiah Clarke, often called the “Trumpet Voluntary,” was for years mistakenly attributed to this English Baroque composer of *Dido and Aeneas*.

ANSWER: Henry **Purcell**

[10] Among those composed by this “March King” are *Semper Fidelis*, the *Washington Post*, and *Stars and Stripes Forever*.

ANSWER: John Philip **Sousa**

[10] The “Putnam’s Camp” movement of this piece by Charles Ives uses material from his earlier “Country Band March.” Its first movement depicts the Robert Gould Shaw Memorial in Boston Common.

ANSWER: **Three Places in New England**

11. Huitzilopochtli cut off his sister Coyolxauhqui's head and turned it into this object. For 10 points each,
[10] Name this object, which is associated with deities such as Susanoo's brother Tsukuyomi, Selene, and Artemis.
ANSWER: moon

[10] In Chinese mythology, it is not a man, but rather this animal that resides in the moon and pounds medicine using a mortar and pestle. The Ojibwe trickster Nanabozho also takes the shape of this animal.

ANSWER: rabbit or hare

[10] Another figure from Chinese myth is this hairy, horned giant who emerged from the cosmic egg due to the mixing of Yin and Yang. He was the first living thing, and the world was created from his body.

ANSWER: Pangu or Pan Ku

12. Name these real Roman emperors, not Eastern losers like Justinian, for 10 points each.

[10] This suppressor of Boudicca's revolt succeeded Claudius and preceded the Year of Four Emperors. He allegedly fiddled while Rome burned, though fiddles weren't invented yet.

ANSWER: Nero Claudius Caesar Augustus Germanicus

[10] This Flavian was the last of the Four Emperors. While emperor, he crushed the Great Jewish Revolt and began work on the Colosseum.

ANSWER: Vespasian

[10] Born in Libya, this later emperor's namesake dynasty featured his sons Geta and Caracalla. He defeated Niger in the east and Albinus in the west before dying near modern-day York, England, in 209 AD.

ANSWER: Lucius Septimius Severus

13. Oswald Avery's experiment determined that bacteriophage viruses transmit genetic material using this substance, and Rosalind Franklin made the first image of it using X-rays. For 10 points each:

[10] Name this molecule whose nitrogenous base pairs and double-helix structure were determined in the lab of Watson and Crick.

ANSWER: DNA [accept deoxyribonucleic acid]

[10] This more modern lab technique uses a heat-resistant polymerase such as Taq and a thermal cycler to amplify a DNA sample, making lots of copies.

ANSWER: PCR [accept polymerase chain reaction]

[10] This technique uses an electric field to pull dyed DNA fragments through a layer of polyacrylamide or agarose, separating them visibly by weight. It's also done sometimes with proteins.

ANSWER: gel electrophoresis [prompt "running a gel"]

14. It features the slaves from Sweet Home plantation after their escape from slavery. For 10 points each:

[10] Name this Pulitzer Prize-winning book where Sethe has a "rememory" of a daughter she killed to avoid her capture by slave catchers.

ANSWER: Beloved

[10] *Beloved* is by this Nobel Prize-winning author of *Song of Solomon* and *The Bluest Eye*.

ANSWER: Toni Morrison

[10] This character in Toni Morrison's *Beloved* carries around a red ribbon, a scalp of a lynched slave, and had his tobacco tin opened after his time in prison at Alfred, Georgia.

ANSWER: Paul D Garner

15. A sniffing black dog is in the approximate center of this painting. For 10 points each:

[10] A woman with a monkey on a leash and a man in red smoking a pipe all feature in what painting, crowded with Parisians carrying parasols.

ANSWER: A Sunday Afternoon on the Island of La Grande Jatte - 1884 [or *Un Dimanche Après-midi à l'Île de la Grande Jatte* - 1884; accept "Isle" instead of "Island"; accept A Sunday on la Grande Jatte]

[10] A *Sunday Afternoon on the Island of La Grande Jatte* is by this French Post-Impressionist, the developer of pointillism, a style also practiced by Paul Signac.

ANSWER: Georges Seurat

[10] Seurat painted some of these figures in red caps at Asnieres. Ingres did a "Valpincon" painting of one of these.

ANSWER: bathers

16. Its fourth and final part was titled “Of the Kingdom of Darkness” and it advocated absolutism to prevent a “war of all against all.” For 10 points each,

[10] Name this work of political philosophy, which took its title from a biblical monster and claimed that in the state of nature, the life of man is “solitary, poor, nasty, brutish, and short.”

ANSWER: Leviathan

[10] This British translator of Thucydides’ *History of the Peloponnesian War*, the *Iliad*, and the *Odyssey* wrote *Leviathan* in response to the English Civil War.

ANSWER: Thomas Hobbes

[10] Hobbes was branded a materialist and compared the laws of ethics to those of geometry, just like this Jewish contemporary of his from the Netherlands. This man was considered a pantheist for the views in his *Ethics* and *Tractatus Theologico-Politicus*.

ANSWER: Baruch or Benedict Spinoza

17. Name some African countries which have been hosts to recent wars, for 10 points each.

[10] This current African country, renamed after Laurent Kabila overthrew Mobutu in 1997, is embroiled in the deadliest conflict since World War II. That war is driven in part by Katanga province’s mineral wealth.

ANSWER: Democratic Republic of the Congo [accept DRC or DR-Congo or Congo-Kinshasa; do not prompt “Zaire,” “Belgian Congo,” or other time period-inappropriate things]

[10] This East African country became independent in 1993, causing Ethiopia to become landlocked in doing so.

ANSWER: State of Eritrea [accept Hagere Ertra, accept Dawlat Iritriya]

[10] This other country, now led by Idriss Déby, used pickup trucks to resist Gaddafi’s attempt to annex its Aouzou strip to Libya in the Toyota War. Its current civil war broke out along the border with Darfur.

ANSWER: Republic of Chad [accept Republique du Tchad or Gumhuriyat Tsad]

18. For 10 points each, identify some things related to sound.

[10] The pitches of sounds are usually measured in this unit equal to one inverse-second, the SI unit of frequency.

ANSWER: hertz [accept Hz; do not accept “megahertz”]

[10] This is the tendency of a system to generate large responses to a small driving force at the proper frequency. On a string of length L, the acoustic form of this can occur at the frequencies equal to n times v over 2 L.

ANSWER: resonance [accept resonate or other word forms]

[10] This is the difference between the highest and lowest frequencies in a set of frequencies. In computer networking, this term can refer to a rate of data transfer.

ANSWER: bandwidth

19. It is the only existing trilogy of Ancient Greek plays by any playwright. For 10 points each:

[10] Name this collection, concerning the protagonist’s quest to avenge his father’s death after his assassination at the hands of his wife, Clytemnestra, and her lover, Aegisthus, which is shown in its first play, *Agamemnon*.

ANSWER: *The* Oresteia

[10] Name the playwright of *The Oresteia*, whose other extant plays include the *The Suppliants* and *Prometheus Bound*.

ANSWER: Aeschylus

[10] Name this other Aeschylus play, the earliest of his surviving works, which opens with the arrival of a messenger to Susa to announce to Atossa the recent defeat at the Battle of Salamis.

ANSWER: *The* Persians

20. The Holy Roman Empire by its end may not have been holy, Roman, or much of an empire, but it was important for many centuries. Answer some questions about it, for 10 points each.

[10] This 1356 proclamation established that seven princes would elect the Holy Roman Emperor before his coronation by the Pope.

ANSWER: Golden Bull of 1356

[10] Despite the Golden Bull’s electoral system, this Austrian noble house had a son as Holy Roman Emperor from 1440 to 1806. Such men included Charles V and Maria Theresa’s son Joseph II.

ANSWER: House of Habsburgs [accept de-voicing to Hapsburg]

[10] As elector of Saxony, this man helped elect Charles V. Despite that help and his set of 17,000 indulgence-tastic relics in Wartburg Castle, he defended Martin Luther and got him safe passage to the Diet of Worms.

ANSWER: Frederick III of Saxony [accept Frederick the Wise; prompt “Frederick”]

TB. The content of this poem is narrated by a “traveller from an antique land”. For 10 points each:

[10] Name this poem in which “two trunkless legs of stone” stand on a pedestal which says “Look on my works, ye mighty, and despair”.

ANSWER: “**Ozymandias**”

[10] “*Ozymandias*” is by this English Romantic poet, who asked “If Winter comes, can Spring be far behind?” in *Ode to the West Wind*.

ANSWER: Percy Bysshe **Shelley**

[10] Various figures in Lord Liverpool’s government are attacked in this posthumously published Shelley poem, written as a response to the Peterloo Massacre.

ANSWER: “The **Masque of Anarchy**”