



NASAT 2016  
Round 2

1. For integrable systems, changing to coordinates named for this term, represented by capital  $I$  or  $J$ , is part of straightening out flow lines. For a separable and periodic system, variables denoted by this term are a constant of motion that can be defined in terms of the area in phase space taken over one period of the motion; those constants of motion are paired with angle coordinates. Solutions to the Euler–Lagrange equation extremize this quantity, whose critical points correspond to physical trajectories. This quantity is a functional defined as the integral, between two values of time for an input evolution, of the Lagrangian. For 10 points, name this quantity that is minimized by paths that physical systems take, analogous to Fermat's (fair-MAH's) principle of least time.

ANSWER: **action** [prompt on  $\underline{S}$  or  $J$ ] <Voight>

2. In a novel by this author, the protagonist visits a pornographic bookstore run by Arthur Geiger at the behest of a retired general. In another novel by this man, the protagonist realizes that a Mexican man is actually his friend Terry Lennox after plastic surgery. An unfinished book by this man was finished by Robert Parker and is called *Poodle Springs*. In yet another novel, he depicted Moose Malloy hiring the protagonist to find his missing girlfriend. This man critiqued A. A. Milne's *The Red House Mystery* in his essay "The Simple Art of Murder". His best known character frequently confronts femme fatales like Vivian Sternwood and Velma Valento. For 10 points, name this author whose novels *Farewell, My Lovely* and *The Big Sleep* feature his private eye Philip Marlowe.

ANSWER: Raymond **Chandler** [or Raymond Thornton **Chandler**] <Cheyne>

3. In retaliation for this mission, the targeted country launched a long-range balloon program known as Operation Fu-Go. United States Ambassador Joseph C. Grew witnessed this event, but, like much of the population, confused it with a previously planned air raid drill. Some of the men on this mission survived because they knew the phrase, "Lushu hoo megwa fugi", and others were jailed for a year in Vladivostok. This operation began on the *USS Hornet*, and its namesake only had 467 feet of runway to take off. The planes used in this operation had their radios stripped to save weight. The namesake of this mission received a Medal of Honor after bailing out near Quzhou (chyoo-JOE) and meeting with Chiang Kai-Shek. For 10 points, name this first attack on mainland Japan following Pearl Harbor.

ANSWER: James "Jimmy" **Doolittle** Raid [or **Tōkyō** raid] <Bentley>

4. In a scene from this film, the protagonist sits on a bench smoking as off-screen children chant the song "Risseldy, Rosseldy". An aerial shot in this film shows a trail of fire caused by a salesman callously lighting a cigar near a rivulet of gasoline. Ub Iwerks (ubb EYE-works) used the yellow screen technique that he co-developed to create the traveling matte shots in this film, which is scoreless despite the sound design of the director's frequent collaborator Bernard Herrmann. In this movie, the teacher Annie Hayworth dies protecting her students. This movie ends with Mitch and the Tippi Hedren-played Melanie leaving Bodega Bay amidst a landscape of thousands of the title animals. For 10 points, name this Alfred Hitchcock film depicting murderous avians.

ANSWER: The *Birds* <Cheyne>

5. This man is the usual recipient of the statement that, for those who fear to stand before the lord, there will be two gardens. After this man is told "Grieve not, surely God is with us", a cave is protected by an invisible army. His authority is challenged by the Shi'a interpretation of the Hadith of the Pond of Khumm. This man's virtue is shown in an episode where he buys the freedom of a group of old, religious slaves. The first public speech urging conversion to the faith of Muhammad was given by this man, and his nickname was "As-Saddiq", or "The Truthful". Because Aisha was his daughter, he was the father-in-law and adviser of Muhammad. For 10 points, name this man who, upon Muhammad's death, was, according to Sunni Muslims, elected as the first Caliph.

ANSWER: Abu Bakr <Droge>

6. Legislators in this state hope to bring back earmarks known as "lulus" to their districts. A corrupt politician in this state funneled asbestos patients through Dr. Robert Taub and was named Sheldon Silver. This state's governor controversially cancelled the anti-corrupted Moreland Commission, prompting a US attorney in this state named Preet Bharara to launch his own investigation into the governor. Its governor is a former HUD chief for Bill Clinton and the son of the man who gave the rousing keynote address at the 1984 DNC. Another governor of this state appointed Kirsten Gillibrand to the Senate and was named David Paterson. For 10 points, name this state governed by Andrew Cuomo.

ANSWER: New York <Bentley>

7. Recombination-repressing chromosomal knobs were discovered in this organism. Since 1896, protein and oil content in this organism have been researched in the Illinois long-term selection experiment. A targeted mutagenesis technique in this organism utilizes *Activator* and *Dissociator*, or *Ac/Ds*, loci to break chromosomes. Mutations in the *Tb1* gene can cause this organism to develop a branching phenotype like that of a wild ancestor, teosinte (tay-oh-SIN-tee). This organism's color is produced by a namesake xanthophyll (ZAN-thuh-fill) carotenoid (kuh-ROT-in-oid) called zeaxanthin (zee-uh-ZAN-thin). 85 percent of its genome is composed of mobile elements discovered in it, including LINEs and SINEs. For 10 points, name this grass crop in which Barbara McClintock discovered transposons.

ANSWER: maize [or corn; or *Z. mays*; or *Zea mays*] <Smart>

8. Near the end of this novel, caricatures of Adolf Hitler, Mao Zedong, and Karl Marx, among others, are targeted by six fighter planes. This novel features a character who insists that any Hoosier she encounters call her "Mom". This novel's narrator finds a picture of a girl named Mona in an advertisement that also reveals the identity of the Major General of a fictional country in the Caribbean, the Republic of San Lorenzo. This novel's narrator, who planned to write a book about the day of the Hiroshima bombing, discovers the religion of Bokononism. In this novel, samples of a mysterious alternative form of water are split by Felix Hoenikker's children. For 10 points, name this novel in which ice-nine causes the world to freeze, written by Kurt Vonnegut.

ANSWER: Cat's Cradle <Golimlim>

9. A man who committed a crime against one of these places, Robert Edward Chambliss, was not convicted until 1977 because J. Edgar Hoover had suppressed evidence in his trial. Martin Luther King Jr.'s mother Alberta was killed by Marcus Wayne Chenault in one of these places. One of these places was burned down following Denmark Vesey's revolt, but was rebuilt and was where state senator Clementa C. Pinckney would later be killed. Addie Mae Collins and three other girls were killed in one of these places located on 16th Street. Dylann Roof murdered nine people in one of these places in Charleston in 2015. For 10 points, name this type of building where many Civil Rights campaigns were organized, one of which was bombed in Birmingham in 1963.

ANSWER: African American churches [or African Methodist Episcopal church; or AME church] <Bentley>

10. One of these figures stands on the back of a satyr in a collaborative painting by Jan Bruegel the Elder and Rubens. In a fresco removed from the Villa Lemmi, they present gifts to Giovanna degli Albizzi. Renaissance artists modeled their paintings of these figures on a Roman statue of them in Siena Cathedral. Erwin Panofsky theorized that Raphael's *Vision of a Knight* formed a diptych with a painting in which these nude figures alternately face toward and away from the viewer, holding apples. Cupid trains an arrow on these figures in a painting in which they gather to the left of a red-clad Mercury and dance in a circle in an orange grove. For 10 points, name these three attendants of Venus who appear in Botticelli's *La Primavera*.

ANSWER: the Three Graces [or Charites; or Gratiae] <Gupta>

11. World War II veterans in this country known as "cursed soldiers" continued to oppose its postwar government as late as 1963. In this country, increased food prices in June 1976 caused a series of strikes that led to the creation of the KOR. Nine coal miners were killed here when the ZOMO riot police opened fire on protesters outside Wujek (VOO-yeck). A major August 1980 strike in this country was sparked by the firing of an activist from the Lenin shipyard. That strike led to this country's leader Edward Gierak (GYEH-reck) accepting the 21 demands of MKS. The 1989 Round Table Talks here led to free elections and the end of Wojciech Jaruzelski's (VOY-chekh yah-roo-ZEL-ski's) rule. For 10 points, name this native country of Pope John Paul II where the trade union Solidarity was led by Lech Wałęsa (vah-WEN-sah).

ANSWER: Poland [or Polska] <Raje>

12. While in this animal form, Caer Ibormeith is identified by Aengus, who himself becomes one of these animals to be with her. In Book 1 of the *Aeneid*, Venus assures Aeneas that his fleet is safe by pointing out twelve of these creatures. Poseidon turns one of his sons into this animal after Achilles strangles him. One of these animals that can separate water from milk is the vehicle of Brahma. While attempting to win the maiden of Pohjola, Lemminkäinen fails to kill one of these animals in Tuonela. After a god took this animal form to impregnate the wife of Tyndareus, a set of half-immortal siblings, including Clytemnestra, Helen, Castor, and Pollux, were born. For 10 points, name this animal into which Zeus transformed to seduce Leda.

ANSWER: swans <Collins>

13. Mutations in the DCDC2 and DYX1C1 genes are associated with this disorder, which can also be caused by malformations in the microgyrus. This disorder has been studied by Eraldo Paulesu, who used PET scans to measure it across cultures. It has "surface", "deep", and "pure" varieties, and explanations of cross-cultural discrepancies of its effects often involve the dual-route hypothesis of the faculty that this disorder affects. The cerebellar theory of this disorder states that it is caused by aberrations in the movement of muscles in the face and tongue, and it occurs less in languages with more complex phonemic orthographies. For 10 points, name this learning disorder characterized by reversal of letters and impaired reading ability.

ANSWER: dyslexia [prompt on reading disorder] <Mehr>

14. The speaker of a poem by this author imagines "looking out to see the moon thinned to an air-sharped blade" and muses that "all solitude is selfish" after receiving a dinner invitation from a man named Warlock-Williams. In another of this author's poems, the speaker describes seeing "girls in parodies of fashion, heels and veils" while he is riding a "three-quarters-empty train". This poet wrote about "the deep blue air, that shows nothing, and is nowhere, and is endless", and another of his poems advises the reader to "get out as early as you can and don't have any kids yourself". For 10 points, name this 20th-century British poet of "Vers de Société" (VAIR duh so-see-ay-TAY), "The Whitsun Weddings", "High Windows", and "This Be The Verse".

ANSWER: Philip Larkin <Clarke>

15. After Paul Kisliuk observed this interaction between nitrogen and oxygen, he was determined that this process proceeds better around gaseous molecules, so he developed precursor state theory for this process. Brunauer, Emmett, and Teller developed a theory that extends a model of this process to multilayered molecules. The equilibrium constant of this process, times its partial pressure, divided by one plus that product, allows one to model the fractional coverage of this process, according to the Langmuir equation. Zeolites and silica gel are common surfaces for this process. For 10 points, name this process by which molecules bind to a material's surface, but do not cross the surface and get absorbed into the material.

ANSWER: adsorption [do not accept "absorption"] <Belal>

16. A series of papers by Alfred Dorjahn (DOOR-yawn) argued that this man's primary talent was in improvisation. This man claimed that "It pertains only to the gods to control fortune and to command success" to argue that the power of assuring victory was not left up to the minister. He asked "Shall we not man the fleet ourselves? Shall we not take the field?" as part of his statement that an unmanned fleet can never win a battle. This man first supported, but then later opposed, the Peace of Philocrates. He remunerated that "Each party shall have equal audience" in a debate with Aeschines, in which he delivered the "Oration on the Crown" after the Battle of Chaeronea. For 10 points, name this Athenian statesman who gave many speeches, such as the *Olynthiacs* and the *Philippics*.

ANSWER: **Demosthenes** <Droge>

17. This type of sum is an operation performed on two manifolds by removing a ball from each manifold and gluing their boundaries together. Before the removal of the dispersion point one-half comma one-half, the Knaster–Kuratowski fan possesses this property. The topologist's sine curve is a textbook example of a space with this property that does not possess this property locally. A component of a topological space is a maximal subset with this property. Spaces with trivial fundamental groups are called "simply, [this property]". A topological space has this property if it contains no proper, nontrivial subsets that are both open and closed. For 10 points, name this property that a graph has if there is a path between every two vertices.

ANSWER: **connected** [or word forms, such as **connectedness**] <Collins>

18. A choral piece about this event is scored for a soprano soloist plus full orchestra, tenor and bass soloists plus chamber orchestra, and boys' choir plus organ. In the wake of this event, a D major piano concerto was written in one movement, but with a slow–fast–slow structure, and it opens with a contrabassoon solo. Six movements dedicated to participants in this event make up *Le tombeau de Couperin*. In the aftermath of this conflict, specialized pieces were written for Paul Wittgenstein, such as Maurice Ravel's *Piano Concerto for the Left Hand*. A sacred piece about this conflict sets poems such as "Strange Meeting" and "Anthem for Doomed Youth", both by Wilfred Owen. For 10 points, name this conflict that inspired Benjamin Britten's *War Requiem*.

ANSWER: **World War I** [or the **Great War**; prompt on partial answers] <Kim>

19. In one of his few political texts, this philosopher joined with Liam Murphy to claim that basing tax policy on the notion that "we earn our income and the government takes some of it away from us" is a "robust and compelling fantasy". In a later book, he argued that an "immanent order of nature" should become an accepted part of scientific theories, arguing that what he labeled "neo-Darwinian materialism" is "almost certainly false". This co-author of *The Myth of Ownership* advanced a theory of "agent-neutral" motivations for action in "The Possibility of Altruism", and wrote another paper claiming that, even if a human acquired the ability to fly and echolocate, that would not duplicate the experience of being biologically prepared for those behaviors from birth. For 10 points, name this NYU professor, who argued against the possibility of understanding animal consciousness in "What Is It Like to Be a Bat?".

ANSWER: Thomas **Nagel** <Weiner>

20. In a play written in this language, two young people appear in the frames of two portraits that formerly showed the title character and his beloved Matilde. In another play in this language, someone who calls himself the "Maniac" enters a police station, where an arrested man has just fallen from a window. A character from a play in this language comes to believe he is a king after falling off his horse. This language used to write *Accidental Death of an Anarchist* and a non-Shakespearean *Henry IV* was also used in a play in which the Little Girl drowns in a fountain and the Father meets the Step-Daughter at Madame Pace's brothel. For 10 points, name this language used to write *Six Characters in Search of an Author* by Luigi Pirandello.

ANSWER: **Italian** [or **italiano**; or lingua **italiana**] <Sy>

21. A character created by this author harbors a grudge against a woman who protested when he stole a piece of toast off of her plate, and accuses a friend of fabricating a story about a man who was sent to a hospital after being mugged. Another play by this author includes a monologue whose speaker says that we shouldn't trust God to deal with one-in-a-million occurrences. He wrote a play in which Don and Teach plan to rob a customer who had gotten a good deal on a rare coin from a junk shop. In another play by this writer, Ricky Roma successfully plays the role of the salesman with Lingk, and Shelley Levine tries to buy a set of good real estate leads from his boss. For 10 points, name this playwright of *American Buffalo* and *Glengarry Glen Ross*.

ANSWER: David **Mamet** <Droge>

1. Gregory Mankiw (MAN-kyoo) runs one of these forums, which is subtitled "Random Observations for Students of Economics". For 10 points each:

[10] Name these vehicles for learning about economics and public policy that include Paul Krugman's *The Conscience of a Liberal*.

ANSWER: **blogs** [or **weblogs**]

[10] Krugman and Mankiw both write columns for this newspaper, which partners with Krugman on his blog. Thomas Friedman also writes a weekly column for this newspaper.

ANSWER: *The New York Times*

[10] Mankiw authored a 1992 paper with David Romer and David Weil in which he claimed that this model, so long as it incorporates both human and physical capital, is empirically supported by economic data.

ANSWER: **Solow**–Swan growth model [prompt on exogenous growth model] <Droge>

2. In an Umberto Giordano opera, Maddalena's pleading aria "La mamma morta" fails to stop Andrea Chénier (on-DRAY-uh shane-YAY) from going to one of these places, where he writes his last poem. For 10 points each:

[10] Name this type of location where, in a different opera, a group of men celebrate fresh air in the chorus "O welche Lust" (oh VEL-shuh LOOST).

ANSWER: **prison** [or **jail**; or obvious equivalents]

[10] The chorus "O welche Lust" (oh VEL-shuh LOOST) appears in this opera, for which its composer wrote three different overtures titled for the protagonist, Leonore.

ANSWER: *Fidelio*

[10] *Fidelio* was this deaf German composer's only opera.

ANSWER: Ludwig van **Beethoven** <Kim>

3. Materials with this property fulfill the Depine–Lakhtakia criterion. For 10 points each:

[10] Name this property of metamaterials that was first theorized by Victor Veselago. Substances with this property have both a negative permittivity and permeability.

ANSWER: **negative index of refraction** [or obvious equivalents]

[10] Light in a material with a negative index of refraction has a wavevector that is antiparallel to this other vector. This vector is defined as the cross product of the electric and magnetic fields.

ANSWER: **Poynting** vector [or **S**]

[10] Metamaterials with a negative index of refraction still obey this law, which relates the indices of refraction of two media to the angles of incidence and refraction.

ANSWER: **Snell's** law <Nagari>

4. This character departs El Dorado with a hundred red sheep, still pining after his love, Cunegonde. For 10 points each:

[10] Name this title character of a novel by Voltaire who is taught by Dr. Pangloss, who repeatedly states that they live in the "best of all possible worlds".

ANSWER: **Candide**

[10] Pangloss's optimism is not affected by his catching this disfiguring disease from Paquette.

ANSWER: **syphilis**

[10] Pangloss's syphilis is cured by this religious character, who saves Candide from being executed in Holland after Candide escapes from the army.

ANSWER: **Jacques** the Anabaptist <Droge>

5. Answer the following about military disasters of World War I, for 10 points each.

[10] The ANZAC core first saw action during this campaign. Due to this campaign's failure, Winston Churchill was forced to resign as First Lord of the Admiralty.

ANSWER: **Gallipoli** campaign [or The Battle of **Gallipoli**; or the **Dardanelles** campaign; or the Battle of **Çanakkale**; or **Çanakkale Savaşı**]

[10] Alexander Samsonov committed suicide after most of the Russian 2nd Army was annihilated in this August 1914 battle by the wonder twins Hindenburg and Ludendorff.

ANSWER: Battle of **Tannenberg**

[10] This general earned the nickname "Butcher" for his command at the Battle of the Somme, where nearly 60,000 British soldiers died on the first day alone.

ANSWER: Douglas **Haig**, 1st Earl Haig <O'Rourke>

6. Answer the following about the conditions for Greek victory in the Trojan War, for 10 points each.

[10] This Greek seer, the brother of Cassandra, is captured by Odysseus and forced to divulge the set of conditions for Greek victory.

ANSWER: **Helenus**

[10] Odysseus is told to steal this wooden statue of an aspect of Athena from the citadel of Troy.

ANSWER: **Palladium**

[10] Helenus also tells Odysseus to fetch Philoctetes, who is carrying Heracles's weapon of this type, which was poisoned with the blood of the Hydra.

ANSWER: his **bow** and arrows [or his bow and **arrows**] <Nagari>



7. Answer the following about the presidential election of 1988, for 10 points each.

[10] John McCain reportedly effused "I can't believe a guy that handsome wouldn't have some impact" when talking about this man, George H. W. Bush's running mate and future Vice President, a gaffe-ridden Indiana politician.

ANSWER: James Danforth "Dan" **Quayle**

[10] In Sterling Heights, Michigan, Michael Dukakis tried a publicity stunt by posing and being filmed in one of these objects. Mocked by pundits as resembling "Snoopy", Dukakis saw his stunt backfire when the Bush campaign used it as fodder for a negative ad.

ANSWER: a **tank** [or an M1 Abrams **tank**]

[10] Bush's campaign manager Lee Atwater ran ads focused on this felon, who raped a woman after being released on a weekend furlough program supported by Governor Dukakis.

ANSWER: Willie **Horton** [or William R. **Horton**] <Cheyne>

8. Elizabeth Anscombe claimed that this concept was useless without stipulations. For 10 points each:

[10] What philosophical concept, first expressed in *Grounding for the Metaphysics of Morals*, argues in favor of moral laws that must be unconditionally obeyed? It rejects the idea that murder is wrong only because it does not maximize good for the people involved.

ANSWER: **categorical imperative** [prompt on deontology]

[10] The categorical imperative is an idea formulated by this German philosopher, the author of *Critique of Pure Reason*.

ANSWER: Immanuel **Kant**

[10] What Kant essay popularized the Latin motto "Sapere aude"? It begins by denouncing a "self-incurred tutelage" faced by society.

ANSWER: *Answering the Question: What is Enlightenment?* [or *Beantwortung der Frage: Was ist Aufklärung*] <Cheyne>

9. The namesake colony stimulating factor for these cells activates their M2 type to synthesize growth-promoting ornithine and polyamine. For 10 points each:

[10] Name these phagocytic cells that arise from monocytes.

ANSWER: **macrophages**

[10] TNF-alpha synthesis by a population of macrophages resident in this organ can induce its stellate cells to synthesize collagen as part of a fibrotic response. Those Kupffer cells are located in this organ's perisinusoidal space.

ANSWER: **liver**

[10] Kupffer cells are part of the mononuclear phagocyte system found in a type of connective tissue characterized by these namesake silver-staining fibers. They are composed of type-three collagen.

ANSWER: **reticular** fibers [or **reticulin**] <Smart>

10. This man's poem "Christmas Bells" inspired the Christmas carol "I Heard the Bells on Christmas Day". For 10 points each:

[10] Name this American poet who also wrote the long poems *Evangeline* and *The Song of Hiawatha*.

ANSWER: Henry Wadsworth **Longfellow**

[10] *The Song of Hiawatha* begins at the wigwam of Nokomis, the eventual grandmother of Hiawatha. The wigwam is on the shore of Lake Superior, which the poem's opening lines refer to as both "Big Sea-Water" and as what?

ANSWER: **Gitche Gume**e (gitch-ee goo-mee)

[10] Water also features prominently in Longfellow's "The Wreck of the Hesperus", in which a ship crashes into a rock reef at this location. The poem closes with the lines, "Christ save us all from a death like this, on the reef of [this location]".

ANSWER: **Norman's Woe** <Cheyne>

11. The volume transport of these constructs is quantified by the sverdrup unit, equal to one million cubic meters per second. For 10 points each:

[10] Name these systems that are boundaries of gyres. One of these systems is the Gulf Stream.

ANSWER: ocean **currents**

[10] The center of the North Atlantic Gyre contains this region named for its unique species of seaweed, which can be observed floating in large clumps at the surface.

ANSWER: **Sargasso Sea**

[10] The Sargasso Sea is unusual in that it is the spawning ground for two catadromous (kuh-TAD-drum-us) species of the same genus... from different continents! Name either species.

ANSWER: **American eel** OR **European eel** [or *Anguilla rostrata* OR *Anguilla anguilla*] <Nagari>

12. Upon first meeting the protagonist, this character declares that she is "crazy" and is compared to a clock and a candle. For 10 points each:

[10] Name this beautiful teenager who rubs a dandelion on her chin and asks the protagonist why he decided to become a fireman.

ANSWER: **Clarisse** McClellan [or Clarisse **McClellan**]

[10] Clarisse McClellan meets Guy Montag in this Ray Bradbury novel, named for the temperature at which books burn.

ANSWER: **Fahrenheit 451**

[10] Near the end of *Fahrenheit 451*, Guy Montag is able to aid Granger's mission to have the classic books memorized because he has part of this book memorized.

ANSWER: Book of **Ecclesiastes** [or **Koheleth**; prompt on the Bible] <Sy>

13. The Ten Great Campaigns were executed during this ruler's reign, with two focused against the Dzungars and one meant to pacify Xinjiang (sheen-jyong). For 10 points each:

[10] Name this emperor who restricted membership in the Eight Banner System to those of Manchu descent and was the grandson of the Kangxi (kong-shee) Emperor.

ANSWER: **Qianlong** Emperor [or Aisin Gioro **Hongli**]

[10] The Qianlong Emperor ruled during this dynasty, which was later subjected to a set of unequal treaties by foreign powers after the Opium Wars.

ANSWER: **Qing** dynasty

[10] The basis for the Qing dynasty and the Eight Banners system can be accredited to this Jurchen chieftain, who died soon after his defeat in the Battle of Ningyuan.

ANSWER: **Nurhaci** <Pari>

14. This composer's unfinished *Great Mass in C minor* includes a soprano part intended for his wife Constanze (kon-STON-tuh). For 10 points each:

[10] Name this Austrian child prodigy who died in 1791, leaving the completion of his unfinished requiem to Franz Süssmayr.

ANSWER: Wolfgang Amadeus **Mozart**

[10] This section of Mozart's Requiem is in the form of a double fugue: sopranos and basses introduce the words "Lord, have mercy" as altos and tenors respond with the words "Christ, have mercy".

ANSWER: "**Kyrie** eleison"

[10] At the start of the Dies Irae section of Mozart's Requiem, a full choir introduces a melody beginning with this many LONG notes, followed by a pair of short notes.

ANSWER: **two** <Kim>

15. This man got his name after his mother said "I gave birth to him in pain". For 10 points each:

[10] What man is briefly mentioned in First Chronicles, where he prays that God would bless and enlarge his territory? His prayer was the subject of a 2000 book by Bruce Wilkinson urging Christians to follow that example of praying for God's blessing.

ANSWER: **Jabez** [or **Ya'betz**; or **Yabiz**]

[10] Jabez is a descendant of this son of Jacob. Jesus could trace his lineage through this man's line, and his name was given to the southern kingdom that separated from Israel.

ANSWER: **Judah** [or **Yehudah**]

[10] Judah had three sons: Er, Shelah, and this man. After Tamar married both Er and this man, she ended up posing as a prostitute to have a child with Judah. This man was killed by God for being unwilling to father a child with Tamar.

ANSWER: **Onan** <Cheyne>

16. Answer the following about colorful public transport vehicles in Asia, for 10 points each.

[10] Operators of these vehicles on the Indian subcontinent sometimes cover them in elaborate art.

These passenger carts, common throughout Asia, were originally pulled by one person, but are now often powered by pedaling.

ANSWER: **rickshaws**

[10] The phrase "Horn OK Please" is painted on the backs of many Indian vehicles, including ones manufactured by this largest Indian car company.

ANSWER: **Tata** Motors

[10] This country's streets are often filled with jeepneys, buses that were first converted from World War II-era military vehicles and elaborately decorated. A light rail system serving Caloocan (kah-loh-oh-KAHN) and Pasay (pah-SYE) was built in an attempt to alleviate its capital's heavy traffic.

ANSWER: **Philippines** [or Republic of the **Philippines**; or Republika ng **Pilipinas**] <Golimlim>

17. According to Mordell's theorem, the rational points on some of these objects form a group under addition via the chord-and-tangent method. For 10 points each:

[10] Name these equations, with no repeated roots, that are often of the form  $y$ -squared equals  $x$ -cubed plus  $Ax$  plus  $B$ . They are related to modular forms via the Taniyama–Shimura Conjecture.

ANSWER: **elliptic curves**

[10] The Nagell–Lutz theorem for elliptic curves states that a rational point  $x$  comma  $y$  of finite order has integer coordinates, and that either  $y$  equals zero or  $y$  divides this value for the curve. For a polynomial  $ax$ -squared plus  $bx$  plus  $c$ , this value is  $b$ -squared minus four  $ac$ , as seen in the quadratic formula.

ANSWER: **discriminant**

[10] If the discriminant of a quadratic polynomial is equal to zero, the radicand in the quadratic formula will disappear, meaning the polynomial has this number of *distinct* roots.

ANSWER: **one** <Collins>

18. The protagonist of this play decides not to fight a duel with Constant after learning of his wife's infidelity. For 10 points each:

[10] Name this play by author and architect John Vanbrugh, written a year after its author's *The Relapse*. David Garrick played the lead of this play, Sir John Brute, at its premiere.

ANSWER: *The **Provoked Wife***

[10] Another of Garrick's iconic roles was as Abel Dugger in this play by Ben Jonson about the antics of the con men Face and Subtle.

ANSWER: *The **Alchemist***

[10] For nearly thirty years, Garrick was involved in the management of the Theatre Royal on this London street.

ANSWER: **Drury** Lane <Droge>

19. This dispute arose over whether monarchs or the papacy had the right to appoint senior officials such as abbots and bishops. For 10 points each:

[10] Name this controversy of the 11th and 12th centuries that included a feud between Henry IV of the Holy Roman Empire and Pope Gregory VII.

ANSWER: **Investiture** Controversy

[10] Tensions between Henry IV and Gregory VII came to a head when Henry waited for three days outside of the gates of this castle in order to reverse his excommunication.

ANSWER: **Canossa** Castle [or the Walk to **Canossa**]

[10] This pope promulgated a bull offering protection to Jews, convened the First Lateran Council, and negotiated an end to the Investiture Controversy with Henry V via the Concordat of Worms (worms).

ANSWER: **Calixtus II** [prompt on **Calixtus**] <Droge>

20. Painters such as Claus Bergen and Ludwig Dettmann were counted in the "God-given list" of culturally-important artists maintained by this regime. For 10 points each:

[10] Name this fascist regime that staged a massive exhibition to mock "degenerate art" supposedly detrimental to national character. The head of this regime once worked as a watercolorist in Vienna.

ANSWER: **Nazi** Germany [or the **Third Reich**; or **Drittes Reich**; prompt on **Germany**]

[10] Paintings by Erich Heckel, Ernst Ludwig Kirchner, Emil Nolde, and other members of this early 20th-century collective of German Expressionists were disproportionately labeled "degenerate" by Nazi authorities.

ANSWER: Die **Brücke** [or The **Bridge**]

[10] This German sculptor and painter who studied under Joseph Beuys (boys) contended with his country's Nazi past in canvases such as *Margarethe* (mar-gah-RAY-tuh), *Operation Sea Lion*, and *Germany's Spiritual Heroes*, which frequently incorporate materials like straw, ash, and lead.

ANSWER: Anselm **Kiefer** <Gupta>

21. This author described one of his key principles in the essay "Alienation Effects in Chinese Acting". For 10 points each:

[10] Name this playwright who argued for "epic theatre", or plays that provoked not just emotion, but self-reflection. He utilized avant-garde techniques in his plays to create what has been translated as the "distancing effect".

ANSWER: Bertolt **Brecht** [or Eugen Bertolt **Brecht**]

[10] Brecht wrote a play set in the Thirty Years War about Anna Fierling, known by this name, "and her children".

ANSWER: **Mother Courage**

[10] In the play, Mother Courage's children are her oldest son Eilif (EYE-liff), her mute daughter Katrin, and this younger son who works as an army paymaster. Also known as Feyos, this character shares his name with a foodstuff.

ANSWER: **Swiss Cheese** <Cheyne>