



NASAT 2016  
Round 4

1. In the second century AD, Artemidorus authored a lengthy treatise on interpreting these events, and Aelius Aristides kept a decades-long record of them in *The Sacred Tales*. Sick devotees of Asclepius hoped to experience events of this sort at the Epidaurus sanctuary, a practice called incubation. A pregnant Hecuba saw a flaming torch during one of these events, leading to the exposure of her newborn son Paris on Mount Ida. A passage in the *Odyssey* describes how these phenomena can be true or false depending on whether they come from gates of horn or ivory. The dark-winged Oneiroi were responsible for these events. For 10 points, identify these phenomena presided over by the god Morpheus, the son of the god of sleep.

ANSWER: **dreams** [prompt on sleeping until it is read; prompt on visions, omens, prophecies, or similar answers] <Brownstein>

2. Women could lose their citizenship if they performed a specific form of this practice under the 1922 Cable Act. Alice Jones was forced to show her shoulders and legs in court to determine whether Kip Rhinelander had knowingly engaged in this practice. A law banning this practice was struck down by the Supreme Court of California in the case *Perez v. Sharp*. A letter written to Robert Kennedy prompted the ACLU to challenge a law prohibiting this practice, which had caused two people named Richard and Mildred to be banned from the state of the Virginia for 25 years. Eighty years after the Supreme Court upheld laws banning this practice in *Pace v. Alabama*, it overturned the ruling in the *Loving* case. For 10 points, name this practice exemplified by a white person and a black person being wed.

ANSWER: **interracial marriage** [or **miscegenation**; or obvious equivalents; or answers such as **marrying an Asian** immigrant; prompt on marriage] <Droge>

3. In this opera, the distant sound of the aria "Deserto sulla terra" briefly causes its female lead to mix up one man who loves her for another. A setting of the "Miserere" in the fourth act of this opera is followed by the soprano's decision to drink poison from her ring. A knight who disappears after winning a tournament in this opera reappears serenading the soprano under her window. Act 2 of this opera begins with "Vedi! Le fosche" (VAY-dee leh FOH-skeh) in which characters sing of clouds melting away at the break of dawn. News of Azucena's capture prompts this opera's aria "Di quella pira", sung by Manrico. This opera's best-known number depicts gypsies hard at work with their hammers. For 10 points, name this Verdi opera that contains the "Anvil Chorus".

ANSWER: ***Il trovatore*** [or ***The Troubadour***] <Gupta>

4. A member of this family notes that while little men are hung by the thumbs for mistakes, "the big ones become ambassadors". Another of its members says there is a God because "otherwise anything could happen". A boy enters this family's yard to play "jail", the mention of which angers the matriarch. Using a horoscope, Frank says a member of this family went missing on his "favorable day" and thus is still alive, even though an apple tree was planted in his memory. A member of this family is engaged to Ann Deever, the daughter of an imprisoned former business partner of this family's patriarch, who is the one actually responsible for selling damaged aircraft parts to the military during World War II. For 10 points, name this family of Larry and Joe in Arthur Miller's play *All My Sons*.

ANSWER: **Keller** <Cheyne>

5. These specific events are the most likely proximal cause for the radially-fractured *novae* as well as the spider-shaped arachnoids. The suggestion that there was a "super-" variety of these events on this object explains why craters, such as Mead and Addams, are all less than 500 million years old. The spacecraft Magellan mapped many of the effects of these events on this object, such as ones that created broad, flat structures called pancake domes. Evidence for these events include the discovery of ash at the summit of Maat Mons, and the Pioneer Orbiter's observation that the sulfur dioxide levels in a certain body's atmosphere increased and then decreased years after one of them happened. For 10 points, name these events in which lava spewed from volcanoes on the Solar System's second planet.

ANSWER: volcanic **eruptions on Venus** [or obvious equivalents; prompt on eruptions] <Jose>

6. The speaker of this poem notes that "every hour is saved from that eternal silence, something more, a bringer of new things". After praising men who "ever with a frolic welcome took the thunder and the sunshine", this poem's speaker observes, "the long day wanes; the slow moon climbs", before insisting, "Come, my friends, 'tis not too late to seek a newer world". The speaker of this poem says he will give up "the sceptre and the isle" to his son who "works his work". This poem ends with the determination "to strive, to seek, to find, and not to yield", and expresses the speaker's intention to pass his rule to Telemachus. For 10 points, name this dramatic monologue by Lord Tennyson written from the perspective of a King of Ithaca.

ANSWER: "**Ulysses**" <Sy>

7. A group homomorphism with this property preserves the order of group elements. If a functor exhibits this property when restricted to morphisms with common domains and ranges, then the functor is faithful. Checking for a trivial kernel is an easy way to show that a group homomorphism or a linear transformation has this property. A function  $f$  exhibits this property if  $f$ -of- $a$  equals  $f$ -of- $b$  implies that  $a$  equals  $b$ . Restricting the domain of  $f$ -of- $x$  equals  $x$ -squared to all positive numbers forces this condition upon  $f$ . When paired with surjectivity, this property, which is both necessary and sufficient for a function to be invertible, makes a function bijective. For 10 points, functions with what property pass the horizontal line test?

ANSWER: **injective** [or **one-to-one**; prompt on monomorphism] <Hothem>

8. This king's Minister of Finance proposed the abolition of the tithe in favor of a *vingtième* (vant-YEM) tax that targeted nobility. Robert-François Damiens was hung, drawn, and quartered for stabbing this king with a penknife. Three "Family Pacts" were organized by a minister under this king, the Duc de Choiseul (shwah-ZULL). This king supported his father-in-law, Stanislaus Leszczyński (lesh-CHIN-ski), during the War of the Polish Succession. The Cellamare (chell-lah-MA-ray) and the anti-tax Pontcallec conspiracies both targeted this king's regent, Philippe of Orléans (or-lay-ON). Cardinal Fleury served as minister to this king, who reigned when his country ceded its American territory to Britain after the Seven Years' War. For 10 points, name this lover of Madame de Pompadour, a French king who succeeded the "Sun King".

ANSWER: **Louis XV** [prompt on Louis] <Golimlim>

9. These people believe that the true versions of *The Disputation of Views* and *The Geography of Earth and Sky* are lost, and subscribe to the "45-Text Canon". These people, the only ones who revere the "dependent texts", organized at the Valabhi Assembly and believe that the kevalin must consume food. This group holds that a miracle swapped wombs within Trishla, that bowls should be used when begging, and that Mahavira was married. They also hold that, because Mālinātha was a female tirthankara, women can achieve moksha. For 10 points, name this division of Jains who wear white clothing, unlike the naked, "sky-clad" Digambaras.

ANSWER: **Śvētāmbaras** [or **white-clad** Jains until "white" is read] <Weiner>

10. For actions undertaken while working for this publication, Graham Dudman and Chris Pharo were charged with "misconduct in a public office". After January 2015, it ended its practice of publishing a topless model on Page 3 of each issue. This newspaper was reviled in Liverpool for such headlines as "some fans urinated on the brave cops" in the aftermath of the Hillsborough disaster. Under editor Kelvin MacKenzie, it ran headlines such as "Stick This Up Your Junta" (HOON-tah) and "Gotcha" in its coverage of the Falklands War. Following its 1992 campaign against Neil Kinnock, this newspaper ran a headline about itself, claiming it is "Wot Won It". In 2016, this newspaper fell behind the *Daily Mail* to second place in circulation. For 10 points, name this pioneering British tabloid.

ANSWER: *The Sun* <Weiner>

11. An economic model of this name examined maps of clusters of successful industries across ten different countries to analyze why firms become competitive in particular locations. That model of this name was developed in the book *The Competitive Advantage of Nations* by Michael Porter. An economist with this surname posited that people's expectations of the level of activity determines how many people become searchers in the Coconut Model. This is the alphabetically first object in a statement used by Adam Smith to illustrate the labor theory of value. According to that paradox, this object has no value in use, but very great value in exchange, as opposed to water. For 10 points, name this precious stone, smugglers of which may carry the conflict type.

ANSWER: **diamonds** <Droge>

12. This speech excerpts a document from the law firm of Gibson, Dunn & Crutcher about an entity controlled by Dana Smith. Near its conclusion, the speaker quotes from a letter addressed to him by an army wife before asking why prosperity cannot be built on peace instead of on war. A section of this speech asks for John Sparkman to disclose his finances, questioning why his wife had been put on his payroll. This speech emphasizes the speaker's middle class background, including working at the family grocery store and taking out a mortgage on a house. After openly disclosing details about an 18,000-dollar fund, it relates the story of a man from Texas who gave the speaker's daughter a cocker spaniel. For 10 points, name this speech by Richard Nixon that helped him maintain the 1952 vice presidential nomination.

ANSWER: **Checkers** speech [or **Fund** speech until "fund" is read] <Droge>

13. A series of paintings using this technique, featuring one with a flashcard of cherries, depicts a psychiatrist in its first entry, and is named for the second syllable of the German word for "commerce". This technique was used to create a painting of "squares arranged according to the laws of chance", by Jean Arp. The first painting to use this technique is a still life framed by imitation chair caning. The Berlin Dadaists labeled their artworks using this technique "photomontages". Braque and Picasso staked competing claims for having pioneered this painting technique, which is named for the French word for "to glue". For 10 points, name this technique of making art by assembling newspaper clippings, paint, and other found objects.

ANSWER: **collages** [or **photomontages** until it is read; or **Merz** (mairts) pictures until "commerce" is read] <Gupta>

14. A low value of a factor prefixed with this letter indicates high agreement between the 3D model of a protein and its X-ray diffraction data. Large values of a quantity represented by this letter and a subscript zero correspond to high numbers of secondary infections caused by a single diseased individual. In consensus sequences, this letter represents a purine and is also an abbreviation for the amino acid with a guanidinium (gwah-nih-DIN-ee-um) side chain. Genes for beta-lactamases can be transferred between bacterial strains by plasmids named for this letter. It is the one-letter code for arginine. This letter precedes a reproductive strategy characterized by short generations and large brood size. For 10 points, give this letter that names a type of selection contrasted with K-selection.

ANSWER: **R** <Smart>

15. This poem describes the "song of the bleeding throat" sung by a "hermit withdrawn to himself", telling him, "If thou wast not granted to sing thou would'st surely die". In this poem, the speaker encounters a gray-brown bird of the swamps, which impels his spirit to sing, "Come lovely and soothing death, undulate round the world". In a middle section of this poem, the speaker apostrophizes a "coffin that passes through lanes and streets" and offers to it the title object. This poem describes how "the great star early droop'd in the western sky in the night", referring to an event also described in the same poet's "O Captain! My Captain!". For 10 points, name this Walt Whitman poem, an elegy for Abraham Lincoln.

ANSWER: **"When Lilacs Last in the Dooryard Bloom'd"** <Sy>

16. In a piece about his experiences at this event, Thomas Wolfe wrote about watching a man being forcibly removed from a train. Avery Brundage prevented Sam Stoller and Marty Glickman from participating in this event, despite earlier proclaiming that it was not for politicians. The second part of a film documenting this event includes a staged run by Glenn Morris. The first television signal powerful enough to reach the ionosphere was broadcast during this event, for which Werner March (VAIR-nuh MARKH) designed a building capable of housing almost 75,000 people. The torch relay was executed for the first time on the way to this event, at which an African-American sprinter won four gold medals. For 10 points, name this event during which Jesse Owens's successes frustrated Adolf Hitler.

ANSWER: **1936 Summer Olympic Games** [or **Berlin Olympic Games**; prompt on **Olympic Games**] <Droge>

17. To solve a problem in this interdisciplinary field of study, Ewan Birney first modified the pairwise algorithm to calculate FOP and FEP scores, an improvement on the gap-scoring scheme. Hirschberg's algorithm, which finds an optimal solution using Levenshtein distance, was developed for use explicitly in this field of study, and was devised by modifying the Needleman–Wunsch algorithm. Most introductions to this field of study teach the BLAST algorithm early on since it is the simplest method of querying the alignment of sequences. In this field, computers are used to help analyze repeating sequences of adenine, thymine, guanine, and cytosine. For 10 points, name this academic field of using algorithms and statistical methods to manipulate genomic data.

ANSWER: **bioinformatics** [or **biology** and **computer science** combined; or **computational biology**; prompt on **computer science**, **biology**, or **genetics**] <Jose>

18. A chamber orchestra in this city recorded the full set of Mozart's piano concertos with Daniel Barenboim as soloist. This city's symphony orchestra was most recently led by a man who often conducts with a toothpick; in 2017, he will be succeeded by Simon Rattle. In 2013, Marin Alsop became the first woman to conduct an annual concert in this city that features much flag-waving and a large standing audience. That concert includes pieces such as Hubert Parry's "Jerusalem" and a fantasia on sea songs by Henry Wood, and is a special "Last Night" concert held in mid-September. Each summer, this city hosts eight weeks of daily concerts in its Royal Albert Hall. For 10 points, name this city in which the Proms are presented annually by the BBC.

ANSWER: **London** <Kim>

19. Tradition says that one stage of this event takes place at a mountain known as the Quarantania. Eusebius wrote that the action referenced in another stage of this event would happen years later to James the Just, who suffered no ill effects and was then stoned to death. William Barclay noted that the third stage of it is probably metaphorical because there is no mountain where "all the kingdoms of the world" can be seen. During this event, a man quotes Deuteronomy three times after he is told to throw himself from the highest point of the temple and to make bread out of stones. It occurs for forty days and forty nights in the Judean Desert after a man has been baptized by John. For 10 points, name this event in the Gospels where the Messiah is confronted by Satan.

ANSWER: Satan's **temptation of Jesus** Christ [or Satan's **temptation of Christ**; or **Jesus in the desert** or **Christ in the desert** until "desert" is read] <Cheyne>

20. A character in this play compares himself to a carrion "lying by the violet in the sun", bemoaning that he rots in the sunlight instead of growing. That soliloquy from this play asks, "The tempter or the tempted, who sins most?" and occurs after the villain speaks with a woman about to become a nun. In this play, a shunned woman named Mariana pretends to be someone else under cover of darkness as she has sex with her betrothed, leading to the pardon of a man who has impregnated Juliet. Duke Vincentio disguises himself as Friar Lodowick in this problem play, in which Isabella is offered the chance to save her brother Claudio by sleeping with Angelo. For 10 points, name this Shakespeare comedy that centers on a ban on fornication in Vienna.

ANSWER: Measure for Measure <Sy>

21. A useful "carrier" for this compound in some reactions is its adduct with two molecules of triphenylphosphine oxide. Red chemiluminescence can be indicative of this compound acting as a reducing agent. This compound and sulfuric acid comprise the etching agent in a piranha bath. In the gas phase, this compound belongs to the C<sub>2</sub> point group as it adopts a gauche conformation whose geometry is often described as "open book". Raney nickel or palladium are used to regenerate a tricyclic aromatic molecule which catalyzes the production of this compound. A mixture of this compound and iron salts that is used to treat wastewater is Fenton's reagent. This compound is produced by the anthraquinone process and it is degraded by catalase. For 10 points, name this compound used to bleach hair whose formula is H<sub>2</sub>O<sub>2</sub>.

ANSWER: hydrogen peroxide [or H<sub>2</sub>O<sub>2</sub> until it is read] <MacAulay>

1. The Basel problem is the equivalent of the Riemann zeta function where  $s$  equals two. For 10 points each:

[10] What is the solution to the Basel problem, which seeks to find the infinite sum of the reciprocals of the squares of the natural numbers?

ANSWER: **pi squared over six**

[10] Euler's derivation of a solution to the Basel problem uses the Taylor series expansion of this function, which is the infinite alternating sum of the odd-degree terms from  $n$  equals one to infinity of  $x$  to the  $n$  over  $n$  factorial.

ANSWER: **sine** function

[10] The Basel problem can also be solved with this type of series, which is used to write periodic functions as a sum of sines and cosines.

ANSWER: **Fourier** series <Pari>

2. This man wrote that "for all have sinned and fall short of the glory of God". For 10 points each:

[10] What man is traditionally credited with also writing the phrase "the wages of sin are death, but the gift of God is eternal life?"

ANSWER: **Paul** [or **Saul** of Tarsus]

[10] Those verses appear in this longest epistle of Paul, which appears in the New Testament immediately after Acts and is named for the city where Paul was eventually put on trial.

ANSWER: Epistle to the **Romans**

[10] According to Galatians, Paul and Peter clashed in this city because Peter insisted on not eating with the uncircumcised. Paul was upset that even Barnabas supported Peter and other Jews in this city.

ANSWER: **Antioch** on the Orontes <Cheyne>

3. Colonel Killigrew and Widow Wycherley are among those desirous of the Fountain of Youth in this author's story "Dr. Heidegger's Experiment". For 10 points each:

[10] Name this man who also wrote about Hester Prynne in *The Scarlet Letter*.

ANSWER: Nathaniel **Hawthorne**

[10] This Hawthorne story is set at the wedding of Edith and Edgar, which is disrupted when Endicott interrupts the ceremony, shoots a dancing bear, and cuts down the title structure.

ANSWER: "The **May-Pole of Merry Mount**"

[10] "The May-Pole of Merry Mount" appears in this 1837 Hawthorne collection. "Dr. Heidegger's Experiment" was originally published in *The Knickerbocker* before being included in this collection.

ANSWER: **Twice-Told Tales** <Sy>

4. The Nawab of one of these territories called Junagadh attempted to join Pakistan, despite being in the middle of Indian territory. For 10 points each:

[10] Give the common English term for these sovereign territories that acceded to either India or Pakistan after the end of British rule in the subcontinent.

ANSWER: **princely states**

[10] The annexation of the princely states occurred during the term of this first Prime Minister of India.

ANSWER: Jawaharlal **Nehru**

[10] India annexed this most populous princely state by force after its Nizam attempted to maintain independence. This state shares its name with the modern day capital of Telangana and Andhra Pradesh.

ANSWER: **Hyderabad** <Raje>

5. Antonio Vivaldi's D major setting of this text calls for a soprano duet in the "Laudamus te" and closes with a double fugue on the words "Cum sancto spiritu". For 10 points each:

[10] Name this liturgy whose first word is followed by "in excelsis Deo". Its text originates from the Annunciation to the shepherds of the birth of Jesus Christ.

ANSWER: "**Gloria** in excelsis Deo"

[10] As per tradition, the Gloria is also the second section of J. S. Bach's lengthy mass in this minor key, which is relative to D major.

ANSWER: **B** minor [do not accept "B major"]

[10] This English conductor's acclaimed recordings of the *St. Matthew Passion* and the *Mass in B minor* were produced with groups such as the Monteverdi Choir and the English Baroque Soloists, both of which he founded.

ANSWER: John Eliot **Gardiner** <Kim>

6. The 1958 article "Downtown is for People" by Jane Jacobs, which attacked Robert Moses, was first published in this magazine. For 10 points each:

[10] Name this magazine that also published the William Whyte article in which he introduced the phrase "groupthink". While working for this magazine, Whyte did several interviews that he expanded into a 1956 book attacking collectivism.

ANSWER: **Fortune**

[10] This was the aforementioned 1956 book by Whyte that analyzes corporations and group mentalities. Whyte argues that the title figure is less productive than the "rugged individual".

ANSWER: *The* **Organization Man**

[10] Both Whyte and Jane Jacobs were involved in urban planning in this city. Jacobs fought Robert Moses's attempts to implement urban renewal projects in this city's Greenwich Village neighborhood.

ANSWER: **New York** City [prompt on Manhattan] <Cheyne>



7. A method of studying transition states and other very short-lived reactions on this timescale was developed by Ahmed Zewail, who pioneered a new field of chemistry. For 10 points each:

[10] Name this exceptionally brief timescale on which ultrafast lasers produce pulses on the order of 10 to the negative 15 seconds.

ANSWER: **femtoseconds**

[10] This technique is used to generate the ultrashort pulses of light produced by femtosecond lasers. It fixes the phases of standing wave frequencies in a resonant cavity such that they all constructively interfere with each other and release light of a particular pulse duration.

ANSWER: **mode-locking**

[10] The titanium-sapphire lasers often used to make ultrashort pulses can emit light in the "near" division of this spectrum. This region of radiant energy is used in night-vision goggles.

ANSWER: **infrared** [or **IR**] <Smart>

8. Many historians believe this idea was perpetuated by the biographies written by Douglas Southall Freeman. For 10 points each:

[10] Identify this term for a romanticized ideology popularized in the articles of Jubal Early. This ideology often blames the incompetence of men such as James Longstreet.

ANSWER: **Lost Cause** of the Confederacy

[10] The Lost Cause also tends to criticize the actions of this Confederate general, blaming both Longstreet and this man for the South's loss at Gettysburg. Lost Cause devotees focus on this man's disastrous "charge".

ANSWER: George Edward **Pickett**

[10] Lost Cause advocates heap praise upon Confederate heroes such as Robert E. Lee, Stonewall Jackson, and this man, a commander in the western theater. This man's death at the Battle of Shiloh was cited by Jefferson Davis as "the turning point" of the South's fate.

ANSWER: **Albert Sidney Johnston** [prompt on **Johnston**] <Cheyne>

9. In this novel, a one-armed man turns out to be Joe Willet, who had fought in the American Revolution. For 10 points each:

[10] Name this novel in which Joe ends up marrying the daughter of a locksmith, Dolly Varden. This novel's title character, who has a pet raven named Grip, participates in the Gordon Riots.

ANSWER: ***Barnaby Rudge***

[10] *Barnaby Rudge* was written by this author. He wrote about a man who neglects his daughter Florence after the death of his son Paul in *Dombey and Son*.

ANSWER: Charles **Dickens**

[10] The plot of *Barnaby Rudge* moves from Chigwell to this city. Dickens's *A Tale of Two Cities* is largely set in Paris and this city.

ANSWER: **London** <Droge>

10. After a woman treacherously gives this man a loaf of bread with a stone in the middle of it, he kills her by turning her cows into vicious bears. For 10 points each:

[10] Name this tragic figure from the *Kalevala* whose entire family is killed by his evil uncle Untamo. After inadvertently sleeping with his sister, he throws himself on his sword.

ANSWER: **Kullervo**

[10] Kullervo is sold into slavery and bought by Ilmarinen, a man of this profession, who is responsible for the creation of the Sampo. Svarog and Hephaestus are other gods of this profession.

ANSWER: black**smiths** [or obvious equivalents, such as **forge** gods]

[10] Kullervo's sword was a gift of this sky god. Like Thor, he wields a hammer, but unlike Thor, he created thunderstorms by having sex with his wife Akka.

ANSWER: **Ukko** <Nagari>

11. David Bordwell argued that this film did not invent any of the techniques it was thought to have pioneered, but is a masterpiece nevertheless because of how well it synthesizes them. For 10 points each:

[10] Name this Orson Welles film about a newspaper magnate, widely believed to be based on William Randolph Hearst, who enigmatically says "Rosebud" as he dies.

ANSWER: **Citizen Kane**

[10] *Citizen Kane* popularized this cinematographic technique, in which plenty of light and a small aperture are used in concert to render the foreground, middleground, and background all in full detail.

ANSWER: **deep focus** [prompt on **focus**]

[10] *Citizen Kane* was the first major movie to display these areas by simulating them with muslin (MUZZ-lin) fabric for low-angle shots. In a disturbing sequence from the film *Trainspotting*, the protagonist hallucinates a baby crawling on one of these areas as he experiences heroin withdrawal.

ANSWER: **ceilings** <Cheyne>

12. Leslie Thornton and W. H. Macdonald of this company were given prison sentences of a few years at a show trial. For 10 points each,

[10] Name this British electrical engineering company, six of whose engineers were arrested in the Soviet Union and accused of sabotage in 1933.

ANSWER: **Metropolitan-Vickers** Trial [or **Metrovicks**]

[10] Vickers was a company that, before merging, was known for producing a variety of this weapon. Hiram Maxim developed an early type of this weapon for use by British forces.

ANSWER: **machine gun** [prompt on **guns** or **automatic** weapons]

[10] Several diplomats tried to obtain assurances from this Soviet leader, who guided his country through World War II, that foreign citizens working in Russia would be protected in the wake of the Metro-Vickers Trial.

ANSWER: Joseph **Stalin** <Droge>

13. The integrin glycoprotein two-b three-a acts as a receptor for fibrinogen and vWF to facilitate aggregation of these structures. For 10 points each:

[10] Name these cell fragments that bud off of megakaryocytes and promote clotting.

ANSWER: **platelets** [or **thrombocytes**]

[10] These integrin-containing complexes mechanically link the actin cytoskeleton to the ECM. Their assembly and disassembly at attachment sites is integral to cell migration, and they contain adaptor proteins such as vinculin, filamin, and a namesake kinase.

ANSWER: **focal adhesions** [or **focal contacts**; or **FAs**]

[10] Unlike other integrins, alpha 6 beta 4 links hemidesmosomes, via laminin-5, to the cytoskeleton of this intermediate filament instead of actin. Namesake cells that produce this protein undergo cornification in the epidermis.

ANSWER: **keratin** <Smart>

14. Televangelist Tammy Faye Bakker hailed from this city. For 10 points each:

[10] What city, on the Rainy River near the Canadian border, is known as the "Icebox of the Nation" because it averages over 109 days per year with temperatures below freezing?

ANSWER: **International Falls**

[10] International Falls is in this state, which contains the nearby and similarly freezing city of Duluth.

ANSWER: **Minnesota**

[10] International Falls waged a protracted legal battle with Fraser, a town in this state, over the nickname "Icebox of the Nation". International Falls paid Fraser two thousand dollars to relinquish its claim, only for Fraser to file for the trademark ten years later.

ANSWER: **Colorado** <Cheyne>

15. The protagonist of this story is stunned on the eve of his wedding night when he discovers that his fiancé had an affair with the tsar. For 10 points each:

[10] Name this story about a man who becomes a monk, at one point cutting off his own finger when he is tempted to sleep with a woman who looks for shelter in his cell.

ANSWER: **"Father Sergius"**

[10] In this other story by the same author, Pahom strikes a deal to own all of the territory he can mark in one day. He drops dead of exhaustion after the ordeal, ironically answering this story's title question with "six feet" for his grave.

ANSWER: **"How Much Land Does a Man Need?"**

[10] This Russian author of *War and Peace* wrote the stories "Father Sergius" and "How Much Land Does a Man Need?".

ANSWER: Leo **Tolstoy** [or Lev Nikolayevich **Tolstoy**] <Droge>

16. This trial's defendant was accused of the judicial murder of Maharaja Nandakumar and about a million other wrongs in Edmund Burke's four-day opening remarks. For 10 points each:

[10] Identify this incredibly lengthy trial that unsuccessfully attempted to remove the first Governor-General of India.

ANSWER: **impeachment** of Warren **Hastings** [or obvious equivalents]

[10] This rival of Charles James Fox and friend of William Wilberforce was the Prime Minister during the impeachment of Hastings.

ANSWER: William **Pitt the Younger** [prompt on Pitt]

[10] Pitt the Younger's government suspended the Habeas Corpus Act in 1794 in response to this event. Edmund Burke denounced mob rule in his "reflections" on this revolution.

ANSWER: **French** Revolution <Kendrick>

17. For 10 points each, name these plot points of stories by Ryūnosuke Akutagawa.

[10] In "Rashomon", a woman makes her living by collecting this body part from corpses, arguing that it is only right to do whatever it takes to survive.

ANSWER: **hair**

[10] Akutagawa's "In a Grove" gives several different accounts of the murder of Takehiro, who is this type of medieval Japanese warrior. They followed the bushido code, and their name was derived from a word translating as "to wait" or "to serve".

ANSWER: **samurai** [prompt on bushi]

[10] "The Martyr" ends with this surprising revelation about Lorenzo, which is discovered after Ine declares that he was not the father of a child he died saving from a fire.

ANSWER: Lorenzo is a **woman** [or Lorenzo is **female**; or obvious equivalents] <Droge>

18. Several entries in this series allude to Giovanni Battista Casti's satiric verse fable *Gli Animali parlanti*, including an image in which a wolf scribbles orders to a line of poor people, titled *This is the worst!* For 10 points each:

[10] Name this series of eighty-two prints depicting the ravages of Napoleon's occupation of Spain.

ANSWER: *The **Disasters of War*** [or *Los **desastres de la guerra***; or ***Fatal consequences of Spain's bloody war with Bonaparte, and other emphatic caprices***; or ***Fatales consecuencias de la sangrienta guerra en España con Buonaparte, Y otros caprichos enfaticos***; do not accept "caprichos" or "caprices"]

[10] The fifteenth entry of this macabre Spanish artist's *Disasters of War* series, *It cannot be helped*, depicts a firing squad execution similar to the one he painted in *The Third of May, 1808*.

ANSWER: Francisco **Goya** [or Francisco Jose de **Goya** y Lucientes]

[10] Goya took a break from finishing *The Disasters of War* by producing thirty-three prints depicting these events. A participant in one of these events sits on a chair with his feet shackled together in one entry from the series, and the mayor of Madrid is impaled on a pole in another.

ANSWER: **bullfights** <Gupta>

19. This form of reasoning tries to demonstrate the probability of a conclusion based on evidence, rather than arriving at logical certainty.

[10] Name this form of reasoning usually contrasted with deductive reasoning.

ANSWER: **inductive reasoning** [or **induction**]

[10] This philosopher's "New Riddle of Induction" posits the time-dependent quality "grue" in demonstrating the impossibility of formalizing induction.

ANSWER: Nelson **Goodman**

[10] This other philosopher attempted to solve Goodman's New Riddle by only allowing for predicates of a "natural kind", usually defined by similarity between elements in the set.

ANSWER: Willard Van Orman **Quine** <Marvin>

20. Answer some questions about the chemistry of norbornene, for 10 points each.

[10] Adding one of these particles to the double bond of norbornene can give a non-classical carbo-cation. Brønsted–Lowry acids "donate" these particles.

ANSWER: **protons** [or **H-plus**; prompt on **hydrogen**]

[10] The Diels–Alder reaction between ethene and this compound is often employed to produce norbornene. Two equivalents of this compound's conjugate base bind iron in ferrocene and it has formula C<sub>5</sub>H<sub>6</sub>.

ANSWER: **cyclo-penta-diene** [or **cyclo-penta-dienyl**; or **Cp**]

[10] The ring strain in norbornene and its derivatives makes them suitable substrates for ROMP polymerization, which may employ Schrock's catalyst or Grubbs' catalyst. Those same catalysts are used in this reaction, in which double bonds are exchanged between molecules.

ANSWER: **olefin metathesis** [or **alkene metathesis**] <MacAulay>

21. This holiday is celebrated by a man marching through town ringing a cowbell and carrying a hangman's rope. For 10 points each:

[10] Name this holiday celebrated on January 3 in the Bottom, created by former World War I veteran Shadrack in a 1973 novel. On this holiday, Shadrack urges people in the community to commit acts of violence.

ANSWER: National **Suicide** Day

[10] National Suicide Day is created in the novel *Sula*, which was written by this author of *Beloved* and *The Bluest Eye*.

ANSWER: Toni **Morrison** [or Chloe Ardelia **Wofford**]

[10] This Morrison protagonist, the main character in her book *Song of Solomon*, gets his name because he was breastfed through childhood. His sisters "First Corinthians" and "Magdalene Called Lena" were named by randomly putting a pin in the Bible.

ANSWER: **Milkman** Dead III [or **Macon** Dead III; or **Dead** III; do not accept "Milkman Dead Jr." or "Macon Dead Jr."] <Cheyne>