

PARFAIT III Round 14

Truman State

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1 Truman State Tossups, Round 14

1. Early in his career, this physicist worked on both optics and cosmic rays. He then moved onto nuclear physics, where he demonstrated experimentally the existence of K-electron capturing in nuclei. He is particularly known for his decisive contributions to elementary particle physics. During World War II, he primarily worked on radar systems, although he also flew as a scientific observer of the explosion at Hiroshima. For ten points, name this 1968 winner of the Nobel Prize for physics, whose discovery of a large number of resonance states was made possible through his development of the technique of using the hydrogen bubble chamber along with data analysis.

Answer: Luis Alvarez

2. Due to his nation's lack of appreciation for operatic works, some of his best known contributions to the stage are the incidental music for over 40 plays, including and Congreve's comedy *The Double Dealer* and S. Behn's *Abdelazar*. Serving as the organist for Westminster Abbey and composer in the court of Charles II, he composed five semi-operas including *King Arthur* and *Indian Queen*, both to be played to texts by Dryden. While his most famous piece was written on commission for a girls school in Chelsea, he also composed *Te Deum* and *Jubilate for St. Cecilia's Day* and music for a birthday party of Queen Mary II. For ten points, name this great English composer of the opera *Dido and Aeneas*.

Answer: Henry Purcell

3. Before proving this theorem, one begins by showing that any bounded monotonic sequence of real numbers converges, which follows for the real numbers by the least upper bound property. The arbitrary sequence in question is not necessarily monotonic, but since it is bounded, it has a monotonic subsequence, and therefore a convergent subsequence. This gives the first half of the theorem, showing that any subsequence of a sequence over a bounded, closed subset A of the real numbers converges to a value within that set. For the other direction, first show that, if all sequences over a given space converge to a value in that space, then it must be closed. To finish off the proof, assume that the subset is not bounded and then create a subsequence of A which converges to something outside A , which is a contradiction. For ten points, you've just proven what theorem stating that a subset of \mathbb{R} is sequentially compact if and only if it is bounded and closed.

Answer: Bolzano-Weierstrass theorem

note: sequential compactness is completely different from compactness, thus you certainly cannot accept Heine-Borel Theorem

4. The title character claims that his grandfather died by bouncing up into the clouds on his rubber shoes, and tells the narrator that he "can make soups you've never heard or thought of." That narrator is planning to open a lignite mine, but before he leaves is approached by the title character in a café, who asks him for work and professes his expertise in numerous kinds of manual labor, as well as playing the santuri. The narrator and the title character discuss various topics while staying at Madame Hortense's hotel on Crete. The story of an eccentric countryman of the author, this is, for ten points, what novel by Nikos Kazantzakis?

Answer: Zorba the Greek or Vios kai politia tou Alexi Zormpa

5. After Robert Penn Warren's term, this author served as Poet Laureate Consultant to the library of Congress; it was also the first time that title was changed from "Poetry Consultant". The author published *Eventide* at age sixteen, and only produced one novel, *Maud Martha*. One poem tells about a mother searching for her lost daughter in a block-long tenement house, only to find the daughter murdered under a Jamaican resident's cot. Another tells of "the ugliest little boy that everyone ever saw" who is pointed out as "the real thing" by a moviegoer. For ten points name this female author of *Annie Allen*, the first African-American to win the Pulitzer Prize, and author of "we real cool".

Answer: Gwendolyn Brooks

6. Victory at the Battle of Covadonga and the development of a stronghold at Oviedo marked its beginning in 718 AD as the Christian resistance held strong in the northern mountainous regions and the Kingdom of Asturias was established. This struggle sought to evict the Umayyad Caliphate and the entire Moorish presence from the Iberian Peninsula in order to re-establish a Christian Iberia. For ten points, name this long struggle, completed in 1492 with the surrender of Boabdil of Granada to King Ferdinand and Queen Isabella.

Answer: The or La Reconquista or the Christian Reconquest or clear knowledge equivalent

7. A short section of his short story "The Great Wall of China" was published separately in 1919 as "A Message from the Emperor". Similarly, the collection "A Country Doctor", contains an independently published piece of a later novel, "Before the Law". His three most famous works were published posthumously by Max Brod, one of which features Fräulein Bürstner and a man accused by a mysterious legal authority of a crime he knows nothing about. For ten points, name this Prague-born author whose characters include Joseph K and Gregor Samsa can be found in such works as *The Trial* and *The Metamorphosis*.

Answer: Franz Kafka

8. The name's the same. One man married Bertha of Maurienne, and his later attempt to divorce her was blocked by Pier Damiani. Two of his antikings were Rudolf of Reinfelden and Egbert II, and among his many enemies were his first putative successor Conrad, and his second successor who was temporarily defeated, but he died soon after the battle. Another married Marguerite of Valois and later Marie de' Medici, and famously declared that "Paris is well worth a Mass," but was murdered by Francois Ravallac. The other wasn't so happy with the Church's power, and tried to depose Pope Gregory VII. For ten points, give the shared name and regnal number of the Holy Roman Emperor who repented at Canossa and the French issuer of the Edict of Nantes.

Answer: Henry IV (one Holy Roman Emperor, one King of France)

9. He held that there were two types of knowledge, genuine and obscure. Obscure learning came from sense-perception and was thus to be distrusted; genuine knowledge came from the intellect and was true. His philosophy was largely a response to that of his fellow townsman, Protagoras. He was not as well-known, however, and while Protagoras was enthusiastically received by the Athenians, he found that none of them had heard of

him. History has been kinder, and his name is usually mentioned in high school chemistry classes in connection with the theory he helped to develop. FTP, name this Greek philosopher who believed that all things are made of small, indivisible parts; and who, with his teacher Leucippus, founded atomism.

Answer: Democritus

10. Otto Loewi first isolated this by zapping the vagus nerve on a frog heart until the heart slowed, then collecting the fluid around the heart. Creatively, he named it “vagusstoff”. Loewi and Henry Dale both received the Nobel Prize, after Dale identified and renamed vagusstoff as this. The disease myasthenia gravis occurs when the body produces antibodies to its receptor. Sarin gas irreversibly inactivates the enzyme that degrades it; atropine and curare compete for its receptor; botulism toxin prevents vesicles containing it from fusing with the post-synaptic membrane at neuromuscular junctions. For ten points name this neurotransmitter, an ester of acetic acid and choline.

Answer: Acetylcholine (don't accept anything with 'ester' in the name), or 2-acetoxy-N,N,N-trimethylethanaminium

11. The male protagonist of this novel expresses an ardent but empty interest in ballet, a reflection of his inability to seriously pursue love. Notable scenes involve the main character reflecting on weaving linen, a drunken encounter with a geisha, and the Milky Way. The reader has to untangle the implications that Yukio took Yoko as a nurse-slash-lover, ditching Komako, who is again ditched by Shimamura. Originally the book was to end with Shimamura listening to a bell and hearing pine trees in the sound. The novel actually ends with a fire in a cocoon warehouse, and Yoko falling through the flames. Seidensticker's horrible translation does injustice to, for ten points, what book about visiting geishas in winter by Yasunari Kawabata?

Answer: (Snow Country or Yukiguni)

12. Important sites in this city include the Monastery of the Caves and the Golden Gate, constructed by Yaroslav the Wise. Straddling both sides of a river which contributed to the city's wealth, it was almost destroyed by a Mongol invasion in 1240; later on, it found itself at various times as part of Lithuania, Poland, Russia, and even its own independent republic briefly in the early 20th century. As a center of East Slavic culture, it also has several famous buildings, such as the St. Sophia Cathedral. Located on the Dnieper River, name, for ten points, this city whose population speaks mostly Russian despite being the biggest city of the Ukraine.

Answer: Kiev

13. He gets a letter saying “your medium for genuine self-confrontation is me” from the creation of writer Peter Tarnopol in *My Life As a Man*. His identity is stolen when he covers the trial of John Demjanjuk in Israel in *Operation Shylock*, and his brother Sandy takes part in the Bengelsdorf-backed Just Folks program to reeducate Jews when Lindbergh becomes president in his book *The Plot Against America*. Better known as the creator of his alter-ego Nathan Zuckerman, who appears in *I Married a Communist*, *American Pastoral*, and *The Human Stain*. For ten points, name this author who didn't place himself in *Portnoy's Complaint*.

Answer: Philip Roth

14. Its sulfate form was sold under the name Legatrin and used to treat lower body pain and cramps, though it first became famous for treating tertian fevers. Mutations in the PFCRT gene result in resistance against this drug's derivatives. In 2001 Gilbert Stork published the first stereoselective total synthesis of this molecule, but the process was so complicated that nobody bothers to artificially make this; instead it is extracted from natural sources. It was banned as an OTC drug, possibly because overdosing can lead to fatal cinchonism. For ten points name this antimalarial drug.

Answer: Quinine or (2-ethenyl-4-azabicyclo[2.2.2]oct-5-yl)- (6-methoxyquinolin-4-yl)-m

15. Their rulers were listed with special markings and without cartouches in the Turin Royal Canon, though other royal lists usually left off rulers like Auserra Apophis entirely. The Theban king Seqenenre II began a long struggle to defeat them completed by Ahmose in 1532 BC. Their rule during the Second Intermediate period made Egypt more open to foreign influences and bronze became more prevalent. For ten points, name this civilization of the Levant which took Lower Egypt in 1640 BC and introduced the composite bow, scale armor, and war chariots while ruling from their capital at Avaris.

Answer: Hyksos

16. Because it was unclear when he was born both "Baisakh" and "Kattak" were written on slips of paper, placed in front of a book, and a boy who had been washing himself in a sacred tank was asked to pick one. He got Babur to release the prisoners he had taken at Saidpur as related in the B40 janam Sakhi, which relate the chronicles of his life. Succeeded by Angad after judging his two sons unworthy, his other successors include Har Gobind and Gobind Singh. For ten points, name this first Guru of the Sikh religion.

Answer: Guru Nanak Dev

17. Some of his more well-known commissions were the Churches of San Giorgio Maggiore and Il Redentore in Venice while the first modern example of integrated landscape and building can be seen in Vicenza's Villa Capra, a.k.a. The Rotonda. Inigo Jones notably translated to English his treatise, *Four Books of Architecture*. For ten points, name this Italian architect whose original style incorporating classical elements has been highly influential in Western architecture.

Answer: Andrea Palladio

18. Installed in 2006, one of his most recent projects, called "Spring", is located at the beginning of a stream in Seoul, South Korea. One of his first projects was the aptly named "Trowel I" in the gardens of the Rijksmuseum. Other notable works include "Floor Burger" and Kansas City's "Shuttlecocks", and he has often collaborated with his wife Coosje van Bruggen. For ten points, name this Swedish-born American sculptor, whose creations of public art typically involve everyday objects being put into larger-than-life contexts.

Answer: Claes Oldenburg

19. This former football star was born in Dubuque and is known for multiple firsts in football. Although he played halfback, he was well-known for his versatility and had many nicknames, including "Genius of the Gridiron" and "the One-Man Team." After graduating

from his high school in Iowa, he went on to have an acclaimed career in the Big Ten, even giving eventual President Gerald Ford a scar. Despite being picked first in the NFL draft, he did not play in the league, becoming a salesman and occasional sports column writer instead. For ten points, name this man, a former star at the University of Chicago and first winner of the Heisman Trophy.

***Answer:* Jay Berwanger**

20. This son Acastus would reclaim this mans throne from his usurper half-nephew, after he had fallen out of favor with the gods. His mother Tyro was infatuated with the river god Enipeus, and was impregnated by Poseidon. Warned by the Oracle of Delphi of a stranger wearing only one sandal, when this king encountered such a stranger, he had him name his own destiny. That stranger was the aforementioned half-nephew, whose father he had banished to Iolcus along with this mans other half-brother Pheres and full-brother Neleus. He would be killed by the good intentions of his own daughters after Medea magically turned an old ram into a young ram. For ten points, name this man who, at Jasons own request, sent him questing after the Golden Fleece.

***Answer:* King Pelias**

21. He served as an apprentice to William Bradford, the printer of the New York Gazette, before becoming printer and editor of the New York Weekly Journal. His newspaper became notorious for including articles criticizing the controversial actions of New York Colonial Governor William Cosby who eventually had him imprisoned on charges of seditious libel. After the disbarment of two other lawyers who had attempted to defend him, he hired Philadelphia lawyer Andrew Hamilton, and won his case. For ten points, identify this man whose court victory established truth as a defense against libel charges.

***Answer:* John Peter Zenger**

2 Truman State Bonuses, Round 14

1. For ten points each, identify the following about the Little Rock Nine.

10 In 1957, the Little Rock Nine became the first to integrate what Arkansas high school?

Answer: Little Rock Central

10 They were initially prevented from entering the school when this Arkansas governor called out the National Guard to stand against them.

Answer: Orval Faubus

10 The eldest of the Little Rock Nine, he was the first to graduate from Little Rock Central High School and the subject of a 1993 TV movie.

Answer: Ernest Green

2. The Mighty Handful was a group of 19th century Russian nationalistic composers set on creating a form of music that was uniquely Russian. For ten points each, answer these questions about the Mighty Handful.

10 This man was the youngest member and leader of the group from its formation in 1856, and was the composer of *Islamey: An Oriental Fantasy*.

Answer: Mily Alexeyovich Balakirev

10 This man joined the group in 1857 and is known for his opera *Boris Godunov* and his satanic tone poem *St. John's Night on the Bare Mountain*.

Answer: Modest Mussorgsky

10 When Mussorgsky died, this man went on to revise many of his works including *Boris Godunov*, which few accepted, and *St. John's Night on the Bare Mountain*, the more commonly heard version now.

Answer: Nicolay Rimsky-Korsakov

3. Answer these questions about Mesopotamian mythology for ten points each.

10 This goddess was associated with such spheres of life as love, war, and sex appeal, and is purported to not have been satisfied by over 120 lovers. She was often associated with the lion and had cult centers at Uruk and Kish.

Answer: Ishtar or Anunit or Atarsamain or Esther or Inanna

10 This chief sky-god was originally a part of Sumerian mythology, but was later adopted by both the Assyrians and the Babylonians. His wife was Antum and he was occasionally described as the father of Ishtar; like Ishtar, he had a cult center at Uruk.

Answer: Anu or An

10 This god had providence over crafts and water beneath the earth and held all secret knowledge and intelligence; in some descriptions, he is the creator of humankind. His wife was Damkina and worship of him originated in the city of Eridu.

Answer: Ea or Enki

4. Identify these Asian deserts from clues, for ten points each:

10 This huge sand desert in the southern Arabian peninsula is one of the hottest places on Earth and contains large reservoirs of oil.

Answer: Rub al Khali or Empty Quarter

10 Much of the Indian state of Rajasthan as well as several Eastern provinces of Pakistan are dominated by this desert.

Answer: Thar-Cholistan desert (prompt on partial)

10 This triangle-shaped desert occupies about half of the country in which its located. Beersheba is located near its northern border while Eilat is at its southern vertex.

Answer: Negev desert

5. Answer these related physics questions for ten points each.

10 If a particle with energy E strikes a potential barrier of height U , where U is greater than E , and the barrier is not infinitely thick, one might see this occur, as when an alpha particle escapes from a nucleus with potential barrier of 25 mega electron volts or more.

Answer: tunnel effect or tunneling or quantum tunneling

10 Two physicists made use of the tunnel effect in 1981, when they developed the scanning tunneling microscope. Name either one of them.

Answer: Gert Binning and Heinrich Rohrer

10 This more recent microscope works by recording the deflections of its diamond tip as it moves over a surface. Unlike an STM, it can be used on any surface.

Answer: atomic force microscope

6. For ten points each, identify these works of Romanticist painting.

10 This masterpiece of John Henry Fuseli shows a figure sprawled upon a bed. The demon, Incubus, sits upon the sleeper's chest, while his demonic steed pokes his head through the curtain in the rear.

Answer: The Nightmare

10 In this painting, William Blake borrowed the muscular physiques and volumes of his idol, Michelangelo. In the painting, a winged figure hovers above a prone man whose lower body is enciled by a snake.

Answer: Elohim Creating Adam

10 In this Theodore Gericault work, a figure limps off of the battlefield while smoke rises and ominous clouds descend.

Answer: The Wounded Cuirassier

7. Answer the following about Napoleon's Confederation of the Rhine for ten points each.

10 The confederation marked the end of this empire, whose last emperor was Francis II.

***Answer:* Holy Roman Empire or Sacrum Romanum Imperium or Heiliges Römisches Reich**

10 In the treaty of Tilsit, this German kingdom outside the confederation gave all of its land west of the Elbe to the confederation.

***Answer:* Prussia or Preussen**

10 The nominal head of the confederation was this primate, formerly the Archbishop-Elector of Mainz.

***Answer:* Karl Theodor Anton Maria von Dalberg**

8. For ten points each, name these people important in South American independence movements.

10 The illegitimate son of a Spanish military officer of Irish heritage, he rose quickly through military ranks after the Viceroy of Peru tried to retake the newly independent Chile in 1814.

***Answer:* Bernardo O'Higgins**

10 He successfully led the 1889 military revolt to topple the monarchy, but proved ineffective as the first president of the new republic of Brazil following it.

***Answer:* Manuel Deodoro da Fonseca**

10 After defeating royalist forces in Ecuador in 1822, he went on to fight in important battles in Colombia and Peru before becoming president of Bolivia.

***Answer:* Antonio Jose de Sucre**

9. Fermat's Last Theorem has boggled the minds of many mathematicians throughout the past few centuries. For ten points each, identify the following which led to the proof of the theorem.

10 This Cambridge mathematician now at Princeton finally ended centuries of questioning by proving Fermat's Last Theorem in 1994.

***Answer:* Andrew Wiles**

10 This current Berkeley professor proved Frey's Epsilon Conjecture, paving part of the way for Wiles's proof of Fermat's Last Theorem.

***Answer:* Richard Taylor**

10 In proving Fermat's Last Theorem, Wiles more directly proved this important conjecture made in 1986.

***Answer:* Taniyama-Shimura-Weil Conjecture**

10. For ten points each, name these Emily Dickinson poems from quotes.

10 "I willed my Keepsakes—Signed away / What portion of me be / Assignable—and then it was / There interposed a Fly—"

***Answer:* I Heard a Fly Buzz—When I Died**

- 10 “As Lightning to the Children eased / With explanation kind / The Truth must dazzle gradually / Or every man be blind”
Answer: Tell All the Truth but Tell It Slant
- 10 “We passed the School, where Children strove / At Recess—in the Ring— / We passed the Fields of Gazing Grain— / We passed the Setting Sun—”
Answer: Because I Could Not Stop for Death
11. This tale of a black family on the South Side of Chicago premiered on Broadway in 1959. For ten points each. . .
- 10 Name this play, the first by a black woman to be produced on Broadway.
Answer: A Raisin in the Sun
- 10 Name the playwright, who died of cancer at the age of 34.
Answer: Lorraine Hansberry
- 10 Name the main male character of the play, who wants to use the insurance money from his father’s death to buy a liquor store, despite the objections of his mother, Lena.
Answer: Walter Younger (prompt on “Younger”)
12. It begins, “the sea is calm tonight / the tide is full, the moon lies fair,” and later remarks on “ignorant armies clash[ing] by night.” For ten points each. . .
- 10 What is this long poem, first published in 1867’s *New Poems*?
Answer: Dover Beach
- 10 *Dover Beach* was written by what Victorian poet?
Answer: Matthew Arnold
- 10 The collection *New Poems* also features what long “dramatic poem” of Arnold’s, about a certain pre-Socratic philosopher.
Answer: Empedocles on Etna
13. Answer the following about artists influenced by African art and culture, for ten points each.
- 10 Named after a street in Barcelona’s red-light district, this Picasso work was painted after he saw a collection of African masks, which he used to model the five title women.
Answer: Les Femmes d’Alger (O.J. Version O) or The Young Ladies of Avignon
- 10 After an 1832 trip to North Africa, this man painted “Algerian Women in their Harem” and is also known for his Journals on life as an artist and the work “The Massacre of Chios.”
Answer: Eugene Delacroix

- 10 This Swiss Surrealist sculptor created many elongated human figures based on tribal African art such as “Walking Woman” and “Three Men Walking.”

Answer: Alberto Giacometti

14. Answer the following about enzyme kinetics, for ten points each.

- 10 According to this equation, the maximum rate, V_{max} , is independent of the substrate concentration and depends only on the constant enzyme concentration. Its constant, denoted K_m , is equal to the substrate concentration at which the enzyme reaction proceeds at half of V_{max} .

Answer: Michaelis-Menten Equation

- 10 Used to determine enzyme inhibition, this graphical method of analyzing the Michaelis-Menten equation has its y-intercept equivalent to the inverse of V_{max} , its x-intercept equivalent to $-\frac{1}{K_m}$, and is found by taking the reciprocal of the original equation.

Answer: Lineweaver-Burk plot

- 10 This technique of linearizing the Michaelis-Menten equation also allows for analysis of K_m and V_{max} and is less error-prone than the Lineweaver-Burk. In it, reaction velocity is plotted as a function of the velocity vs. substrate concentration ratio.

Answer: Eadie-Hofsteed plot

15. For ten points each, name these classic German films

- 10 The development of this 1922 F. W. Murnau film was the plot for the 2001 movie *Shadow of the Vampire*.

Answer: Nosferatu

- 10 This 1931 Fritz Lang film about a child murderer who blames society for his crimes was Peter Lorre’s first major role.

Answer: M

- 10 This 1935 film directed by Leni Riefenstahl was Nazi propaganda. It was produced by Adolph Hitler and inspired the medal ceremony seen at the end of the first Star Wars .

Answer: Triumph of the Will

16. For ten points each, answer these questions about networking.

- 10 This connection device for networks allows multiple computers to connect and share packets of information. When a packet of information arrives at one port, it is copied to the other ports so that all segments of the network can see all packets.

Answer: hub

- 10 This special type of hub forwards packets of information to the appropriate port based on the packet’s address. It gives each computer its own dedicated bandwidth, as opposed to having them share bandwidth.

Answer: switch or switching hub or port-switching hub

- 10 This networking device has two functions: it allows all computers connected wirelessly to share a high-speed internet connection and it can serve as the connection between ethernet and wireless networks.

Answer: wireless bridge

17. Answer these questions about Russian literature, For ten points each.

- 10 This Russian author and poet is popularly considered the founder of modern Russian literature and is perhaps best known for such works as *Eugene Onegin*.

Answer: Alexandr Sergeyevitch Pushkin

- 10 One of Pushkin's best known poems is this work, in which a poor civil service clerk wanders around St. Petersburg after a devastating flood, finally confronting and being chased by-the title object.

Answer: the Bronze Horseman or Myednii Vsadnik

- 10 Like Eugene Onegin, this 1833 prose Pushkin work was the subject of a Tschaikovsky opera. It is about a woman named Lisaveta and a German named Hermann, whose pursuit of a gambling secret eventually drives him mad.

Answer: the Queen of Spades or Pikovaya Dama

18. He was the last king of the Achaemenid Empire, until he was deposed in 330 BCE. For ten points each. . .

- 10 Identify this man, originally called Codomannus, who came to power after Artaxerxes III was murdered.

Answer: Darius III

- 10 Darius was deposed by this man, whose father, Philip II, began a war to eliminate the Persians after their desecration of Athenian Temples during the second Persian War.

Answer: Alexander the Great (Alexander III, etc.)

- 10 The beginning of the end came when Alexander's much smaller army had a decisive victory over Darius at this 333 BCE battle in Asia Minor.

Answer: Battle of Issus (Accept logical equivalents, "at Issus", etc.)

19. Answer some questions about the death of an explorer, for ten points each.

- 10 What Portuguese explorer was killed by natives of the Philippine island of Mactan in 1521?

**Answer: Ferdinand Magellan or Fernão de Magalhães
or Fernando de Magallanes**

- 10 Before reaching the Philippines, the last stop for Magellan's voyage was this current US possession, which Magellan's crew dubbed *Islas Ladrões*, "Island of Thieves".

Answer: Guam

- 10 Upon Magellan's death, this man took control of the expedition and led it back to Spain in September 1522, with just 17 of the original crew members.
Answer: Juan Sebastián de Elcano
20. Answer the following about Roman Catholic canonization, for the stated number of points.
- 10 In the 1960's, the canonization process was shortened and reformed by this Pope, the predecessor of John Paul I.
Answer: Pope Paul VI
- 10 Before a person is canonized, they must first go through this process, which allows them limited public veneration and the title "Blessed".
Answer: beatification
- 5,5 Both beatification and canonization may have two "promoters", one who promotes the cause of sainthood or beatification, and one whose job is to uncover all truths about the candidate. Name them for five points each.
Answer: postulator or promoter of the cause AND devil's advocate or promoter of the faith
21. With a name meaning "strange berry that withstands radiation", *Deinococcus radiodurans* is one of the most tolerant organisms in the world. For ten points each, answer these questions about *Deinococcus radiodurans*.
- 10 Because of its ability to withstand the conditions of heat, cold, dehydration, vacuum, acid, and intense radiation, *Deinococcus radiodurans* is characterized as one of these types of bacteria.
Answer: Polyextremophile
- 10 *Deinococcus radiodurans* has the ability to absorb intense amounts of radiation, even up to 5000 of these, the SI unit for absorbed dose.
Answer: Gray (Gy)
- 10 *Deinococcus radiodurans* uses ions of this element, atomic number 25, to prevent oxidative damage to repair proteins so they are able to reassemble the bacterium's DNA.
Answer: Manganese
22. He founded Radical Behaviorism and invented the operant conditioning chamber. For ten points each. . .
- 10 Identify this 20th century American psychologist.
Answer: Burrhus Frederic Skinner
- 10 In this famous 1971 work, Skinner discussed using behaviorism and the scientific method to perform "cultural engineering".
Answer: Beyond Freedom and Dignity

- 10 One of his more controversial inventions was this temperature and humidity-controlled nearly soundproof environment marketed to mothers in Ladies Home Journal as a “baby in a box”.

Answer: air crib

23. Name these tribes of Israel, each of which are named after their founder, by descriptions of their founders from the Old Testament, for ten points each.

- 10 He was the oldest of the twelve sons of Jacob but lost his special firstborn privileges when he had sex with his father’s concubine Bilhah, who had mothered two of his own brothers.

Answer: Reuben

- 10 He was known as a fierce warrior, as he and his brother Simeon coordinated the brutal attack on the city of Shechem, and his descendents became the priestly tribe of Israel.

Answer: Levi

- 10 His descendants became known as a judicial tribe that settled in northern present-day Israel. They conquered an isolated Phoenician people living at ancient Lachish to acquire that land.

Answer: Dan

24. For ten points each, identify these landforms associated with glaciers.

- 10 Long Island is an example of one of these landforms, a ridge of material dumped at the end of a glacier.

Answer: terminal moraine

- 10 This is the term for numerous small, elongated hills produced by glaciers in a concentrated area.

Answer: drumlins

- 10 The Matterhorn and Mount Monadnock are examples of this type of landform, created when four glaciers erode a mountain on all four sides, leaving a pyramidal peak.

Answer: roches moutonnees

25. Answer these questions about explorers, for ten points each.

- 10 These two men were the Lewis and Clark of Australia, although unlike Lewis and Clark’s successful expedition, their’s ended in disaster, as they both died from exhaustion and hunger on the return trip in 1861.

Answer: Robert O’Hara Burke and William John Wills

- 10 On their expedition, Burke and Wills hoped to get to the Gulf of Carpentaria after starting from this current-day second largest city of Australia.

Answer: Melbourne

- 10 Throughout the journey back to Melbourne, this body of water became the “center of tragedy,” as Burke, Wills, and other members of their group attempted to rejoin each other. This site is also the location of the famous “dig tree,” which had indicated the location of buried supplies as the separated groups tried to help each other.

***Answer:* Cooper’s Creek**

26. Identify these sub-fields of linguistics for ten points each.

- 10 Chomsky is primarily concerned with this field of linguistics and had a big influence on it when he wrote about a “deep structure” and “surface structure” to language; name this field that primarily deals with sentence structure and word order.

***Answer:* Syntax**

- 10 This sub-field of linguistics is arguably the most “hard science” part of linguistics, as it deals largely with points of articulation within the mouth and vocal tract. Divisions of this field include acoustics, which has much crossover with physics, and articulatory, which deal with the anatomy of people.

***Answer:* Phonetics (NOT Phonology)**

- 10 Although words can mean something all by themselves, this sub-field of linguistics cares more about what words mean in context and how they are used to convey implied meanings rather than overt ones. Those who work in this field are just as likely to be Philosophers of Language as they are actual linguists.

***Answer:* Pragmatics**

27. Philosophical “isms”, for ten points each.

- 10 The central problem for theorists like Ayn Rand is finding the necessary source. This “ism” takes a hard line on ethical commitment, as contra error theories.

***Answer:* objectivism**

- 10 Many philosophers accept that at least our sources of judgment fall into this category, the “natural” converse of objectivism. This is NOT the “ism” dealing strictly with the nature of truth.

***Answer:* subjectivism (given the disclaimer, do NOT accept relativism)**

- 10 Can we really know that the last two answers were objectivism and subjectivism? Can we really know anything at all, or even have justified belief for that matter? Thinkers famously defending one type or other of this “ism” are Hume and Pyrrho.

***Answer:* skepticism**

28. Identify the chemical compound from its description, for ten points each.

- 10 These types of organic compounds have a bent structure with an sp³ hybrid oxygen atom, giving a nearly tetrahedral bond angle. Because they are stable with many types of reagents, they are commonly used as solvents for organic reactions. Name this type of compound that has an oxygen atom bonded to two alkyl or aryl groups.

***Answer:* ether**

- 10 Both ethers and alcohols, such as ethanol, are used as this type of fuel additive that helps to improve the efficiency of hydrocarbon combustion. Name this type of fuel additive that maintains high octane ratings.

Answer: oxygenate

- 10 This chemical, which has been linked to water contamination, acts as an oxygenate, improving the antiknock quality and the combustion efficiency of gasoline. Name this compound that was first chemically manufactured in 1979 and now composes up to 15 percent of modern reformulated gasoline.

Answer: MTBE or methyl tert-butyl ether or methyl t-butyl ether