

Michigan Fall Tournament (Written by Will Nediger, Kurtis Droge, Cody Voight, Saul Hankin, Ben Forster, Siddhant Dogra, and Peter Jiang)

Packet by Haverford

Warm-Up Tossup (Optional)

This event featured the premiere of the documentary *Free to Play*, which chronicles the life stories of three participants in one of its previous incarnations. At this event, one person made a sarcastic remark about a reporter not showering, which led to that reporter appearing on camera with some Dove shampoo. That reporter, Kaci Aitchison, compared the enthusiasm at this event to a Seahawks game in an AMA on Reddit. In a key moment from this event's semifinals, a play by the eventual loser accidentally destroyed an item that would have reincarnated one of his teammates. In this event's finals, Admiral Bulldog's split push with Nature's Prophet was key to Alliance's victory over Na'vi. For 10 points, name this video game tournament with the largest prize pool in esports history, a DotA 2 tournament played in Seattle in August, 2013.

ANSWER: The International 3

Tossups

**1. When expressing certain other quantities using this quantity and lambda, the first Lamé parameter, the formula square root of quantity nine lambda squared plus two lambda this quantity plus this quantity squared appears. This quantity is multiplied by the area moment of inertia in the differential equation that defines Euler-Bernoulli beam theory. The relationship for this quantity is no longer valid past the proportionality limit. This quantity is equal to the slope of a line on a sigma-epsilon curve. This quantity can be calculated as quantity one plus Poisson's ratio, end quantity times twice the shear modulus, or as force over area divided by the change in length over initial length. This quantity measures the stiffness of a material. For 10 points, identify this modulus defined as stress over strain, often symbolized Y.**

ANSWER: Young's Modulus [or tensile modulus; or elastic modulus; or modulus of elasticity; or E; or Y until it is read; do not accept "shear modulus" or "bulk modulus"]

**2. A mountain range in this state begins at Cape Yakataga, and includes Mount Marcus Baker. In this state's southeast, the Inside Passage begins. Ash flow from the 1912 eruption of Novarupta in this state created the Valley of Ten Thousand Smokes, which is in its Katmai National Preserve. Much of this state's land is part of the so-called Unorganized Borough. A bridge connecting Gravina Island in this state's Alexander Archipelago to its city of Ketchikan was never built, and became nicknamed "the bridge to nowhere." The golden king crab is native to this state's island of Kodiak. A historic dog race in this state ends at Nome after departing from Anchorage. For 10 points, name this state with capital Juneau.**

ANSWER: Alaska

**3. This author wrote a story in which a young man giving away cream tarts for free intrigues Prince Florizel of Bohemia and Colonel Geraldine. That story is one of three linked detective stories by this author, one of which is called "The Adventure of the Hansom Cab." This author of *The Suicide Club* never finished a novel in which Archie Weir falls in love with Christina while serving as the laird of Hermiston. He wrote *Catriona* as a sequel to a novel in which David Balfour is held captive by Captain Hoseason. In a novella by this author, Danvers Carew is beaten to death by a man who later leaves a note telling Gabriel Utterson that he created a potion that turned him into an evil man. For 10 points, name this author of *Kidnapped* and *The Strange Case of Dr. Jekyll and Mr. Hyde*.**

ANSWER: Robert Louis Stevenson

**4. This deity is praised at the beginning of the Agushaya hymn. Thorkild Jacobsen argued that the Burney Relief depicts this deity, because of the presence of the rod-and-ring symbol and lions, in addition to other evidence. This deity is cursed with sixty diseases by Namtar. In one story, this deity has to shed seven items of clothing in order to pass through seven gates. In another story, this deity threatens to open the doors of Hell and bring up the dead. This goddess enters the realm of her sister Ereshkigal in order to rescue her lover Tammuz from the underworld. This goddess releases the Bull of Heaven to attack Gilgamesh after he refuses to sleep with her. For 10 points, name this Sumerian goddess of love and war.**

ANSWER: Ishtar [or Inanna]

**5. Gregory Bateson borrowed this thinker's division of the world into *pleroma* and *creatura*. His disciple Barbara Hannah wrote the book *Encounters with the Soul* about his development of the technique of active imagination. His interest in gnosticism led him to write a work which he attributed to Basilides, *Seven Sermons to the Dead*. According to this thinker, the crucial process in the development of the psyche is the integrative process of individuation. He described a male's feminine qualities and a female's masculine qualities as the anima and animus, respectively, which are two examples of the psychological archetypes he proposed. For 10 points, name this Swiss psychologist who theorized the collective unconscious.**

ANSWER: Carl Gustav Jung

**6. A term originating from this equation can be derived as the reference concentration times Boltzmann's constant temperature over Planck's constant all times the exponential of activation entropy over gas constant. For similar reasons as the van't Hoff equation, when a form of this equation is differentiated with respect to temperature, the factor  $R T^2$  appears in the denominator. An alternative to this equation was derived using transition-state theory by Henry Eyring. The equation for the diffusion coefficient derived from Fick's laws takes its form. Plotting this equation on a plot of the natural log of  $k$  versus one over temperature gives a straight line. It sets the pre-exponential factor times the exponential of activation energy over the gas constant times temperature equal to the rate constant. For 10 points, identify this equation named for a Swedish chemist.**

ANSWER: Arrhenius equation

**7. In the leadup to this event, one participant released a declaration authored by Gaspar Fagel. After this event, William Lloyd, William Sancroft, and George Hicks rejected its religious implications and became nonjuring bishops in the nonjuring schism. In one episode from it, a group of militia rose up to defend London from a nonexistent Irish plundering force. John Churchill switched sides in this event, joining a group that landed their forces at Brixham. The Immortal Seven sent a letter causing this event, and the birth of Mary of Modena's son precipitated it. During it, a convention parliament passed a bill of rights that specified that Anne should succeed to the throne and banned Roman Catholics from holding many offices. For 10 points, name this relatively peaceful 1688 revolution in which James II was replaced with William and Mary from the Netherlands.**

ANSWER: Glorious Revolution [or Bloodless Revolution; accept Revolution of 1688 before it is mentioned]

**8. This thinker kept up a correspondence with Samuel Clarke until his death, and he claimed that we formulate perceptions subconsciously, which he called *petites perceptions*. This man claimed that a concept carries with it all of its relations to other concepts, which he called the doctrine of marks and traces. His name is sometimes appended to the principle of the identity of indiscernibles. This thinker, who satirized a John Locke title in his *New Essays on Human Understanding* and wrote the *Theodicy*, believed that everything was made up of entities that have unity, harmony, and the capacity for action. He drew harsh criticism from Voltaire, who satirized**

him as Dr. Pangloss in *Candide*. For 10 points, name this German thinker who believed in the power of monads and who developed calculus independently of Isaac Newton.

ANSWER: Gottfried Leibniz

**9. In this author's most recent novel, Markos is motivated to treat wounded children because Thalia, the love of his life, was disfigured in a dog attack. That novel, which takes its name from William Blake's "Nurse's Song: Innocence," centers on two siblings named Pari and Abdullah. In another novel by this author, Mariam kills her husband Rasheed in order to stop him from hurting Laila, allowing Laila to escape the country with her true love, Tariq. This author of *And the Mountains Echoed* and *A Thousand Splendid Suns* is best known for a novel in which Hassan is framed for thievery by his best friend. That book, in which Amir saves Hassan's son Sohrab from the evil Assef, is titled after a role from a game that Amir and Hassan played as children. For 10 points, name this author who sets his novels in his native Afghanistan, the author of *The Kite Runner*.**

ANSWER: Khaled Hosseini

**10. These molecules were where the U-turn motif was first discovered. The protein EF-Tu binds to these molecules and their 3 prime end is always capped with the sequence CCA. The presence of inosine in these molecules allows Crick's wobble hypothesis. The tertiary structure of these molecules is in the shape of an L. They are "charged", or have an amino acid added, by an aminoacyl synthetase, and they bind to the A-site and P-site in the ribosome. These molecules' T arm and D arm are part of their cloverleaf secondary structure. For 10 points, identify this type of RNA whose anticodon loop contains a complementary sequence to an mRNA codon.**

ANSWER: tRNA [or transfer RNA; or "ribonucleic acid" in place of "RNA"; prompt on RNA]

**11. Lewis Carroll wrote a parody of this poem in which the title character is a photographer. A wedding in this poem is attended by an extremely boastful man named Jagoo. An oft-parodied section of this poem includes the lines "he had magic mittens made of deer-skin." In the third section of this work a woman falls from the moon and gives birth to Wenonah, who is later impregnated by the West Wind and begets the title character. Eventually the main character invents writing and slays Pearl Feather, before finally being taught Christianity by a "pale-face." This poem, written in trochaic hexameter, is about a character who "grew up on the shores of Gitchee Gumee" and fell in love with Minnehaha. For 10 points, identify this epic poem by Henry Wadsworth Longfellow.**

ANSWER: *The* *Song of Hiawatha*

**12. One of this author's works includes the trial of the man who killed Kitosch because he believed Kitosch had been riding his horse. Later in that work, a Kyama is conducted to determine the responsibility for the death of Wamai after Kabero discharged a shotgun in Belknap's kitchen. In an early scene in that work, Kamante is sent by the narrator to the hospital because the sores on his legs will not heal. One story by this author ends after Lorens Loewenheim gives a speech at a meal prepared for the elderly sisters Martine and Philippa. A book by this author is set "at the foot of the Ngong Hills" and describes the burial of the author's lover Denys Finch Hatton. Her short stories include "Babette's Feast" and the collection *Seven Gothic Tales*. For 10 points, name this Danish author who wrote about life in on a Kenyan coffee plantation in *Out of Africa*.**

ANSWER: Isak Dinesen [or Karen Blixen]

**13. This man gained fame as a lawyer by agreeing to defend three members of the Hunters' Lodges, including Nils von Schoultz. In one position, he succeeded Allan MacNab. During his administration, he was implicated in a scandal thanks to the discovery of a telegram which was stolen from John Abbott's safe. He sent the Wolseley Expedition to confront a group of rebels. With his rival George Brown, he formed a Great Coalition to seek independence from Great Britain, which was achieved three years later. He put down a rebellion of the Métis led by Louis Riel, the Red River rebellion, and later he got in trouble for awarding a contract to Hugh Allan for**

building a railroad. For 10 points, name this man who was implicated in the Pacific Scandal, the first Prime Minister of Canada.

ANSWER: John A. Macdonald

**14. One work of art in this movement includes two people in a yellow and blue silhouette and uses those two colors in an oversize rendering of an American flag atop a skyscraper. That artist of *As Is When* touched off this movement with his lecture “Bunk” and created *I Was a Rich Man’s Plaything*. Eduardo Paolozzi’s later works are associated with this movement, one member of which used the *This Is Tomorrow* exhibition to display a piece that includes a Romance poster and a nude bodybuilder holding a tootsie pop. Another member of this movement showed a woman’s face surrounded by waves as she proclaims that she’d rather sink than call Brad for help. The best known member of this movement created the *Marilyn Diptych* and painted a lot of Campbell’s soup cans. For 10 points, name this movement which included Richard Hamilton, Roy Lichtenstein, and Andy Warhol.**

ANSWER: pop art

**15. This Biblical book recounts how Dorcas dies and is brought back to life. The governors Felix and Festus interrogate one character in this book. A sermon from this book begins by mentioning an inscription “to an unknown god” and is delivered to the Areopagus. This book tells the story of the conversion of an Ethiopian eunuch to Christianity. In another story told in this book, Ananias is sent to the “Straight Street” in Damascus to restore the sight of a certain figure. This is the second Biblical book to be dedicated to Theophilus. This New Testament book famously recounts the story of the stoning of Stephen by a mob, as well as the occurrence of glossolalia at Pentecost. For 10 points, name this book of the Bible written by Luke that describes what happens after the death of Jesus to twelve of his followers.**

ANSWER: Acts of the Apostles [or Praxeis ton Apostolon]

**16. One member of this movement painted four people in hats looking over a wall at a river behind the title figure of his *Lady in a Green Jacket*. Another member of this movement painted a rainbow and a bird stretching its wings in the upper right of an otherwise desolate painting called *The Unfortunate Land of Tyrol*. That member of this movement depicted a frolicking animal with a blue spot on its belly, which may represent his wife Maria Franck, in *Yellow Cow*, and wrote “And all being is flaming agony” on the back of his *Fate of the Animals*. Another member of this movement wrote *On the Spiritual in Art* and described many of his paintings as “improvisations” and “compositions.” For 10 points, name this artistic movement including artists like August Macke and Franz Marc, which got its name from a painting of a man riding a horse by Wassily Kandinsky.**

ANSWER: The Blue Rider [or Der Blaue Reiter]

**17. After the result of this election, the winner was angry with Claude Peppers, who was accused of “being a shameless extrovert” and who “before his marriage, habitually practiced celibacy” as part of the “Redneck speech” hoax. Due to the incumbent’s rapidly sinking popularity, the challenger ran a low-risk campaign that used vague quotes such as “You know that your future is still ahead of you.” A challenger in this election was future Supreme Court justice Earl Warren. One party replaced the Democratic Party on the ballot in the south and had walked out of the Democratic convention because of the civil rights plank; in this election, that Dixiecrat party won four states. An erroneous Chicago Tribune headline led to a great photo-op after this election. For 10 points, name this American Presidential election in which Dewey did not defeat Truman.**

ANSWER: United States Presidential election of 1948

**18. This composer’s third symphony was written in two movements but maintains the traditional four-movement structure, and begins with a theme incorporating the beginning of the *Dies irae* chant. One of his last works was the film score for the movie *The Assassination of the Duke of Guise*. His works inspired by the**

**Middle East include *Nuit persane* and his fifth piano concerto, which is nicknamed *The Egyptian*. He also set to music a poem by Henri Cazalis which begins with the words “zig, zig, zig.” In one of his works, the xylophone represents the dancing of skeletons and another of his works has movements such as “Characters with Long Ears,” “Fossils,” and “The Swan.” For 10 points, name this French composer of *Danse Macabre* and *Carnival of the Animals*.**

ANSWER: Charles-Camille Saint-Saens

**19. One tactician in this war repeatedly deployed his best troops in his center in the standoff prior to battle but then deployed his best troops on his flanks on the day of combat. The first naval battle of this war was fought near Lilybaeum, and it was sparked by a debate over the city of Saguntum. Claudius Nero scored a major victory in this war when he cut off a contingent of enemy reinforcements in the Battle of the Metaurus River. In this war, forces under Gaius Flaminius were ambushed and decimated at the Battle of Lake Trasimene. One commander in this war deployed the Fabian Strategy to delay his enemy without direct confrontation, but his successor disastrously engaged Hannibal’s troops at Cannae. This war was effectively ended by Scipio Africanus’s victory at Zama. For ten points, name this military conflict between Rome and Carthage.**

ANSWER: Second Punic War [prompt on partial answer; accept Battle of Ilipa on the first sentence]

**20. Every ideal of this type of ring is finitely generated according to Hilbert's basis theorem. The multiplication of two "primitive" types of these things is itself primitive according to Gauss's lemma. These things can be evaluated using nested multiplication or Horner's method. The Eisenstein criterion provides a sufficient condition for these things being irreducible over the rationals. A continuous function can be uniformly approximated on a closed interval by one of these things. Niels Henrik Abel fully proved that there was no solution in radicals to these things when they have degree greater than five. For 10 points, identify these things that consists of sums of coefficients multiplied by variables raised to integer exponents.**

ANSWER: polynomials

**21. The Catalan Atlas shows this leader seated cross legged holding a fleur-de-lis tipped sceptre. This man’s brother Sulayman was a disappointing host to Ibn-Battuta. This man did not want to meet with al-Nasir Muhammad because of his piety, but did so anyway. During his reign, he financed a large building program and employed architects like Abu Ishaq as-Sahili and constructed buildings like the Sankore Madrasah. His general Sagmandia recaptured the city of Gao. This ruler built the Djinguereber Mosque and a palace in Timbuktu. He once borrowed as much gold as he could in Egypt in an attempt to fix the inflation he had caused on his pilgrimage to Mecca. For 10 points, name this leader of the Mali Empire.**

ANSWER: Mansa Kankan Musa I

## Bonuses

1. Ancient Mesopotamia was home to several classical Empires. For 10 points each:

[10] This Empire gained dominance in Mesopotamia after the fall of the Sumerian City States. Often considered the world's first, it was formed by Sargon.

ANSWER: **Akkadian** Empire

[10] Thousands of years later, a neo-version of this Empire was created after the Fall of Nineveh by Nabopolassar. His successor built some hanging gardens here.

ANSWER: Neo-**Babylonian**

[10] Several Mesopotamian empires, but most notably the Assyrians, built statues of these protective creatures with a person's face, eagle's wings, and the body of either a bull or a lion.

ANSWER: **Lamassu** [or **Shedu**]

2. One novel in this style is about the Bolshevik soldier Pavel Korchagin. For 10 points each:

[10] Name this literary style developed in early 20th-century Russia. Key works in this style include Nikolai Ostrovsky's *How the Steel Was Tempered* and many works by Maxim Gorky.

ANSWER: **socialist realism**

[10] This depressing play by Maxim Gorky is set in a boarding house, in which Vaska kills Natasha's brother-in-law Kostilyoff.

ANSWER: *The* **Lower Depths** [or **Na dne**; accept translations like **At the Bottom**]

[10] In *The Lower Depths*, a character with this profession hangs himself. The "rude mechanicals" are amateur practitioners of this profession in *A Midsummer Night's Dream*, and the Provincetown Players were a group of people with this profession in real life.

ANSWER: **actor**

3. Besides Dire Dawa, this is the only chartered city in its country. For 10 points each:

[10] Name this city which succeeded Entoto as capital and has a name meaning "new flower" in Amharic. It is home to the headquarters of the African Union.

ANSWER: **Addis Ababa**

[10] Addis Ababa is the capital of this country that borders Djibouti and Sudan and contains part of the Danakil Desert in its north east.

ANSWER: **Ethiopia**

[10] This easternmost territory of Ethiopia borders Somalia and is currently home to an insurgency. The Ethio-Somali War is sometimes named for this region.

ANSWER: **Ogaden** Territory

4. The influence of Walt Whitman on this composer can be seen in *The Mystic Trumpeter* and the *Walt Whitman Overture*. For 10 points each:

[10] Name this composer whose *Planets* includes "Jupiter, the Bringer of Jollity" and "Mars, the Bringer of War."

ANSWER: Gustav **Holst**

[10] The movement dedicated to this planet is subtitled “the magician” and is a scherzo that contrasts with the female choir used in the subsequent section. It uses abundant syncopation and it ends with a “magic” F9 chord.

ANSWER: **Uranus**

[10] The finale of Holst’s *St. Paul’s Suite* is named after this folk song, since it is adapted from the fantasia on this song from Holst’s *Second Suite in F for Military Band*.

ANSWER: “**Dargason**”

5. The disastrous Braddock expedition undertaken to capture Fort Duquesne during this war resulted in Braddock’s death. For 10 points each:

[10] Name this war, the turning point in which occurred after Empress Elizabeth died and Russia dropped out of the conflict. Earlier, alliances had changed during the “Diplomatic Revolution.”

ANSWER: **Seven Years’ War** [accept **French and Indian War**]

[10] Russia dropped out of the war because Elizabeth’s successor Peter III was enamored with this Prussian leader and didn’t want to fight him. Earlier, this man had won the Potato war.

ANSWER: **Frederick II** [or **Frederick the Great**]

[10] This term refers to the German “League of Princes” that Frederick unified in 1785 to oppose Joseph II’s designs on Bavaria. It was the first time that the German states were united under Prussian leadership.

ANSWER: **Furstenbund**

6. Answer some questions about an Indian religion, for 10 points each.

[10] Followers of this religion worship twenty-four tirthankaras, the last two of which were Parshva and Mahavira.

ANSWER: **Jainism**

[10] This principle of nonviolence in Jainism is also followed by Buddhists and Hindus. It applies to all living organisms.

ANSWER: **ahimsa**

[10] Jain metaphysics recognizes nine of these fundamental principles, including *jiva*, which refers to the souls of living beings, and *ajiva*, which refers to non-living things.

ANSWER: nava**tattva**

7. A recurring image in this film is of ants crawling out of a hole in a hand that has been closed in a door, and another scene shows a man dressed in a habit riding a bicycle. For 10 points each:

[10] Name this 1929 short film which famously shows an eye being slit by a straight razor.

ANSWER: *Un Chien Andalou* [or *An Andalusian Dog*]

[10] *Un Chien Andalou* was directed by Luis Buñuel along with this more famous Catalan surrealist, who plays a priest in the movie.

ANSWER: Salvador **Dali**

[10] In René Clair’s film *Entr’acte*, Duchamp plays chess with Man Ray, and Erik Satie and this surrealist painter fire a cannon. This French artist created *Machine Turn Quickly*, and many of his drawings appeared in the magazine *391*.

ANSWER: Francis **Picabia**

8. This man’s flagship was the *Santa Maria*, and he undertook four voyages to the New World. For 10 points each:

[10] Name this explorer whose 1492 expedition is held to be the first European expedition to the Americas since the times of the Vikings.

ANSWER: Christopher **Columbus**

[10] Columbus was born in this Italian city that existed as an independent republic throughout much of the middle ages. Its longtime rivalry with Venice included the War of Saint Sabas and wound down after its defeat at Chioggia.

ANSWER: **Genoa**

[10] This admiral reestablished the Genoese republic in the 1520s after allying with Charles V. He did well in fighting off pirates, but did not fare so well against the Ottomans at the Battle of Preveza.

ANSWER: Andrea **Doria**

9. With her sister, Tennie Claflin, she operated the first Wall Street brokerage run by women. For 10 points each:

[10] Name this woman who is best known for being the first woman to run for the presidency of the United States, which she did in 1872 on the Equal Rights Party ticket.

ANSWER: Victoria **Woodhull** [or **Victoria Claflin**]

[10] Victoria Woodhull chose this man as her running mate, even though he was not consulted before he was added to her ticket. For a time, he published a newspaper called *The North Star*.

ANSWER: Frederick **Douglass**

[10] Douglass had earlier been present at this 1848 meeting convened by Elizabeth Cady Stanton and Lucretia Mott to discuss women's rights in a namesake town in upstate New York.

ANSWER: **Seneca Falls** Convention

10. For 10 points each, name these locations that were the subject of anthropological studies.

[10] Bronislaw Malinowski is best known for his fieldwork amongst the people of this Pacific archipelago. It became the subject of his book *Argonauts of the Western Pacific*.

ANSWER: **Trobriand** Islands

[10] Franz Boas traveled to an island in this country after receiving his doctorate, spending much time on its native peoples' material culture and describing a game called Nuglutang. Robert Flaherty's *Nanook of the North* is set here.

ANSWER: **Canada**

[10] Reo Fortune wrote about the "Sorcerers of" this island, explaining the role of male practitioners of the so-called "black art" in society.

ANSWER: **Dobu** Island

11. This philosophy was popularized by *Fathers and Sons*, in which Bazarov advocates for this philosophy. For 10 points each:

[10] Name this negative philosophy, whose name was coined by Friedrich Jacobi to refer to rationalism.

ANSWER: **nihilism**

[10] This philosophy, often compared to nihilism, asserts that there is no intrinsic meaning to life and that individuals must create their own meaning. It was espoused by thinkers like Jean-Paul Sartre.

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

[10] Sartre's "Existentialism is a Humanism" coined this three-word slogan, which is a reversal of traditional views. It implies that humans do not have inherent value, but must create it themselves.

ANSWER: **existence precedes essence** [or **l'existence precede l'essence**]

12. According to this model, every DNA double helix that is replicated consists of a helix of old DNA intertwined with a helix of new DNA. For 10 points each:

[10] Identify this model of DNA replication confirmed by the Meselson-Stahl experiment.

ANSWER: **semiconservative** DNA replication

[10] The semiconservative model of DNA replication was hypothesized by these two scientists, who received the credit for the double helix structure of DNA. Name both.

ANSWER: James **Watson** and Francis **Crick** [do not prompt on partial answer]

[10] Meselson and Stahl dissolved the labeled DNA they used in their experiment in a solution of this compound before using centrifugation to separate it. This salt is commonly used in all sorts of centrifugation experiments that involve DNA.



ANSWER: cesium chloride [or CsCl]

13. The members of this movement disliked Sir Joshua Reynolds, and advocating return to a stage of art free of the corrupting influence of the painter of *The School of Athens*. For 10 points each:

[10] Name this English art movement which included William Holman Hunt.

ANSWER: Pre-Raphaelite Brotherhood [or PRB]

[10] In this William Holman Hunt painting, a woman jumps up from the lap of her lover, who is sitting in front of a piano. A copy of Edward Lear's arrangement of "Tears, Idle Tears" can be seen on the floor.

ANSWER: *The Awakening Conscience*

[10] Another Pre-Raphaelite painter was this man, whose many paintings of Elizabeth Siddal include *Beata Beatrix*. He also regularly painted Jane Morris and Alexa Wilding. Like his sister, he was also a poet.

ANSWER: Dante Gabriel Rossetti

14. This sorting algorithm uses a "marker" to separate an array into a sorted list and unsorted list. For 10 points each:

[10] Identify this algorithm that selects the unsorted number to the right of that marker and swaps it to the left until it arrives at the correct position, then advances the marker.

ANSWER: insertion sort

[10] In big O notation, this is the average case performance for insertion sort and bubble sort. It's also the worst-case complexity for quick sort, which is why one has to choose a pivot carefully.

ANSWER: big O of n squared

[10] Insertion sort is an example of this class of algorithms that can operate on a stream of data instead of needing the full data set at the outset. Competitive analysis is used to evaluate the performance of this class of algorithms.

ANSWER: online algorithms

15. For 10 points each, name the following about works and authors that were at the heart of obscenity trials.

[10] This author of *The Biography of Manuel* underwent an obscenity trial in 1920 after the publication of his satirical fantasy novel *Jurgen, A Comedy of Justice*.

ANSWER: James Branch Cabell

[10] In a 1964 court case concerning Grove Press, the U.S. Supreme Court overturned the obscenity ban on the core works of this author, which include *Tropic of Cancer*, *Tropic of Capricorn*, and *Black Spring*.

ANSWER: Henry Miller

[10] This best known poem by Allen Ginsberg got in trouble for a line about being "fucked in the ass by saintly motorcyclists," but a California court decided that it had enough literary merit to avoid being prohibited.

ANSWER: "Howl"

16. The god of this name was the third primordial deity after Chaos and Gaia, according to Hesiod. For 10 points each:

[10] Name this god, who shares his name with a location inhabited by people like Tityos and Cronus as punishment for their offenses against the gods.

ANSWER: Tartarus [prompt on the underworld, but do not accept or prompt on "Hades"]

[10] This man tried to feed his son Pelops to the gods, and is punished in Tartarus by having food and water just out of his reach at all times.

ANSWER: Tantalus

[10] This man killed his father-in-law Deioneus, but was still invited to Olympus. Once there, he tried to seduce Hera, and was punished by being bound to a fiery wheel which rolled around.

ANSWER: Ixion

17. In this novel the narrator and Minami help a Korean boy they name Li move a large stone to serve as a monument to one of their comrades. For 10 points each:

[10] Name this work in which a group of fifteen adolescent boys go to a rural village, where the plague breaks out and they are abandoned by the villagers.

ANSWER: *Nip the Buds, Shoot the Kids* [or *Memushiri ko-uchi*]

[10] In addition to writing *Nip the Buds, Shoot the Kids*, this author also wrote a work about Mitsu and his brother, Takashi who leads an uprising against “the Emperor,” *The Silent Cry*.

ANSWER: Oe Kenzaburo

[10] In this other semi-autobiographical Oe work, Bird has to come to terms with his brain damaged son, and in the process revisits a girlfriend, Himiko, and drinks.

ANSWER: A *Personal Matter* [or *Kojinteki na taiken*]

18. These reagents exist as an equilibrium of several different organometallic compounds called the Schlenk equilibrium. For 10 points each:

[10] Name these organomagnesium halide reagents.

ANSWER: Grignard reagents

[10] The reaction of Grignard reagents with nitriles yields ketones. The simplest nitrile is this moiety, with formula CN minus, which smells of almonds when bound to hydrogen.

ANSWER: cyanide

[10] Among others, this nonpolar aprotic solvent is commonly used when reacting alkyl halides and magnesium under anhydrous conditions to form Grignard reagents. The main structural unit of this solvent is a heterocyclic five-membered ring with four carbon atoms and one oxygen atom.

ANSWER: THF [or tetrahydrofuran]

19. This physicist's four equations, which collected and formalized laws named for Gauss, Faraday and Ampère, form the foundation of classical electromagnetism. For 10 points each:

[10] Name this Scottish physicist who devised a thought experiment in which a demon only allows fast molecules to enter one compartment of a two-compartment container, and the slow molecules the other, which violates the Second Law of Thermodynamics.

ANSWER: James Clerk Maxwell

[10] The Maxwell relations give equalities among the second partial derivatives of thermodynamic potentials, since the order of partial derivation does not matter. One common relation states that the negative partial of pressure with respect to this quantity is equal to the partial of temperature with respect to volume.

ANSWER: entropy [or S]

[10] With this physicist, Maxwell co-names a distribution for the probability of a gas where each particle is distinguishable.

ANSWER: Ludwig Boltzmann

20. Many British authors dabbled in detective fiction. For 10 points each:

[10] Often considered to be the first detective novel, this book sees Franklin Blake figure out that it was Godfrey Ablewhite who was behind the theft of the title object, earning him the hand of Rachel Verinder.

ANSWER: *The Moonstone*

[10] In this story, Helen Stonor consults with Sherlock Holmes after Dr. Roylott asks her to sleep in a room whose bed is nailed to the floor. Holmes deduces that Roylott is going to kill Helen with the help with one of his exotic pets.

ANSWER: “The *Adventure of the Speckled Band*” [prompt on partial answer]

[10] Countless detective novels were written by this woman, who created Tommy and Tuppence, Hercule Poirot, and Miss Marple. She also wrote “Witness for the Prosecution.”

ANSWER: Agatha **Christie**

21. The book discusses events like the replacement of Newtonian physics with general relativity. For 10 points each:

[10] Name this book that argues that continued inquiry within a certain paradigm will lead to problems that cannot be resolved within the paradigm, causing a paradigm shift.

ANSWER: *The **Structure of Scientific Revolutions***

[10] This philosopher wrote *The Structure of Scientific Revolutions* and “The Function of Dogma in Scientific Research.”

ANSWER: Thomas **Kuhn**

[10] Kuhn also wrote a book about the revolution of this Polish scientist, whose heliocentric model was introduced in *On the Revolutions of the Celestial Spheres*.

ANSWER: Nicolaus **Copernicus**