

**Early Fall Tournament 2016** - "Auntie Vivian's daughter can answer these questions, why can't you?"

**Editors:** Will Alston, Andrew Wang, and Richard Yu

**Writers:** Eddie Kim, Jason Cheng, Jason Zhou, Parikshit Chauhan, and Ryan Humphrey

With assistance from Ike Jose, Auroni Gupta, and Billy Busse

## Packet 9

### TOSSUPS

**1. Transformation between these entities via rotation induces magnetic fields that shift observed g-values in EPR spectroscopy. Changing the energy differences between these entities can result in a spin crossover. The angular portion of these constructs consists of spherical harmonics of degree 2. Each Tanabe-Sugano diagram corresponds to different levels of occupation of these entities. In an octahedral field, these entities are predicted to (\*) split into  $t_{2g}$  and  $e_g$  components according to crystal field theory. These entities will always have two planar nodes. These five entities all have *gerade* [geh-RAH-duh] symmetry and are denoted  $xy$ ,  $yz$ ,  $xz$ ,  $z^2$ , and  $x^2 - y^2$  [x squared minus y squared]. For 10 points, name these atomic orbitals with angular quantum number of 2, which are partially filled in transition metals and are found between p and f orbitals.**

ANSWER: d orbitals [prompt on atomic orbitals; do not accept or prompt on "molecular orbitals"]  
<Chem, AW>

**2. This composer's dark, minor-key Symphony No. 4 oddly has an F major *Allegro molto vivace* as its second movement instead of as its third. His fourth symphony and third symphony both heavily employ the tritone C F-sharp. His third symphony also has only three movements, just like his Symphony No. 5 in E-flat. This composer's Symphony No. 7 in C major, which is only in one movement, is his (\*) last. This composer failed to produce any major works in his last thirty years after completing his tone poem *Tapiola*. Another of his tone poems uses a solo English horn to depict a bird in the underworld. This composer subtly pushed nationalist protests with his setting of a Christian hymn and his *Karelia* suite. For 10 points, name this composer of *Finlandia*.**

ANSWER: Jean Sibelius <Music, WA>

**3. The so-called "dark gods theory" of these things says they are expressions of atavistic instincts. The book *Thought and Change* outlines a theory of these things developed by Ernest Gellner. The role of the Olympics in creating *these* is discussed in a book by Eric Hobsbawm analyzing *them* since 1780, as well as by a historian who emphasized the role of newspapers in creating their "civic" variety. The rise of these things is attributed to (\*) "print capitalism" in a book by Benedict Anderson that discusses them as "imagined communities." These communities title an anti-mercantilist book that illustrates the concept of division of labour with a pin factory. For 10 points, the phrase "invisible hand" was coined in an Adam Smith book about the "Wealth of" what entities?**

ANSWER: nations [or nation-states; accept nationalism; accept imagined communities until it is read; accept Nations and *Nationalism* or *The Wealth of Nations*; prompt on communities or countries] <SocSci, WA>

**4. A story by this author follows a man who "first wishes to throw bricks at the temple" and "hates deeply the fact that there are no bricks and no temples," and had earlier hoped for a "house of refuge" at Mosquito Light Inlet. In a story by this author, a man shoots at a dog sleeping outside a boarded-up saloon. A story that opens with the line (\*) "None of them knew the color of the sky" was inspired by this author's shipwreck aboard the *SS Commodore*. In another story by this author, Scratchy Wilson lowers his revolvers in disbelief after finding out the town marshall has gotten married. For 10 points, name this author of the short stories "The Open Boat" and "The Bride Comes to Yellow Sky" who also wrote about Henry Fleming in *The Red Badge of Courage*.**

ANSWER: Stephen Crane <AmLit, JC>

5. A colossal bull's head from this city highlights an exhibit in the Chicago Oriental Institute, which sponsored the excavations of Ernst Herzfeld and Erich Schmidt here. This city's ruins lie at the base of the Mountain of Mercy. This home of the Fortification Tablets contains a palace with two staircases to the north and east with reliefs depicting subjects like Elamites carrying tribute. Ariobarzanes ["ARE"-ee-oh-bar-ZAHN-eez] led a final stand on the road to this city. In this home of a (\*) hundred-columned throne room, the Gate of All Nations led to the *apadana* palace. An extension of the Royal Road ran southeast from Susa to this city, which was sacked by Alexander the Great. Construction of its terrace and palace began under Darius I, who is buried here. For 10 points, name this capital of the Achaemenid empire.  
ANSWER: Persepolis [or Tahkt-e Jamshid; prompt on Throne of Jamshid] <Brit/ClassHist, JZ>

6. The *Kalika Purana* details the birth of a goddess of this phenomenon from Daksha's sweat. The *Bhagavata Purana* is the source for a dance expressing a divine example of this phenomenon, the Rasa Lila dance. This phenomenon personified by Rati should co-exist with *artha* and *dharma* according to a text about it by Vatsyayana. *Revelations* of this phenomenon title a mystical book by Julian of Norwich. In Hinduism, this phenomenon is represented by a parrot-riding god with a (\*) bow made of sugarcane and its incarnation between Radha and Krishna is widely celebrated. In Christianity, a divine form of this phenomenon is called *agape*, which is contrasted with *eros*. For 10 points, the *Kama Sutra* details the proper expression of what emotion through sexual and other behavior?  
ANSWER: love [or *Revelations of Divine Love*; accept kama until it is read; prompt on desire or lust] <Rel, WA>

7. Helen of Troy gifts this character a hand-woven wedding gown to be given to his future bride at his wedding. This character makes three attempts to string a bow, and then makes a show of being unable to do so on the fourth attempt. He invites the fleeing murderer Theoclymenus to join his crew on a voyage during which a cliffhanger describes how he is unaware that twenty men have set up a black ship to ambush him. This character is joined by (\*) Mentor and Pisistratus, the son of Nestor, on a journey to Sparta where he receives a silver bowl from Menelaus. This character witnesses his father prove his supremacy by shooting an arrow through twelve axe heads, and then teams up with his father to slay the 108 suitors plaguing his mother Penelope. For 10 points, name this son of Odysseus.  
ANSWER: Telemachus <Myth, EK>

8. Various procedures used in this field are named for the fact that they are initiated with patterns shaped like the letters Z, Y, or V. The stromal vascular fraction is typically derived from waste from a procedure used in this field. Practitioners of this activity are encouraged to use procedures found lower on a conceptual "ladder" of complexity, including transpositions, interpolations, and free flap procedures. Although this field does not specialize in a part of the body, the treatment of (\*) cleft lip and cleft palate can be considered a subspecialty of this field as they are corrected via rhinoplasty. Aesthetic procedures in this field include implanting silicone prosthetics and liposuction. For 10 points, name this field that includes reconstructive surgery which specializes in alteration of the human body, whose name is colloquially used to refer to cosmetic surgery.  
ANSWER: plastic surgery [accept reconstructive surgery before mentioned; prompt on cosmetic surgery before mention; prompt on liposuction before mention; prompt on partial answer; prompt on wound care] <Bio, AW>

9. This dynasty freed all slaves called *nobi* in reforms enacted after a peasant uprising whose ideology fused traditional shamanism and Christianity. Under this non-Indian dynasty, people were divided into four main classes: nobility, white-collar "middle people," commoners, and despised, unclean workers. A ruler of this dynasty set up the Hall of Worthies, which developed an alphabet writing system that groups syllables into blocks as an alternative to the (\*) pictorial writing of Chinese characters. Neo-Confucian scholars in this dynasty reinforced its *yangban* caste system. The "turtle ship" inventor Yi Sun-Sin worked for this dynasty, whose king Sejong pushed the development of Hangul writing. For 10 points, name this final native ruling dynasty of Korea.

ANSWER: Joseon dynasty [or Choson dynasty] <WorldHist, WA>

10. Many clowning scenes likely written by Samuel Rowley appear in this play, whose authoritative version was published by W.W. Greg in 1950. Near this play's start, a character refuses to speak the name of God upon being asked "who made the world?" after he refutes Ptolemaic astronomy as "fables." Good and Bad Angels counsel this play's protagonist, who wastes time on efforts like pranking Pope Adrian. At its start, the main character sends his servant (\*) Wagner to fetch two friends who teach him dark magic. This play's title character asks, "Was this the face that launched a thousand ships" upon summoning the shade of Helen of Troy. For 10 points, name this play about a scholar who binds Mephistophilis as a servant in exchange for his soul, written by Christopher Marlowe.

ANSWER: *The Tragical History of the Life and Death of Doctor Faustus* <BritLit, JC>

11. This philosopher distinguished conscious valuing inherent in desire from more primitive instincts he called "affective-motor attitudes." This philosopher defined communication as "sharing experience until it becomes a common possession." This thinker's best-known work groups the study of geography with history, arguing that their significance comes from giving background and context to primary human activities. His book *Individualism Old and New* denounces the (\*) profit-motivated "business" mind, which he believed would inhibit the proper socializing function of pedagogy. This "instrumentalist" philosopher founded the University of Chicago Lab School to promote the experiential, progressive learning advocated in his magnum opus. For 10 points, name this author of *Democracy and Education*.

ANSWER: John Dewey <Phil, WA>

12. A man in this town shouts "Cease, cows, life is short," when a woman spurs his farm animals to rapidly reproduce. A person living in this town reads a text whose odd lines are encrypted in "a Lacedaemonian military code" and even lines in "the private cipher of Emperor Augustus." This town is blanketed with a storm of yellow flowers after the death of man who discusses cockfighting with a ghost while tied to a (\*) chestnut tree. This town is founded by a man who dreams of a city of mirrors after his murder of Prudencio Aguilar drives him to leave Riohacha. Melquiades leads a group of gypsies who bring things like magnets and ice to this town, amazing Jose Arcadio and his son, Aureliano Buendia. For 10 points, name this setting of *One Hundred Years of Solitude*.

ANSWER: Macondo <OLit, RY>

13. A pass through this mountain range leads to the tourist-centric Aran Valley, which forms the northernmost comarque [com-MARK] of one region. A city in this mountain range hosts a parliament known as a General Council, whose establishment of a 10 percent income tax has made its country an ideal tax haven. A city in the foothills of this range became a pilgrimage site after 1858 thanks to a 14-year-old girl's visions. The city of Pau is the capital of a (\*) *département* named for this range that also includes Bayonne. The town of Lourdes [loord] is found in its foothills. Rivers that flow south from this range are part of the Ebro's drainage basin. This range divides Gascony from the other main population of Basque speakers to its south. For 10 points, name this mountain range that divides France and Spain.

ANSWER: Pyrenees mountains [or Pireneos; or Pireneus; or Pirinoak] <Other, WA>

14. A function for simplifying these structures in double exponential time first finds all of its prime implicants and neglects “don’t care” terms. The Quine–McCluskey algorithm simplifies these expressions, which can also be simplified through a refinement of a Veitch diagram called a Karnaugh map. The Cook–Levin theorem showed that the problem asking if these functions could be (\*) “satisfied” was NP-complete. These functions are often written in conjunctive normal form or disjunctive normal form and often have their possible evaluations displayed using a truth table. These functions give their name to a data type in programming languages that evaluates to either “0” or “1.” For 10 points, name these logical expressions named for a British mathematician.

ANSWER: Boolean functions [or Boolean expressions; or Booleans] <OSci, RH>

15. This artist’s first public art commission was a sculpture of rays of light radiating onto a woman reclining over waves, titled *Mermaid*. This artist parodied a Picasso painting of Dora Maar in his *Woman with Flowered Hat* and placed modern chairs and a bright turquoise floor in a rendition of Van Gogh’s *Bedroom of Arles*. This artist’s most characteristic paintings include one of a red-haired woman who holds a phone with two hands, as well as one of a woman surrounded by (\*) water who refuses to call Brad for help. Other paintings in which this artist of *Ohhh... Alright...* and *Drowning Girl* used Ben-Day dots include one of a fighter plane shooting a rocket, causing the title sound. For 10 points, name this Pop artist whose paintings based on comic strips include *Whaam!*.

ANSWER: Roy Fox Lichtenstein <Painting, PC>

16. This man managed to get his childless marriage with Adelheid of Vohburg annulled by Pope Eugene III because his great-great-grandfather was a brother of her great-great-grandmother. This ruler helped revive Justinian’s Law Code, receiving the political assistance of the Doctors of Bologna who studied it. He had the lands of his cousin Henry the Lion stripped for refusing to assist him in one battle. This ruler was excommunicated by Pope (\*) Alexander III but reconciled with him after losing the Battle of Legnano to the Lombard League. He defeated the Sultanate of Rum in the Battle of Iconium before he drowned in the Saleph River during the Third Crusade. For 10 points, name this Holy Roman Emperor of the Hohenstaufen dynasty nicknamed for his red beard.

ANSWER: Frederick Barbarossa [or Frederick I, Holy Roman Emperor; Frederick III of Swabia; accept Friedrich for “Frederick”; prompt on Frederick] <EuroHist, JZ>

17. Zone melting is used to obtain extremely pure and uniform crystals of these substances. These materials can be produced by lowering a thin rod-shaped seed crystal into a melt contained within a crucible then slowly pulling out the resulting boule. When two specific types of these materials are placed adjacent to each other, the result is two “quasi-neutral” regions and one “space charge” region which is often approximated as being (\*) “depleted” of charge carriers. P–n junctions are made using these materials, which possess a Fermi level that lies within the small band gap located between their valence and conduction bands. For 10 points, germanium and silicon are examples of what kind of material intermediate between insulators and conductors in conductivity?

ANSWER: semiconductors [accept “silicon wafers” before mention] <Phys, BB>

18. This author related the story of Guido Cavalcanti leaping over the heads of his foes in a lecture declaring “Lightness” an essential trait for burgeoning writers. A recurring character created by this author loses his love interest Ayl when colors other than gray first appear and describes how life was “packed like sardines” before the Big Bang in the story “All at One Point.” The protagonist of a novel by this author tracks down a fraudulent translator and eventually marries (\*) Ludmilla after frustratedly reading several works that cut off at the climax, which that novel by this author presents in even-numbered chapters. Other chapters of that novel narrate in the second person, with the first opening, “You are about to begin reading [this author’s] new novel....” For 10 points, name this author of *Cosmicomics* and *If on a winter’s night a traveler*.

ANSWER: Italo Calvino <EuroLit, JC>

19. This man is the subject of a 2009 biography by Melvin Urofsky. This man's research was assisted by his sister-in-law, National Consumers League activist Josephine Goldmark. This man called "the right to be let alone" "the most comprehensive of rights" in his dissent to a case that was reversed by *Katz v. U.S.* This dissenter in *Olmstead v. U.S.* worked with Samuel Warren to write an article on "The Right to Privacy." With (\*) Harlan F. Stone and Benjamin Cardozo, he was one of the "Three Musketeers" who supported the New Deal. This "People's Lawyer" compiled non-legal testimony to support a law limiting working hours to 10 hours for women in his namesake "brief" for 1908's *Muller v. Oregon*. For 10 points, name this first Supreme Court Justice to be Jewish.

ANSWER: Louis (Dembitz) Brandeis <AmHist, RY>

20. A bandleader based in this city called for the audience to engage in a call-and-response of scat syllables in his standard "Minnie the Moocher." In the 1930s, this city's style of cohesive, pre-arranged swing contrasted with the freer riff-based style of Kansas City. A standard written in this city, "A Night in Tunisia," was covered on an album titled for "A Night at" a club in this city by Art Blakey, who worked with Fletcher Henderson's band here. Cab Calloway's band performed at this city's (\*) Cotton Club. Dizzy Gillespie and Charlie Parker developed bebop in this city, where the Birdland club is located. This city was home to lyricist Billy Strayhorn, who referenced its transit system in the song "Take the 'A' Train," that he co-wrote with Duke Ellington. For 10 points, name this U.S. city where swing thrive in Harlem.

ANSWER: New York City <OArts, EK>

IF THE GAME IS A TIE AFTER REGULATION: Report to the tournament director. Then, read a bonus from the tiebreakers packet that the tournament director determines the team has not yet heard.

## BONUSES

1. According to this statement, the time spent by a system in some part of phase space is proportional to the volume of that region. For 10 points each:

[10] Identify this important principle from statistical mechanics, which thus states that all microstates of a system are equally probable over time.

ANSWER: ergodic hypothesis [accept ergodicity]

[10] In order for this statement to apply to a system, the system must be ergodic. This statement relates a system's temperature to its average energy, and it can be used to show that solids have a heat capacity of  $3N$  times Boltzmann's constant.

ANSWER: equipartition theorem

[10] This phase of matter, a common system studied in statistical mechanics, can be described with the kinetic molecular theory as well as an equation of state that states that  $PV$  equals  $nRT$ .

ANSWER: gases [accept ideal gases] <Phys, AW>

2. This man was named Lalawethika before he experienced religious visions that helped him overcome his alcoholism, leading him to take on a name meaning "Open Door." For 10 points each:

[10] Identify this Shawnee leader, whose brother Tecumseh fought a war in which William Henry Harrison defeated him at Tippecanoe. You can give *either* his name or the religious title commonly used to refer to him.

ANSWER: Tenskwatawa or "the Prophet"

[10] Tenskwatawa's followers gathered to form a village at this place before moving to Prophetstown. This fort also names a 1795 treaty signed by several Native American tribes following Little Turtle's defeat at Fallen Timbers.

ANSWER: Fort Greenville [accept Treaty of Greenville]

[10] Another Native American who preached abstaining from alcohol was Handsome Lake, whose longhouse-based religion of Gai'wiio is still practiced by the Seneca, one of the six nations of this Native American confederacy.

ANSWER: Iroquois Confederacy [or Haudenosaunee] <AmHist, RY>

3. This author wrote about a man who tells his son, Kamal, to show him a single statue of a teacher when Kamal tells him that he wants to attend the Teachers College. For 10 points each:

[10] Name this author of a trilogy of novels titled for the residences of members of the al-Jawad family: *Palace Walk*, *Palace of Desire*, and *Sugar Street*.

ANSWER: Naguib Mahfouz

[10] That trilogy is named for this Egyptian city, which is also the setting of Mahfouz's other novels like *Midaq Alley* and *The Thief and the Dogs*.

ANSWER: Cairo

[10] Kamal befriends a number of these people, angering his older brother Fahmy; he also sees Fahmy's crush, Maryam, waving at one of these people named Julian. These people kill Fahmy at the end of *Palace Walk*.

ANSWER: British soldiers [accept obvious equivalents like British occupation troops; prompt on answers like British or English people] <OLit, RY>

4. Hephaestus is ordered to create this woman to punish humanity for Prometheus's theft of fire. For 10 points each:

[10] Name this woman who is beguiled into opening a jar that unleashes all kinds of suffering into the world. Her daughter Pyrrha survives the great flood.

ANSWER: **Pandora**

[10] To repopulate the Earth, Gaia instructs Pyrrha and her husband Deucalion to throw these symbolic objects over their shoulders; the two understand her to be referring to rocks.

ANSWER: the **bones** of their **mother** [prompt on partial answer]

[10] This culture erected large racks of human skulls at many of their holy sites. In one of their myths, human beings are created by spilling blood onto some bones retrieved from the underworld.

ANSWER: the **Aztecs** <Myth, EK>

5. A painting depicting this figure was exhibited at the Royal Academy with its artist's unfinished poem *Fallacies of Hope*. For 10 points each:

[10] Name this person, who is shown in the eye of a snow storm in a painting created in response to a Jacques-Louis David painting in which this man's name is engraved on a rock in the bottom-left.

ANSWER: **Hannibal** Barca

[10] This 19th-century English artist of *Snow Storm: Hannibal Crossing the Alps* also drew on Carthaginian content in his Claude Lorraine-inspired *Dido Building Carthage*.

ANSWER: Joseph Mallord William **Turner**

[10] Turner's painting *Rain, Steam, and Speed*, which glorifies a "Great Western" company that used these vehicles, shows one of them in motion while a hare is shown running along the track at the left.

ANSWER: **trains** [accept equivalents] <Painting, PC>

6. This scholar examined the role of composers as laborers for Vienna court culture in his *Mozart: Portrait of a Genius*. For 10 points each:

[10] Identify this sociologist, who traced the development of European *habitus* and court etiquette in his magnum opus, *The Civilizing Process*.

ANSWER: Norbert **Elias**

[10] Elias's book *The Quest for Excitement* describes the role these activities played in the civilizing process. James Naismith invented one of these activities, as did the headmaster of Rugby.

ANSWER: **sports** (Naismith invented basketball) [prompt on games or ball games]

[10] Elias noted that "sportification" of culture was contemporary to this phenomenon, which Vladimir Lenin called the "highest stage of capitalism." Edward Said presented *Mansfield Park* as an example of its impact on culture.

ANSWER: **imperialism** [accept **Culture and Imperialism**; do not accept or prompt on "Orientalism"] <Other, WA>

7. Johan Snellman, who advocated for use of this language, introduced the markka currency in the country where it is mostly spoken. For 10 points each:

[10] Name this language which Svecomans tried to unsuccessfully prevent from becoming a national language in the 1800s. Mikael Agricola wrote the *ABC-kiria* to standardize this language.

ANSWER: **Finnish** [or Finnish **Suomi**; prompt on Uralic; Finnic]

[10] Mikael Agricola was the first to translate the second half of this text, which has a King James version, into Finnish. Just 49 copies of the version printed by Johannes Gutenberg survive.

ANSWER: Holy **Bible**

[10] Some of the languages spoken by this minority in Finland were made extinct by Finnish expansion. These people are also native to Norway and Sweden, and many of them herd reindeer for a living.

ANSWER: **Sami** people [or **Lapps**; **Laplanders** (NOTE: These alternate answers are now considered derogatory)] <EuroHist, JZ>

8. Answer the following about soldiers in European literature, for 10 points each.

[10] This German poet wrote several *Letters to a Young Poet* to a military cadet at his *alma mater*. This author's poetry collections include the *Sonnets to Orpheus*.

ANSWER: Rainer Maria **Rilke**

[10] This soldier's misadventures include trekking around Bohemia looking for his barracks and being taken as a POW by his own side. This comic character's name came to be a verb for sabotaging one's superiors with stupidity.

ANSWER: **Svejk** [SH'VAYK] [accept *The Good Soldier Svejk*, written by Jaroslav Hašek]

[10] Ford Madox Ford's *Parade's End* novels are about Christopher Tietjens, who serves as a soldier in this war. It is also the setting of Erich Maria Remarque's *The Road Back* and *All Quiet on the Western Front*.

ANSWER: **World War I** [or the **First World War**; or the **Great War**] <EuroLit, JC>

9. This compound is the most common product of the Beckmann rearrangement, which produces it when beginning with cyclohexanone. For 10 points each:

[10] Name this cyclic amide that contains a seven-membered ring.

ANSWER: **caprolactam**

[10] Caprolactam is used to produce the "6" member of this polyamide family, whose most famous member, known as 6,6 [six-six] was first synthesized by Wallace Carothers and is commonly used in stockings.

ANSWER: **nylon**

[10] Another set of amide linkages that hold substances together are these "bonds" that form from the condensation of amino acids.

ANSWER: **peptide** bonds <Chem, AW>

10. Answer the following about the opening theme of Mozart's Symphony No. 40. For 10 points each:

[10] Like the piece as a whole, it is in this key with two flats in its signature.

ANSWER: **G minor** [do not accept "G"]

[10] It is to be played using this quiet dynamic level abbreviated "p" and contrasted with the loud *forte*.

ANSWER: **piano** [do not accept "mezzo-piano"]

[10] Describe the rhythm of the symphony's first three notes using a combination of the terms "short" and "LONG." As an example, Beethoven's Fifth begins "short short short."

ANSWER: **short short LONG** <Music, EK>

11. Workers in this industry were greatly affected by the shift away from the open field system that resulted from the Enclosure Act. For 10 points each:

[10] Identify this most important industry in medieval British society, as well as pretty much every other medieval society. It involves growing things like wheat.

ANSWER: **farming** [accept obvious equivalents like **agriculture**]

[10] Farm productivity was boosted by this system, which decreased the amount of fallow land by instead planting different plants that would rejuvenate the soil. Its four-way variety was advocated for by Charles Townshend.

ANSWER: **crop rotation**

[10] Charles Townshend was nicknamed for this crop, which formed the four-field crop rotation along with wheat, barley, and clover. Originally, Jack-o-Lanterns were usually carved from this crop and looked much scarier than today's pumpkin lanterns.

ANSWER: **turnips** [or **Brassica rapa**] <Brit/ClassHist, JZ>



12. Answer the following about game theory, for 10 points each.

[10] The dictator game, in which one player alone determines how much of a prize they wish to take and how much they wish to give to another player is a game with this property, in which the gains or losses of one player are exactly balanced by those of the other.

ANSWER: zero-sum game(s)

[10] The hawk-dove game is a game in which it is beneficial for both players to yield, but the optimum strategy ultimately depends on the opponent's move. That is a strategy of this type, the name for which was coined by Maynard Smith in his application of game theory to biology.

ANSWER: evolutionarily stable strategy [accept ESS]

[10] Game theory is often studied using the "dilemma" named for these people, who must choose to either cooperate or defect with each other to reduce their punishment.

ANSWER: prisoners [accept prisoner's dilemma] <OSci, RH>

13. This philosopher was the first to divide propositions using the terms "analytic" and "synthetic." For 10 points each:

[10] Name this philosopher who summarized the conclusions of his *Critique of Pure Reason* in *Prolegomena to Any Future Metaphysics*, which sought to establish the title discipline as a science.

ANSWER: Immanuel Kant

[10] This two-word term, derived from German legal terminology, is the name given to Kant's line of reasoning demonstrating that *a priori* categories correctly apply to the objects we experience.

ANSWER: transcendental deduction [or transcendental analytic; or transcendental analysis]

[10] Kant's "transcendental deduction" is effectively an argument against empiricism and in favor of this philosophical theory, which was summarized by proponent George Berkeley as "to be is to be perceived."

ANSWER: idealism [accept transcendental idealism] <Phil, WA>

14. This poet referenced the religious leader Emanuel Swedenborg with the title of his book *The Marriage of Heaven and Hell*. For 10 points each:

[10] Name this English poet who asked "Did he who made the Lamb make thee?" of the title animal that has a "fearful symmetry" in his poem "The Tyger."

ANSWER: William Blake

[10] Blake's "The Tyger" is included in one of his two collections that are titled for "songs" of these two concepts. One of them refers to a naïve childhood state, and the other refers to a more mature state of mind. Name both.

ANSWER: innocence and experience [accept word forms; accept *Songs of Innocence and of Experience*]

[10] Blake wrote poems about a giant with this name, who is divided into the Four Zoas. This figure has the same name as an ancient word for the island of Great Britain.

ANSWER: Albion <BritLit, RY>

15. Name these countries that used to play host to substantial populations of non-Ashkenazi Jews. For 10 points each:

[10] This country expelled its Jews through the Alhambra decree issued by the Catholic Monarchs. Descendants of its Jewish population are known as Sephardim.

ANSWER: (Kingdom of) Spain

[10] Most Jews in this Arabic-speaking country were airlifted to Israel in Operation Magic Carpet. The story of the Queen of Sheba is based on a kingdom in this modern-day country called Saba, which ruled from Ma'rib.

ANSWER: (Republic of) Yemen [or al-Jumhūrīyah al-Yamanīyah]

[10] The few remaining Jews in this country are guaranteed seats in parliament by this country's constitution, which is based on the religious principle of "guardianship of the jurist."

ANSWER: (Islamic Republic of) Iran [or Jumhuri-ye Eslami-ye Iran] <Rel, WA>

16. In a work titled for these people, seven Ladies dressed in rainbow-themed attire deliver a series of 20 poetic monologues, including one in which the Lady in Green complains “somebody almost walked off wid alla my stuff.” For 10 points each:

[10] Identify these people who “have considered suicide” in a 1976 choreopoem by Ntozake Shange, the second-ever work by a black woman to hit Broadway.

ANSWER: colored girls [accept for colored girls...; accept for colored girls who have considered suicide / when the rainbow is enuf]

[10] In the monologue “positive,” added in 2010, the Lady in Yellow finds out that she has contracted this disease from her lover, who has been seen at gay bars by other Ladies. This disease is central to the play *Angels in America*.

ANSWER: HIV [accept HIV / AIDS; accept Human Immunodeficiency Virus]

[10] This play was the first by a black woman to be staged on Broadway. The 2010 Tony Award-winning *Clybourne Park* is a spin-off of this play, which is set in Chicago.

ANSWER: A Raisin in the Sun [by Lorraine Hansberry] <AmLit, JC>

17. This artist frequently made gigantic prints that were several feet tall, such as the portraits of cowboys, drifters, and others he collected for the exhibit *In the American West*. For 10 points each:

[10] Identify this fashion photographer, who took iconic shots of Marilyn Monroe in May 1957 and December 1958. His photo “Dovima with Elephants” contrasts a fashion model wearing Dior with two pachyderms.

ANSWER: Richard Avedon

[10] Avedon shot a 1969 series of photos of this artist and members of his silver-tinted New York studio; the series included pictures of so-called “superstars” that were omnipresent in this artist’s professional and social life.

ANSWER: Andy Warhol

[10] In 1967, Avedon created the famous “psychedelic” portraits of members of this music group; two years earlier, his photo of one of its members wearing a laurel wreath was captioned by the *Daily Mail* as “Hail, Ringo.”

ANSWER: The Beatles <OArts, WA>

18. Patrick Geddes, a theorist of these places’ design, railed against the “gridiron plan” for them. For 10 points each:

[10] Identify these places that are studied in urban economics. Jane Jacobs wrote about *The Death and Life of Great American ones*.

ANSWER: cities

[10] In urban economics, “agglomeration” benefits that firms obtain from locating near each other are analogized to this similar concept, in which a firm obtains per-unit cost benefits from having greater output.

ANSWER: economies of scale

[10] Standard urban economic theory models this value as decreasing as one travels radially away from the central business district. In economics in general, this word refers to surplus compensation in excess of what it costs to bring a factor of production into usage.

ANSWER: (economic) rent [prompt on price of land or equivalents] <SocSci, WA>

19. It has been shown that salicylic acid can perform a similar activity with this protein. For 10 points each:

[10] Name this protein found in brown adipose tissue that can generate heat without shivering.

ANSWER: thermogenin [or uncoupling protein 1]

[10] Thermogenin was originally called uncoupling protein by preventing this entity from generating a proton gradient for oxidative phosphorylation. This entity, a set of redox reactions, sets up the gradient to power ATP synthase.

ANSWER: electron transport chain [or ETC]

[10] The electron transport chain is the final step in the aerobic form of this process, which also includes the Krebs cycle and glycolysis. It converts glucose into energy for the body.

ANSWER: aerobic respiration <Bio, AW>

20. This kingdom formed out of a revolt encouraged by the McMahon-Hussein correspondence. For 10 points each:

[10] Identify this non-Jordan kingdom ruled by the Hashemite dynasty. It contained a strategically important railway dotted with Ottoman garrisons that was frequently attacked by local tribes.

ANSWER: Kingdom of the Hejaz

[10] The Hejaz was conquered in 1925 by this family, which ran the nearby Sultanate of Nejd. This family still rules the country descended from that state, which has capital at Riyadh and is the largest on the Arabian peninsula.

ANSWER: Saudi Family [or House of Saud]

[10] Saudi Arabia and five other countries formed this transnational organization in 1945. This organization, whose members today include Djibouti and Comoros, has a parliament that recently suspended Yemen.

ANSWER: Arab League [or League of Arab States; or al-Jami'at al-Arabiyyah] <WorldHist, WA>

IF ADDITIONAL BONUSES ARE NEEDED: Report to the tournament director. Then, read a bonus from the tiebreakers packet that the tournament director determines the team has not yet heard.