

Terrapin Invitational Tournament 2013: “Make your own judgments, but we wrote this set in good faith”  
Packet by Rice (Henry Gorman, Lauren Zook, Victor Prieto, Will Otter, Chris White)

## Tossups

1. In April 2012, it was discovered that large quantities of this element can be intercalated into bismuth selenide nanoribbons without disrupting the host lattice. Along with magnesium, this metal may catalyze the Diels–Alder reaction and increase the amount of hetero product rather than the ene product. It’s not ruthenium, but it can catalyze the Huisgen cycloaddition by forming a pi-complex with the alkyne, lowering the alkyne’s pKa. The halide of this element can be a substitute in the place of an aromatic amine group through a diazonium salt in the Sandmeyer reaction. One compound with this element changes colors to brick red when in solution with reducing sugars. That compound is Benedict’s solution, and Fehling’s solution also contains it. Its most common oxidation state causes it to appear blue in solution. For 10 points, name this metal that has symbol Cu.

ANSWER: copper [accept Cu before mention]

2. The *largo* of Shostakovich’s 9th symphony begins with trombones and tuba introducing a solo for this instrument, and although it’s not a viola, Carl Maria von Weber’s *Andante and Hungarian Rondo* is for this instrument. In Carl Orff’s *Carmina Burana*, this instrument begins on a high D and ends with a low C before a swan sings about being roasted. A solo for this instrument opens the aria “Una furtiva lagrima” in *The Elixir of Love*. The second movement of Bartók’s *Concerto for Orchestra* begins with a duet of these instruments, separated by a sixth, imitating a *kolo*. A concerto in B-flat major by Mozart is one piece in its repertoire. This instrument plays the *ad lib.* opening melody C with fermata, B with mordent, G, E, C, B in *The Rite of Spring* before other woodwinds join in. For 10 points, identify this double-reed instrument that plays at a lower register than the oboe.

ANSWER: bassoon

3. About halfway through this play, a once cynical character shows signs of truly being in love, such as having a toothache and appearing with his beard shaven. In Act V, one of the heroes of this play sings “Pardon, Goddess of the Night” after hanging a scroll at the tomb of his lover, whom he thinks is dead. Its characters include Margaret and Ursula, the latter of whom schemes to bring a couple together. At this play’s close, John the Bastard is captured and will be returned to Messina. Its conclusion is foretold by the arrest of Borachio and Conrad by the bumbling Dogberry. This play contrasts the naïve couple Hero and Claudio with a witty couple whose squabbling indicates the title of this work. For 10 points, identify this Shakespeare play whose central couple is Beatrice and Benedick.

ANSWER: Much Ado About Nothing

4. One eyewitness account of this battle states that its winning commander had to be awakened so that he could prevent Major Kilpatrick from stealing his glory with a decisive charge. During it, the victors captured two strategic water tanks belonging to St. Frais, and its early phases saw Mir Madan and Behadur Ali Khan fall to artillery fire. Its losing commander plundered his own treasury at Murshidabad in its aftermath, hoping to flee to safety with his consort Lutf-en-hessa. Six years before, its winning commander had successfully besieged the city of Arcot. Before this battle, whose commanders included Mir Jafar, Siraj ud-Daulah had stormed Fort William and put captives in a “Black Hole,” which prompted the British to send Robert Clive to confront him. For 10 points, name this 1757 battle that gave the British East India Company control over Bengal.

ANSWER: Battle of Plassey [or Battle of Palashi or Battle of Pelasi]

5. In one story, this figure is asked by his enemy to fight at Grjottungard. In that story, he fights against a foe with a triangular heart of stone who is assisted by a man made of clay. In *The Poetic Edda*, he shatters a magic chalice against the head of Tyr’s father as part of a quest to find a kettle. This god, who once carried Aurvandil across an icy river, still has pieces of whetstone lodged in his head since the sorceress Groa failed to remove them all. In one

memorable incident, this slayer of Hrungnir failed to lift a cat, wrestle an old woman, or drain a drinking horn. This figure travelled with Loki and his servant Thialfi to confront Utgard-Loki. In another story, he dressed as a woman to deceive the giant Thrym, who stole the Mjollnir. For 10 points, identify this Norse God of thunder.

ANSWER: Thor

6. Meese and Rogoff published an article that finds random walk models of these quantities are as accurate as empirical models of them, such as the sticky-price one. Fisher's open hypothesis suggests that changes in nominal interest rates correlate to changes in these quantities. Rudi Dornbusch developed the overshooting model to explain the volatility of these quantities when the money supply increases or decreases. The theory of purchasing power parity seeks to normalize these quantities by following the law of one price. Undervaluation leads to an increase of these quantities, which bolsters economic growth. The Bretton Woods Conference set them by using the dollar as the standard of reference. For 10 points, name these quantities that relate the values of different currencies.

ANSWER: exchange rates

[edited]

7. One story repeated in this book tells of a self-loathing Christian hermit who seeks a confessor only to find that the confessor he looks for has been seeking him. Another parable centers on a prince who becomes a cowherd after his brother usurps his kingdom. One set of institutions in this book evolved as part of an attempt to escape from the "Age of the Feuilleton" and the conflicts that came with it. The protagonist debates lifestyles with the future politician Plinio Designori as he begins his career at the school Waldzell after being recruited by the Music Master. That protagonist later learns Chinese from Elder Brother in a bamboo grove and studies with the historian Father Jacobus at Mariafels monastery. The protagonist then returns to Castalia to take on a destined role. For 10 points, identify this Hermann Hesse novel in which Joseph Knecht becomes the master of the titular game.

ANSWER: *The Glass-Bead Game* [or *Magister Ludi* or *Das Glasperlenspiel*]

8. The overexpression of AXI 4 or other cation-chloride co-transporters triggers growth of protoplasts independent of these molecules. This class of molecule binds to ABP-1 to regulate clathrin-mediated endocytosis. The polarity of PIN proteins determine the intercellular flow of these types of molecules. This hormone is linked to the action of expansin, which causes cell enlargement, because it turns on proton ATPase. In large quantities, this hormone will stimulate the production of ethylene, which causes leaf abscission. The asymmetric distribution of this molecule regulates both gravitropism and phototropism. Indole-3-acetic acid is, for 10 points, a member of what class of plant hormones that promotes elongation of coleoptiles and enhance apical dominance.

ANSWER: auxin [accept indole-3-acetic acid before mention]

9. In 1855, one leader of this country passed the Law of General Disentailment, in which all public and church lands were to be sold at a public auction. One king of this nation had his power stripped from him during the so-called Liberal Triennium, but he was put back on the throne after winning the Battle of Trocadero. That king revoked the Constitution of 1812, ruled during the Ominous Decade, married a woman from the Two Sicilies and was called "the Felon King." In 1868, a Glorious Revolution broke out in this country, which saw the rise of Prince Amadeus. A series of civil wars in this country was fought between Maria Christina and supporters of a member of the House of Bourbon named Carlos. For 10 points, a series of Carlist wars that broke out after the death of Ferdinand VII plagued the politics of what European country on the Iberian peninsula?

ANSWER: Spain

10. One theorist who argued against the cognitive abilities of these entities posited that researchers often incorrectly made the ontological, epistemological, psychological and biological assumptions. After the success of the GPS program, Herbert Simon predicted that by 1967, all theories of modern psychology would take the form as one of these constructs. Hubert Dreyfus argued that attempting to give these entities the ability to think is akin to practicing

alchemy, and Dreyfus also wrote a monograph on what they still “can’t do.” The inability for these agents to understand is highlighted by the example of a human who uses English rules to translate Chinese characters; that example was proposed by John Searle. For 10 points, the Turing test is a tool to determine whether the behavior of what kind of objects is sufficient enough to fool a human?

ANSWER: computers [or Turing machines or computer programs; accept other obvious equivalents]

11. One polity in this region was led from a fortress at Qashliq by rivals of the Shibanid Mongols, and was defeated by a man hired by Semyon Stroganov who drowned while trying to swim the Wagay river. That man was Yermak. One region in this polity was designated as a resettlement zone for Jews to counter the arguments of Zionists like Ber Borochov. This region’s settlements include Mangazeya and Tobolsk. A major extinction event was caused when this region’s Traps erupted 250 million years ago. Major rivers in this region include the Lena, Yenisey, Ob, and the Angara, which drains Lake Baikal. For 10 points, identify this portion of Russia east of the Urals, where one might have been exiled under the czar or sent to a gulag under the Soviet Union.

ANSWER: Siberia

[edited]

12. According to Sidonius Apollinaris, this ruler held banquets in which the only thing that was weighty was the conversation. The primary source of his reign is given by the author of *Variae* and *Chronicon*, who served as this ruler’s secretary. This man’s illegitimate daughter by a Moesian prostitute, Arevagni, married Sigismund of Burgundy as part of an alliance with the Burgundians. He assisted his allies in putting down Leonitus’s revolt and came to power after putting down a fellow clansman surnamed Strabo. Procopius’s *Secret History* suggests that Justinian had his daughter Amalasuntha murdered in a bathtub after she succeeded this ruler. This man, who was served by Cassiodorus, was memorialized in legend as Dietrich of Berne. At the behest of Emperor Zeno, he assassinated Odoacer to become ruler of Italy. For 10 points, identify this powerful king of the Ostrogoths, sometimes given the title “the Great.”

ANSWER: Theodoric the Great [or Dietrich of Berne before mention]

[edited]

13. In the chiral form of this phenomenon, the pairing gap wraps around the Fermi surface by multiples of  $2\pi$ , breaking time reversal symmetry. Materials displaying this phenomenon are frequently described by a Gor’kov or Bogoliubov–de Gennes Hamiltonian. A four-dimensional model of this phenomenon named for Coleman and Weinberg extends another model of it, and Abrikosov used that model to describe his namesake vortices in materials with this phenomenon. It arises due to phonon-mediated interactions creating a boson-like particle from pairs of electrons according to BCS theory, and mercury exhibits this property when cooled to below 4.1 kelvins. For 10 points, name this phenomenon in which current flows without an appreciable resistance.

ANSWER: superconductivity [accept word forms]

[edited]

14. Act III of this opera begins with the shanty “Come away, fellow sailors” after those sailors have resolved to “take a boozy short leave” of their nymphs. A storm breaks out when one of the main characters displays the head of a freshly-killed boar, leading one character to sing the aria “Haste, haste to town.” The death of one character in this opera is reflected on by the chorus in “With drooping wings.” In Act I of this opera, one character tells her maid that “Peace and I are strangers grown” and later sings “Remember me, but ah! forget my fate” in a section that makes extensive use of ground bass. This opera was partially inspired by John Blow’s *Venus and Adonis*, and its libretto was written by Nahum Tate. Belinda is the maidservant of the Queen of Carthage in, for 10 points, what opera featuring the aria “When I am laid in Earth,” a work of Henry Purcell based on a work of Virgil?

ANSWER: Dido and Aeneas

15. This story's narrator believes that the constellations are arranged in a "secret and malign order" when he travels by nightfall. Divided into three parts, this story recounts how the protagonist observes that grey-eyed marksmen have the keenest eyes. A flashback in this story describes a scout visiting the protagonist's home, who is told that a certain pier consists of flammable driftwood. Found in *Tales of Soldiers and Civilians*, in its last section, the main character journeys thirty miles to get back to his plantation to see his wife. Its main character swims down a river to avoid certain death, only to later realize that he has a "stunning blow on his neck." It ends with the revelation that the main character has a broken neck and that the narrative is a dream of the hanged Peyton Farquhar. For 10 points, name this story by Ambrose Bierce.

ANSWER: "An Occurrence at Owl Creek Bridge"  
[edited]

16. In the Parable of the Unjust Judge, this type of person bothers the unjust judge until he gives into the request. Jesus resurrected the son of a person of this type from Nain, and as an infant Jesus encountered a prophetess named Anna who had been a person of this type for many years. The fifth chapter of Paul's first letter to Timothy says that nobody under the age of sixty should be included on a list of this type of person. The first resurrection in the Bible was done to the son of a person of this type whose flour and oil Elijah miraculously caused to last longer than it should; that person of this type was from Zarephath. Jesus commended the meager monetary offering of a woman of this type, saying that "she out of her poverty has put in all she had to live on." For 10 points, give this word for a woman whose husband has died.

ANSWER: widows [prompt on "women" before "age of sixty," though why anyone thinks saying that answer is a good idea is beyond me]  
[edited]

17. Code and Welch first observed the kind of these structures that emit ultraviolet radiation, challenging popular opinion that they would be dark in that part of the spectrum. Their metallicity is given by the magnesium-sigma relation. Isophotes that describe these structures may feature a twist in them, or a boxy appearance. AGNs that emit radio waves are typically found within these structures, one example of which is M87. They have their surface intensity related to empirical distance via de Vaucouleurs' law. An empirical law modeling the luminosity of these structures is derived from the fundamental plane relation and states that the luminosity is equal to the fourth power of the velocity dispersion, which is known as the Faber–Jackson relation. For 10 points, identify these galaxies named for their oblate shape.

ANSWER: elliptical galaxies [prompt on "galaxies" before mention]  
[edited]

18. This painting's foreground depicts a pair of Doric porticoes; behind that is a pair of Corinthian porticoes and even beyond that is a pair of composite porticoes. Cumulus clouds line the back of this painting, which depicts a beautiful blue sky with a campanile that protrudes into it. Painted for the Sacristy of San Giorgio Maggiore in Venice, it depicts contemporary rulers, such as Bloody Mary and Suleiman the Magnificent. It includes fellow artists Jacopo Bassano and Titian playing with a viol and a bass viol respectively, while the artist himself plays a viola da braccio in its foreground. This painting depicts a V-shaped table at the center of which is Christ with a golden halo. Its ridiculously huge scope would be duplicated ten years later in its painter's *Feast in the House of Levi*. For 10 points, name this painting by Paolo Veronese that depicts feasting at the title nuptial event.

ANSWER: Wedding at Cana or Marriage at Cana [accept translation equivalents]  
[edited]

19. The namesake of this legislation had earlier introduced a tariff that led a Virginia newspaper to offer \$25 for that congressman, dead or alive. This act was originally vetoed because it did not include provisions for military training, and this act was later modified by the Hatch Act. The movement to pass this act was led by Jonathan Baldwin

Turner, and a second act of this name was passed in 1890. This act, named for a Vermont congressman, did not affect states that had seceded from the Union. For 10 points, name this legislation that allocated 30,000 acres of land per congressman to states for the establishment of engineering and agriculture colleges, an 1862 land-grant act.

ANSWER: **Morrill** Land-Grant Act

[edited]

20. Samuel Coleridge wrote a poem describing an encounter with a “sleeping Love” with a “lucent hue” after finding one of these title objects, and Swinburne calls the title “Our Lady of Pain” a mystical one of these “of the mire” in his poem *Dolores*. One of Herrick’s Julia poems imagines Parliament voting that one of these objects should become a Queen, and the title Passionate Shepherd promises to make beds out of these objects in a Christopher Marlowe poem. One of these objects is destroyed by a “dark secret love” by an animal that “flies in the night in the howling storm” in a William Blake poem, and the buds of them appear in the first line of “To the Virgins to Make Much of Time.” For 10 points, identify these plants that are “sick” in the title of a William Blake poem, which Herrick urges “to gather, while ye may.”

ANSWER: **rose**s or **rose**buds [prompt on “flowers”]

[edited]

Extras

21. The Senate offered to bestow the title Mater Patriae on this woman, but the emperor vetoed the plan. This woman intervened on behalf of her friend Urgulania when she was being sued and divorced her husband Tiberius Claudius Nero while pregnant with his child. One of this woman’s sons, Drusus, began the conquest of Germania, and the agnomen posthumously granted to him because of his victories there became the name by which his elder son is most commonly known. Tacitus suspects this woman of having killed Marcellus and Gaius and Lucius Caesar as part of a scheme to ensure that her son became Emperor of Rome, as he did. For 10 points, name this consort of Augustus and mother of Tiberius.

ANSWER: **Livia** Drusilla [or **Livia** Augusta or **Julia Augusta**]

22. This movie’s soundtrack uses music written by Luis Bacalov as well as a mashup between James Brown and Tupac. Willard Peck is killed in one scene, according to another character, “shot down like a dog in the street,” but is later revealed to be a cattle thief, masquerading as one Bill Sharp. Another character accidentally cut himself by banging his fist on a table, but continued the scene with his hand covered in blood. The director of this movie plays an Australian who explodes when the dynamite he is carrying is shot. One supporting character shoots a tooth off the top of a wagon from a tree. The movie’s final scene sees Samuel L. Jackson writhing on the floor with both kneecaps shot, screaming, “You can never destroy Candyland!” For 10 points, name this movie starring Leonardo DiCaprio, Christoph Waltz, and Jamie Foxx as the title freed slave, the latest Quentin Tarantino film.

ANSWER: **Django Unchained**

Bonuses

1. This thinker wrote about the commerce syndrome and guardian syndrome in a book that is styled as a Platonic Dialogue. For 10 points each:

[10] Name this author of *Systems of Survival*, who also wrote *The Question of Separatism*.

ANSWER: Jane **Jacobs**

[10] Jane Jacobs was a scholar who studied these kinds of structures. Robert Moses, archnemesis of Jacobs, also planned them and constructed their roadways.

ANSWER: **cities**

[10] By suggesting that residents maintain the order of their streets and buildings to reduce crime, Jacobs' *The Life and Death of Great American Cities* supports this sociological theory first discussed in a paper by Wilson and Kelling.

ANSWER: **broken windows** theory

2. Answer some questions about RNA processing and pre-mRNA. For 10 points each:

[10] This modification of the pre-mRNA is the addition of about two hundred of the same nucleotides, preventing it from degradation by intracellular enzymes. It is at the 3' ["three-prime"] end of the molecule, opposite that of the 5' ["five-prime"] cap.

ANSWER: **poly-A tail** or **poly-adenine tail** [accept **polyadenylation**]

[10] This major feature of RNA processing allows different mRNA molecules to be synthesized from identical pre-mRNA molecules, by removing the introns, leaving only the exons to be translated.

ANSWER: RNA **splicing** [accept word forms; do not accept "protein splicing," that's something different entirely]

[10] Introns form this loop-like structure when snRNPs fold and attach the 5' end of the intron to the adenine in the branch site.

ANSWER: **lariat**

3. Identify these important figures in Texas's history. For 10 points each:

[10] This poor wannabe conquistador was sailing to Mexico when he got shipwrecked in Florida and ended up walking the rest of the way. Fortunately for us, most of what we know about pre-colonial Texas is from his *La Relación*.

ANSWER: Alvar Nuñez **Cabeza de Vaca** [do not accept "Head of Cow" or other wrong answers]

[10] After a year or so into the Mexican-American war, James K. Polk sent this Major General, "Old Fuss and Feathers," to attack Mexico City directly. He led American forces at Veracruz and lost the 1852 Presidential election.

ANSWER: Winfield **Scott**

[10] This man managed to secure hundreds of thousands of acres for three hundred families looking to settle in Texas, and charged twelve and a half cents per acre. He lost to Sam Houston in the race for becoming the first President of the Republic of Texas.

ANSWER: Stephen F. **Austin**

4. Answer some questions about the family of the Prophet. For 10 points each:

[10] Muhammad's most famous family member is probably this son-in-law, the fourth of the Rightly-Guided Caliphs. He wielded the sword Zūlfiqār, and Shī'a Muslims consider him the first Imam.

ANSWER: '**Alī** ibn Abī Ṭālib

[10] This first wife of Muhammad was an enormously successful businesswoman and the greatest trader among the Quraysh. She proposed to Muhammad herself, and became the first convert to Islam after Muhammad received the Qur'ān from Jibrīl.

ANSWER: **Khadija** bint Khuwaylid

[10] This adventurous foster brother and uncle of Muhammad became known as the Lion of God for his strength in the service of Islam and was known as "Chief of the Martyrs" after being killed at the Battle of 'Uḥud.

ANSWER: **Hamza** ibn 'Abd al-Muṭṭalib

5. He is described as "handsome, healthy, bodily attractive, mentally torpid, not a bad businessman and rather a snob" but with one "ingredient that puzzles him, wakes him up, torments him and finally saves him." For 10 points each:

[10] Identify this character who learns erotic love from fellow student Clive Durham. Later in life, gamekeeper Alec Scudder climbs a window and makes love to him.

ANSWER: **Maurice Hall** ["Maurice" is pronounced like "Morris"]

[10] This English author of *Maurice* also wrote *A Passage to India*.

ANSWER: E. M. **Forster**

[10] The protagonist of this other Forster novel travels to Italy with her cousin Charlotte, where she falls in love with George Emerson, though she later accepts a marriage proposal from Cecil Vyse.

ANSWER: A **Room With a View**

6. Name these Alfred Hitchcock films. For 10 points each:

[10] This film stars Ingrid Bergman as Dr. Constance Peterson and Gregory Peck as a character who first claims to be Dr. Anthony Edwardes but is later revealed to have amnesia regarding his true identity. Salvador Dalí designed the dream sequence full of psychoanalytic symbols that Dr. Peterson and her former teacher analyze.

ANSWER: **Spellbound**

[10] At the dinner party that takes up the bulk of this film, Rupert Cadell is the guest most likely to figure out that his two hosts have murdered David Kentley and are serving dinner from the top of a *cassone* that contains his body.

ANSWER: **Rope**

[10] Jimmy Stewart also stars in this film, in which the temporarily injured and housebound photographer L.B. Jefferies entertains himself by spying on his neighbors and winds up investigating a murder.

ANSWER: **Rear Window**

7. This entity can be expanded using the command "s-break" in Linux processes. For 10 points each,

[10] Identify this portion of memory that is used for dynamic requests. It is often contrasted with the stack, which is used for static memory.

ANSWER: **heap** memory [do not accept "queue" based memory or just "queue"]

[10] A heap based approach to memory often leads to this situation, in which chunks of memory have become non-adjacent. You may run a computer operation to rejoin the individual pieces of memory, which caused "de" this action.

ANSWER: **fragmenting**

[10] One of the quickest memory allocation schemes is the buddy system, in which every block of memory has a size that is one of these values. Although it is fast as hell, it sometimes distributes memory unnecessarily.

ANSWER: the size is a **power of 2** [accept obvious equivalents]

8. He made his national broadcasting debut on the NFL Network's Super Bowl 47 pregame show. For 10 points each:

[10] Name this former Green Bay Packers quarterback who won Super Bowl 31 and owns the NFL records for career passing yards and touchdowns.

ANSWER: Brett **Favre**

[10] On September 20, 1992, Favre replaced this man as Packers quarterback after he tore a ligament in his ankle in a game against the Bengals. It's kind of a shame too, because in this man's last injury-free season, 1989, he was actually an All-Pro quarterback, leading the Packers to a 10–6 record.

ANSWER: Don **Majkowski**

[10] This former Packers tight-end was one of Favre's main targets in the mid-90s, becoming a two-time All-Pro. His football career came to an abrupt end in 2000 though, when he was arrested for allegedly assaulting his kids' drunken 17-year-old baby sitter at a post-prom party.

ANSWER: Mark **Chmura**

9. Answer some questions about works by Chinua Achebe, RIP. For 10 points each:

[10] You probably know Achebe best for this novel in which Okonkwo sees his status diminish after he kills his foster son Ikemefuna, he is exiled for seven years after accidentally shooting a man at a funeral, and colonial officials begin to exert control over his village.

ANSWER: **Things Fall Apart**

[10] In *Things Fall Apart* Ekwefi tells a story about a cunning one of these animals that is given wings and taken to a party of birds, where he eats much of their food. However, his attempts to jump down from the party back to earth are less successful.

ANSWER: **tortoise** [no other answer is acceptable]

[10] Achebe also wrote this essay in which he calls Joseph Conrad a “bloody racist” for his portrayal of the Congo in his novel *Heart of Darkness*.

ANSWER: An **Image of Africa**: *Racism in Conrad's Heart of Darkness*

10. Henry Kissinger decided against telling U.S. diplomats in the countries of this political campaign to warn their respective countries' leaders against terrorist acts. For 10 points each:

[10] Name this political terror campaign of the 1970s in which right-wing dictatorships suppressed “Marxist subversion” in Argentina, Chile, Uruguay, Paraguay, Bolivia, and Brazil.

ANSWER: Operation **Condor**

[10] During Operation Condor, the CIA maintained close contact with Manuel Contreras, the head of the secret police under this dictator. This man overthrew Salvador Allende in a 1973 military coup to become ruler of Chile.

ANSWER: Augusto **Pinochet**

[10] A year after Operation Condor was implemented, this man came to power in Argentina. During his rule, thousands of *desaparecidos* were killed by being dropped from planes.

ANSWER: Jorge Rafael **Videla**

11. Answer these questions about organizations of craftsmen in the Renaissance. For 10 points each:

[10] This most common type of craft organization classed members as apprentices, journeymen, and master craftsmen. They controlled access to markets and kept techniques secret and wielded significant power in Florence.

ANSWER: **guild**

[10] Guilds could wield significant power in Renaissance cities, as they did in Florence, where this group of seven major guilds wielded a major influence on politics and were responsible for the statues in the Orsanmichele and the Baptistry doors.

ANSWER: **Arti Maggiore**

[10] The dominance of the guilds could cause dissatisfaction among workers who lacked similar organization, like this non-guilded group of wool-carders who led a revolt in Florence in 1378.

ANSWER: **Ciompi**

12. His 2001 book *Secret Knowledge* posits that the Old Masters, like Lorenzo Lotto, used *camera obscura* techniques in order to paint realistic details. For 10 points each:

[10] Name this British artist known for photo-collages called “joiners” and portraits of friends like *Mr. and Mrs. Clark and Percy*.

ANSWER: David **Hockney**

[10] Perhaps Hockney's most famous work is this one depicting a yellow diving board jutting over a Los Angeles swimming pool.

ANSWER: A **Bigger Splash**

[10] Hockney was a late member of this avant-garde movement, which blended mass culture with painting. Andy Warhol and Roy Lichtenstein were two of its more prominent members.

ANSWER: **pop** art



13. Name these early Platonic dialogues. For 10 points each:

[10] In this dialogue, the title character is about to prosecute his father for murder when he encounters Socrates and winds up in a discussion about the definition of piety.

ANSWER: Euthyphro

[10] The title character of this dialogue urges Socrates to go into exile rather than be executed for impiety, arguing in part that Socrates has a responsibility to his family to live and take care of them. Socrates's rebuttal includes an imaginary conversation with the personifications of the Laws of Athens.

ANSWER: Crito

[10] In this dialogue, Socrates has recently returned from the Battle of Potidaea and gone to a wrestling school, where he encounters Chaerephon, Critias, and the title character, a beautiful young boy with whom Socrates attempts to define sophrosyne, or "self-control."

ANSWER: Charmides

14. She suggests the game "Peel the Label," and spends a lot of time lying on tiled bathroom floors. For 10 points each:

[10] Name this character, who got married during a hysterical pregnancy and is implied to have secretly aborted multiple pregnancies. She, with her husband Nick, spends many drunken hours at the home of George and Martha.

ANSWER: Honey

[10] Honey appears in this Edward Albee play.

ANSWER: Who's Afraid of Virginia Woolf?

[10] In *Who's Afraid of Virginia Woolf?*, George brings snapdragons to Martha while saying, "Flores para los muertos." That line is a reference to this other work of literature, in which a blind Mexican woman offers flowers to the protagonist, causing her to reminisce about drunken soldiers that called her name when she was at Belle Reve.

ANSWER: A Streetcar Named Desire

15. Identify these concepts relevant to scattering experiments in nuclear and particle physics. For 10 points each:

[10] This man names a formula for the cross-section of an electron scattering off a heavy nucleus. He derived it for his gold-foil experiment.

ANSWER: Ernest Rutherford

[10] The scattering of an alpha particle by a central repulsive Coulomb force has a trajectory of this shape. The equation for this shape is  $x$  squared over  $a$  squared minus  $y$  squared over  $b$  squared equals 1.

ANSWER: hyperbola

[10] This quantity, a function of momentum transfer, is the Fourier transform of the charge density. The scattering cross-section at a given momentum is proportional to the square of the modulus of this.

ANSWER: form factor [accept more specific answers]

16. Name these conductors. For 10 points each:

[10] This man commissioned the *Symphony of Psalms* and the fourth symphony of Prokofiev. Identify this conductor of the Boston Symphony Orchestra.

ANSWER: Serge Koussevitzky

[10] This conductor, famed for heading the NBC Orchestra, premiered Grofé's *Grand Canyon Suite* and Barber's *Adagio for Strings*.

ANSWER: Arturo Toscanini

[10] This composer and conductor is famed for his *Requiem*, which he conducted after François Habeneck took snuff during its premiere. As a composer, he is known for *Symphonie fantastique*.

ANSWER: Hector Berlioz

17. The subject of this poem is referred to as “deathless,” and is asked by the speaker to let the doves bear her down to Earth. For 10 points each:

[10] Name this poem addressed to a daughter of Zeus that sits on a shimmering throne. Scholarly debate exists as to whether or not the first word of this poem is *poikilothron* or *poikilophron*.

ANSWER: “Hymn to Aphrodite” [or “Ode to Aphrodite”; do not accept “Homeric Hymn to Aphrodite”]

[10] This woman, a member of the nine lyric poets who was born on Lesbos, wrote the “Hymn to Aphrodite.”

ANSWER: Sappho of Lesbos

[10] The Sapphic stanza makes specific use of this kind of meter that consists of eleven lines. It is commonly found in the work of Catullus.

ANSWER: hendecasyllabic [or hendecasyllables]

18. Name these compounds that may go boom if you’re not careful. For 10 points each:

[10] This compound is prepared by adding one methyl and three nitro groups to a benzene ring.

ANSWER: TNT [accept trinitrotoluene; accept 1,3,5-trinitrotoluene; do not prompt on “toluene”]

[10] Care must be taken when storing this common lab solvent, because of its ability to form peroxides when stored for long periods of time. It is an alternative to diethyl ether when synthesizing Grignard reagents.

ANSWER: tetrahydrofuran [accept THF]

[10] This nasty explosive may be prepared from acetone, hydrogen peroxide, and catalytic sulfuric acid. The explosive derives its energy from entropic burst rather than heat of formation, and its remarkable instability has led to its demonic nickname by terrorist group.

ANSWER: triacetone triperoxide [accept TATP or Mother of Satan]

19. Answer these questions about incestuous couples in Greco-Roman myth. For 10 points each:

[10] Despite trying to escape the prophecy that he would do so, Oedipus married this woman, his mother, and had four children by her. When they found out they were related, she hanged herself.

ANSWER: Jocasta [accept Epikaste]

[10] An oracle told this man that he could take revenge on his brother by begetting a child with his own daughter. This man therefore raped his daughter Pelopia to produce a murderous son.

ANSWER: Thyestes

[10] Thyestes himself was the son of this figure, the man who founded the house of Atreus. This husband of Hippodamia lost his fleshy shoulder to Demeter when his father served him to the gods.

ANSWER: Pelops

20. One king of this nation wrote the novel *Maria* begins with the exclamation “How can one live away from Paris!” and continues to repeat that sentiment over and over. For 10 points each:

[10] Identify this country, whose kings included the father of Napoleon the Third. The Duke of Alba was largely responsible for committing atrocities in what is now this modern day country when he was governor..

ANSWER: the Netherlands [or Holland or the Dutch Republic]

[10] Louis Bonaparte’s son, Napoleon III, backed this Habsburg Emperor of Mexico, who met his end at the hands of the forces of Benito Juarez, whose armies also defeated France’s at the Battle of Puebla.

ANSWER: Emperor Maximilian of Mexico

[10] One notable politician who had opposed the rise of the famous Napoleon III was this French socialist, who tried to implement a program of public workshops after the revolution of 1848. He supported the right of citizens to be able to work.

ANSWER: Louis Blanc [do not accept “Louis Blanqui”]

Extras

21. For 10 points each, name these bodies of water in Southeast Asia.

[10] This strait separates Australia from New Guinea. Within it lies Wednesday Island and Thursday Island.

ANSWER: **Torres** Strait

[10] This river flows from South China past Kunming and into North Vietnam. Hanoi sits at the top of the delta of this colorfully named river, which includes other cities such as Nam Dinh and Haiphong.

ANSWER: **Red** River

[10] This sea lies between Mindanao, Borneo, and Sulawesi. In fact, Sulawesi used to be called the same name.

ANSWER: **Celebes** Sea

22. Its sections are divided up into five: cecum, ascending, transverse, descending, and sigmoid. For 10 points each:

[10] Identify this part of the body that removes water from human waste before excretion, along with sodium ions.

Cancer of this section of the digestive tract is usually diagnosed through a namesake endoscopy.

ANSWER: **colon** or **large intestine** [prompt on “bowel”]

[10] This part of the digestive tract is connected to the end of the sigmoid colon. Along with continuing to remove water, it serves as a sort of temporary storage for feces, and contains nerves to indicate when it needs evacuating.

ANSWER: **rectum** [do not accept “anus”]

[10] Directly preceding the cecum is this final section of the small intestine, which contains Peyer’s patches.

ANSWER: **ileum**