

ICCS 2014

Packet 3

TOSSUPS

1. For the public premiere of his first symphony, this composer replaced the minuet with the scherzo from his *String Octet in E-flat Major*. Multiple Venetian boat songs appear in a collection of piano works by this composer, which are arranged in eight books of six pieces. A fanfare in which three successive trumpet entrances build up a C-major triad begins this composer's "Wedding March," which he wrote as incidental music to a certain Shakespeare play. For 10 points, name this composer of *Songs Without Words* and *A Midsummer Night's Dream*.

ANSWER: Felix Mendelssohn-Bartholdy

2. One ruler of this dynasty was defeated by the forces of Nader Shah at the Battle of Karnal, after which Nader Shah sacked its capital. Another ruler of this dynasty, who was known for his religious tolerance, founded the Din-e-ilahi and established his capital at Fatehpur Sikri. That man was advised by a vizier named Birbal, and had a grandson who constructed a mausoleum for his wife in Agra, along the Yamuna River. For 10 points, identify this dynasty that was ruled by Shah Jahan and Akbar the Great, and which constructed the Taj Mahal.

ANSWER: Mughal empire or dynasty

3. After preventing a performance of *The Rape of the Sabine Women*, this play's title characters are told that every exit is an entrance somewhere else. Later in this play, the title characters figure they've missed their opportunity to say no. Non sequiturs, statements, and grunts are disallowed when the title characters play Questions. This play's first act begins with the title characters flipping a coin more than ninety times, which always comes up heads. For 10 points, name this play by Tom Stoppard, which focuses on the two namesake minor characters from *Hamlet*.

ANSWER: Rosencrantz and Guildenstern Are Dead

4. Susan Bell and Malcolm McKenna published an influential higher-level taxonomy of this class. The early Jurassic *Sinoconodon* is one of the most basal members of this class; the therapsids comprise this extant class and its close relatives. This class is distinguished by having a dentary-squamosal jaw joint and three middle ear bones. This class includes the eutherians as well as monotremes and marsupials. For 10 points, name this vertebrate class whose members have hair and produce milk for their young.

ANSWER: Mammalia [or mammals]

5. One god in this myth system, who is often depicted as a dead woman with a rope around her neck, conducts suicides to the underworld. Many deities in this people's myth system have been given somewhat generic names like "Howler Monkey God" and "God K," the latter of whom is the personification of the axe of their rain god, Chaac. One Death and Seven Death are lords of this people's underworld, Xibalba. For 10 points, name this Mesoamerican people whose myths, including that of the Hero Twins Hunahpu and Xbalanque, are collected in the *Popol Vuh*.

ANSWER: Mayans [or Mayan mythology; or K'iche' Mayan mythology]

6. During World War II, one of these objects, the Ju 87, was fitted with the Jericho Trumpet siren and was nicknamed the Stuka. During World War II, the potential accuracy of these devices was increased by the introduction of the Norden sight. A red one of these objects produced by Fokker was used by a “Baron” who shot down 80 enemy fighters during World War I. For 10 points, name this type of vehicle once operated by Manfred von Richthofen, which was used by the Luftwaffe and the Royal Air Force.

ANSWER: airplanes

7. This author wrote a play in which the Lord’s voice says “She is redeemed!” as a girl dies in a prison cell. This author also depicted a man who likes reading Homer’s epics under a linden tree in a novel written as a series of letters addressed to Wilhelm. This man’s female characters include the village girl Gretchen, who kills her baby, and Lotte, whose impending marriage to Albert inspires the suicide of the sorrowful Young Werther. For 10 points, name this German author who depicted a professor signing away his soul to Mephistopheles in *Faust*.

ANSWER: Johann Wolfgang von Goethe

8. This artist created a chalk drawing of his mistress Sien nude, sitting with her head lowered into her arms, entitled *Sorrow*. This artist used double-square canvases for many paintings that he created in Auvers. A portrait by this artist shows his physician dressed in black and leaning his head over onto his right hand; that subject was Dr. Gachet. One painting this artist created showed a village below the Alpilles mountains and a swirling sky. This painter created a self-portrait that featured a bandage over his right ear. For 10 points, name this Dutch painter of *Starry Night*.

ANSWER: Vincent van Gogh

9. The Hansen parameters are used to predict this property of a substance. Cerium sulfate is anomalous in that this property decreases as its temperature increases. The common ion effect is a decrease in this property for certain ionic compounds. Henry’s law states that for a gas, this quantity is directly proportional to the partial pressure of that gas. Supersaturation occurs when the value for this quantity under normal conditions has been exceeded. For 10 points, give this measure of the amount of a substance that can dissolve in another substance.

ANSWER: solubility [accept word forms]

10. The Fountain of Wealth is located in this city’s Suntec City mall, and the Marina Bay Sands resort in this city is the most expensive building in the world. This city is home to the first nocturnal zoo, the Night Safari. Many of this city’s petrochemical companies are based on its artificial island of Jurong. The Kallang River flows through this city’s biodiverse Bishan Park. Stamford Raffles founded this city, which is separated from Malaysia by the Straits of Johor. For 10 points, name this small city-state in Southeast Asia.

ANSWER: Republic of Singapore [or Xinjiapo Gongheguo; or Republik Singapura; or Cingkappur Kudiয়ারাসু]

11. One character in this novel suggests a vote on whether or not there are ghosts. By the end of this novel, Percival Wemys Madison is unable to remember his own name. Earlier in this novel, some characters wearing black caps are admonished for letting a fire go out. That fire had been started as a signal using a pair of glasses, whose owner is killed by Roger with a boulder after Jack seizes power from

the conch-wielding protagonist. For 10 points, Piggy and Ralph are stranded on an island in what novel by William Golding?

ANSWER: Lord of the Flies

12. The second holder of this office created the Salii order of priests. The third holder of this office had to contend with a plague after a shower of burning stones fell on Mt. Alba. After his fall from power, a former holder of this office appealed for help to the ruler of Clusium, Lars Porsena. Numa Pompilius was the second holder of this office, and Livy writes that Lucius Junius Brutus overthrew the last of these people, Tarquin the Proud, after the latter's son raped Lucretia. For 10 points, name this position which according to legend was first held by Romulus, and was abolished after his city became a republic.

ANSWER: King of Rome [or Rex Romae; prompt on "Ruler of Rome"; do not accept "Emperor of Rome"]

13. One study about this country posited that its people engage in a behavior called amae, in which they induce others into a parent/child-like relationship. It's not China, but this subject of *The Anatomy of Dependence* saw a surge of female workers known as "office ladies" after World War II. The rise of "herbivore men" and "parasite singles" in this country is thought to be one cause for the disproportionately high number of elderly citizens. For 10 points, name this Asian country home to the hikikomori and such sociologists as Masahiro Yamada.

ANSWER: Japan [or Nihon; or Nippon]

14. Along with Yasser Arafat, this man signed the Wye River Memorandum. In 2014, this man controversially described certain people as "telegenically dead." He is the younger brother of a man who notably died in Operation Entebbe in Uganda. After his first term, this man lost a 1999 election to Ehud Barak. In 2009, when Kadima failed to form a coalition government, this man became Prime Minister again, succeeding Ehud Olmert. For 10 points, name this Likud Party chairman nicknamed "Bibi," who is the current Prime Minister of Israel.

ANSWER: Benjamin Netanyahu [prompt on "Bibi" before mentioned]

15. During glycogen synthesis, a diphosphate derivative of this molecule serves as a carrier for glucose monomers. Cytosine spontaneously deaminates to form this molecule, which can be specifically removed by DNA glycosidase. Marshall Nirenberg showed that a polymer of this molecule, added to a certain cell-free extract, would result in the creation of proteins with radioactive phenylalanine. A "pseudo-" form of this molecule, symbolized psi, is found in one arm of transfer RNA, and it forms two hydrogen bonds with adenine. For 10 points, name this nucleotide that replacing thymine in RNA

ANSWER: uracil [or uridine]

16. One book presents this process as typically consisting of "puzzle-solving" during a "normal" phase, and it was considered to be "epistemological anarchy" by Paul Feyerabend. The positivist view that this process is defined by verifiability was opposed by the idea of falsificationism advanced by Karl Popper. Thomas Kuhn argued that paradigm shifts defined this discipline, whose processes were elucidated in *Novum Organum* by Francis Bacon. For 10 points, name this academic discipline defined by hypotheses, whose "method" produced the theory of relativity.

ANSWER: science [accept scientific method or scientific process]

17. This ruler was protected by the Bond of Association, which authorized the execution of anyone who attempted to usurp the throne. That document was drawn up by William Cecil and the man who helped foil the Throckmorton and Babington Plots, Francis Walsingham. This ruler defeated the Earl of Tyrone's Irish revolt in the Nine Years War, and her forces defeated the Spanish Armada, which was attempting to restore Catholic rule to her country. For 10 points, name this "Virgin Queen" of England.
ANSWER: Elizabeth I [or Elizabeth Tudor, prompt on partial answer]

18. One character created by this man "eyed a khaki suit with loathing," because he "loved the days of old." That "child of scorn" considers himself to have been "born too late," and is the title character of this man's poem "Miniver Cheevy." The "people on the pavement" wish they were another of this poet's title characters, who is "imperially slim" and "glittered when he walked." For 10 points, name this poet who wrote about a man who, "one calm summer night, went home and put a bullet through his head" in his poem "Richard Cory."
ANSWER: Edwin Arlington Robinson

19. One character in this opera encourages fellow members of his profession that "eyes are watching you" and "love awaits you" in the aria "Votre toast, je peux vous le rendre." The female lead repeatedly sings "Tralala" while being interrogated by Zuniga. This opera's protagonist vies with Escamillo for the love of the title character, who sings "L'amour est un oiseau rebelle," also called the "Habanera." For 10 points, name this opera in which Don Jose falls in love with and later stabs the title gypsy, by Georges Bizet.
ANSWER: Carmen

20. This quantity is represented by the SU(2) group of three anticommuting, Hermitian, unitary matrices named after Wolfgang Pauli. The quantization of this quantity was established by an experiment that passed silver atoms through an inhomogeneous magnetic field conducted by Stern and Gerlach. This quantity is the fourth quantum number after the principal, azimuthal, and magnetic numbers. Fermions are characterized by half-integer values for this quantity. For 10 points, identify this quantity that represents intrinsic quantum angular momentum of a particle.
ANSWER: spin

21. This state was where the author of *Sand County Almanac*, Aldo Leopold, taught for many years. The 1924 Progressive Party candidate for President was from this state, where as governor, he had previously introduced such progressive policies as direct election of senators. That governor of this state was Robert La Follette. This state's current governor survived a 2012 gubernatorial recall election and is staunchly opposed to public employees' collective bargaining rights. For 10 points, name this state governed by Scott Walker, whose largest city is Milwaukee.
ANSWER: Wisconsin

22. The Second Council of Nicaea affirmed *hyperdulia* as a form of devotion solely to this person, who is the subject of the Seven Sorrows devotion. In several Orthodox traditions, the Greek title *theotokos* is given to this person, to whom the Magnificat is dedicated. This person's "falling asleep" or death is commemorated by the Dormition. Sets of ten prayers dedicated to this figure comprise the Rosary. For 10 points, name this woman depicted in Madonna paintings, the virgin mother of Jesus.

ANSWER: Mary [or Maria; or Maryam; accept longer names like The Virgin Mary]

23. This phenomenon is less likely to occur near sea level because the atmosphere's zero Celsius isotherm is lower in the continental interior. Graupel can be distinguished from this phenomenon because it is made of accreted rime. Opaque layers of this phenomenon occur when it is formed from water vapor. Megacryometeors are not officially recognized as this phenomenon; therefore the heaviest verified example had a mass of around 1 kilogram. For 10 points, name this meteorological phenomenon, frozen stones of ice at least 5 millimeters in diameter.

ANSWER: hailstones

24. In this author's last completed novel, Louisa marries a man she met while recovering from a fall, leaving the protagonist to marry Captain Wentworth. In another novel by this author, the protagonist rejects a marriage proposal from Mr. Collins, and Lydia runs off with Mr. Wickham. The first attempted novel by this author shares its name with two characters who are pushed from their home by Fanny and John Dashwood in a later work. For ten points, name this author of *Persuasion*, *Sense and Sensibility*, and *Pride and Prejudice*.

ANSWER: Jane Austen

BONUSES

1. The ritualistic performance of this action is known as *salat* and is required as one of the Five Pillars of Islam. For 10 points each:

[10] Name this action, which devout Muslims perform five times per day while facing Mecca.

ANSWER: prayer [accept word forms]

[10] This is the Arabic term for the direction that one must face while performing ritualistic prayer or *salat*.

ANSWER: qibla

[10] While most instances of *salat* are done in private, Muslims frequently hold congregational prayers known as *jumu'ah* at noon on this day of the week.

ANSWER: Friday [accept translations, except "jumu'ah" obviously]

2. In one novel, Leper Lepellier goes absent without leave from the ski troops in this war, which Phineas insists is not really happening. For 10 points each:

[10] Name this war which, in a poem by Brinker Hadley, is described as "a bore."

ANSWER: World War II [or Second World War]

[10] Leper Lepellier and Phineas appear in this novel by John Knowles, in which World War II represents adulthood. Its narrator, Gene, cripples Phineas by jouncing a tree branch.

ANSWER: A Separate Peace

[10] This World War Two satire by Joseph Heller describes Captain Yossarian's efforts to get out of flying missions by faking illness and insanity.

ANSWER: Catch-22

3. Identify the following about machine learning, for 10 points each.

[10] Machine learning is a sub-field of this computer science discipline. A machine implementing the "strong" form of this discipline could perform any task that the human brain can.

ANSWER: strong artificial intelligence [or AI]

[10] The "decision" type of these data structures are used in some modeling problems in machine learning. The red-black type of these data structures can be searched in Big O of log n time.

ANSWER: trees [or self-balancing binary search trees]

[10] One practical example of machine learning is to use a naïve algorithm named for this statistician to perform spam filtering. This man's namesake theorem provides a definition for conditional probability.

ANSWER: Thomas Bayes

4. "On Wednesdays we wear pink" is one of the rules of this clique at North Shore High School. For 10 points each:

[10] Name this clique led by Regina George, whose other rules include not wearing sweatpants and only wearing your hair in a ponytail once a week.

ANSWER: The Plastics

[10] North Shore High School is the setting of this film starring Lindsay Lohan, which was written by Tina Fey. Its title is an apt description of the behavior of the Plastics.

ANSWER: Mean Girls

[10] The principal of North Shore was played by this co-star of Fey's on *Saturday Night Live*, who also portrays Black Republican P.K. Winsome on *The Colbert Report*.

ANSWER: Tim Meadows

5. For 10 points each, answer these questions about the military successes and failures of the Ottoman Empire:

[10] In 1529, the Ottoman army besieged and ultimately failed to capture this capital city of modern-day Austria.

ANSWER: Vienna [or Wien]

[10] The Ottoman sultan Murad II defeated the "Athlete of Christ," Janos Hunyadi, at the battle of Varna in this country. Basil II earned one of his epithets by subjugating this country.

ANSWER: Bulgaria [or Bulgar]

[10] Before his failure at Vienna, Suleiman the Magnificent won this battle against Louis II of Hungary, who drowned trying to retreat across a river.

ANSWER: Battle of Mohacs

6. This poet's collection *Sonnets of Death* won first prize in the Juegos Florales, a literary contest of her native Chile. For ten points each:

[10] Name this poet known best for her collection inspired by the suicide of her lover, *Desolacion*.

ANSWER: Gabriela Mistral [or Lucila Godoy Alcayaga]

[10] Another notable Chilean poet is this man, known best for his *Twenty Love Poems and a Song of Despair*.

ANSWER: Pablo Neruda [or Neftali Ricardo Reyes Basoalto]

[10] This other work by Neruda chronicles the culture and history of Latin America in sections like "The Liberators," "The Earth's Name is Juan," and "The Heights of Macchu Picchu."

ANSWER: Canto General [or General Song]

7. August Kekulé proposed a structure of this compound with alternating single and double bonds. For 10 points each:

[10] Name this compound with chemical formula C_6H_6 , comprising six carbon atoms in a ring with one hydrogen atom attached to each.

ANSWER: benzene

[10] As a planar conjugated ring, benzene exhibits this property, in which it is stabilized by the delocalization of electrons. Contrary to the name, it doesn't have much to do with smell.

ANSWER: aromaticity

[10] This rule states that aromatic compounds must have $4n+2$ pi electrons for some non-negative integer n , besides being cyclic, planar, and conjugated.

ANSWER: Hückel's rule

8. This condition often occurs due to head trauma or brain damage, and was famously observed in a patient named Henry Molaison. For 10 points each:

[10] Identify this loss of memory that can come in anterograde and retrograde forms.

ANSWER: amnesia

[10] Anterograde amnesia often occurs due to damage in this part of the brain, which is responsible for consolidating new memories.

ANSWER: **hippocampus**

[10] Amnesia usually does not affect this type of memory, which is retrieved subconsciously and used to automatically do tasks that integrate cognitive and motor skills like driving or reading.

ANSWER: **procedural** memory

9. Some captured soldiers in this battle said their objective was to reach Paris and kill Dwight D. Eisenhower, but in reality they were trying to cut off supplies from Antwerp. For 10 points each:

[10] Name this December 1944 battle in which German forces made a last offensive on Allied troops in France and Belgium.

ANSWER: Battle of the **Bulge** [or Operation **Watch on the Rhine**, or Unternehmen **Wacht am Rhein**, prompt but DO NOT REVEAL on “**Ardennes** Offensive”]

[10] Part of the German attack in the Battle of the Bulge went through this dense forest, which was also the passage for the German attack on France in 1940.

ANSWER: **Ardennes** Forest

[10] During the battle, this Belgian town was besieged by German forces for 7 days. When asked to surrender, the commander, Anthony McAuliffe, replied “Nuts!”

ANSWER: **Bastogne**

10. This man’s films include one entitled *Sleep*, which shows John Giorono performing the title action for over five hours. For 10 points each:

[10] Name this pop artist who painted many works involving cans of Campbell’s soup.

ANSWER: Andy **Warhol**

[10] Warhol also painted various works featuring this actress. A diptych of 50 portraits of her includes some with an orange background and a pink face.

ANSWER: Marilyn **Monroe** [or Norma Jean **Mortensen**]

[10] Warhol’s works are largely collected in a namesake museum dedicated to him in this U.S. city, his hometown.

ANSWER: **Pittsburgh**

11. A national park named after this body of water includes a settlement of wooden houses on a sand bank known as Stiltsville. For 10 points each:

[10] Name this popular snorkeling destination. A bridge called the Venetian Causeway crosses this bay, which was initially considered part of Everglades National Park.

ANSWER: **Biscayne** Bay

[10] The Venetian Causeway allows access to this major city in Dade County. The Calle (KA-yay) Ocho festival occurs annually in this city’s Little Havana district.

ANSWER: **Miami**

[10] Further inland, the Kissimmee River valley flows into this large freshwater lake located in central Florida.

ANSWER: Lake **Okeechobee**

12. Mutations in one form of this protein cause epidermolysis bullosa simplex. For 10 points each:

[10] Name this common protein found in hair and nails, which consists of a coiled-coil dimer held together by hydrophobic interactions.

ANSWER: **keratin**

[10] Keratin filaments are one example of these cytoskeletal structures. Other examples of them are made of GFAP or vimentin, and they have an average diameter around 10 nanometers.

ANSWER: **intermediate** filaments

[10] Keratin's strength partly comes from extensive disulfide bonding. Disulfide bonds are formed between molecules of this amino acid, which have a thiol side chain.

ANSWER: **cysteine**

13. The sex-crazed Svidrigailov attempts to rape the protagonist's sister Dunya in this novel, in which the kindly Razumikhin serves as the protagonist's foil. For 10 points each:

[10] Name this novel in which Alyona Ivanovna is murdered by Raskolnikov.

ANSWER: **Crime and Punishment** [or **Prestupleniye i nakazaniye**]

[10] *Crime and Punishment* was written by this author, who also wrote *The Brothers Karamazov* and *The Idiot*.

ANSWER: Fyodor **Dostoyevsky**

[10] Raskolnikov falls in love with this character, the daughter of Marmaladov, in *Crime and Punishment*. This character has to work as a prostitute to take care of her family.

ANSWER: **Sonya** Semyonovna Marmaladov [or **Sonechka**]

14. During a meeting at Mecone, this figure tricks Zeus into taking the fat-covered bones, rather than the meat, as the part of an ox that should be sacrificed to the gods. For 10 points each:

[10] Name this Titan who is later chained to a rock, where he suffers an eagle pecking at his liver, for the crime of stealing fire from the gods for humanity.

ANSWER: **Prometheus**

[10] When Zeus sends a flood to destroy humanity, Prometheus helps this man, his son, survive the flood along with his wife Pyrrha.

ANSWER: **Deucalion**

[10] The most famous myths about Prometheus were included in *Works and Days* and the *Theogony*, two poems by this Greek contemporary of Homer.

ANSWER: **Hesiod**

15. This man's third wife Isabel succeeded him after his death in 1974. For 10 points each:

[10] Identify this Argentine leader, whose second wife, Eva, was wildly popular in his country.

ANSWER: Juan Domingo **Peron**

[10] Peron's Argentina provided a safe-haven for Nazis such as this man, who was entrusted with directing the "Final Solution." He was captured by Mossad agents and tried in Jerusalem.

ANSWER: Adolf **Eichmann**

[10] This is the name given to the impoverished working-class supporters of Juan Peron. They got their name because they might not have worn a namesake piece of clothing.

ANSWER: **descamisados** [or "the **shirtless** ones"; accept equivalents]

16. The sixth of these pieces was left unfinished at the composer's death. For 10 points each:

[10] Name these marches, the first of which is the most famous, seeing its use as the music for “Land of Hope and Glory” and in numerous graduation ceremonies.

ANSWER: **Pomp and Circumstance** Marches

[10] The *Pomp and Circumstance* Marches were written by this English composer of the *Enigma Variations*.

ANSWER: Edward **Elgar**

[10] Elgar’s piece *Salut d’Amour* was originally written for this instrument and piano. Current musicians who play this instrument include Hilary Hahn and Joshua Bell.

ANSWER: **violin**

17. Given two heat reservoirs at a hot temperature of T_1 and a cold temperature of T_2 , this quantity is given by one minus T_2 over T_1 . For 10 points each:

[10] Identify this dimensionless quantity usually symbolized by the Greek letter *eta* which represents the maximal useful output obtainable from a heat engine.

ANSWER: **efficiency**

[10] The maximum theoretical efficiency is achieved by this four-stage heat cycle developed by its French namesake in 1824, which does work via isothermal expansion at the hot reservoir temperature in its first stage.

ANSWER: **Carnot** cycle or engine

[10] The first stage of the Carnot cycle is traditionally taken to be the isothermal expansion stage; this term is used to describe the second expansion and fourth compression stages, which keep the heat to temperature ratio unchanged.

ANSWER: **isentropic** or **adiabatic** or **constant entropy** [accept anything that implies that entropy is unchanged]

18. The protagonist of this novel is evicted for experimenting on a cat, because his landlord thinks he is a vivisectionist. For 10 points each:

[10] Identify this novella in which Griffin experiments with lowering refractive indices. He initially confides in Dr. Kemp, but later turns on him.

ANSWER: **The Invisible Man** [do not accept *Invisible Man*; accept H. G. Wells’s **Invisible Man** but do not mention H.G. Wells]

[10] *The Invisible Man* was written by this British author of the novels *The Time Machine* and *The War of the Worlds*.

ANSWER: Herbert George **Wells**

[10] In this short story by Wells, Nunez stumbles into the title location, but despite the affliction of its population, he is unable to become its king.

ANSWER: “The **Country of the Blind**”

19. This period effectively ended with the Compromise of 1877 naming Rutherford B. Hayes as President. For 10 points each:

[10] Name this period in American history that followed the Civil War. The victorious North attempted to transform the defeated South by at least initially supporting black civil rights.

ANSWER: **Reconstruction** Era

[10] This Republican proponent of Radical Reconstruction was a Senator from Massachusetts. Prior to the Civil War, he was attacked with a cane by Southerner Preston Brooks.

ANSWER: Charles **Sumner**

[10] This Secretary of War for both Lincoln and Andrew Johnson was opposed to a lenient Reconstruction. Johnson's attempted dismissal of this man led to the president's impeachment.

ANSWER: Edwin McMasters **Stanton**

20. The first component of this two-part work is a refutation of John Filmer's *Patriarcha* and the divine right of kings. For 10 points each:

[10] Name this work of political philosophy, whose second part explains that men come together in a state of nature to form government in order to protect their property.

ANSWER: *Two **Treatises of Government*** [accept *Locke's Two **Treatises of Government*** but do not say the name "Locke" if the team doesn't]

[10] *Two Treatises of Government* was written by this English thinker, who proposed that a mind was a blank slate or *tabula rasa* at birth in his *Essay Concerning Human Understanding*.

ANSWER: John **Locke**

[10] John Locke posited that any object or resource present in the state of nature becomes a man's property when a man does this to it.

ANSWER: He performs **labor** on it [accept anything mentioning **work** or **labor**, but nothing else]

21. One character in this work assures Jig that the "operation" will be "simple" and "natural." For 10 points each:

[10] Name this short story, in which a couple talks cryptically about getting an abortion in Madrid. Its title comes from a comment the girl makes on the scenery.

ANSWER: "**Hills Like White Elephants**"

[10] This author of *The Sun Also Rises* and "The Short Happy Life of Francis Macomber" wrote "Hills Like White Elephants."

ANSWER: Ernest **Hemingway**

[10] In a Hemingway story named for the "snows of" this mountain, Harry reflects on his life as he is dying of gangrene. He dreams of a rescue plane taking him up this mountain.

ANSWER: **Kilimanjaro** [accept "The Snows of **Kilimanjaro**"]

22. This controversy was settled at the Concordat of Worms. For 10 points each:

[10] Give this medieval disagreement between the Church and the emperors over who had the power to appoint bishops.

ANSWER: **investiture** controversy

[10] This Holy Roman Emperor played a major part in the investiture controversy when he declared the Pope to be deposed. He was forced to kneel in the snow at Canossa as penance.

ANSWER: **Henry IV** [prompt on partial answer]

[10] This pope excommunicated Henry and forced him to kneel. He also strengthened the papacy by enforcing laws on clergy celibacy and simony.

ANSWER: **Gregory VII** [or **Hildebrand** of Slovenia, prompt on partial answer]

23. Gibbs sampling is one of these algorithms that uses Markov chains to get a series of observations from a specified multivariate probability distribution. For 10 points each:

[10] Name this class of computational methods which generate numerical approximations through repeated random sampling.

ANSWER: **Monte Carlo** methods

[10] Monte Carlo methods can be used to carry out numerical versions of this operation. The “definite” version of this operation finds the area bounded by a curve.

ANSWER: **integration** [accept word forms]

[10] Other numerical methods, like the Euler and Runge-Kutta methods, can be used to solve these equations, which are functions of one independent variable and its derivatives.

ANSWER: **ordinary differential** equations [or **ODEs**; prompt on partial answer]

24. Scipione Borghese commissioned many works by this artist, including the marble *The Rape of Proserpina*. For 10 points each:

[10] Name this sculptor who also created *St. Theresa in Ecstasy*.

ANSWER: Gian Lorenzo **Bernini** [or Giovanni Lorenzo **Bernini**]

[10] One particular marble sculpture by Bernini is this one inspired by Ovid’s *Metamorphoses*. It shows the pursuit by a god after a nymph who is transformed into a tree.

ANSWER: **Apollo and Daphne**

[10] Bernini was a member of this art movement, largely of the 17th century, that emphasized opulence. Other works in this style included that of the painters Vermeer and Rembrandt.

ANSWER: **Baroque**