

**2015 NSC - Official Scoresheet**

Round	12	Room	
Bracket			
Reader			

Team									Team								
Player Names																	
Q#					Bonus	Steals	Ques. Total	Run. Score						Bonus	Steals	Ques. Total	Run. score
1																	
2																	
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20																	
TB1																	
TB2																	
TB3																	
SD																	
Player 20s																	
Player 10s																	
Point totals																	
Final score																	
	Substitutions before Tossup 11								Substitutions before Tossup 11								
	Out:				In:				Out:				In:				
	Out:				In:				Out:				In:				

Circle winning team above. Clearly mark if game goes to OT/SD. Fill out "Point totals" row completely. If there are substitutions, please note tossups by each player in "20s" and "10s" rows. Below is for Tab Room use only:

RH	RS	BH	BS	Left	Right	BH	BS	RH	RS
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## PACE NSC 2015 - Round 12 - Tossups

1. These elements undergo oxidative additions and reductive eliminations. The sum of group number, charge, and the number of covalent and dative bonds is used to count electrons for these elements, and that number adds up to around 18. The N plus L rule was formulated after observing that some of these elements lose an electron from their valence shell to half-fill a (\*) lower-energy shell. Most heterogeneous catalysts are composed of these elements. The orbitals of these elements split according to crystal field theory, which explains why solutions of them are often colorful. Lewis bases coordinating these elements form octahedral complexes and are called ligands. For 10 points, name these elements with unfilled d orbitals, which occupy the center of the Periodic Table.

ANSWER: transition metals [or transition elements; prompt on metals] <Silverman>

2. A stock-broker from this city takes a train to Chicago with his suicidal cousin after that cousin's fiance is killed in a car crash. In this city, a janitor who frequently exclaims "woo-ee!" and a woman who appears as Harlett O'Hara in a cockatoo-related striptease act both work at the Night of Joy Bar. A character from this city dresses as a pirate while running a hot dog stand. Binx Bolling lives in this city in Walker Percy's *The (\*) Moviegoer*. A character from this city hates Greyhound Buses, organizes a strike at Levy Pants to impress Myrna Minkoff, and always wears a green felt hat. Ignatius J. Reilly lives in this city in John Kennedy Toole's *A Confederacy of Dunces*. For 10 points, name this Gulf Coast city in Louisiana.

ANSWER: New Orleans, Louisiana <Brownstein>

3. On intermediary days in Judaism, it is forbidden to deliver *hesped* during these events. In Islam, three fist-sized spheres are poured while reading Quranic verses during these events, which are called *janazah*. In Hinduism, the conductor of this ceremony sprinkles sesame seeds and rice, draws a line representing Yama, and reminds attendees to go home and shower as soon as possible. The Prayer of Absolution in Eastern Orthodoxy or the Absolute in Catholicism is said during this event. After this ceremony in Judaism, people (\*) "sit Shiva" for seven days of sustained bereavement. This is the most frequent setting at which the Requiem Mass is sung. For 10 points, name these events, which in different religions usually culminates in either cremation or burial of a corpse.

ANSWER: funerals [accept burials before mention; accept cremations before mention; or janazah before mention; or antysteti] <Gupta>

4. Neil Cohn studies works of this type from a linguistics perspective. William Gaines was asked about a depiction of a decapitated woman in a Senate investigation of these works led by Estes Kefauver. Fredric Wertham's book *Seduction of the Innocent* attacked these publications. A book titled for *Understanding* them includes analyses by Scott McCloud. Guidelines such as "in every (\*) instance good shall triumph over evil" were enforced by their namesake Code Authority. In part due to allegations that they promoted juvenile delinquency, the "Golden Age" of these publications ended in the 1950s. Jewish authors such as Jerry Siegel, Joe Shuster, and Will Eisner all worked on them. For 10 points, name these publications that introduced The Spirit and Superman.

ANSWER: comic books [or comics; or superhero comics; or Golden Age comics; accept graphic novels during the first sentence; do not accept "comic strips"] <Weiser>

5. A poet from this country wrote "Generous reader / Burn this book" in "I Take Back Everything I've Said", one of his anti-poems. Another poet from this country instructed "You shall love beauty, which is the shadow of God over the Universe" in "Decalogue of the Artist" and included the line "I will lower you to the humble and sunny ground" in one of her *Sonnets of (\*) Death*. A poem by an author from this country repeats "It is the hour of departure" and tells a "Pale blind diver" that "In you, everything sank!" A collection from this country concludes with the poem "Tonight I can write the saddest lines." For 10 points, name this home of Nicanor Parra, Gabriela Mistral, and the author of *Twenty Love Poems and a Song of Despair*, Pablo Neruda.  
ANSWER: Chile [or the Republic of Chile; or Republica de Chile] <Brownstein>

6. In one portrait, this artist painted his mistress Madeleine Knobloch powdering herself. A bassist with his back to the viewer stands under leg-kicking dancers in his painting, *Le Chahut* (sha-oo). An acrobat does a backflip while a woman in yellow stands on a white horse in his unfinished *Circus*. His best-known painting hangs to the left of the three title nude women within his painting *The Models*. His (\*) *Bathers at Asnières* is set on the opposite riverbank from another painting now in the Art Institute of Chicago. That painting features a woman holding a monkey on a leash, and is painted using small dots that blur together when viewed from a distance. For 10 points, name this Pointillist artist of *A Sunday Afternoon on the Island of La Grande Jatte*.  
ANSWER: Georges Seurat <Bentley>

7. A manifesto named for this city declared that the dynasty of Sultan al-Hakim was of Jewish descent and was thus illegitimate. This city was the headquarters of an inquisition called the Mihna, which punished opponents of the Mu'tazilite school. A family descended from Buddhist priests, the Barmakids, held power in this city. During an event in this city, a river here supposedly ran black with ink and its leader was rolled up in a carpet and (\*) trampled by horses. The Banu Musa brothers and the mathematician al-Khwarizmi worked in this city's House of Wisdom. Hulagu Khan sacked this city in 1258, ending its rule by a dynasty that had included al-Mansur and Harun al-Rashid. For 10 points, name this capital of the Abbasid caliphate and of modern-day Iraq.  
ANSWER: Baghdad, Iraq <Brownstein>

8. One speech accused a politician of this surname of a "common plan or draft" drawn up with "Franklin and Roger and James." A Supreme Court justice with this last name faced impeachment hearings in the Senate after he briefly stayed the execution of the Rosenbergs. He later wrote the majority opinion establishing a right to privacy in *Griswold v. Connecticut*. A politician with this last name ran for President with running mate Herschel V. Johnson and devised the (\*) Freeport Doctrine. That politician of this last name, known as the "Little Giant," engineered the Kansas-Nebraska Act during his time as a senator from Illinois before the Civil War. For 10 points, give this surname of Stephen, a politician who engaged in seven debates with future president Abraham Lincoln.  
ANSWER: Douglas [or William Orville Douglas; or Stephen Arnold Douglas] <Bentley>

9. Achates (uh-KAY-tees) and his best friend first arrive in this city enshrouded in a magical cloud. At a banquet held in this city, a man recounts tearing the branches of a tree, only to have dark blood spill out, since the tree was the spirit of Polydorus. Anna is the sister of the ruler of this city, which boasts a grand mural depicting the Trojan War. Two lovers first have sex in a cave outside this city where they take (\*) shelter from the rain. Aeolus blows a fleet off course, causing it to end up on a shore near this city beloved by Juno. The ruler of this city, who had fled Tyre to establish a new homeland, throws herself onto a funeral pyre when she learns that her lover is departing for Italy. For 10 points, name this North African city ruled by Dido in the *Aeneid*.  
ANSWER: Carthage <Gupta>

10. The protagonist of a novel from this country encounters Marendra, who has a deformed arm, Lydia, with whom he has an affair, and the ghost of an author from this country who wrote the symbolist epic *Message*. The protagonist of another novel from this country befriends the "dog of tears". Another novel by the same writer from this country opens with an election in which 83% of people cast (\*) blank ballots. A poet from this country wrote under many "heteronyms", including one reused by an author who wrote a novel in which the Doctor's Wife stabs the King of Ward 3 and is the only one not afflicted with the title condition. For 10 points, name this home of Fernando Pessoa and the author of *The Year of the Death of Ricardo Reis* and *Blindness*, José Saramago.

ANSWER: Portugal [or the Portuguese Republic; or the República Portuguesa] <Kothari>

11. A benign Warthin tumor may form in a structure that produces this substance. An elevated level of cortisol in this substance at midnight indicates Cushing's syndrome. The painkiller opiorphin was isolated from this substance. Its production decreases in xerostomia. The bird genus *Aerodramus*, which lives in rural China, creates its nests out of this substance. HHV-6, the causative agent of roseola, is transmitted solely through this substance, and (\*) mononucleosis gets its nickname from being transmitted in it. The submandibular, sublingual, and parotid glands secrete this liquid, which transforms food into a bolus and begins the process of digesting starch. For 10 points, name this mostly watery liquid found in the mouths of humans.

ANSWER: saliva [prompt on spittle] <Gupta>

12. A popular legend recounts how this man drew inspiration from seeing a spider spin a web while he hid in a cave on Rathlin Island. Pope Clement V excommunicated this rival of John "the Red" Comyn, who supported the overthrow of a king nicknamed "empty coat" for the ripping-off of his seal after the Battle of Dunbar. The kingship of this successor to John Balliol was the subject of a letter directed to Pope John XXII, called the Declaration of (\*) Arbroath. This man's sovereignty was recognized by the Treaty of Northampton. Near the River Forth, this man defeated a force attempting to relieve a siege of Stirling Castle and won a decisive victory over Edward II at the Battle of Bannockburn. For 10 points, name this king who won the First War of Scottish Independence.

ANSWER: Robert I [or Robert the Bruce; or Robert Brus; or Roibert a Briuis; or Robert de Bruys; or Raibeart Bruis; prompt on Robert] <Yu>

13. The LRL vector is usually scaled by the namesake vector of this quantity. This quantity equals the square root of 1 plus two times the energy times angular momentum squared over the mass times Big G squared. This quantity multiplies the sine of its namesake anomaly, then is subtracted from that anomaly, in order to calculate the mean anomaly. For Earth, this quantity is approximately 0.016. This quantity multiplies the cosine of the angle to the point of (\*) closest approach in the denominator of a mathematical description of Kepler's First Law. The nonzero value for this quantity explains why the time between equinoxes is not equal. For 10 points, name this quantity which represents the ratio of focal length and semimajor axis length for an elliptical orbit, symbolized epsilon.

ANSWER: eccentricity [or epsilon until it is read] <Silverman>

14. Massachusetts Bay governor William Shirley failed to placate thousands of people protesting this practice. Trinity House offered protections against all but the "hot" type of this practice, which escalated at the county level through the passage of the 1795 Quota Acts. An urban legend states that this practice was accomplished by depositing a king's shilling in a man's ale glass. Like (\*) penal transportation, it has its legal basis in the Vagrancy Act of 1597. Four men were subject to this practice in the *Chesapeake-Leopard* affair, prompting Thomas Jefferson to sign the retaliatory Embargo Act. This practice was carried out by men in "press gangs" and was a key cause of the War of 1812. For 10 points, name this practice of forcing sailors to man British warships.

ANSWER: naval impressment [or word forms, such as impressing; accept answers indicating being pressed into service; prompt on naval recruitment; do not accept or prompt on "shanghaiing"] <Bentley>

15. This organization was designed during a secret meeting on Jekyll Island held between Nelson Aldrich and leading businessmen. In 2007, this organization introduced a temporary program called the Term Auction Facility that released short term funds to anonymous bidders. This organization's policy is set by its namesake Open Market Committee that includes the Board of Governors, the governor of its (\*) New York branch, and 4 of its remaining 11 branch governors. This institution uses the discount window and, under its first female leader, has introduced quantitative easing to help achieve its dual-mandate of maximum employment and stable prices. For 10 points, name this Janet Yellen-led U.S. central bank that is independent from the Treasury.  
ANSWER: The **Federal Reserve System** <Wang>

16. This composer's fifth symphony was originally in four movements but he fused the first two together for the final version. That symphony closes with six tutti chords separated by silence and opens with a horn call in E-flat. His violin concerto opens with the orchestral violins playing muted D minor arpeggios and is the only concerto he ever wrote. His seventh and last symphony, which includes a theme named for his wife (\*) Aino, is in only one movement and in C major. He used the English horn to depict a bird swimming through the underworld in "The Swan of Tuonela". His most frequently-performed symphony is his D major second, often considered a nationalist statement inspired by his Scandinavian homeland. For 10 points, name this composer of *Finlandia*.  
ANSWER: Jean **Sibelius** <Rosenberg>

17. A former senator from this state helped get John Yettaw out of prison, after Yettaw trespassed on the estate where Aung San Suu Kyi was under house arrest. The sudden June 2014 resignation of Democrat Philip Puckett from its State Senate ended a 20-20 partisan deadlock. Libertarian Bob Sarvis got 6.5% of the vote against its current governor, who oversaw a failed factory in Mississippi as chairman of the electric car company (\*) GreenTech Automotive. From 2007 to 2013, a Democrat and former Marine named Jim Webb was one of its senators. Recent Democratic gains in this state's suburban north led to narrow losses for Republicans Ed Gillespie and Ken Cuccinelli. For 10 points, what "swing state" governed by Terry McAuliffe is represented in the Senate by Mark Warner?  
ANSWER: **Virginia** <Jackson>

18. Spin-aligned electrons tunnel into the "free layer" in a form of magnetoresistive RAM named for this quantity. In a noninertial reference frame, this quantity equals a time derivative in the body frame, plus  $\omega \times \mathbf{L}$  in the noninertial frame. The product of current, magnetic field, and the area of the loop of wire gives this quantity, if the field is oriented perpendicular to the loop. Precession is either (\*) "induced" or "free" of this quantity. The sum of this quantity for the system equals moment of inertia times angular acceleration. For a pulley, this quantity equals the tension in the rope times the radius of the disk. For 10 points, name this quantity that equals force cross distance, and which causes rotational motion if it's nonzero.  
ANSWER: **torque** [or **tau**; or **T**] <Silverman>

19. The "Titeux dancer" sculpture from this period is one of thousands uncovered in the town of Tanagra. A sculpture from this period discovered by French consul Charles Champoiseau originally overlooked the Sanctuary of the Great Gods. Another sculpture from this period was attributed by Pliny the Elder to Athanodoros, Hagesandros, and (\*) Polydoros of Rhodes, although he inaccurately claims that it was made from one block of marble. That sculpture shows a Trojan and his family in contorted poses being devoured by serpents, possibly for realizing that the Trojan horse was a ruse. For 10 points, name this period of art history which produced the *Winged Victory of Samothrace* and the *Laocoön* group, and began with the conquests of Alexander the Great.  
ANSWER: **Hellenistic** period [prompt on **Ancient Greek**; do not accept **classical** or **Hellenic**] <Rosenberg>

20. This poet described himself being carried "from out our bourne of Time and Place" in a poem that describes waters "Too full for sound and foam." In that poem, this author noted that after "Twilight and evening bell" comes "the dark," and hoped that "there be no sadness of farewell" after his death. This poet penned the lines "Sunset and evening star, and one clear call for me!" in a poem that describes seeing "my (\*) Pilot face to face" at his death. "All the world wondered" at the subjects of a poem by this man that begins "Half a league, half a league, half a league onward" and describes six hundred soldiers riding "into the valley of Death." For 10 points, name this British poet of "Crossing the Bar" and "The Charge of the Light Brigade."

ANSWER: Alfred, Lord Tennyson [or Alfred Tennyson] <Kim>

21. This author created a character who imagines a "phantom salutation of the dead" as he stands "in the middle of the road / Like Roland's ghost winding a silent horn". Another of this man's characters "dreams of Thebes and Camelot / And Priam's neighbors" in a poem that describes how he "mourned Romance, now on the town / And Art, a vagrant". A man climbs a hill to drink from a jug and talk to himself in his poem "Mr. (\*) Flood's Party", which like many of his short lyrics was set in the fictional Tilbury Town. A "gentleman from sole to crown" who "glittered when he walked" chooses a calm summer night to inexplicably "put a bullet through his head" in this man's most famous poem. For 10 points, name this American poet of "Miniver Cheevy" and "Richard Cory".

ANSWER: Edwin Arlington Robinson <Carson>

22. A common ore of this element consisting of its various oxide-hydroxides is limonite. Shales and cherts alternate with minerals rich in this element in namesake banded formations of Precambrian age. A silicate of this element is fayalite, which is an endmember of the olivine group. This element commonly substitutes for magnesium in minerals that are solid solutions, including olivine. Bacteria that oxidize this element, such as *Gallionella*, are a common fouling organism in wells and create a (\*) reddish-brown or orange-ish slime. The inner core consists primarily of nickel and this element. A sulfide of this element is pyrite and its most common ore is hematite. For 10 points, name this common magnetic metal in the Earth's crust, which has chemical symbol Fe.

ANSWER: iron [or Fe until it is read] <Voight>

23. A photo taken during this war depicts a soldier marching with a flag and is entitled *The Yomper*. This war effectively came to an end when Mount Tumbledown was captured after a day of trench warfare. This war's main theater began with an amphibious landing at San Carlos Water and a paratroop attack on the town of Goose Green. The ship (\*) *General Belgrano* was controversially sunk in international waters during this war, which resulted in the collapse of Leopold Galteri's military government. The South Georgia Islands were recaptured in the early stages of this war. It temporarily increased the popularity of Margaret Thatcher's government. For 10 points, name this 1980s war between Britain and Argentina over a group of disputed islands in the South Atlantic.

ANSWER: Falklands War <Wang>

24. In the penultimate chapter of this novel, the author remarks that camaraderie is "seldom superadded to love between the sexes," but when it is present, it produces love that "many waters cannot quench." The protagonist of this novel wipes away a message on a coffin indicating that both a woman and a child are within it. In this novel, a character helps put out a barn fire, after which he is advised to work at Weatherbury Farm. A soldier in this novel conceives a child with the poor girl (\*) Fanny Robin and is thought to be dead at sea until he appears at a party where he is shot by Boldwood. Its protagonist gives up his farm after his sheep dog chases his sheep off a cliff. For 10 points, name this Thomas Hardy novel in which Bathsheba Everdene marries Gabriel Oak.

ANSWER: Far From the Madding Crowd <Sy>



## PACE NSC 2015 - Round 12 - Bonuses

1. This man was dismissed from his post following the rise of Emile Ollivier, but he had already supervised the building of Garnier's Opera and a host of other buildings. For 10 points each:

[10] Identify this man fond of wide boulevards who tore down much of medieval Paris to reform it into a more modern city.

ANSWER: Baron **Hausmann** [or George-Eugene **Hausmann**]

[10] Baron Hausmann remade Paris during the reign of this French Emperor. He abdicated following the Battle of Sedan in the Franco-Prussian War.

ANSWER: **Napoleon III** [or **Louis Napoleon** or Charles **Louis Napoleon** Bonaparte]

[10] After surviving an assassination attempt from Felice Orsini, Napoleon III decided "to do something for Italy". One such act was winning this 1859 battle against the Austrians which inspired Henri Durant to found the International Red Cross.

ANSWER: Battle of **Solferino** <Bentley>

2. A son of Pelasgus is turned into this animal after he attempts to feed his son Nyctimus to Zeus. For 10 points each:

[10] Name this animal which Zeus turns Lycaon into. The herdsman Faustulus discovers another of these animals nurturing her adopted children on the Palatine Hill.

ANSWER: she-**wolf** [or **wolves**; or Canis **lupus**]

[10] The latter wolf suckles Remus and this man, the legendary founder of the city of Rome.

ANSWER: **Romulus**

[10] Romulus and Remus are abandoned in the Tiber River by this evil great-uncle of theirs, who usurps the throne from his brother Numitor, and forces Numitor's daughter Rhea Silvia to become a Vestal Virgin.

ANSWER: **Amulius** <Gupta>

3. Identify the following properties of quantum wavefunctions, for 10 points each.

[10] Wavefunctions represent one half of a "duality" in which the objects they describe can be seen as either waves or these things.

ANSWER: **particles**

[10] To conserve the total probability of observing a particle anywhere, wavefunctions must be normalized, meaning that the integral of their square over all space equals this value.

ANSWER: **one**

[10] If the sums of the projection operators onto a basis set of wavefunctions equals one, then the set has this property. This condition means that any wavefunction can be decomposed into a linear combination of basis elements.

ANSWER: **completeness** [or **completeness relation**] <Eltinge>

4. Answer the following about Baroque pioneers of instrumental music, for 10 points each.

[10] Late in his life, this composer became a court musician for the Spanish royal family, during which time he wrote many of the 555 harpsichord sonatas that innovated keyboard music.

ANSWER: Domenico **Scarlatti** [do not accept "Alessandro Scarlatti"]

[10] Heinrich Biber pioneered scordatura writing in 16 of these pieces for a namesake string instrument and continuo that are known as the "Rosary" or "Mystery" ones. Beethoven later wrote one named "Kreutzer", with piano accompaniment instead.

ANSWER: **violin sonata** [prompt on **sonata**]

[10] J.S. Bach walked over 250 miles on foot to hear Dieterich Buxtehude perform the Abendmusik concert on this instrument, whose sound can be altered by combining different stops to change air flow.

ANSWER: pipe **organ** <Kim>

5. While watching a boy being hung, this man imagines answering the question "Where is God now?" with "He is hanging here on the gallows." For 10 points each:

[10] Name this man, a fictionalized version of the author, who narrates a 1960 book that begins with Moshe the Beadle trying to warn the villagers of Sighet. This author continued that book in *Dawn and Day*.

ANSWER: **Elie Wiesel** [or **Eliezer** Wiesel; accept any underlined name]

[10] Elie Wiesel's book *Night* recounts his experience surviving this concentration camp in modern-day Poland, which was connected to the Birkenau extermination camp. Its gate was inscribed with the message "Arbeit macht frei" (**ar-"byte" mahkt "fry"**).

ANSWER: **Auschwitz** [or **Auschwitz**-Birkenau]

[10] This other Holocaust survivor wrote about his time at Auschwitz in *If This Is a Man*. He drew on his career as a chemist for his short story collection *The Periodic Table*.

ANSWER: Primo **Levi** [or Primo Michele **Levi**] <Weiser>

6. While hiding from the police in a secluded forest, this character is guided by two wartime soldiers into a village where he encounters a younger version of Miss Saeki. For 10 points each.

[10] Name this 15-year-old protagonist of a 2002 novel who stays in a library run by Oshima after running away from home to find his long-lost mother and sister. He occasionally converses with his alter ego, "the boy named Crow".

ANSWER: **Kafka** Tamura [or Tamura **Kafka**; or **Kafuka** Tamura; or Tamura **Kafuka**; or **Kafka** *on the Shore*; or *Umibe no Kafuka*; prompt on "Tamura"]

[10] Kafka Tamura is the protagonist of *Kafka on the Shore*, a novel by this contemporary Japanese author. He wrote about Toru Okada's increasingly surreal search for a missing cat in *The Wind-Up Bird Chronicle* and, in 2010, published his lengthy magnum opus *1Q84* ("**one-kew-eighty-four**" or "**kew-teen-eighty-four**").

ANSWER: Haruki **Murakami** [accept names in either order]

[10] Murakami became an overnight success with the 1987 publication of this novel about a love triangle between Naoko, Midori, and Toru Watanabe. It takes its name from a Beatles song.

ANSWER: **Norwegian Wood** [or **Norwei no Mori**] <Kim>

7. Ian Fleming wrote many of the James Bond novels in an estate called Goldeneye on this island. For 10 points each:

[10] Name this Caribbean island where pirates and privateers once docked at Port Royal. Descendants of British-owned slaves on this island invented a spicy rub for food known as "jerk sauce."

ANSWER: **Jamaica**

[10] Many maroons fled into a Jamaican mountain range known by this adjective. In the continental United States, a subrange of the Appalachians known partly by this adjective includes Shenandoah National Park.

ANSWER: **Blue** Mountains [or **Blue** Ridge Mountains]

[10] The westernmost of Jamaica's three counties shares its name with this Old World region home to the resort town of Penzance.

ANSWER: **Cornwall** [or **Cornwall** County] <Jackson>

8. One of the title characters holds a pair of forceps which have caused blood to drip onto her white dress. For 10 points each:

[10] Identify this painting whose title characters are connected by an artery extending from each of their hearts. The one on the right hand side of this painting wears a Zapotec-inspired dress.

ANSWER: *The **Two Fridas*** [or *Las **Dos Fridas***]

[10] Frida Kahlo was married to this Mexican muralist, whose portrait is held by one of the figures in *The Two Fridas*. This artist painted *Man at the Crossroads*.

ANSWER: Diego **Rivera** [or Diego María de la Concepción Juan Nepomuceno Estanislao de la **Rivera** y Barrientos Acosta y Rodríguez]

[10] In another self-portrait, Kahlo wears a necklace made of thorns and a dead one of these animals. A red one of these animals rests on the arm of the title woman in Dante Gabriel Rossetti's *Beata Beatrix*.

ANSWER: **birds** [or **hummingbirds**] <Bentley>

9. One of these people named Shadrach Minkins was assisted by the Boston Vigilante Committee after being apprehended by US Marshalls. For 10 points each:

[10] Identify these people helped by personal liberty laws, which required that they receive a fair trial by jury. Article IV, Section 3 of the Constitution concerns these people.

ANSWER: **fugitive slaves** [prompt on **slaves**]

[10] Minkins eventually made it to Canada using this clandestine escape channel, whose "conductors" included Harriet Tubman.

ANSWER: **Underground Railroad**

[10] An earlier Fugitive Slave Act was signed into law in this year, the same year that the Neutrality Proclamation was issued. The most notable yellow fever epidemic to hit Philadelphia occurred in this year.

ANSWER: **1793** <Bentley>

10. Bromodomains are likely to bind at sites that have undergone this process, which is carried out by enzymes in the GNAT and MYST families. For 10 points each:

[10] Name this posttranslational modification that removes the positive charge of histones at lysine residues.

ANSWER: histone **acetylation**

[10] Histone acetylation relaxes DNA packaged in the form of chromatin in this central organelle whose presence gives eukaryotes their name.

ANSWER: **nucleus**

[10] The binding protein of the binding protein of this compound's response elements can catalyze the acetylation of histones. This secondary messenger is synthesized by the action of adenylate cyclase upon ATP.

ANSWER: **cAMP** [or **cyclic AMP**; or **cyclic adenosine monophosphate**; do not accept "AMP" or "adenosine monophosphate"] <Gupta>

11. The Bower Manuscript preserves one of the earliest treatises about this system, which attributes disease to imbalances in the three *doshas*. For 10 points each:

[10] Name this system of traditional Hindu medicine, considered pseudo-scientific today.

ANSWER: **Ayurveda** [or **Ayurvedic** medicine]

[10] Many Ayurvedic treatises prescribe this physical and mental discipline, whose "Bhakti" and "Hatha" forms inspired a very loosely-related form of exercise popular in Western countries.

ANSWER: **yoga**

[10] Ayurveda traces all the way back to 114 hymns in this last of the Vedas, which contains many verses about marriage, magic spells, and social relationships.

ANSWER: **Atharva** Veda <Gupta>

12. These animals are mourned in ceremonies called *kyūjo* and some Buddhists consider them *kyūjira*, making them exempt from bans on eating meat. For 10 points each:

[10] Identify these large mammals, a major foodstuff in post-war Japan. They were hunted for their oil by American crews whose home port was often New Bedford or Nantucket.

ANSWER: **whales**

[10] The ship *Rainbow Warrior*, which protested whaling and nuclear testing, was sunk in a harbor in this country by French agents. William Hobson got natives to agree to a coercive treaty in this country, the first to enact female suffrage by law nationwide.

ANSWER: **New Zealand**

[10] Until 2006 or so, this New World country frequently voted with Japan against international bans on whaling. This modern-day country, home to the ruins of Caracol, was once a colony ruled by "baymen."

ANSWER: **Belize** <Bentley>

13. The speaker of this poem describes public life as acting "like a frog", telling one's name "the livelong day / To an admiring bog". For 10 points each:

[10] Identify this poem whose first stanza ends with the lines "Then there's a pair of us -- don't tell! / They'd banish us, you know."

ANSWER: **"I'm Nobody! Who are you?"**

[10] "I'm Nobody! Who are you?" was written by this reclusive New Englander, whose other poems include "I heard a Fly buzz--when I died" and "Because I could not stop for Death".

ANSWER: Emily **Dickinson**

[10] This concept is analogized to a "little Bird / That kept so many warm" in a Dickinson poem that opens by describing it as "the thing with Feathers / That perches in the soul".

ANSWER: **hope** [or "'**Hope**' is the thing with Feathers"] <Carson>

14. The core cities of this organization included the port of Lubeck. For 10 points each:

[10] Name this alliance of trade houses which controlled commerce in the Baltic Sea for much of the late Middle Ages.

ANSWER: **Hanseatic** League [or **Hansa**]

[10] This Russian city, the first city which Alexander Nevsky ruled as prince, was the easternmost major city where the Hanseatic league operated. A prince named Oleg from here later founded the Rus' state in Kiev.

ANSWER: **Novgorod** Veliky [or Veliky **Novgorod**; do not accept "Nizhny Novgorod"]

[10] The Hanseatic League operated out of these trade houses in foreign cities. The one in London was known informally as the Steelyard.

ANSWER: **kontors** [or **kontore**] <Jackson>

15. Low  $K_{sub-m}$  values indicate high affinity of the substrate for these molecules. For 10 points each:

[10] Name these biological catalysts that serve to lower the activation energy of a reaction.

ANSWER: **enzymes**

[10] In this classic doubly-eponymous equation in enzyme kinetics, the namesake constant  $K_{sub-m}$  is the substrate concentration when the reaction rate is half-maximal.

ANSWER: **Michaelis-Menten** equation

[10] This phenomenon is mathematically modeled by a constant symbolized alpha that multiplies the Michaelis constant. This phenomenon causes a change in slope on a Lineweaver-Burke plot, and it usually involves a small molecule that resembles the substrate.

ANSWER: **competitive inhibition** [or word forms; prompt on **inhibition** or word forms] <Smart>

16. Christopher Chabris and Daniel Simons wrote a book titled for an invisible one of these things that summarized their studies of inattention blindness. For 10 points each:

[10] Identify this thing which was not noticed by about half of a group of people in a psychological study who were instructed to count the number of passes made by a team playing basketball.

ANSWER: a man in a **gorilla** suit [or a woman in a **gorilla** suit or a man in a **monkey** suit or equivalents]

[10] *The Invisible Gorilla* is referenced in the book *Thinking, Fast and Slow* by this Nobel laureate. This man developed Prospect Theory with Amos Tversky.

ANSWER: Daniel **Kahneman**

[10] *Thinking, Fast and Slow* discusses several different types of these phenomena whose cognitive types include confirmation and recency examples. Surveys can suffer from the response type of this phenomenon when they rely on respondents to self-report information.

ANSWER: **biases** <Bentley>

17. Dozens of glass bottles are delivered to an inn in Iping for this character, who hires a tramp named Thomas Marvel to serve as his assistant and carry his notebooks. For 10 points each:

[10] Name this character who is finally betrayed by his former colleague Dr. Kemp after revealing that he plans to embark upon a "Reign of Terror" using the gift granted to him by his recent studies in the science of refraction.

ANSWER: **Griffin** [or the **Invisible Man**]

[10] Griffin's life as the title *Invisible Man* is the subject of a novella by this British sci-fi pioneer, who also wrote *The War of the Worlds* and *The Time Machine*.

ANSWER: H. G. **Wells** [or Herbert George **Wells**]

[10] In *The War of the Worlds*, this is the only Martian plant that thrives on Earth, not least because it grows rapidly when exposed to water. The narrator notes that it tastes metallic and it glows purple at night.

ANSWER: **red weed** [or **red swamp**; or the **red creeper**] <Carson>

18. Cramer's theorem can be used to find the value of a variable in one of these problems. For 10 points each:

[10] Identify these collections of constraints where every variable has degree one. There is a unique solution if there are exactly as many independent constraints as there are variables.

ANSWER: **system of linear equations** [or **linear system**]

[10] Cramer's rule gives each variable to be the quotient of two of these functions. This function of the 2 by 2 matrix  $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$  is equal to  $a \times d - b \times c$ .

ANSWER: **determinant**

[10] Systems where the zero vector is a solution are referred to by this word. A function is said to be [this word] of degree  $k$  if scaling all the inputs by  $\lambda$  scales the function's value by  $\lambda$  to the  $k$ th power.

ANSWER: **homogeneous** functions/systems <Schindler>

19. Answer the following about *Anarchy, State, and Utopia*, a book which Harvard political philosopher Robert Nozick wrote to defend libertarianism, for 10 points each.

[10] Nozick's libertarianism opposed this other Harvard philosopher, who argued that a robust, fair, liberal state would emerge if each of its founders acted as if they were behind a "veil of ignorance" about their own identity in *A Theory of Justice*.

ANSWER: John Bordley "Jack" **Rawls**

[10] Nozick argues that even a minimal "night watchman state" must prevent breaches of these documents. Thomas Hobbes defined a "covenant" as one of these which requires somebody to "perform his part at some determinate time after" in a work that examined a specific type of these things.

ANSWER: **contracts** [or social **contract**, though that term was coined after Hobbes]

[10] Nozick's libertarianism has some similarities to the "harm principle" of this earlier British author of *On Liberty*. This prodigy's father James raised him to propound the theory of utilitarianism.

ANSWER: John Stuart **Mill** <Jackson>

20. This opera uses six harps to represent the shimmering of a rainbow bridge as the gods march over it. For 10 points each:

[10] Name this opera in which the dwarf Alberich renounces love to obtain the title treasure, only for Wotan to steal it later.

ANSWER: *Das Rheingold* [or *The Rhingold*, prompt on *Der Ring Des Nibelungen* or *The Ring of the Nibelungs* or *The Ring* cycle]

[10] *Das Rheingold* is the first and shortest of the operas in this composer's massive *Ring* cycle. He also composed *Die Meistersinger von Nürnberg*.

ANSWER: Richard Wagner

[10] Rather than writing opera as just a string of vocal pieces, Wagner emphasized the complete integration of music and drama, a principle which he called by this name.

ANSWER: gesamtkunstwerk [or total art work] <Rosenberg>

21. One of this man's epithets derives from his father's membership in the Order of the Dragon. For 10 points each:

[10] Identify this voivode of Wallachia who led the Night Attack against Mehmed II in 1462. He was captured by Matthias Corvinus of Hungary later that year.

ANSWER: Vlad III Dracula [or Vlad the Impaler or Vlad Tepes or Vlad Dracula; prompt on Dracula; prompt on Vlad; do not accept or prompt on "Vlad Dracul"]

[10] After his death, this body part of Vlad may have been sent to Constantinople, where it was embalmed in honey. This body part was inexpertly removed from Mary, Queen of Scots to cause her death.

ANSWER: the head

[10] Vlad and this younger brother served a stint as hostages at the court of Sultan Murad II. This man's beauty may have made his stay in the Ottoman court more pleasant, and he was made Pasha of Wallachia before his death in 1475.

ANSWER: Radu the Handsome [or Radu III or Radu the Fair or Radu the Beautiful or Radu cel Frumos] <Bentley>

22. A Nobel-winning poet used this language to write the liturgically-inspired poetic cycle *To Axion Esti*, or *Worthy It Is*. For 10 points each:

[10] Name this language whose modern version was used by the poets Georgios Seferis and Odysseas Elytis. Its archaic "Epic" variant was used by Hesiod, while the *Odyssey* is written in its "Homeric" dialect.

ANSWER: Greek [or ellenika; or Hellenic; or Koine Greek; or Archaic Greek; or Hellenistic Greek]

[10] A 33,333-line "modern sequel" to the *Odyssey* was written by this 20th-century Greek novelist, who attracted controversy with his oft-banned novel *The Last Temptation of Christ*.

ANSWER: Nikos Kazantzakis

[10] This Greek poet from Alexandria wrote the *Odyssey*-inspired poem "Ithaka" and asked "what are we waiting for, assembled in the forum" in his poem "Waiting for the Barbarians."

ANSWER: Constantine P. Cavafy [or Konstantinos Petrou Kavafis] <Weiser>

23. Population I and Population II stars differ in this quantity, while a hypothesized Population III star would almost completely lack it. For 10 points each:

[10] Name this property of a star, which is the ratio of hydrogen and helium to all other elements that comprise the star.

ANSWER: metallicity [or Z]

[10] In stars, higher mass elements are formed through this process, in which atoms are combined in a fusion reaction. This term denotes the production of new elements from existing elements.

ANSWER: nucleosynthesis

[10] Nucleosynthesis first began a few minutes following this event, which is generally considered the beginning of the universe.

ANSWER: Big Bang <Lee>