

ACF Fall 2015

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Tossups

1. The narrator of a novella by this author interrogates a ship's nervous captain, who is being shaved. That work by this author climaxes as a figurehead inscribed with the message "follow your leader" is revealed to display the skeleton of Alexandro Aranda. One of this author's characters gets imprisoned in the Tombs after he refuses to stop sleeping in his office. That character created by this author works with Nippers and Turkey, is said to have worked in the dead letter office, and responds to every question with the statement "I would prefer not to." For 10 points, name this author of *Benito Cereno* and "Bartleby, the Scrivener" who also wrote *Moby Dick*.

ANSWER: Herman Melville

2. An object orbiting this planet contains sections named Liberty, Equality, and Fraternity. A small group of clouds on this planet was nicknamed "the Scooter" for its high speed. Volcanoes that eject ice were first observed on an object that orbits this planet. The first high resolution images of this object were taken by Voyager 2 and revealed a storm system known as the "Great Dark Spot". Johann Galle first observed this planet from a telescope using predictions made by Urbain Le Verrier ["ur-BAIN le vay-ree-AY"] about its effects on the orbit of Uranus. For 10 points, name this dark blue gas giant, the outermost planet in the Solar System.

ANSWER: Neptune

3. This culture produced red-and-black painted figures on the walls of the Tomb of the Roaring Lions, as well as a Greek-influenced terracotta sculpture of a reclining husband and wife. The Sarcophagus of the Spouses is an artifact of this culture. Herodotus claims that these people descended from Lydian exiles, not from the Villanovan culture. A twelve-city "league" of this people centered on the city of Veii ["VAY-ee"]. In legend, a ruler of this people named Lars Porsena aided another man whose rape of Lucretia led him to be overthrown in favor of a republic led by consuls. The names of Tuscany and Etruria derive from, for 10 points, what pre-Roman culture of Italy?

ANSWER: Etruscans [or Etrurians]

4. Four interconnected movements comprise this composer's Fantasia in F Minor for piano four hands. A man who repeatedly sings that wandering is his joy in "Das Wandern" is convinced by a seductive brook to drown himself at the end of this composer's song cycle *Die schöne Müllerin* [dee "SURE"-nuh MYOO-luh-rin]. This composer depicted a father and son rushing home on horseback as they are harassed by the title demon in "Der Erlkönig," and incorporated his lied "Die Forelle" into the fourth movement of his *Trout Quintet*. This composer wrote just two movements of his Symphony No. 8 before his untimely death. For 10 points, name this composer of the *Unfinished* Symphony.

ANSWER: Franz Schubert [or Franz Peter Schubert]

5. Brans-Dicke theory is an alternative to this theory, which was tested in an experiment in which an iron-57 sample emitted gamma rays towards another iron-57 sample placed 22.5 meters away. This theory was supported by the Pound-Rebka experiment and by Arthur Eddington's observations of a solar eclipse. This theory correctly predicted the difference in the precession of Mercury's perihelion. This theory studies metrics, which are the solutions to the field equation. According to this theory's equivalence principle, gravity is indistinguishable from a pseudoforce. For 10 points, name this theory of Einstein which treats gravity as the curvature of spacetime.

ANSWER: **general relativity** [or **GR**; prompt on "relativity"; do NOT accept "special relativity"]

6. A fictional character in this country rips out a doll's blonde hair and replaces it with horsehair. A novel set in this country imitates the Jerilderie letter by using no commas for the narration. In another novel set in this country, the title characters are described as "one obsessive, one compulsive" in their gambling, and their rivalry leads to a glass church being floated down a river to Bellingham. In a novel set in this country, a shootout at the Glenrowan Hotel leads to the capture of the steel-armored protagonist. For 10 points, name this country that is the setting of *Oscar and Lucinda* and *The True History of the Kelly Gang*, the home of Peter Carey and Patrick White.

ANSWER: **Australia**

7. One of the two title figures of a poem by this author asks "must my self dissect my tatter'd state, / Which Amazed Christendom stands wondering at?" This author wondered "What gripes of wind my infancy did pain, / What tortures I in breeding teeth sustain?" in one of four "quaternion" poems. This author of "Dialogue Between Old England and New" described seeing "My pleasant things in ashes lie," in her poem "Verses Upon the Burning of Our House." The line "If ever two were one, then surely we" opens this poet's "To My Dear and Loving Husband." For 10 points, name this 17th century American poet of the collection *The Tenth Muse Lately Sprung up in America*.

ANSWER: Anne **Bradstreet** [or Anne **Dudley**]

8. This city was the site of a now-destroyed Porcelain Tower. Missionary John Magee documented an event in this city that saw German businessman John Rabe save many lives. A 1997 Iris Chang book brought greater awareness to an event in this city that was alleviated by a namesake "Safety Zone." The capture of this city by Charles Gordon's "Ever Victorious Army" ended the Taiping Rebellion. The treaty that ended the First Opium War is named for this city. A contest to kill 100 people with a sword took place after this city was captured in 1937 from Chiang Kai-shek's army. For 10 points, name this Chinese city that was subjected to a namesake "rape" by Japanese soldiers.

ANSWER: **Nanjing** [or **Nanking**]

9. In a painting from this movement, a musical arrangement of "Tears, Idle Tears" is lying on the floor of a messy room in which a mistress is getting out of her partner's lap. An artist from this movement painted *The Hireling Shepherd*, and another used his wife as the basis for *Beata Beatrix*. One artist from this movement painted a boy Jesus kissing Mary's cheek in a messy workshop in *Christ in the House of His Parents*. Elizabeth Siddal modeled for many paintings from this movement, including John Everett Millais' *Ophelia*. Its members included William Holman Hunt and Dante Gabriel Rossetti. For 10 points, name this movement that sought to revert to pre-Renaissance art.

ANSWER: **Pre-Raphaelite** Brotherhood [prompt on "PRB"]

10. These processes do not occur in the one-dimensional Ising model but do appear in higher dimensions. For a one component system these processes only have one degree of freedom according to a rule named for Gibbs. These processes are classified by the degree of their order parameters in Ehrenfest's classification. These processes each have an associated latent heat since they occur at constant temperature. Three of these processes occur simultaneously at a triple point. These processes occur along lines or curves on a diagram that plots pressure and temperature. For 10 points name these processes in which the state of matter changes, exemplified by boiling and freezing.

ANSWER: phase transitions [or phase changes]

11. In retaliation for the rape of Dinah, two members of this group massacred the men of Shechem after convincing them to all get circumcised simultaneously. The Book of Genesis concludes with the death of one of these men, who correctly predicted the release and execution respectively of a cupbearer and baker of the Pharaoh while he was imprisoned. Rachel and Leah were mother to some of these people, who were the children of a man who had earlier wrestled with God in the form of an angel and had a vision of a ladder ascending to Heaven. For 10 points, name this group of brothers including Judah, Levi, and Joseph, the ancestors of the twelve tribes of Israel.

ANSWER: sons of Jacob [or word forms like "Jacob's sons"; prompt on "children of Jacob"]

12. The third act of one of this composer's operas celebrates the title character's return in a passage called the Good Friday Music. In another opera by this composer, a maid's warning that daylight approaches falls on deaf ears as Melot reveals the title characters' secret love affair. At the end of that opera, the soprano lead declares that her dead lover's eyes shine "mildly and brightly" in the "Liebestod" ["LEEB-es-tot"]. In another opera by this composer, Siegfried's lover Brünnhilde returns a central object to the Rhinemaidens and incites the title *Twilight of the Gods*. For 10 points, name this composer of *Parsifal* and *Tristan und Isolde*, whose *Ring* cycle includes the "Ride of the Valkyries."

ANSWER: Richard Wagner [or Wilhelm Richard Wagner]

13. One of these mythical creatures picks up a poisoned arrow and wonders how it can be so potent, but accidentally drops it on his foot and dies. A group of these creatures use rocks and tree trunks to crush the invulnerable warrior Caeneus. Some members of this race try to abduct Hippodamia during her wedding to Pirithous, which prompts a namesake war with the Lapiths. This race descends from the union between Ixion and the cloud nymph Nephele. The shirt that takes Heracles's life is tainted by the blood of one of these creatures named Nessus. The wisest of these creatures is a son of Cronus named Chiron. For 10 points, identify this half-man, half-horse race.

ANSWER: centaur [or hippocentaur]

14. A character in a play by this author provides the answer "seven" to the question of "four minus three" before being killed by her instructor. In a play by this author, the deaf mute Orator mumbles "ANGELBREAD" before an Old Man and Woman leap off a balcony. The protagonist attempts to convince Daisy, who works at a newspaper office, to repopulate the Earth in one play by this author of *The Chairs*. In a play by this author, the Martins' visit to the Smiths is interrupted by a fire chief. Everyone but Berenger grows horns and turns into the title animal in one of his plays. For 10 points name this absurdist Romanian who wrote *The Rhinoceros*.

ANSWER: Eugene Ionesco

15. This politician quoted Teddy Roosevelt's diary entry "the light has gone out in my life" during a farewell speech to his staff. In another speech, he asserted that his wife wore a "respectable Republican cloth coat." He stated that the media would not have him "to kick around anymore" after losing a 1962 gubernatorial election to Pat Brown. This politician dismissed accusations that he had accepted illicit gifts in a campaign speech that defended his taking of a cocker spaniel named Checkers. During a press conference, this President dubiously claimed that "I am not a crook." For 10 points, name this President who resigned due to the Watergate Scandal.

ANSWER: Richard Nixon [or Richard Milhous Nixon]

16. A philosopher living in this country discussed the sense of abjection in the book *Powers of Horror*, and wrote about a trip to Maoist China in *About Chinese Women*. A thinker from this country included the sections *Facts and Myth* and *Lived Experience* in a book that claims Engels' historical materialism cannot be used to understand the book's title idea. Julia Kristeva lives in this country, where another thinker claimed that, because it privileges the speed of light, " $E = mc^2$ " is a "sexed" equation. A book from this country claims "one is not born, but becomes, a woman". Luce Irigaray lives in, for 10 points, what home country of Simone de Beauvoir?

ANSWER: France

17. An episode of this television series ends with a long take of a truck's broken tail light dangling as the truck moves. In its first episode, a character hallucinates that a flock of birds arranges itself into a vortex while standing outside an abandoned church. Its first season ends with a character remarking "if you ask me, the light's winning" while looking up at the stars. One of its protagonists is haunted by Reggie Ledoux's statement "time is a flat circle." Its first season focused on Marty Hart and Rust Cohle's investigation of a murderous cult in Louisiana. For 10 points, name this HBO crime anthology series whose first season starred Woody Harrelson and Matthew McConaughey.

ANSWER: True Detective

18. This technique can be used to determine the number of microsatellite repeats in a sample. When there is excessive nonspecific activity, this procedure is modified with a gradual ramp-down of a certain parameter. Practitioners of this technique generally use a "master mix" which contains magnesium chloride and dNTPs. The products of this technique can be visualized by staining with ethidium bromide and running a gel. This procedure is conducted in thermocyclers, which can change the temperatures for the denaturation, annealing, and elongation stages. For 10 points name this technique that uses the heat-stable "Taq" polymerase to amplify target DNA sequences.

ANSWER: PCR [or polymerase chain reaction; accept "touchdown PCR"]

19. A character in this play refuses to have his toe licked to tell the wind's direction, after another man claims to be sane when the wind is southerly. After losing a bet that twice a man's age can be an odd number, a character in this play claims to be of the "blood, love, and rhetoric school". In this play, two characters resembling the protagonists appear in the Tragedians' dress rehearsal of *The Murder of Gonzago*. In this play, the lights abruptly change before the protagonists are greeted by Gertrude and Claudius at Elsinore. This play's protagonists flip coins that repeatedly come up heads. For 10 points, name this Tom Stoppard play about two murdered courtiers from *Hamlet*.

ANSWER: Rosencrantz and Guildenstern Are Dead

20. In the aftermath of this event, the title of Baron was awarded to Philip Fabricius. One cause of this event was the impending death of the issuer of the Letter of Majesty, Matthias I. This event was triggered when Jaroslav Borzita and Vilem Slavata confessed to their approval of Ferdinand II's dissolution of an assembly of the Bohemian estates. Proclamations that divine intervention was involved in this incident were countered by an apocryphal claim that its victims had been saved by a pile of horse manure. For 10 points, name this 1618 incident in the buildup to the Thirty Years' War, in which three Catholic nobles were thrown from a castle window.

ANSWER: Second **Defenestration of Prague**

Extra

A cartoon by James Gillray depicts this man holding the leader of a neighboring country in his hand, parodying *Gulliver's Travels*. As part of an uprising during this man's reign, the walls of Newgate Prison were painted with the words "His Majesty, King Mob." During this man's reign, Spencer Perceval became the first British PM to be assassinated, and he faced the anti-Catholic Gordon Riots in his capital. This monarch, who ruled during the ministry of William Pitt the Younger, may have suffered from mental illness late in life due to porphyria. For 10 points, name this British monarch who dealt with the Napoleonic Wars after losing Britain's colonies in America.

ANSWER: **George III** [prompt on **George**]

Bonuses

1. The three core principles of this religion are Unity of God, Unity of Religion, and Unity of Humanity. For 10 points each:

[10] Name this religion founded by Bahá'u'lláh ["ba-ha-OO-lah"], whose many scriptures include the *Book of Certitude*. This religion's adherents believe that Jesus, Muhammad, and the Buddha were all prophets of the same God.

ANSWER: **Baha'i** Faith [or **Baha**; or **Bahaism**; or **Bahaiyyat**]

[10] The Baha'i faith is governed by the Universal House of Justice, which is headquartered in this city in Israel.

ANSWER: **Haifa**

[10] Bahá'u'lláh was from this modern-day nation. Followers of another religion founded in what is now this nation worship at fire temples and use a holy text that consists of the Gathas and the Yasna.

ANSWER: **Iran**

2. Dale Chihuly works in this medium and studied with Harvey Littleton at his studio at the Toledo Museum of Art. For 10 points each:

[10] Identify this medium whose stained variety is found in the windows of many Gothic cathedrals.

ANSWER: **glass** [accept stained **glass**]

[10] This American artist developed the colorful iridescent favrile variety of glass, which he used for his lampshades.

ANSWER: Louis Comfort **Tiffany**

[10] This artist produced stained glass windows for the cathedrals of Reims and Metz and well as a series depicting the twelve tribes of Israel for a synagogue in Ein Karem, Jerusalem.

ANSWER: Marc **Chagall** [or Marc Zakharovich **Chagall**]

3. Name the following characters from Sophocles's Theban plays, for 10 points each.

[10] This Theban hero was abandoned as a child because an oracle prophesied that he would kill his father Laius. This hero eventually made his way back to Thebes, where he married his mother Jocasta.

ANSWER: **Oedipus**

[10] During his journey to Colonus, Oedipus was accompanied by this figure, who is his daughter. In the Sophocles play named after her, this character defies Kreon to bury her brother Polyneices.

ANSWER: **Antigone**

[10] This son of Kreon and betrothed of Antigone kills himself when it is revealed that Antigone hanged herself.

ANSWER: **Haimon**

4. James Monroe invited this man to make a “Grand Tour” of the United States. For 10 points each:

[10] Name this French aristocrat who alleviated the boredom of being incredibly rich by fighting for the colonists in the American Revolution. This close advisor of George Washington was nicknamed “The Hero of Two Worlds.”

ANSWER: the Marquis de Lafayette [or Gilbert du Motier, Marquis de Lafayette]

[10] Along with George Washington and the rest of the Continental Army, the Marquis de Lafayette suffered through the winter of 1777 at this encampment in Pennsylvania.

ANSWER: Valley Forge

[10] This Prussian military outcast arrived at Valley Forge as a volunteer to train the unskilled colonial volunteers. His training, later condensed into the *Blue Book*, turned the ragtag patriot army into a legitimate military force.

ANSWER: Baron von Steuben [or Friedrich Wilhelm von Steuben]

5. Answer the following about theorems in mathematics, for 10 points each.

[10] As a consequence of this theorem, every degree n polynomial with complex coefficients has exactly n complex roots. Despite its name, it cannot be proven without the use of topological or analytic techniques.

ANSWER: fundamental theorem of algebra

[10] This special case of the law of cosines states that the square of a right triangle’s hypotenuse is equal to the sum of the squares of its other two side lengths.

ANSWER: Pythagorean theorem [or Pythagoras’ theorem]

[10] The law of rare events is often referred to as this man’s “limit theorem”. He also names a distribution that describes how many times an independent event is likely to occur during a fixed time interval.

ANSWER: Siméon Denis Poisson

6. This author wrote about the Ministry of Truth employee Winston Smith in a novel that introduced the “Newspeak” language. For 10 points each:

[10] Name this author of 1984.

ANSWER: George Orwell [or Eric Arthur Blair]

[10] The narrator of this Orwell essay uses a 44 Winchester to perform the title action in the streets of Moulmein in Burma.

ANSWER: “Shooting an Elephant”

[10] Orwell wrote an essay titled for “Politics and” this entity, in which he presents a tortured translation of a passage of Ecclesiastes as an example of how politics has created “insincerity” in this thing.

ANSWER: English language [or “Politics and the English Language”]

7. One form of this equation states that the Hamiltonian of the wavefunction is equal to the energy times the wavefunction. For 10 points each:

[10] Name this central equation of quantum mechanics. Its namesake also created a thought experiment involving a cat in a box.

ANSWER: Schrödinger equation

[10] The previously mentioned form of the Schrödinger equation is independent of this variable. The probability distribution of a stationary state is independent of this quantity.

ANSWER: time [accept time-independent Schrödinger equation]

[10] The square modulus of the wavefunction yields this function, whose integral over all values must be 1.

ANSWER: probability density function [or PDF]

8. Cadillac Mountain is the highest point in this national park, which is located near the town of Bar Harbor. For 10 points each:

[10] Name this oldest U.S. national park east of the Mississippi River, which makes up the majority of the land on Mount Desert Island.

ANSWER: Acadia National Park

[10] Acadia National Park is located in this largest New England state, whose capital is Augusta.

ANSWER: Maine

[10] The community of Sabbathday Lake near New Gloucester, Maine is home to the three remaining members of this religious sect known for its hymns and crafts, as well as its belief in celibacy.

ANSWER: Shakers [or the United Society of Believers in Christ's Second Appearing]

9. The Spirit of the Troy is one of these organizations at the University of Southern California, and one of these institutions at the Ohio State University performs the "Script Ohio" routine. For 10 points each:

[10] Name this type of musical organization that is generally led by a Drum Major.

ANSWER: marching bands [prompt on "bands" or "university bands"]

[10] The Stanford Marching Band infamously took the field too early at the end of a 1982 game against this other college, Stanford's biggest rival. They are nicknamed the "Golden Bears" and play at Memorial Stadium in Berkeley.

ANSWER: University of California, Berkeley [or Cal-Berkeley; or UC Berkeley; prompt on just "Berkeley"]

[10] This man was Stanford's quarterback during the contentious 1982 game against Berkeley. He won two superbows as quarterback for the Denver Broncos from 1983 to 1998.

ANSWER: John Elway [or John Albert Elway, Jr.]

10. Answer the following about the October Revolution of 1910, for 10 points each.

[10] The revolution overthrew this country's king Manuel II. This country would later be home to a government known as the "Estado Novo" that ruled from Lisbon.

ANSWER: Portugal [or Portuguese Republic]

[10] Manuel II belonged to this Portuguese royal house founded by Alfonso I. The English king Charles II's wife, Catherine, was a member of this house.

ANSWER: House of Braganza

[10] One reason for the 1910 October Revolution was the surrender of some Portuguese colonies in Africa to Great Britain. However, Portugal managed to retain this colony until 1999 when it was returned to China.

ANSWER: Macau

11. HMG-CoA reductase catalyzes the rate limiting step of this molecule's synthesis. For 10 points each:

[10] Name this 27 carbon molecule from which steroids are derived. It helps maintain membrane fluidity.

ANSWER: cholesterol

[10] The "high density" and "low density" types of these structures are colloquially known as "good" and "bad cholesterol" for their contribution to arterial plaque buildup in atherosclerosis.

ANSWER: lipoprotein [prompt on "LDL" or "HDL"; accept "high density lipoprotein" or "low density lipoprotein"]

[10] LDL receptors can be found in pits coated with this protein whose triskelion-shaped units form "cages." Like COP ["cop"] proteins, this protein can be found coating intracellular transport vesicles.

ANSWER: clathrin

12. In this novel, members of the clandestine mail delivery service Trystero scrawl the acronym "W.A.S.T.E." on trash bins. For 10 points each:

[10] Name this 1966 novel in which Trystero is investigated by Oedipa Maas.

ANSWER: *The Crying of Lot 49*

[10] *The Crying of Lot 49* was written by this American author. The location of Tyrone Slothrop's sexual encounters correspond with V2 rocket strikes in his notoriously difficult novel *Gravity's Rainbow*.

ANSWER: Thomas Pynchon [or Thomas Ruggles Pynchon, Jr.]

[10] Pynchon is known for being extremely reclusive, not unlike this other American author who wrote *Nine Stories* and *The Catcher in the Rye*.

ANSWER: J.D. Salinger [or Jerome David Salinger]

13. A mirror in the background of this painting shows that the central figure is talking to a mustachioed patron wearing a top hat. For 10 points each:

[10] Name this painting whose central figure is leaning on a counter lined with a bowl of oranges and bottles of Bass Pale Ale.

ANSWER: *A Bar at the Folies-Bergère* ["FOH-lee-ay bear-JER"] [or *Un bar aux Folies Bergère*]

[10] This French impressionist painted *A Bar at the Folies-Bergère*. He showed a naked woman on a picnic with two fully dressed men in *Luncheon on the Grass*.

ANSWER: Édouard Manet

[10] A Manet painting set in the town of Longchamps ["lone-SHAHM"] focuses on these creatures. George Stubbs is best remembered for his paintings of these animals.

ANSWER: horses [or racehorses]

14. Answer the following about Polynesian settlement of South America, for 10 points each.

[10] The Rapa Nui people of this island are descendants of Polynesian settlers. It is home to some famous moai stone heads.

ANSWER: Easter Island

[10] This Norwegian explorer postulated that the Rapa Nui actually arrived from South America, not Polynesia. He attempted to prove his point by sailing on the *Kon-Tiki* across the Pacific Ocean from Peru.

ANSWER: Thor Heyerdahl

[10] On Easter Island, Rapa Nui elites could achieve this title by winning a race to collect an egg from a nearby island. This title's namesake cult was eliminated by Christian missionaries in the 19th century.

ANSWER: birdman [or tangata manu]

15. The god Vali does not comb his hair or wash his hands until he has killed this deity, a feat Vali accomplishes on the day of his birth. For 10 points each:

[10] Identify this blind god who is tricked into murdering his own brother.

ANSWER: Hoder [or Hod; or Hodr; or Hodur]

[10] This Norse trickster god convinces Hoder to strike his brother Balder with a mistletoe spear that turns out to be fatal.

ANSWER: Loki [or Lopt; or Loptr]

[10] This author related the death of Balder in the *Gylfaginning* section of his *Prose Edda*.

ANSWER: Snorri Sturluson

16. The title building of this short story is composed of hexagonal galleries with bookshelves on four of the sides. For 10 points each:
- [10] Name this short story. Its narrator tells of how the Purifiers religious sect sought to destroy worthless books.
- ANSWER: "The **Library of Babel**" [or "La **biblioteca de Babel**"]
- [10] This Argentinean author of *Ficciones* and "El Aleph" wrote "The Library of Babel".
- ANSWER: Jorge Luis **Borges**
- [10] In "The Library of Babel", people begin to search for the "Vindications" after discovering this property of the library.
- ANSWER: the Library is **infinite** [or similar answers like "it is **endless**"; or "there are **infinite** rooms"]
17. This foodstuff was the subject of an experiment in which children could choose to receive one of them immediately or two if they waited for a short time. For 10 points each:
- [10] Name this sweet that Walter Mischel used to study the effects of delayed gratification. The ability to delay gratification was later correlated with higher SAT scores.
- ANSWER: **marshmallows** [or Stanford **marshmallow** experiment]
- [10] Mischel authored a controversial 1968 book on this subject in psychology critiquing the "trait" approach towards its study, which uses assessments like the popular Myers-Briggs test.
- ANSWER: **personality** psychology [or word forms like "**personalities**"]
- [10] Hans Eysenck attributed this member of the "Big Five" personality factors to higher limbic system activity in individuals with it, who are more susceptible to stress and thus express negative affect and anxiety.
- ANSWER: **neuroticism** [or **neurotic** personality; or word forms like **neurosis**]
18. The victorious commander at this engagement later had Battle Abbey built on the spot where it took place. For 10 points each:
- [10] Name this 1066 victory for William the Conqueror that ensured the Norman conquest of Anglo-Saxon England. It is depicted in the Bayeux Tapestry.
- ANSWER: Battle of **Hastings**
- [10] According to the Bayeux Tapestry, this last Anglo-Saxon king of England died at Hastings after an arrow pierced his eye. He succeeded Edward the Confessor as king.
- ANSWER: **Harold Godwinson** [or **Harold II**; prompt on just "Harold"]
- [10] In the Bayeux Tapestry, William the Conqueror is depicted as performing this action to prove to his men that he is still alive after falling from his horse.
- ANSWER: he **takes off** his **helmet** [accept any descriptive answer that suggests knowledge of William the Conqueror **removing his helmet** to prove that he is still alive]
19. This composer's Symphony No. 4 in F minor begins with a brass fanfare that represents fate. For 10 points each:
- [10] Name this composer of a Piano Concerto No. 1 in B-flat minor, whose violin concerto includes a middle movement Canzonetta.
- ANSWER: Pyotr Ilyich **Tchaikovsky**
- [10] This Tchaikovsky piece memorializes Napoleon's invasion of Russia with quotations of "La Marseillaise" and "God Save the Tsar," and calls for several live cannon shots.
- ANSWER: **1812 Overture** [or *The Year 1812*; or **1812 God**]
- [10] An Adagio lamentoso ends this last symphony by Tchaikovsky, whose second movement is a waltz in the unusual time signature of 5/4.
- ANSWER: **Pathétique** Symphony [or Symphony No. **6**]

20. The Bayer process is used in the purification of this element from its ore Bauxite. For 10 points each:
- [10] Name this element whose oxide forms corundum. It is the most abundant metal in the Earth's crust.
ANSWER: aluminum [or Al; or aluminium]
- [10] Aluminum oxide, or alumina, can be purified via this process, in which aluminum is dissolved in molten cryolite and isolated via electrolysis.
ANSWER: Hall-Héroult process
- [10] Aluminum oxide is a product of the standard form of this exothermic reaction, which is typically the redox reaction between aluminum metal and iron oxide.
ANSWER: thermite reaction

Extra

Unlike most fish, these organisms lack swim bladders and instead owe their buoyancy in part to their very oily livers, for which the "basking" variety of them is hunted. For 10 points each:

- [10] Identify these animals which come in varieties like the hammerhead and the great white.
ANSWER: sharks [or Selachimorpha]
- [10] Sharks contain sensing organs called the ampullae of Lorenzini, which allow them to detect this phenomenon.
ANSWER: electricity [or word forms like "electrical stimuli"; or electric fields; or electromagnetism]
- [10] Another interesting natural measuring instrument is this infrared sensing organ that allows snakes, like pythons and boas, to detect heat.
ANSWER: pit organ