

# PARFAIT Round 1

Kentucky  
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# 1 Kentucky Tossups, Round 1

1. Among his impressive list of deformities are lameness possibly due to acromegaly, baldness, deafness, periodic fits of epilepsy, an enlarged tongue, an overlarge lower jaw, and borderline insanity that earned him the nickname “Hechizado,” or “The Bewitched.” His mother, Mariana of Austria, prosecuted the war of the Grand Alliance that he ended by signing the Treaty of Ryswick, but more attention was focused on intrigue at court caused by his impotence and inability to sire an heir with Mary Louise of Orleans. For ten points, name this king of Spain whose death in 1700 precipitated the War of Spanish Succession and the Habsburg rule of Spain.

**Answer: Charles II Habsburg accept “Charles the Mad” before “Hechizado,” prompt afterward**

2. He suggested a system of hats to demonstrate the wearer’s moods as the producer of a film about Colonel Shane Yeager shot in Riverside, Iowa. He voices an expert at playing dead in *Over the Hedge* who “must . . . move . . . toward . . . the . . . light,” Ozzie the Possum. He plays a partner at Crane, Poole, and Schmidt, for which he won a best supporting actor Emmy. Harrison Byers from *Judgement at Nuremberg*, Bob Wilson in Twilight Zone episode “Nightmare at 20,000,” are for ten points, all roles played by what actor best known for portraying Captain James Tiberius Kirk?

**Answer: William Shatner**

3. Recorded seven years before its release by a nine-piece which would soon break up, it originally featured 12 songs, including “Budo” and “Deception,” written by the group’s main performer, as well as avocal track , a poorly-sung “Darn that dream.” Derivative of the Big Band sound but slower, more melodic, and tighter, the band takes a “laid back” approach to jazz under the leadership of a trumpeter. A collection of sessions recorded in 1949 and 1950 by Miles Davis and his band, this is, for ten points, what 1957 album whose title suggests the genesis of a new, mellower jazz?

**Answer: The Birth of the Cool**

4. After getting Priestly’s letter describing the the “eudiometer”, which used electric sparks to ignite impurities in air, he made a “hydrogen pistol,” which used a mixture of turpentine and wax called an “electrophore” to hold a static charge; experiments with that device allowed him to discover the flammable properties of methane. His chief clam to fame, however, is his refutation of a Bolognese physicist who claimed that, because frog legs jumped when touched with dissimilar metals, animals contained electrecity. For ten points, name this Italian who gave stacked discs of silver and zinc a regular electrical current, thus inventing his namesake pile, the first battery and thus refuted Galvani’s theory.

**Answer: Alessandro Volta**

5. A historical ostler of the same name appears on the Subsidy Rolls and represented Southwark in Parliamment in 1380. He regrets not having a wife like Prudence and Madame Eglantyne reproves him for the oath “By God’s Dignity.” He insults a man who says “your sins may God forgive” before pawning off worthless relics, and because he cuts short two

of his travelling companions because their narratives bore or depress him, they'll certainly not get the free dinner promised to the most entertaining story after the return to his Tabard Inn. For ten points, name this master of ceremonies in Chaucer's *Canterbury Tales*.

**Answer:** Harry Bailley (accept either name and "Host" before "Tabard")

6. If some language in NE and coNE [koh-"any"] requires exponential sized circuits, then it and its complement contains graph isomorphism. Its complement also contains TAUTOLOGY and along with this class, contains the problem of factorization. Karp proved that STEINER TREE, HITTING SET, VERTEX COVER, CLIQUE, and twenty-one other problems were complete for it, building upon Stephen Cook's 1971 paper showing that SATISFIABILITY is complete for this class of problems solvable in nondeterministic polynomial time. For ten points, what is this class that if distinct from its complement is not equal to problems that can be solved in deterministic polynomial time, aka P?

**Answer:** Nondeterministic Polynomial Time

7. This philosophy denounced those who used precedent to ignore current situations, rhetoricians in foreign pockets, mercenaries, draft dodgers, and dodgy salesmen as the "five vermin." Wei<sub>1</sub> Yang<sub>3</sub>, a defector to the Qin<sub>2</sub>, authored an early work creating the theories of Ding<sub>4</sub> Fa<sub>3</sub>, establishing precepts, and yi<sub>1</sub> min<sub>2</sub>, unity of many, in the Book of Lord Shang<sub>1</sub> to create a stable, balanced, and harmonious state of farmers, soldiers, and rulers. Elaborated by the author of the namesake *Han<sub>2</sub> Fei<sub>1</sub> Tzu<sub>3</sub>*, for ten points name this Chinese philosophy which drew its name from its argument that the best way to govern was through swift, steady, and certain application of strict laws.

**Answer:** Legalism or Fa<sub>3</sub>jia<sub>1</sub>

8. Of the three people who used them during the Shang dynasty, two used *ge* and one used a *gongxing qi*, the purpose of which is still undetermined. The *Mahabharata* describe flying ones called Vimanas, and they were a key element in the Hyksos invasion of Egypt. The Egyptians, however, mastered the technique of building them out of leather and wood and moved the axle to the rear, relieving stress and making it more maneuverable. Although the Romans new of them through the Etruscans, their use was limited to show and recreation. For ten points, name these horse-drawn war vehicles raced by Ben Hur.

**Answer:** chariots or yu<sub>4</sub>

9. Part of it is addressed by the case *Kentucky v. Dennison*, which held that the extradition provision it specifies for those who commit treason as well as those sentenced to labor against one state and flee to another state could not be employed by the federal government. The formation of West Virginia violated Section 3 of it, which specifies that new states could not be formed or erected within the jurisdiction of another state, while *Mills v. Duryee*, *Hampton v. McConnell*, and *Stoll v. Gottlieb* specified the Full Faith and Credit clause found in Section 1. For ten points, what article of the Constitution ensures that a republican form of government be guaranteed in each state?

**Answer:** Article IV

10. The title feeling could apply to Byron's Lara, Lucifer, or to the student who discusses these characters with her boyfriend before straddling a motorcycle provocatively and

leaving Cape Technical University for the last time of as a student. A better candidate is the professor himself, who is set on fire and knocked unconscious after being fired for seducing Melanie Isaacs, but by far the most obvious candidate is Professor David Lurie's daughter, Lucy, who is brutally gang-raped but remains silent and marries a relative of one of the rapists. They all encounter, for ten points, what unpleasant status in the author's second novel to win a Booker prize, written by J.M. Coetzee?

**Answer:** Disgrace

11. He translated Dostoyevsky to French and was fascinated by the *acte gratuit*, an act to assert one's individuality, as seen in his *Lafcadio's Adventures*. While a communist mayor of La Roque, he wrote *Fruits of the Earth*; he wrote of his dissatisfaction with Soviet Russia in *Return from the USSR*. After being rebuffed, he married his cousin Madeleine in 1895, which mirrors George Molinier's refusals of the attentions of Edouard X, the principal character of this author's *The Immoralist*. For ten points, name this author who in 1947 received the Nobel prize in literature for such works as *The Counterfeiters*.

**Answer:** Andr-Paul-Guillaume Gide

12. Zeus tried to justify his torture with the lie that Athene invited him to Olympia for a secret love affair. Medea later used his blood in the potion which made Jason invulnerable to fire. A vow made by Zeus on the river Styx forced him to wear the first ring, and he accepted Cheiron's immortality so the latter could be killed by Heracles, who was allowed to break the chains binding this Titan to the Caucasus. For ten points, name this god whose liver feeds vultures and who gave man fire.

**Answer:** Prometheus

13. This author's experience in the RAF during World War II influenced his first published short story, *Shot Down Over Libya* and the 1946 short-story collection *Ten Stories of Flyers and Flying*. His macabre short stories include "The Landlady" and "Man from the South," and his autobiography *Boy: Tales of Childhood* recounts the brutal corporal punishment at English boarding schools, but it was another episode from his childhood, the taste-testing of new chocolates by pupils at the Repton school, that inspired his most popular book. For ten points, who is the Welsh-born author of *The Gremlins*, *The BFG*, *The Witches*, and *Charlie and the Chocolate Factory*?

**Answer:** Roald Dahl

14. Its culture centered around the worship of the lion-headed god Apademak and was ruled by queens called "royal mother," rendered in Greek as *Kandake* or "Candace." Originating from the city of Kerma, its complicity with the Hyksos and incursion into Northern Nubia caused Egypt to destroy Kerma in the 1500s BCE, though it rebuilt its power from its capital of Napata and – under Piankhy and Shabaqo – invaded Egypt itself in the 700s, ruling as the 25<sup>th</sup> dynasty. For ten points, name this African empire to the south of Egypt that absorbed Egyptian culture and shares its name with the last syllable of a central Asian mountain range.

**Answer:** Kush

15. It begins when its namesake "promoting complex," with constituent Cdc23p, binds to mitotic cyclin, at which point securin is suppressed and separase can cleave cohesin,

which had been hitherto responsible for holding sister chromatids together. The next event during this stage of mitosis is the separation of chromosomes and the movement of each chromatid toward the microtubule clusters on opposite ends of the mitotic spindle, close to the poles of the cell. For ten points name this third stage of mitosis, preceded by metaphase and followed by telophase.

**Answer:** Anaphase

16. The Eastern Orthodox believe he was a member of the Marmaritae tribe who like all of his people had the head of a dog and was impressed and killed by the Romans at Antioch. Catholics believe he was born a giant named Offerus or Reprobus; although initially a servant of Satan, he switched masters when the dark lord proved afraid of a cross, and came into God's service after Christ turned his staff into a palm tree. For ten points, who once offered to ferry a young Christ across a river, thus acquiring his name meaning "bearer of the Messiah," and has become the patron saint of travelers?

**Answer:** Saint Christopher

17. In the top left are five scullers and a yacht; in the foreground is a man in billed cap and sleeveless singlet smoking a clay pipe, sorely out of place with other upper class denizens like a woman with a pet monkey. Less important than contents of the picture of leisure-seekers in a public park upstream of Asnieres and Clichy, however, is the use of small dots that at a distance form a continuous picture. For ten points, this is what pointillist painting by Seurat depicting a landmass in the Seine?

**Answer:** Sunday Afternoon on the Island of La Grande Jatte or Un dimanche après-midi l'Ile de la Grande Jatte accept other reasonable English equivalents, provided they contain both "Sunday" and "La Grande jatte")

18. A Punic-based dialect in the south and its former name of "Hyknusa" led to speculation that it was settled by Semitic Peoples, but genetic tests reveal its Semitic elements come from the Carthaginians who ruled the island until the First Punic War. Its highest point is Mount La Marmora and since its occupation by Aragon its flag has borne four Moor's heads, similar to that on a nearby island to the north separated from it by the Strait of Bonifaccio. Administered from its regional capital at Cagliari, for ten points name this island, the second largest in the Mediterranean behind Sicily, which unlike Corsica is now part of Italy.

**Answer:** Sardinia

19. It's made possible when a neutron replaces a proton in a nitrogen atom. Uncalibrated data collected by this method is given in units of years BP or Before Present, where the present is 1950, the last year the atmosphere remained uncontaminated by nuclear tests. Revisions suggest a half-life of 5730 years plus or minus 40, the so called "Cambridge half-life." Only accurate to 50,000 years, for ten points name this process by which the "Libby half-life" measures the decay of a radioactive isotope to determine how much time has passed since and organism died.

**Answer:** radiocarbon dating (accept Carbon 14 dating)

20. Gathering eight thousand regulars and three thousand militia despite a defeat three weeks earlier, the losing general ordered Nathaniel Greene to attack the right flank. Problems

emerged on the Shippack Road, where enemy troops hiding in Judge Chew's house delayed the main force. Fog caused Wayne's and Stephen's brigades to fire at each other, and both retreated. Howe's troops, still ebullient over the victory at Brandywine, repelled Washington's early morning sneak attack. For ten points name this October 4<sup>th</sup>, 1777 battle in a suburb of Philadelphia named for its teutonic residents.

**Answer:** Germantown

21. After its 1990 release, it made an unexpected name for its director in such unlikely places as *iMovie*; its director's dramatic use of still shots by narrowing group pictures to one individual or slowing panning across an image led to the "effect" named after a co-founder of Florentine films. It featured voice-overs from actors Jason Robards, Jeremy Irons, Morgan Freeman, and Sam Watterson, in addition to Arthur Miller, Garrison Keillor, and David McCulloch, but most notably featured the narration of Shelby Foote. For ten points, name this groundbreaking PBS documentary by Ken Burns covering an event of the 19<sup>th</sup> century.

**Answer:** The Civil War

## 2 Kentucky Bonuses, Round 1

1. For several years during the 1880s there was no Vice President. For ten points each. . .
  - 10 Following the elevation of Chester Alan Arthur in 1881, there wasn't a VP until the election of Grover Cleveland and this man who only lasted a couple of months.  
**Answer: Thomas Hendricks**
  - 10 Hendricks had almost become VP earlier as running mate to this man, who "lost" the election of 1876 to Rutherford B. Hayes.  
**Answer: Samuel Tilden**
  - 10 There was no VP again until this man was elected as Benjamin Harrison's.  
**Answer: Levi P. Morton**
  
2. He created *Odalisque with Magnolias* and his last work was *Souvenir of Oceania*, a mural combining paint, crayon, and cut paper for ten points each.
  - 10 Also influenced by Cubism, Japanese prints, Persian ceramics, and Arabic tiles, name this fauvist painter from Le Cateau who painted *Blue Nude* and *The Red Room*.  
**Answer: Henri Matisse**
  - 10 A woman playing two recorders at once is at the foreground of this Matisse work that shows reclining figures keeping each other company while a shepherd takes care of the goats and 6 people join in a circular dance in the center background.  
**Answer: The Joy of Life or Le Bonheur de Vivre**
  - 10 Matisse completed a painting of his wife Amelie in this color wearing a hat, using broad brush strokes to paint the stripes that run across her forehead and nose.  
**Answer: green**
  
3. Answer the following questions about an island, 10 points each.
  - 10 This Frisian island, it received its name meaning "Sacred Territory," for the temple of Forseti located on it which was once thought to repel invaders.  
**Answer: Helgoland (accept "Heligoland")**
  - 10 Helgoland is located in one of these geographical features, a bend or curve in the coastline sometimes resulting in a wide open bay, in this case opposite the Elbe. Others are the Biafra and the "Great Australian."  
**Answer: Bight**
  - 10 Helgoland is part of this German *Bundesl nd* lying on the Jutland Peninsula, whose capital is Kiel.  
**Answer: Schleswig-Holstein**
  
4. On the death of Augustus the Strong war broke out between the French supporters of Stanislas I Leszczynski [lezh-in-skee] and Russians, Austrians, and Prussians supporting a rival candidate. For ten points each. . .

10 Name this war fought from 1733 to 1738.

**Answer: War of Polish Succession**

10 Stanislas I abdicated and received the Duchy of Lorraine, Don Charles gave up Tuscany and Parma but was confirmed king of Naples and Sicily by means of this treaty which ended the War of Polish Succession.

**Answer: Treaty of Vienna accept Wiener Vertrag**

10 By Stanislas's concession this son of Augustus the Strong was named king of Poland.

**Answer: Augustus III or Frederick Augustus II of Saxony prompt on "Augustus" or "Frederic Augustus", but do not accept "Augustus II"**

5. Written during the 14<sup>th</sup> century, they consist of a selection of three warriors from the Classical, "Old Testament," and Christian eras who best personify the ideals of Chivalry. For ten points each. . .

10 Name this collection by Jean de Longuyon in his *Wishes of the Peacock*.

**Answer: Nine Worthies**

10 From the "Old Testament" times the selection was this warrior king, who "had slain his tens of thousands," including a giant.

**Answer: David**

10 From the Christian era this man was chosen, the master of such men as Ogier the Dane and Roland.

**Answer: Charlemagne**

6. Nominated for a Best Foreign Language Film Oscar in 2003, this picture tells the story of a cunning martial artist who claims to have killed a gang of assassins threatening the Emperor of what would become China, though his account is progressively questioned. For ten points each. . .

10 Name this film directed by Yimou Zhang.

**Answer: Hero or Ying Xiong**

10 She played Moon in Hero, Bai Ling in *2046*, and will play Sayuri Nitta in the upcoming *Memoirs of a Geisha*.

**Answer: Ziyi Zhang**

10 Much of the story of *Hero* is told and retold through a series of changing flashbacks reminiscent of this film, the winner of 1952's Best Foreign Language.

**Answer: Rashômon**

7. Edward Young's *Night Thoughts* and Thomas Parnell's "Night Piece on Death" are examples of for ten points each. . .

10 What group of poets who took their name from the most famous poem of Robert Blair?

**Answer: Graveyard poets**

10 This Graveyard poet wrote *The Highlander* and several real translations from Gaelic but is better known for *Fingal*, an alleged translation of Ossian but more likely his own creation.

**Answer: James MacPherson**

10 This Graveyard poet's pieces include "On a Distant Prospect of Eton College," "On a Favourite Cat, Drowned in a Tub of Gold Fishes," and "Elegy Written in a Country Church Yard".

**Answer: Thomas Gray**

8. Named for the Italian physicist who first observed it, this effect relates how the speed of a liquid in a pipe whose diameter is diminished will increase as its pressure decreases. For ten points each. . .

10 Name this effect, whose namesake discoverer also invented an eponymous pipe to measure it whose diameter gradually tapers to a very restricted throat, causing the liquid inside to flow much faster as it passes through the throat.

**Answer: Venturi effect (for reasons about to be made obvious, do not prompt on "Bernoulli")**

10 The Venturi effect is a specific example of this principle named for a Swiss scientist which describes how, for negligibly compressible fluids with laminar flow, speed of flow will increase as pressure is decreased due to restriction.

**Answer: Bernoulli effect**

10 The Venturi effect is used extensively by this device, which regulates fuel supply in an automobile based on air intake.

**Answer: carburetor**

9. Name these Bancroft-award winning authors for ten points each.

10 Librarian of Congress from 1975 to 1987, his *The Colonial Experience* won the Bancroft; the third part of his *The Americans, The Democratic Experience*, would also win him a Pulitzer.

**Answer: Daniel J. Boorstin**

10 Also the winner of the 1968 Pulitzer for his Memoirs, he won the Bancroft Prize for *Russia Leaves the War: Soviet-American Relations, 1917-1920* and was the formulator of "Containment."

**Answer: George Kennan**

10 The Bancroft is awarded annually by the Library of what Ivy League University?

**Answer: Columbia University**

10. After the death of his father, a young man is invited to a tea ceremony by his father's former mistress to see a girl she wants him to marry, but this is disrupted by the attendance of another mistress and her daughter. For ten points each:

- 10 Name this novel, one of the best known of Kawabata Yusinari.  
**Answer: Thousand Cranes (accept *Sembazuru*)**
- 10 Name the protagonist of a *Thousand Cranes* who himself gets involved with Mrs. Ota and her daughter Fumiko.  
**Answer: Kikuji Mitane**
- 10 The Master of Tea and rival of Mrs. Ota, Chikako has a birthmark on this body part that leaves an impression on Kikuji.  
**Answer: breast (accept equivalent)**
11. Being loved by a greek god could be a transformative experience. Name these objects of divine lust whose physical shapes were changed whose stories are related in Book I of Ovid's *Metamorphosis*, for ten points each.
- 10 Taunted by Apollo for playing with a bow, Eros shot Apollo and instilled in him a great passion for this daughter of the river Peneius, who fled and was turned by her father into a laurel tree to escape.  
**Answer: Daphne**
- 10 The daughter of the river Inachus and priestess of Hera, she was changed into a cow by Zeus to escape the jealousy of Hera and briefly imprisoned under the watchful eye of Argus.  
**Answer: Io**
- 10 Argus was lulled to sleep by Hermes whose stories included the sad tale of this Hamadryad who fled the arms of Pan and was transformed to a reed to get away. To remember her, Pan fashioned a pipe out of reeds that bears her name.  
**Answer: Syrinx**
12. Name these Mexican military leaders for ten points each.
- 10 Sent to fight an uprising by Vicente Guerrero, he joined him instead to issue the Plan of Iguala calling for Mexican independence under a monarch, and signed the Treaty of Cordoba. Declaring himself emperor, he was overthrown by Santa Anna.  
**Answer: Agustin de Iturbide**
- 10 He supported Juarez in the War of the Reform and attempted military coups in 1867 and 1871 before succeeding against Sebastian Lerdo de Tejada. After reelection, he secured passage of an unlimited term amendment and remained in power until Madero.  
**Answer: Porfirio Diaz**
- 10 He joined the Mexico City army in rebelling against Madero and had him shot, but saw Veracruz occupied by the US and uprisings led by Carranza, Villa, and Zapata. He fled to Spain, but was later arrested in the US and died in Fort Bliss, El Paso.  
**Answer: Victoriano Huerta**
13. Identify these operas from clues on a 15-10 basis.

- 15 Papal censorship and a crappy libretto by Léon de Wailly and Auguste Barbier encouraged its composer to write all of his later libretti; he later reused the duet between the title character and Teresa in his his *Roman Carnival* Overture.
- 10 Composed by Hector Berlioz, it was based on the life of a Renaissance goldsmith.  
**Answer: Benvenuto Cellini**
- 15 Afraid of rumors about the undue length of this opera, the composer split it into two parts and sacrificed the aria “Malhereux Roi,” sung by Cassandra in the first act. The aria “Royal Hunt and Storm” is in Act IV.
- 10 For this opera Berlioz wrote his own libretto based largely on book 1 of the *Aeneid*.  
**Answer: Les Troyens (accept The Trojans)**
14. Identify the following women from the Bible from clues, 10 points each.
- 10 When king Ahasuerus, or Xerxes, tires of his wife, he asks to wed Hadassah, daughter or Mordecai, and gives her this name, a derivative of the Akkadian word for star. As his wife, she defends the Jews from Haman.  
**Answer: Esther**
- 10 This wife of Lappidoth sits under a tree between Bethel and Ramah and delivers judgement for her fellow Hebrews and helps Barak defeat the Canaanites at Mount Tabor.  
**Answer: Deborah**
- 10 She accompanied Naomi and won over the reluctant heart of the prosperous Boaz in Bethlehem.  
**Answer: Ruth**
15. Identify the following about an American poet, for ten points each.
- 10 After a suicide attempt, her therapist suggested she write poetry in works like *Transformations*, *Death Notebooks*, and the 1967 Pulitzer winner *Live or Die* before she finally succeeded at suicide in 1974.  
**Answer: Anne Sexton**
- 10 Like Lowell, Plath, and Berryman, Sexton is counted among what poetry movement known for personal reflections, recounting of private pain, and exploration of madness?  
**Answer: Confessional Poets**
- 10 This posthumous Sexton collection includes “The Civil War”, “The Room Of My Life”, “Doctors”, “Sickness Unto Death”, and “The Witch’s Life” bookended by an introductory and concluding poem suggesting the title maritime activity.  
**Answer: The Awful Rowing Towards God**
16. Identify the plots involving the Stuart family and the throne of England for ten points each.

- 10 William Russel and Algernon Sidney were executed for this plot to kill Charles II and James as they passed by this establishment.

**Answer:** Rye House Plot

- 10 Mary's son, James I, was the intended victim of this most famous conspiracy in English history warmly commemorated every fifth of November, when an effigy of its leader is burned.

**Answer:** Gunpowder plot

- 10 Two years earlier, two related intrigues known as the Bye and Maine plots led to the implication and long imprisonment of this explorer who would be executed in 1618.

**Answer:** Sir Walter Raleigh

17. Answer the following about the Euler totient function for ten points each.

- 10 For a prime number  $p$ , give the value of  $\phi(p)$  [fee "of"  $p$ ] in terms of  $p$ .

**Answer:**  $p - 1$

- 10 If  $\phi(mn) = \phi(m) * \phi(n)$ , then what is the greatest common divisor of  $m$  and  $n$ ?

**Answer:** 1

- 10 Euler proved that for a prime  $p$ , it has  $\phi(\phi(p))$  [fee "of" fee "of"  $p$ ] of these numbers modulo  $p$  such that  $g(\text{mod } p)$  has modulo order  $p - 1$ .

**Answer:** primitive root

18. It can be a component of quinone and sulfa drugs, but is mostly used in mauve dyes. For ten points each:

- 10 Name this chemical with formula  $C_6H_5NO_2$ .

**Answer:** aniline (accept also "phenylamine" or "aminobenzene")

- 10 He helped lay the foundation for the aniline dye industry with William Perkin 1858. With Charles Mansfield he helped isolate benzene from coal tar.

**Answer:** August Wilhelm von Hofmann

- 10 Friederich Runge's investigation of aniline led him to develop this technique of determining the composition of a substance based on differing reactions to a solvent undergoing capillary action in a medium.

**Answer:** paper chromatography (prompt on "chromatography", but do not accept "thin layer chromatography")

19. Pigou argued that they should be taxed so as to make those who caused them pay their cost. For ten points each. . .

- 10 Name this economic effect that impacts stakeholders but not necessarily the actor; examples include pollution or vaccinations.

**Answer:** externality

10 He argued that, in the absence of transaction costs, it doesn't matter how property rights are assigned; firms will negotiate contracts to correct externalities.

**Answer:** Reginald Coase

10 Assuming imperfect information, Pigou gives an example of how taxation might create a solution better than the "natural" one for roads connecting three cities in this 1939 work.

**Answer:** The Economics of Welfare

20. The first enzyme of beta oxidation, acyl coA dehydrogenase, transfers electrons to FAD, then to ETF, which passes them via an oxidoreductase to this for ten points each.

10 Reduced by the oxidation of glycerol 3-phosphate to DAP and G3P for glycolysis, and by NADH from the Krebs cycle delivering to complex I, name this electron carrier.

**Answer:** ubiquinone

10 In this process in complex III, 2 ubiquinols each donate 1 electron to cytochrome c via the myxothiazol-inhibited b<sub>L</sub> heme P site and 1 electron to another ubiquinone via the antimycin A-inhibited b<sub>H</sub> heme N site, recycling the ubiquinone.

**Answer:** Q cycle

10 Ubiquinone is a carrier for this complex of proteins that use energy derived from NADH oxidation to pump out protons, carrying out oxidative phosphorylation.

**Answer:** electron transport chain