

PACE NSC 2011

Edited by Mike Bentley, Matt Bollinger, Rob Carson, Kyle Haddad-Fonda, Hannah Kirsch, Trygve Meade, Bernadette Spencer, Guy Tabachnick, and Andy Watkins

Packet 11

Tossups

1. Alban Berg's *Lyric Suite* was originally composed in this form, and Beethoven wrote three of these called the "Rasumovsky" ones. One piece of this type begins in 9/8 and has an andante cantabile second movement; that is the first of these by Pyotr Tchaikovsky. One of these by Franz Schubert ends with a tarantella and is called *Death and the Maiden*. Many modern compositions of this type are commissioned by a group named for (\*) Kronos. A famous one of these by Antonín Dvořák was composed in Spillville, Iowa, giving it the nickname "American." An adagio movement from one by Samuel Barber is frequently played on its own. For 10 points, name this type of composition for an ensemble consisting of two violins, a viola, and a cello.

ANSWER: string quartets [prompt on quartet]

<Kirsch>

2. One of this man's works uses musical terms in every chapter title and heading; those include "Well-Tempered Astronomy," "Rustic Symphony in Three Movements," and "Bororo Song." This man sought irreducible units known as "mythemes." One of his works, whose name is an original-language pun involving pansies, contrasts the Engineer with a man who builds from the materials immediately available to him, the (\*) *bricoleur*. He recounted his journeys to Brazil in his memoir *Tristes Tropiques* and included "The Origin of Table Manners" and "The Raw and the Cooked" in *Mythologiques*. For 10 points, name this author of *The Elementary Structures of Kinship* and *The Savage Mind*, a French structuralist.

ANSWER: Claude Lévi-Strauss

<Jackson>

3. A process named for Cholesky decomposes these objects into the product of a lower-triangular matrix with its adjoint. These objects are always orthogonally diagonalizable, and are positive-definite if and only if all their eigenvalues are positive. Different eigenspaces of these objects produce orthogonal eigenvectors, and according to the (\*) spectral theorem, these objects always have orthonormal bases of eigenvectors; thus, all these types of matrices' eigenvalues are real. Generalized by Hermitian matrices, for 10 points, name these types of matrices that are equal to their transpose, with entries  $i,j$  always equal to entries  $j,i$ .

ANSWER: symmetric matrices [accept word forms; prompt on matrix before "types of" is read]

<Greenthal>

4. One character in this novel, who attends a school whose motto is “Semper aliquid novi,” makes a speech in which he says, “We’re all going to hell, and every man knows this in his bones.” That character, Ferdinand, saves the protagonist from execution by putting him on a steamer. The protagonist has an affair with Yvette, the wife of the French intellectual Raymond. The country in which it is set is similar to the Democratic Republic of the Congo during the reign of (\*) Mobutu Sese Seko, who is caricatured as the Big Man in this novel. For 10 points, name this novel about Salim, a shopkeeper living in a town at the title location, written by V. S. Naipaul.

ANSWER: A Bend in the River

<Nediger>

5. This country’s city of Bellinzona is known for three castles that guarded the route into its Ticino region, and other castles in this country include one in the center of the town of Neuchâtel and the Chillon Castle near a city that hosts a popular jazz festival, Montreaux. Tourists are attracted to this country by resorts in Verbier and (\*) Zermatt as well as a castle that may have been designed by Leonardo da Vinci in Locarno and the covered Chapel Bridge in Lucerne. Its second most populous city of Basel is located on the Rhine, while the Jura Mountains rise above its city of Lausanne. For 10 points, name this country that is home to Zurich and Geneva.

ANSWER: Switzerland [or Swiss Confederation]

<Haddad-Fonda>

6. Several philosophers who write about this movement distinguish between two outgrowths of *nous*, *noesis* the actual and *noema* the ideal in addition to writing about what they term the “lifeworld.” Maurice Merleau-Ponty, an “existential” as opposed to transcendental philosopher who studies this branch of philosophy, wrote about *The [this] of Perception*. The founder of this branch of philosophy, a student of Franz Brentano, elaborated it in his work *Logical Investigations*. For 10 points, name this branch of philosophy concerned with describing conscious experience, founded in the early 20th century by Edmund Husserl.

ANSWER: phenomenology

<Meade>

7. The fidelity of this process can be increased by using Pfx or Pfu instead of one more typical reagent. More specific types of this are called its “nested” and “touchdown” varieties, and the LATE modification made its asymmetric type more efficient. Cations such as magnesium are used to stabilize the product of this process, which is created from (\*) dNTPs. Primers anneal to a template during a lower-temperature step in this technique, which was developed by Kary Mullis and which uses a special heat-resistant polymerase called Taq in order to extend DNA strands. For 10 points, name this laboratory technique used to create DNA ex vivo.

ANSWER: polymerase chain reaction

<Kirsch>

8. **One of this author's characters carries a large teddy bear named Aloysius with him around Oxford. In another of this man's works, the protagonist's wife has an affair with John Beaver, while the protagonist himself dreams of restoring Hetton Abbey. The protagonist of that novel is forced to read (\*) Dickens's novels when he is captured by a native in South America, while the former novel sees Rex Mottram's wife Julia fall in love with the narrator, Charles Ryder, who recounts his visits to the estate of the Marchmains. For 10 points, identify this author of *A Handful of Dust* and *Brideshead Revisited*.**

ANSWER: Arthur Evelyn St. John Waugh

<Gautam Kandlikar>

9. **This artist included scenes of car crashes in works like *Five Deaths on Orange and Green Disaster Ten Times*, components of this artist's *Death and Disaster Series*. His long-take films show a man sleeping for five hours and the Empire State Building at night for eight hours. He made a film showing women in environs including the title hotel starring Nico with a soundtrack by the Velvet Underground. This maker of (\*) *Sleep*, *Empire*, and *Chelsea Girls* silkscreened fifty images of a movie star, half with blonde hair and a purple face and half in black and white, in his *Marilyn Diptych*. For 10 points, name this Pop Artist who had a studio called The Factory and painted series of Campbell's soup cans.**

ANSWER: Andy Warhol [or Andrew Warhola, Jr.]

<Tabachnick>

10. **He conflicted with Johannes Oecolampadius at a meeting about the natural of the sacrament. This man wrote a mass in the vernacular which omitted all requirements of candles and vestments. He released 12 Articles in response to radicalization by peasants, and he was excommunicated by the Papal bull *Exsurge Domine* before his attendance at the Marburg Colloquy. This author of the *German Mass*, in addition to both the *Small* and *Large Catechisms*, was called before the Diet of Worms to answer for his heresy, and he promulgated the Augsburg Confession. For 10 points, name this religious figure who began Protestantism by nailing 95 Theses to the door of a church.**

ANSWER: Martin Luther

<Meade>

11. **Systems are generally tested for this property by calculating the largest Lyapunov exponent and seeing if it is positive. One model exhibits this property as its parameter passes 3.57; the ratio of its period-doubling intervals approaches the (\*) Feigenbaum constant. Systems exhibiting this phenomenon include the nonlinear damping present in the van der Pol oscillator, as well as the double pendulum and the logistic map. This theory was largely inspired by weather simulations performed by Edward Lorenz. For 10 points, name this theory that studies systems that are highly sensitive to initial conditions.**

ANSWER: chaos theory

<Watkins>

12. A Romantic poet from this country asked, “Am I Amor or Phoebus? Lusignan or Byron?” in his sonnet “El Desdichado.” Another poet from this country wrote the pun, “It rains in my heart, as it rains on the town” and wrote about “the long sighs / of the violins” in “Autumn Song,” one of his *Saturnine Poems*. Another poet from this country wrote that a certain object “will never abolish chance” in “A Throw of the Dice” and wrote “The (\*) Afternoon of a Faun.” This country is also home to the poet of “The Drunken Boat,” who was shot by Paul Verlaine. For 10 points, name this home of Gerard de Nerval, Stephane Mallarmé, and Arthur Rimbaud.

ANSWER: France

<Bollinger>

13. In the back of this work, a man with a striped shirt has his arm around a woman holding her hands in black gloves to her ears. A woman in the center-right of this work sips a glass of water, obscuring all but her eyes. Two figures in this work lean on a railing, one coquettishly talking to a man facing away from the viewer in a brown hat. Everyone in this painting is covered by a red- and white-striped (\*) awning. On the bottom left, a woman with flowers in her straw hat plays with a small dog; that woman later became the wife of this work’s artist. In the foreground of this work is a table covered with fruit, plates, and bottles of wine. For 10 points, name this painting by Pierre-Auguste Renoir showing a group of his friends eating.

ANSWER: *The Luncheon of the Boating Party* [or *Le déjeuner des canotiers*]

<Tabachnick>

14. Curtis Tucker chaired a state assembly special committee whose report on this event was entitled “To Rebuild Is Not Enough,” a title alluding to an organization co-founded by Peter Ueberroth in the wake of this event. Damian Williams, Antoine Miller, Keith Watson, and Gary Williams earned infamy as the namesake city’s “Four” when they were arrested in conjunction with an assault on Reginald Denny during this event. The sometimes namesake of this event asked, “Can’t we (\*) all just get along?”, and these events began hours after Stacey Koon and three other officers were acquitted of wrongdoing in the beating of that man. For 10 points, name these riots that primarily took place in the Downtown, Koreatown, and South-Central neighborhoods of a large California city.

ANSWER: L.A. riots [or 1992 Los Angeles riots; or Rodney King riots; or equivalents mentioning any underlined part; do not accept “Watts riots”; do not accept “Zoot Suit riots”]

<Wynne>

15. This substance can be broken down by COMT in the prefrontal cortex, which it connects to the ventral tegmental area via the mesocortical pathway. It can also operate via the tuberoinfundibular pathway, and it inhibits the secretion of prolactin. This precursor of norepinephrine is primarily produced in the (\*) substantia nigra. Deficiency of this catecholamine can cause a degenerative disease whose most visible symptom is persistent tremors, since this neurotransmitter helps carry out voluntary movement. It is also associated with reward-seeking and pleasure behaviors. For 10 points, name this neurotransmitter whose deficiency leads to Parkinson’s disease and whose precursor is L-dopa.

ANSWER: dopamine

<Kirsch>

16. A 1962 court decision concerned Daniel Rufeisen's attempt to perform this action, which was advocated by the group BILU and is often followed by attendance at an *ulpan*. Operation Magic Carpet enabled this action for some Yemenites, and in the 1980s and '90s, this action was undertaken by a group of people from Ethiopia known as the (\*) *falashas*. It is known by a phrase literally meaning "to go up," "making *aliyah*." For 10 points, name this action undertaken by Jews who take advantage of the Law of Return by moving to a certain country.

ANSWER: moving/immigrating to Israel [accept logical equivalents; prompt on a partial answer; accept making aliyah before it is mentioned; accept answers like settling Israel]  
<Greenthal>

17. One of this author's most fearsome villains wields a rifle inscribed with the phrase "Et in Arcadia Ego." This author wrote of a conscientious shower objector who supports his elaborate tunneling under Knoxville by becoming a bat bounty hunter; that character, Geno Harrogate, appears in his novel about a voluntarily impoverished fisherman, *Suttree*. Haunting creations of this man include a monstrous, hulking albino, the child-murdering (\*) Judge Holden. This author of the "Border Trilogy" and *Blood Meridian* titled a more recent work from a line in Yeats's "Sailing to Byzantium." For 10 points, name this author of *No Country for Old Men*.

ANSWER: Cormac McCarthy  
<Ray>

18. Ayida Weddo is one of these married to the sky *loa* Damballa, who is also usually depicted as one. The Chinese goddess Nu Gua has the body of one. Indian ones include one bound to Mount Mandar during the churning of the milk ocean, exhaling blue poison as a result. That jeweled one, King Vasuki, led a group of them opposed to Garuda, while another of these is (\*) Sessa. Eurydice was killed by a bite from one of these creatures, and Kusanagi came from the body of one after Susanowo slew it and its eight heads. Exemplified by the nagas, for 10 points, name these creatures that include Jormungandr, the "Midgard" one, and that make up the strands of Medusa's hair.

ANSWER: snakes [or serpents; prompt on nagas; do not prompt on "dragons"]  
<Jackson>

19. This man once ordered the ship *Miri* to be set on fire with all its passengers inside. This man was responsible for placing a *padrão* on the banks of the River of Good Omens, which is today better known as the Quelimane River. On the 500th anniversary of his most famous feat, Europe's longest bridge was named for him. He came into conflict with a certain Zamorin he believed to be a Christian, but soon returned home against a (\*) monsoon on the *São Gabriel*. On his first voyage, he gave a province he passed on Christmas Day the name Natal, and he'd go on to places like Mombasa and Malindi on that voyage. For 10 points, name this Portuguese explorer, who in 1498 became the first European to sail directly to India.

ANSWER: Vasco da Gama, 1st Count of Vidigueira  
<Nediger>

20. The Southern Development Fund used by this country's government in the 1950s created so-called "cathedrals in the desert." The leggine and partyocracy systems in this country endured thanks to the secret Parliamentary voting clause of its post-war Constitution. In the 1960s, it was home to radical groups like the Metropolitan Indians and Worker Autonomy. Its people expelled their "May King" after World War II, and one prime minister of this country (\*) owned the Mediaset Company. This country witnessed kidnappings by the Red Brigade during its "Years of Lead," as well as the murder of Prime Minister Aldo Moro. For 10 points, name this country, whose First Republic arose after the ouster of "Il Duce," Benito Mussolini.

ANSWER: Italy [or Italia]

<Bentley>

21. A U.S. ambassador to this country, George H. Kerr, wrote of the "betrayal" by its government following an incident sparked by an old woman being beaten for possessing contraband cigarettes. Indigenous peoples like the Atayal and the Ami now make up just a small minority of its population. In the seventeenth century, the Kingdom of Tungning was established here after Lord Koxinga expelled the Dutch. An extended period of martial law called the White Terror was proclaimed in this country following the (\*) 228 Incident in 1947. More recently, a March 19th, 2004 assassination attempt was made against its president, Chen Shui-bian. For 10 points, name this country where the Kuomintang of Chiang Kai-Shek fled after losing the Chinese Civil War.

ANSWER: Taiwan [or the Republic of China or Formosa; do not accept or prompt on just "China"]

<Bentley>

22. This character plays billiards, but only with Thurston. He meets his roommate through an old friend, Stamford, with whom his roommate had worked at St. Bartholomew's Hospital. He draws up a list of that roommate's "limits," including "nil" knowledge of literature, philosophy, and astronomy. Dorothy Sayers popularized the theory that his middle initial, "H," stands for "Hamish." Described as the "one fixed point in a changing age," this husband of Mary Marston is the "Boswell" narrating the adventures of a (\*) beekeeper and cocaine addict. For 10 points, name this narrator of all but three of Arthur Conan Doyle's Sherlock Holmes stories.

ANSWER: Dr. John H. Watson [or Dr. James Watson]

<Wynne>

23. His observations of Cepheid variables in what was then called the Andromeda Nebula demonstrated that that object was too distant to lie within the Milky Way; in addition to suggesting that other galaxies must exist, he introduced a method to classify them featuring a diagram often displayed like a (\*) tuning fork. His most prominent contribution arose out of work with Milton Humason, though the constant of proportionality was originally over seven times higher than its present value. For 10 points, name this astronomer who in his namesake law gives recession velocity as about seventy kilometers per second per megaparsec times distance.

ANSWER: Edwin Powell Hubble

<Watkins>

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Bonuses

1. Its key participant led a group of prophets including Adam, Moses, and Jesus in prayer and argued the number of prayers per day down from fifty to five while disputing with God in the Seventh Heaven. For 10 points each:

[10] Name this two-part event in which the steed al-Buraq flew Muhammad to the “farthest mosque” in Jerusalem, then up to Heaven and down to Hell.

ANSWER: the **Night Journey** of Muhammad [or **Journey by Night**; or **Isra and Mir’aj**; or **Isra wal-Mir-ag**; prompt on **Isra**; prompt on **Mir’aj**]

[10] Two years later, in 622 CE, Muhammad went on this journey, from which the count of the Islamic lunar calendar begins.

ANSWER: the **hijra** [or **hejira**; prompt on **journey from Mecca to Medina** or **to Yathrib**; do not accept “hajj” or “pilgrimage to Mecca”]

[10] Muhammad was accompanied on that journey by this man, though two hadiths say he had already arrived in Medina. He was given the title *Siddiq*, or truthful and became the first caliph.

ANSWER: **Abu Bakr**

<Jackson>

2. This man’s works of choreography include *Jewels* and a popular version of *The Nutcracker*. For 10 points each:

[10] Name this Georgian-born co-founder of New York City Ballet with Lincoln Kirstein and Jerome Robbins.

ANSWER: George **Balanchine** [or Giorgi Melitonis dze **Balanchivadze**]

[10] Balanchine choreographed *On Your Toes*, a musical whose music was created by this man in collaboration with Lorenz Hart. *Carousel*, *The Sound of Music*, *Oklahoma*, and *South Pacific* were all made by him and Oscar Hammerstein II.

ANSWER: Richard Charles **Rodgers**

[10] Balanchine and Jerome Robbins create a 1949 adaptation of this ballet. This Stravinsky ballet is about a prince who visits the realm of Koschei the Immortal and chases after the title creature.

ANSWER: *The* **Firebird** [or *L’***Oiseau de feu**]

<Gupta>

3. This temperature marks the transition between helium I and helium II. For 10 points each:  
[10] Name this quantity, named for the shape of the heat capacity plot of that gas around that temperature.

ANSWER: **lambda** point

[10] The lambda point marks the transition into this state, named for the fact that a substance in this state has zero viscosity.

ANSWER: **superfluidity**

[10] This Soviet physicist earned a Nobel prize for his studies on superfluids. He also demonstrated that the interaction strength of a quantum field theory without asymptotic freedom can become infinite at a certain energy scale; these phenomena are called his “poles.”

ANSWER: Lev Davidovich **Landau**

<Watkins>

4. Prominent citizens of this city-state included Pelopidas and Epaminondas. For 10 points each:

[10] Identify this Greek city-state home to the Sacred Band, who once faced a plot wherein seven men fought against this polity.

ANSWER: **Thebes**

[10] Thebes’s Sacred Band, under the command of Epaminondas, was victorious at this 371 BCE battle against Spartan forces led by King Cleombrotus. It was fought about 30 years before Chaeronea.

ANSWER: Battle of **Leuctra**

[10] Epaminondas died at the battle fought here against over the Boeotian League. An earlier battle of the same name fought in 418 BCE saw Agis II victorious over an alliance between Argos and Athens.

ANSWER: Battle of **Mantineia**

<Bentley>

5. Name these epic companions, for 10 points each.

[10] This son of Menoetius accidentally killed his friend Clytius. This friend of Achilles slew King Sarpedon before being killed by Hector.

ANSWER: **Patroclus**

[10] This wild man becomes civilized after laying with the harlot Shamhat. He befriends Gilgamesh after a wrestling match but dies after they kill the Bull of Heaven.

ANSWER: **Enkidu**

[10] This figure helps his brother, Rama, recover Sita in the *Ramayana*. He defeats Indrajit by immediately destroying every weapon the demon summons with one of his arrows.

ANSWER: **Lakshmana**

<Bollinger>



6. A recent translation of this work was made by the contemporary academic Royall Tyler. For 10 points each:

[10] Name this work, also translated by Arthur David Waley, whose protagonist performs the “Waves of the Blue Sea” dance.

ANSWER: **Tale of Genji** [or **Genji Monogatari**]

[10] The *Tale of Genji* was written by this woman during the Heian period.

ANSWER: Lady **Murasaki** Shikibu

[10] This author of *The Makioka Sisters* made multiple translations of the *Tale* into modern Japanese.

ANSWER: Junichiro **Tanizaki**

<Bollinger>

7. This composer of *Desiccated Embryos* collaborated with Jean Cocteau and Pablo Picasso on a ballet called *Parade*. For 10 points each:

[10] Name this composer known as much for his predilection for velvet suits as for his *Gymnopédies* and *Gnossiennes*.

ANSWER: Erik-Alfred-Leslie **Satie**

[10] Satie was a friend and collaborator to Man Ray, Marcel Duchamp, Tristan Tzara, and other participants in this movement whose name derives from French baby talk for “hobby horse.”

ANSWER: **Dadaism**

[10] Satie influenced Les Six, whose members included this man, the composer of a piece imitating a locomotive, *Pacific 231*.

ANSWER: Oscar-Arthur **Honegger**

<Kirsch>

8. Alu sequences are one highly prevalent example of these elements in the human genome. For 10 points each:

[10] Name these mobile genetic elements formerly known as jumping genes.

ANSWER: **transposons**

[10] This process may help to regulate transposon activity. It is initiated by Dicer, which cleaves double-stranded DNA into short fragments.

ANSWER: **RNA interference** [or **RNAi**]

[10] The RNAi process uses micro RNA and small interfering RNA to inhibit translation by base-pairing to and cutting this type of RNA. This type of RNA is the template that ribosomes use to synthesize proteins.

ANSWER: **messenger RNA** [or **mRNA**]

<Kirsch>

9. He became leader of the opposition when Sir Alec Douglas-Home resigned, and he was able to get Britain into the EEC. For 10 points each:

[10] Identify this life-long bachelor, succeeded in the prime ministry in 1974 by Harold Wilson.

ANSWER: Sir Edward Richard George “Ted” **Heath**

[10] Edward Heath was a member of this right-leaning British political party. Winston Churchill led this party during and after World War II.

ANSWER: **Conservative** Party [or **Tories**; or **Tory** Party]

[10] Heath’s Sunningdale Agreement was similar in some ways to this 1998 agreement that provided for a Northern Ireland Assembly and some cross-Ireland cooperation between governments. It’s usually named for the Christian holiday on which this accord was agreed upon.

ANSWER: **Good Friday** agreement [or **Belfast** agreement; or **Stormont** agreement; prompt on **the agreement**]

<Bentley>

10. Identify these Republican congressmen, for 10 points each.

[10] This perennial Presidential candidate from Texas with generally libertarian positions does not actually support a return to the gold standard; he does oppose the federal War on Drugs.

ANSWER: Ronald Ernest “Ron” **Paul**

[10] This Virginian, the only Jewish Republican in Congress, sparked controversy in November 2010 when he publicly told Benjamin Netanyahu that he would “serve as a check” on Barack Obama’s foreign policy toward Israel.

ANSWER: Eric **Cantor**

[10] In March 2011, this former IRA champion from New York’s 3rd district and chairman of the Committee on Homeland Security stirred up controversy by holding hearings into the radicalization of American Muslims.

ANSWER: Peter **King**

<Haddad-Fonda>

11. This man was the first to write a monograph on aesthetics in the United States; that work was his *The Sense of Beauty*. For 10 points each:

[10] Name this philosopher best known for saying that “those who cannot remember the past are condemned to repeat it.”

ANSWER: George **Santayana**

[10] Santayana was cited as an influence by this sociologist who described “Dramaturgy” in his *The Presentation of Self in Everyday life*.

ANSWER: Erving **Goffman**

[10] While in residence at Harvard, Santayana associated with this American philosopher, an absolute idealist, who wrote *The World and The Individual*.

ANSWER: Josiah **Royce**

<Meade>

12. In this play, Luka appears, insists that all men are equal, and creates controversy with his advice. For 10 points each:

[10] Name this play set in a lodging house in which no one cares when the terminally ill Anna dies, Sahtin discourages the alcoholic Actor, and the death of Kostilof leaves Pepel and Wassilissa in jail.

ANSWER: *The Lower Depths: Scenes from Russian Life*

[10] This Russian author of *The Lower Depths* also wrote of the workers at a pretzel factory in the story *Twenty-Six Men and a Girl*.

ANSWER: Maxim Gorky

[10] Gorky praised the Soviet regime and the Gulag, institutions abhorred by this later author of *The Gulag Archipelago* and *One Day in the Life of Ivan Denisovich*.

ANSWER: Alexander Isayevich Solzhenitsyn

<Angelo>

13. A pact named for this city and championed by John Foster Dulles established the military alliance known as CENTO. For 10 points each:

[10] Identify this city, once home to the Coalition Provisional Authority.

ANSWER: Baghdad, Iraq

[10] John Foster Dulles served as Secretary of State under this president and former general, who warned against the growing Military Industrial Complex in his farewell address.

ANSWER: Dwight David Eisenhower

[10] The United States' policy towards Communism had earlier been influenced by this 1947 George Keenan document, which stated that "world communism is like a malignant parasite" but also noted that "Soviet power ... does not take unnecessary risks."

ANSWER: the Long Telegram [or X Article; or *The Sources of Soviet Conduct*]

<Bentley>

14. A conservative vector field in three dimensions has curl equal to this value at every point, and the set of vectors  $x$  multiplying a matrix  $A$  such that  $Ax$  equals this number is called the kernel. For 10 points each:

[10] Give this value.

ANSWER: zero

[10] The first derivative is zero at the maxima and minima of differentiable functions. This theorem states that if  $f$  is continuous, there exists a point  $c$  between any points  $a$  and  $b$  such that  $f'$  ("eff prime") of  $c$  is zero.

ANSWER: Rolle's theorem [prompt on mean value theorem]

[10] A function of two variables has one of these points where both first partial derivatives are zero and the determinant of the second partials is negative. Such a point, which exists at least once in all hyperbolic paraboloids, is a minimum in one direction and a maximum in another.

ANSWER: saddle points

<Jackson>

15. This artist created a fresco cycle beginning with the expulsion of Joachim from the temple relating the life of Mary and another featuring the Kiss of Judas and ten cherubs in the sky above the *Lamentation*. For 10 points each:

[10] Name this artist who created the Arena Chapel for the Paduan Enrico Scrovegni.

ANSWER: **Giotto** di Bondone

[10] The Arena Chapel's ceiling, and most of the backgrounds of its frescoes, are in this color.

ANSWER: **blue**

[10] Giotto's teacher Cimabue is known for one of these depictions of Mary on a throne holding baby Jesus, found in the Basilica of Saint Francis in Assisi. Another by Duccio, in the Siena Cathedral, features twenty angels and nineteen saints surrounding the Virgin.

ANSWER: **maestà**

<Jackson>

16. This man originated the phrase "No man is an island" and wrote "Our two souls...endure not yet a breach, but an expansion" in "A Valediction Forbidding Mourning." For 10 points each:

[10] Name this poet who wrote twenty-three Meditations and nineteen Holy Sonnets.

ANSWER: John **Donne**

[10] This Holy Sonnet tells the title concept that "Thou'rt slave to Fate, chance, kings, and desperate men," and that "thou shalt die."

ANSWER: "**Death, Be Not Proud**" [or **Holy Sonnet X**]

[10] In Holy Sonnet XIV, Donne asks this entity to "Divorce me, untie, or break that knot again," and notes that "dearly I love you...but I am betroth'd unto your enemy." He pleads for this addressee to "batter [his] heart."

ANSWER: "**Three-Person'd God**"

<Wynne>

17. [Note to moderator: Do not mention "Kenya Emergency" unless a team specifically gives that answer for the first part]

Leaders in this event included General China and Stanley Mathenge, the latter of whom was a member of the Forty Group. For 10 points each:

[10] Identify this uprising by militant members of the Kikuyu ethnic group. The subsequent trial of a man sometimes known as Johnstone Kamau for his participation in this event backfired for colonial authorities.

ANSWER: **Mau Mau** Revolt [or **Mau Mau** Uprising; or **Kenya Emergency**]

[10] The Mau Mau Revolt took place in this modern-day African country. Economic conditions prior to the revolt led many Kikuyu to migrate to its capital, Nairobi.

ANSWER: **Kenya**

[10] Mau Mau leaders Waruhiu Itote and Dedan Kimathi both served in this unit during World War II, which was disproportionately dominated by Kenyans. They battled Vichy forces at the Battle of Madagascar and once included Idi Amin in their ranks.

ANSWER: the **King's African Rifles** [prompt on **KAR**; prompt on **Kenyan African Rifles**]

<Bentley>

18. Examples of these include melting and boiling. For 10 points each:

[10] Name these occurrences wherein the physical properties of a material suddenly change.

ANSWER: **phase transitions**

[10] The onset of ferromagnetism is an example of a second-order phase transition according to the classification scheme of this physicist, who also names a paradox concerning the rotation of a rigid disc.

ANSWER: Paul **Ehrenfest**

[10] Phase transitions may be characterized by an abrupt change from zero to a nonzero value in a quantity generally given this name.

ANSWER: **order parameter**

<Watkins>

19. In Adam Smith's *The Wealth of Nations*, this concept is paired along with supply. For 10 points each:

[10] Name this economic concept that measures how much of a certain good people are willing to buy. Its aggregate form is one component of the Keynesian Cross, and Keynesian economics are sometimes referred to as "this" side economics.

ANSWER: **demand**

[10] Contrasted with a form of demand named for Marshall which maximizes utility with a constant expenditure, the form of demand named for this economist minimizes expenditure for a constant utility.

ANSWER: John **Hicks**

[10] One can convert between Hicksian and Marshallian demand functions by using this economic equation.

ANSWER: **Slutsky** Equation

<Meade>

20. In one of this man's stories, Soapy struggles to get himself arrested for the winter until he resolves to change his life. For 10 points each:

[10] Name this author of "The Cop and the Anthem" who also wrote a story in which Old Behrman paints the title "last leaf" on a wall in a storm in order to convince Johnsy to recover from her illness.

ANSWER: O. **Henry** [or William Sydney **Porter**]

[10] This collection of stories by O. Henry includes the story of a young man searching for a sweetheart who has committed suicide, "The Furnished Room."

ANSWER: *The* **Four Million**

[10] In this story from *The Four Million*, Della sells her hair to buy her husband Jim a watch fob, and he sells his watch to buy her combs.

ANSWER: "The **Gift of the Magi**"

<Angelo>

21. Figurehead holders of this title included Kujo Yoritsune. For 10 points each:

[10] Identify this title, also held by Japanese military dictators like Tokugawa Ieyasu.

ANSWER: shogun [or shogunate]

[10] This first shogunate began after Minamoto Yoritomo defeated the Tairas at the Battle of Dannoura in 1185. It was dominated by the Hojo family.

ANSWER: Kamakura shogunate

[10] The Onin War ended the Ashikaga shogunate and began this period of Japanese history, also called the Sengoku Period. The Three Jins were factions active in a different period of this name in China.

ANSWER: Warring States Period [or Era of the Warring States]

<Bentley>

22. In this work there are two assistants, Nippers and Turkey, one who works well in the morning and the other who works well in afternoon. For 10 points each:

[10] Name this work about a former employee of the Dead Letters Office.

ANSWER: “Bartleby, the Scrivener: A Story of Wall Street”

[10] “Bartleby, the Scrivener” appeared in *The Piazza Tales*, a work by this author of *Billy Budd* and *Benito Cereno*.

ANSWER: Herman Melville

[10] Melville also wrote about the fifty years of exile of this actual American figure, a soldier in the American Revolution who was captured by the British, escaped, and then worked as an American spy.

ANSWER: Israel Potter

<Cohen>

23. When an ideal gas expands slowly, it does an amount of work equal to the pressure times the change in volume. For 10 points each:

[10] Such a slow expansion is given this name, contrasted with the isothermal, rapid expansion.

ANSWER: adiabatic expansion

[10] The adiabatic theorem in quantum mechanics, which gives conditions under which a system remains in its instantaneous eigenstate, is due to Vladimir Fock and this other physicist, who names with Oppenheimer the approximation that the spatial coordinates of the nucleus and electrons are uncorrelated.

ANSWER: Max Born

[10] Fock is the co-namesake of a computational method to iteratively approximate atomic orbitals with this

ANSWER: Douglas Hartree

<Watkins>