**OLEFIN: Outstanding Like Excellent Fantastic Invitational**

**Edited and written by members of the 2010-2011 TJHSST QB team**

ROUND 7

Tossups

1. **One author from this country wrote of a criminal's attempt to climb the title string out of Hell before it breaks in "The Spider's Thread." An eleventh-century lady-in-waiting from this country recorded her observations in *The Pillow Book,* while more recent novels from this country include *1Q84* and *The Wind-Up Bird Chronicle.* Another author from this country wrote works such as (\*)** *Nip the Buds, Shoot the Kids* and *The Silent Cry* influenced by his brain-damaged son, Hikari. For 10 points, identify this country which awards the Akutagawa Prize to upcoming writers, home to Haruki Murakami and Kenzaburo Oe and the birthplace of the haiku.
ANSWER: **Japan** [accept word forms, like **Japanese**, etc; accept **Nippon**]

2. **During this battle, Breyman's redoubt was captured after the failure to capture Balcarres' redoubt. The Treaty of Alliance was signed after this battle. The first phase of this battle began when troops under James Hamilton were fired upon by Daniel Morgan's Provisional Rifleman. That phase, an American loss, was the Battle of (\*)** Freeman's Farm. The second phase of this battle was the Battle of Bemis Heights, during which the American charge was led by Benedict Arnold. This battle ended when Gen. John Burgoyne surrendered to Gen. Horatio Gates. For 10 points, name this battle of American Revolutionary that led to France entering the war on the American's side.
ANSWER: Battle(s) of **Saratoga**

3. **In this country, the Densu and Pra rivers drain the Akan Lowlands. Some uplands in this country meet the Akwapim-Togo Ranges near its capital. The only natural lake is this nation is Lake Bosumtwi, but the (\*)** Akosombo Dam created Lake Volta on the Volta River. This country contains the Ashanti-Kwahu Uplands. This nation was created form the British Togoland and Gold Coast. For 10 points, identify this nation with its capital at Accra, which has coastline on the Gulf of Guinea, borders Burkina Faso, Togo, and the Ivory Coast, and is named for an ancient empire which ruled land to the northwest of this nation.
ANSWER: Republic of **Ghana**

4. **In one story by this author, "Queenie" and two other girls in swimsuits walk into a store, later causing teenage clerk Sammy to quit his job. He also wrote a novel about depressed schoolteacher George Caldwell and his son in Pennsylvania. In addition to writing "A&P" and *The Centaur*, this author wrote of Darryl Van Horne seducing the title women before fleeing Rhode Island in *The (\*)****Witches of Eastwick.* He wrote about an ex-basketball player married to Janice in a series of books in which the title character "run"s and "is rich". For 10 points, identify this American author who created Harry Angstrom in his *Rabbit* novels.
ANSWER: John **Updike**

5. **One founder of this school wrote "The Mentality of Apes," and that man did a study on chimps to prove the existence of insight learning in animals. The founder of this school developed the phi phenomenon, while the Law of Pragnanz and continuity form some of this school's precepts. One member of this school used the "black box" to antagonize (\*)** behaviorism. The ancestor of this school of thought, Christian Ehrenfels, drew from Aristotle's teachings to develop the idea of "figure qualities". Its founder also developed the idea of perception as a universal construct alongside Wolfgang Kohler and Kurt Koffka. For 10 points, name this German-based psychology school founded by Max Wertheimer.
ANSWER: **Gestalt** psychology

6. **One equation relates the natural log of this quantity to the acentric factor, while it is represented in terms of empirical parameters in the simpler Wagner and Antoine equations. Those equations can be derived from an expression for the slope of the coexistence curve, the (\*)** Clausius-Clapeyron relation, while the value of this property for a liquid mixture is a weighted sum of the values for its components by Raoult's Law. At a substance's boiling point, this quantity equals the atmospheric pressure, while substances with high values of it are called volatile. For 10 points, identify this property, the pressure of the gaseous form of a substance in equilibrium above its liquid or solid form.
ANSWER: **vapor pressure** [prompt on **volatility** before "volatile"]

7. **One assassination attempt on this man was foiled by his lover Manuela Saenz. This figure's lieutenant won the Battle of Pichincha, and he earlier conducted the Admirable Campaign. This man met with a leader who soon retired to Europe at the Guayaquil Conference, and he responded to a message from Henry Cullen with his "Letter From (\*)** Jamaica"; this man also penned a document explaining a loss, the Cartagena Manifesto. This leader's ally Santander was chosen as the Vice President of a region that spanned present-day Panama, Ecuador, and Venezuela. President of Gran Colombia, for 10 points, identify this South American liberator, namesake of the country in which La Paz is located.
ANSWER: Simon **Bolivar**

8. **This composer wrote a trumpet concerto in E flat major for his friend Anton Weidinger, as well as a work whose melody appears in the German national anthem, his "Emperor" string quartet. One work this composer wrote for his patron Nikolaus (\*)** Esterházy features all but two players ceasing to play and leaving the stage during its final movement in his Farewell Symphony. This composer's ninety-fourth symphony contains a sudden fortissimo chord; that work, one of his London Symphonies, is his Surprise Symphony. For 10 points, identify this Austrian composer, the "father of the string quartet" and a prolific composer of symphonies.
ANSWER: Franz Joseph **Haydn**

9. **After this event, Percy Shelly wrote a poem supporting non-violent resistance entitled "The Masque of Anarchy". Participants in this event were gathered to listen to a speech by Henry Hunt, before being attacked by troops under Hugh Birley. Anger over this event led to the Cato Street Conspiracy and William Hulton's actions during it were legal under the (\*)** Riot Act. The anti-reform Six Acts were passed in response to this event. This event's name is a play on the Duke of Wellington's victory at Waterloo. For 10 points, name this 19th century British massacre of parliamentary reformers at St. Peter's field.
ANSWER: **Peterloo** Massacre [accept Battle of **Peterloo**]

10. **In the first chapter of this book, the protagonist notes that "when you wet the bed first it is warm then it gets cold" and tells the story of a moocow coming down the road that meets a baby tuckoo. A pregnant woman attempts to seduce one character as he is walking home from a hurling match. Besides that character, Davin, characters include the protagonist's friend (\*)** Cranly, his longtime romantic interest Emma Clery, and the priests in charge of Clongowes College. The protagonist's aunt, Dante Riordan, argues with his father about politics and renounces her support for Charles Parnell. For 10 points, name this novel about the growth of Stephen Dedalus, a work of James Joyce.
ANSWER: *A****Portrait of the Artist as a Young Man***

11. **Soon after the singing of "La ci darem la mano" in this opera, one character warns Zerlina of trickery in the aria "Ah, fuggi il traditor". One character in this opera attempts to host Masetto's wedding at his castle. One character from this opera is told to host a party in the Champagne Aria, while this opera's protagonist kills Donna Anna's father the (\*)** Commendatore. The spurned Elvira is informed by Leporello of having seduced "640 in Italy" and "31 in Germany" in this opera's Catalog Aria. At the end of this opera, a statue drags the title character down to Hell. For 10 points, identify this opera about a womanizer by Mozart.
ANSWER: *The Rake Punished, or****Don Giovanni*** [accept *Il dissoluto punito, ossia il****Don Giovanni***]

12. **In this religion, a soul can either be thrown into the House of Lies or led by Daena into the House of Song by crossing the Chinvat Bridge. In this religion deities protect themselves from druj, which means "lie". The "offering to water" is described the Yasnas of this religion. This religion's evil deity is angra mainyu, also known as (\*)** Ahriman. Members of this religion hang their dead from the Towers of Silence. The Zend Avesta is its chief text, and adherents living in India are called Parsis. Ahura Mazda is the chief god of, for 10 points, what Persian religion founded by Zarathustra?
ANSWER: **Zoroastrianism**

13. **This god cooperated with the Snake Woman in order to bring life to the human race using blood from a phallic wound in one myth. In the same myth, this god angered the Death God when he journeyed through Mictlan with his brother. That story, the legend of the Fifth Sun, named this god as the (\*)** "White" version of another god, Tezcatlipoca, who tricked this god into staring at a distorted image of himself in a mirror and commit suicide for the petty sacrifices he demanded. He left on a raft and it was believed that Hernan Cortes was this god. For 10 points, name this twin brother of Xolotl and "Feathered Serpent" dawn god from Aztec myth.
ANSWER: **Quetzalcoatl**

14. **Einstein argued against this statement with the example of a particle passing through a slit, while its formulator argued for its validity by imagining a microscope observing the collision between a photon and an electron. One alternate formulation of this statement uses the variance in energy and (\*)** time, instead of the normal quantities. It states that the product of a certain pair of quantities is greater than or equal to h-bar over two. For 10 points, identify this quantum mechanical concept named for a German physicist which states that one cannot simultaneously know both the position and momentum of a particle to arbitrary precision.
ANSWER: Heisenberg **uncertainty principle**

15. **One ruler of this name from Bohemia was killed at the Battle of Crecy, while another ruler with this name advised his son Pedro to become emperor of one of his territories. In addition to that king from Portugal, one person with this as a surname was rumored to reside in (\*)** India or Ethiopia and be an eastern king friendly to Christian causes. In addition to Prester [this name], a ruler with this name acquired the epithets "Softsword" and "Lackland," and he lost the First Baron's War after refusing to abide by a document he signed at Runnymede. For 10 points, give this name of several kings, the most famous of which signed the Magna Carta.
ANSWER: **John** [do not accept specific names after "another ruler"]

16. **Figures from this work can be seen scattered on the grass in a sculpture exhibit in Davenport, Iowa. In the left foreground of this painting a man in a brown shirt smokes a pipe, while next to him a man with a mustache wears a top hat. A (\*)** dog sniffs a piece of knitting in the foreground of this painting, and another wears a pink ribbon. A young girl in an orange dress runs in the background and groups of men can be seen rowing boats on the river. In the center, a child in white walks with her mother, who carries an orange umbrella. For 10 points, name this painting which depicts a woman holding a monkey on a leash, a famous Neo-Impressionist work of Georges Seurat.
ANSWER: *A****Sunday Afternoon*** *on the Island of La Grand Jatte***[**accept **Isle** for **Island**; accept *Un****dimanche après-midi à l'Île de la Grande Jatte***]

17. **This man introduced a policy on multiculturalism he calls "muscular liberalism" and a banking plan he calls "Project Merlin." This leader hired Andy Coulson as his communications director despite his having been linked to the (\*)** News of the World phone-hacking scandal. In August 2011, this leader controversially proposed that social media might be restricted during riots, such as the ones which swept his capital earlier that month. Famous for his idea of the Big Society, this Prime Minister was the first from the Conservative Party since 1992. For 10 points, name this coalition Prime Minister of the United Kingdom.
ANSWER: David **Cameron**

18. **The coefficients in this function's Taylor series can be found in the Bernoulli numbers. This function's hyperbolic variety appears in the expression for the scalar boost function in special relativity. Its derivative is secant squared, which is also related to the square of this function by a transformed version of the Pythagorean identity. This function is (\*)**discontinuous at odd half-integer multiples of pi such as pi over two and three pi over two. For 10 points, name this trigonometric function equal to sine over cosine, or the length of the opposite side of a right triangle over its adjacent side.
ANSWER: **tan**gent

19. **In one response to this poem by Anthony Hecht, a character is addressed as a "sort of mournful cosmic last resort." One section of this work describes retreating towards the "naked shingles of the world," while in another section of this work the narrator claims the world "hath neither joy, nor love, nor light." Another stanza of this work sees a (\*)** playwright imagine the "turbid ebb and flow / Of human misery," having heard it on the Aegean. This poem ends by noting that "we are here as on a darkling plain," and this work earlier states that "the cliffs of England stand" and notes that "The sea is calm tonight." For 10 points, identify this poem by Matthew Arnold.
ANSWER: "**Dover Beach**"

20. **Centrarch and mesarch are two patterns of development of this tissue. Introduction of solutes into it is mediated by the Casparian strip, which forces entering materials to pass through the selectively permeable symplast. Its primary type develops from the (\*)** procambium and is adjacent to the pith. It includes lignified cells that are dead at maturity, the vessel elements and tracheids. Guttation is the forcing of material from this tissue onto leaf tips due to excess root pressure. This tissue uses transpirational pull to draw minerals and water up from the roots. For 10 points, name this plant vascular tissue that works in conjunction with phloem.
ANSWER: **xylem**

EXTRA: **This ruler oversaw the construction of the Chateau Gaillard. Before becoming king this man overthrew the Chateau de Taillebourg, and William II of Sicily imprisoned this ruler's sister Joan. After his fiancee Berengeria was detained, this leader overthrew the tyrant Isaac (\*)** Comnenos and conquered Cyprus. This leader was victorious at the Battle of Arsuf. Despite only speaking French, this son of Eleanor of Aquitaine fought against Saladin but was ultimately unable to conquer Jerusalem. For 10 points, identify this English leader during the Third Crusade known by an epithet for his bravery.
ANSWER: **Richard I** of England [or **Richard the Lionheart**ed; prompt on "Richard" or "Lionheart" or "Coeur de Lion"]

Bonuses

1. Identify the following about a painting that inspired Manet's *Olympia,* for 10 points each.
[10] This painting depicting a reclining nude was inspired by a Giorgione work. The woman in this painting holds roses in her right hand, while a small sleeping dog lies at her feet.
ANSWER: ***Venus of Urbino***
[10] This artist of *Venus of Urbino* depicted Jacopo Pesaro kneeling at St. Peter's feet in his *Pesaro Madonna* and also painted *Assumption of the Virgin.*
ANSWER: **Titian** [accept **Tiziano** or **Vecelli** or **Vecello**]
[10] In this Titian painting, a bride dressed in white sits on the left side of the canvas besides Cupid and Venus.
ANSWER: ***Sacred and Profane Love***

2. The Straits of Otronto separate this body of water from the Ionian Sea, which lies to its south. For 10 points each:
[10] Name this sea, which the Romans called "Mare Superum," that separates the Italian Peninsula from the Balkan Peninsula.
ANSWER: **Adriatic** Sea
[10] Identify this country, whose Dalmatia region lies on the Adriatic Sea, which has its capital at Zagreb.
ANSWER: **Croatia**
[10] This nation which lies to the south of Croatia was formed upon the terms of the Dayton Peace Agreement and is divided into the Federation and the Republika Srpska [Serp-ska].
ANSWER: **Bosnia and Herzegovina** [answer must include both; do not accept or prompt on only either]

3. In the cyclic model, it is the result of two three-branes colliding with each other. For 10 points each:
[10] Name this commonly accepted theory of the Universe's origins, which states that the Universe began as a naked singularity and quickly expanded.
ANSWER: **Big Bang** [accept **Inflationary** model]
[10] This man's discovery that the Universe is expanding was some of the earliest experimental support for the Big Bang. He also showed that Andromeda was another galaxy.
ANSWER: Edwin **Hubble**
[10] Henreitta Levitt discovered the period-luminosity relationship of these stars, which Edwin Hubble used to prove that the Andromeda nebula was another galaxy.
ANSWER: **Cepheid** variables

4. Bolivia has seen fourteen of these events, the most of any country. For 10 points each:
[10] This term is given to the overthrow of the civilian government of a country by an element of that government, usually that country's military. One Latin American variant, in which the military institutes a new civilian government rather than ruling themselves, is the pronuciamiento.
ANSWER: **coup** d'état [accept military **coup**; accept **putsch**]
[10] This southeastern Asian country's military coup followed the 8888 uprising and placed the State Law and Order Council in power.
ANSWER: **Myanmar** [accept **Burma**]
[10] Frank Bainimarama has ruled this South Pacific country since a 2006 coup. Tension between the native Melanesians and those of Indian descent makes up a significant part of this country's politics.
ANSWER: **Fiji**

5. Answer the following about the composer of a work nicknamed "Beethoven's Tenth," for 10 points each.
[10] This composer of that aforementioned symphony also wrote the Tragic Overture and a famous lullaby known by his name.
ANSWER: Johannes **Brahms**
[10] The name of this Brahms work refers to how it uses standardized text from the Luther Bible rather than in Latin. This work was likely written in part due to the composer's grief at the death of his mother.
ANSWER: *A****German Requiem***
[10] Brahms wrote this overture as a thank-you piece for the University of Breslau for granting him an honorary doctorate. It contrasts with the Tragic Overture.
ANSWER: **Academic Festival** Overture

6. Reagan used this act to end a federal air traffic controllers' strike. For 10 points each:
[10] Dubbed the "Slave Labor Act" by Truman when he vetoed it, this doubly eponymous act allows the president to intervene in strikes that may cause a national emergency. It also outlawed the practice of closed shop.
ANSWER: **Taft-Hartley** Act [accept **Labor-Management Relations** Act]
[10] The Taft-Hartley Act amended this second New Deal labor act that created an eponymous labor board and was upheld in a case involving Jones & Laughlin Steel Corporation.
ANSWER: **National Labor Relations Act** [accept **NLRA**; accept **Wagner** Act]
[10] This New Deal agency, led by Hugh "Iron Pants" Johnson and famous for its Blue Eagle emblem, was eventually replaced by the still existent National Labor Relations Board. *Schechter v. United States* held the act which created this agency unconstitutional.
ANSWER: **National Recovery Adminsitration** [accept **NRA**]

7. That cool 3-D image on your parent's credit card is created using this technique. For 10 points each:
[10] Name that technique which allows a 3-D image to be viewed from a 2-D plate.
ANSWER: **holograph**y [accept **making a hologram** and equivalents]
[10] Holography works by recording this interaction between a reference beam and light from an object being recorded. It comes in constructive and destructive varieties.
ANSWER: **interference**
[10] This optical component often has parallel grooves which cause interference in incoming light. These devices are often found in spectrometers and monochromators.
ANSWER: **diffraction grating**

8. The author of "The Public and its Problems" subscribed to this school of thought. For 10 points each:
[10] Name this school of thought that was espoused in Charles Sanders Peirce's essay “How to Make Our Ideas Clear.” Its namesake maxim considers the practical effects of an idea.
ANSWER: **pragmatism** [accept word forms]
[10] This author of "A Pluralistic Universe" and "The Will to Believe," was the author of *Pragmatism.*
ANSWER: William **James**
[10] This other pragmatist wrote *Democracy and Education*, in addition to writing *Art as Experience.*
ANSWER: John **Dewey**

9. This leader survived an attempt on his life with a poisoned dagger by Jing Ke. For 10 points each:
[10] Identify this emperor of the Qin Dynasty who unified China and whose reign saw the construction of the Great Wall.
ANSWER: **Shi Huang**di [accept **Qin Shi Huang**; accept **Ying Zheng**; prompt on partial; be lenient]
[10] This collection of sculptures representing Shi Huangdi's men can be found near the emperor's mausoleum complex. No two soldiers share the same facial features.
ANSWER: the **Terracotta Army** [accept **bingma yong**]
[10] This period of Chinese history immediately preceded the Qin Dynasty. The Partition of Jin near the end of the Spring and Autumn Period is said to have marked this period's beginning.
ANSWER: the **Warring States** Period [accept **Era of Warring States**]

10. It will begin when Loki breaks his chains and then wages war on the gods with the fire giant Surt. For 10 points each:
[10] Name this Norse apocalypse, where most of the giants and gods are killed and the Earth is set on fire.
ANSWER: **Ragnarok** [do not accept **Gotterdamerung**]
[10] This child of Loki and Angrboda will release the ship Naglfar with the waves it creates during Ragnarok. This creature kills and is killed by Thor.
ANSWER: **Jormungandr** [accept **Midgard Serpent**]
[10] This Norse god of war will kill Garm, the hound of hell, at Ragnarok, before dying himself. Earlier, this god allowed Fenrir to bite off his hand.
ANSWER: **Tyr**

11. Gas laws describe the way that gases behave. Answer these questions about gas laws, for 10 points each:
[10] This law states that equal volumes of gas always contain the same number of moles of gas particles if pressure and temperature are constant.
ANSWER: **Avogadro**'s law
[10] This law combines the classical gas laws into a statement that pressure times volume equals the number of moles of gas times its namesake constant times absolute temperature, but fails to be realistic in some situations, such as those with low temperature or high pressure.
ANSWER: **ideal gas** law
[10] This law gives a better approximation of the behavior of a gas, including correction terms *a* and *b* to take into account the fact that gas particles take up space and exert forces on each other.
ANSWER: **Van der Waals** equation

12. The Pigovian variety attempts to correct negative externalities. For 10 points each:
[10] Name these fees levied by governments, which may come in capital gains, income, or sales varieties.
ANSWER: **taxes** [accept word forms]
[10] This curve plots taxation against government revenue and implies that there is an optimal tax rate where revenue is at a maximum.
ANSWER: **Laffer** curve
[10] The Laffer curve influenced this economic theory, often associated with Reagan, which argued that reducing taxes, regulation, and other barriers to production would increase economic growth, via a trickle-down effect.
ANSWER: **supply-side** economics [prompt on **voodoo**economics; prompt on **Reganomics**]

13. The title character is exiled from Ayodha with his wife and brother, only to engage in a war with Ravana. For 10 points each:
[10] Name this ancient epic where the ten-headed demon Ravana kidnaps the wife of the titular character, an avatar of Vishnu.
ANSWER: ***Ramayan****a*
[10] This Hindu ape-like deity aids Rama by leading a monkey army. A story from this figure's youth tells how he tried to eat the sun because he thought it was a mango.
ANSWER: **Hanuman**
[10] The *Ramayana* is written in this language. Some of the oldest works of this language are the Vedas and its most famous writer is Kalidasa.
ANSWER: **Sanskrit**

14. The woman depicted in this painting is entirely nude except for a ribbon around her neck, her sandals, and a gold bracelet. For 10 points each:
[10] Identify this painting depicting a reclining courtesan on a white couch. A black cat rests at the nude's feet, while behind her stands a black woman holding flowers.
ANSWER: ***Olympia***
[10] This painter of *Olympia* also painted Victorine Meurent dining with two fully clothed men in *Luncheon on the Grass.*
ANSWER: Edouard **Manet** [do not accept "Monet"]
[10] *Luncheon on the Grass* was exhibited at this 1863 Parisian art show for paintings rejected by a more famous art show with a similar name.
ANSWER: **Salon des Refuses** [the "s" in "des" and the second s in "Refuses" is not pronounced; do not accept or prompt on "Salon"]

15. Nabokov published a famous translation of this work in response to Arndt's translation. For 10 points each:
[10] Name this novel in which the title character rebuffs the love of Tatiana in a famous speech and kills Lensky in a duel.
ANSWER: ***Eugene Onegin***
[10] This Russian author of *Eugene Onegin* also wrote a play about a monarch whose death causes the Time of Troubles, *Boris Godonov*.
ANSWER: Alexander **Pushkin**
[10] This Pushkin poem details Evgenii's cursing of the titular object, which causes it to come alive and pursue him through St. Petersburg.
ANSWER: "The **Bronze Horseman**"

16. This author wrote a short story in which the Sheridans continue to host the titular outdoors event despite the death of a lower-class neighbor. For 10 points each:
[10] Identify this author of "The Garden Party" brought up in colonial New Zealand. Her other short stories include works such as "Bliss" and "A Dill Pickle."
ANSWER: Katherine **Mansfield**
[10] This protagonist of "The Garden Party" brings a basket of leftovers to the Scotts' residence after the party. She shares her name with Petrarch's beloved.
ANSWER: **Laura** Sheridan [prompt on "Sheridan"]
[10] Mansfield also wrote a short story titled for one of these creatures. Emily Dickinson heard one of these "buzz when [she] died."
ANSWER: **flies** [accept "The **Fly**"]

17. This man's life story was recounted in a lengthy poem by Blind Harry. For 10 points each:
[10] Identify this iconic Scottish hero and fighter for independence, the victor at the Battle of Stirling Bridge.
ANSWER: William **Wallace**
[10] This ruler of England and enemy of William Wallace defeated Scottish forces at the Battle of Dunkirk and had Wallace hanged and quartered in 1305.
ANSWER: **Edward I** [prompt on **Edward** or **Longshanks**; accept**Edward Longshanks**]
[10] Edward Longshanks made numerous strategic errors, including trying to cross the namesake river, during this pivotal battle in the War of Scottish Independence. This battle was a decisive victory for Scottish forces under Robert the Bruce.
ANSWER: Battle of **Bannockburn**

18. Answer the following about kings in music, for 10 points each.
[10] This gypsy punk band sung about "staying on the run" in their song "Wonderlust King," in addition to singing about insanity in "Start Wearing Purple."
ANSWER: **Gogol Bordello**
[10] This album's title track is arguably about a king, as it asks you to "be my mirror, my sword and shield" and begins by stating that "I used to rule the world."
ANSWER: ***Viva la Vida***
[10] *Viva La Vida* is a recent release of this band fronted by Chris Martin, whose other notable songs include "The Scientist" and "Yellow."
ANSWER: **Coldplay**

19. They defend the body against foreign invaders. For 10 points each:
[10] Name these cells which make up the immune system and are produced by hematopoietic stem cells in bone marrow. This class includes macrophages.
ANSWER: **leukocyte**s [Accept **white blood cell**s or **WBC**s]
[10] Name this class of leukocytes which include T and B cells. Those groups make up the adaptive immune response system.
ANSWER: **lymphocyte**s
[10] These lymphocytes function in the innate immune system by secreting perforin and granzymes to induce apoptosis in infected cells. These cells kill cells that lack MHC 1.
ANSWER: **N**atural **K**iller cells

20. After inexplicably discovering themselves on a boat, one of the title characters stabs the Player, only to discover the knife was retractable. For 10 points each:
[10] Name this play centering on two minor characters from *Hamlet*, which begins with a coin being flipped heads ninety-two times in a row.
ANSWER: ***Rosencrantz and Guildenstern are Dead***
[10] *Rosencrantz and Guildenstern are Dead* is a play by this English playwright. Another of his plays, *Arcadia,* alternates time periods between the early 1800s and present-day England.
ANSWER: Tom **Stoppard**
[10] In *Arcadia,* Hannah and Valentine mention that "the girl," most likely Thomasina Coverly, dies at the age of seventeen in one of these events. This type of event is also responsible for Ms. Havisham's death in Dickens' *Great Expectations.*
ANSWER: a **fire** [accept equivalents]

EXTRA: It involves the development of reproductive barriers leading to reproductive isolation. For 10 points each:
[10] Name this biological process resulting in distinct groups of organisms that cannot interbreed.
ANSWER: **speciation**
[10] This type of speciation can rapidly result from polyploidy, most often in plants, or from divergent sexual selection. It occurs when the two species still inhabit the same geographic area.
ANSWER: **sympatric** speciation
[10] The existence of these species demonstrates that the ability to interbreed is not transitive. They occur when organisms are able to produce offspring with others from neighboring regions, but ones from the two endpoints are not.
ANSWER: **ring** species