## Tossups hy <br> Bryn Mawr and New York Univ.

## 10

1Prominent in the "Age of Warlords," he became cardinal at 18, giving the title up only a few years later because of his licentiousness, violent temper, and possible involvement in his brother's assassination. An ally of Louis XII of France, he overran Romagna, lured his chief enemies to a castle, then had many of them strangled. This may explain why Machiavelli chose--for 10 poin ts--what illegitim ate son of Pope Alexander VI as model for The Prince? ANSWER: Cesare Borgia

2 With Amédée Ozenfant, this painter and architect found ed Purism in 1918, a variant on Cubism. Like many post WWII artists, he believed that art should address the mind rather than the senses, so his works distill objects to their most simple form. For 10 points--name this man, also known for such architectural designs as his Pavillion de l'Esprit [leh-SPREE] Nouveau and Notre Dame du Haut [oh].
ANSWER: Le Corbusier or Charles-Édouard Ieanneret

3 Michael Jackson called on John Landis when he needed someone to direct the video for Thriller. Landis had used much of the same technology needed for the transformation of Michael in this feature film he had made in 1981. For 10 points-name this movie, in which David Naughton and Griffin Dunne are unfortunate college students attacked by a strange, vicious creature on the moors of England.
ANSWER: An American Werewolf in London [not "Paris"]

4 Methyl-umbelliferone can produce any color; rhodamine 6 G gives orange-yellow. Another type can be made by doping gallium arsenide to produce an $n$ type layer and a $p$ type layer, and then adding a larger band gap in a $p$ type layer with aluminum. Other types can be made with helium and neon in a tube, or with pulsing argon ions. For 10 points--name this scientific tool that focuses light of a specific wavelength in a coherent manner.
ANSWER: $\underline{\text { 1aser }}$ or Light $\underline{\text { Amplification by }} \underline{\text { Stimulated Emission of } \boldsymbol{R} \text { adiation }}$Debuting on the Motown off-shoot label Tamla at 12 in 1963, he plays the harm onica on the title track of Sting's Brand New Day. The only artist to win the Gram my for Album of the Year in three consecutive years--for 10 po ints--name this artist who released the albums Innervisions, Fulfillingness' First Finale, and Songs in the Key of Life, and the 1984 hit "I Just Called to Say I Love You."
ANSWER: Stevie Wonder or Steveland Morris or Steveland Judkins

6 Though Freud's theories introduced the idea that dreams were simply a manifestation of an individual's deep and shameful wishes, sleep researchers today pose another suggestion. For 10 points--name the hypothesis that states that the dream is simply a reflection of the brain's aroused state during REM sleep, during which the cerebral cortex is active yet almost completely shut off from sensory input.
\end{abstract}

ANSWER: activation-synthesis hypothesis

7
7 She appears as a young woman in a Phrygian bonnet, an accessory in ancient times that meant she had been freed from slavery. In the 1780s she donned peasant garb, sometimes carrying a sac of grain or a pike. Always balancing arms and a symbol of liberty--for 10 points--name this symbol of France whose profile at one time in recent French history resembled that of Bridget Bardot.
ANSWER: Marianne

8 This composer, whose music appears in The Talented Mr. Ripley and Shine, wrote Nulla in mundo pax, a Beatus Vir and a Gloria, as well as over 40 works for bassoon and strings. By the time he died in 1841, this teacher at a girls' orphanage had composed over 500 concertos and fifty operas. For 10 points--name this red-haired priest, best known for The Four Seasons.
ANSWER: Antonio Lucio Vivaldi [accept Red Priest or $I l \underline{\text { Prete Rosso }}$ on early buzz; do not accept "Rachmaninoff"]

9 Instrumental in launching the careers of Robert Frost and W. B. Yeats, he published modern translations of Confucius's Analects. A personal friend of T.S. Eliot, Eliot dedicated The Waste Land to him. For 10 points-name this poet, most famous for starting the movement of Imagism, his extreme fascist politics, and the long collection of poems he wrote while exiled in Italy, Cantos.

## ANSWER: Ezra Loom is Pound

10 First introduced in 1961, it is also called the Green Bank formula. Some scientists estimate its value is $L / 10$ [ $L$ over 10] where $L$ is the characteristic "lifetime" of the species in question. For 10 points--name this equation, named after a pioneer in the SETI program, that estimates the number of advanced extraterrestrial civilizations in the Milky Way galaxy.
ANSWER: Drake equation

11
He epitomizes the man that can proceed beyond nihilism. A surgeon in Oran, Algeria, he works to alleviate the suffering caused when the bubonic plague strikes. A friend of Raymond Rambert, a joumalist who tries to leave the city but decides to help fight the plague, and Joseph Grand, a clerk who can't finish the first sentence of his novel-for 10 points--name this doctor, the protagonist of Albert Camus's [kah-MOO's] The Plague.
ANSWER: Doctor Bernard Rieux [REE-yuh] or Bernard

12
Once chairman of Sarah Lawrence College's Comparative Mythology department, he brought his theories of the universality and the importance of myth to the public within the last fifty years, both with his books and his highly publicized PBS series with Bill Moyers. For 10 points--name this late scholar, author of The Hero with a Thousand Faces.
ANSWER: Joseph Campbell
13 Born in England in 1959, this lesbian author was raised by Pentecostal evangelists and studied English at Oxford. Her first novel, Oranges Are Not the Only Fruit, won the Whitbread Prize for best first work. For 10 points--name this writer of such works as Gut Symmetries, Sexing the Cherry, and The Passion.
ANSWER: Jeanette Winterson

14Jane Rosenal is a twenty-something Manhattan book editor dating her fifty-something mentor, dealing with his alcoholism and her codependency. Meanwhile, her downstairs neighbor has a son who has gotten two women pregnant at the same time in--for 10 points--what first novel, a colle ction of interco nnecting vign ettes, by Melissa Banks, that may become a film starring Reese Witherspoon?
ANSWER: The Girl's Guide to Hunting and Fishing
15 After leaving his job as president, he named himself "Senator for life." Thought to have orchestrated over 3,000 "disappearances" in South America after a violent 1973 coup d'état--for 10 points--name this dictator who was charged with more than 60 coun ts of kidnapping and murder in October 1998, who may soon stand for trial for civil rights violations in Chile.
ANSWER: Gen. Augutso Pinochet

16
Its Chapel Street is home to Ragdoll Productions, the media group responsible for the Teletubbies. Luckily, though, this Warwickshire locale will likely be remembered for more than Po, Tinky-Winky, and giant immobile rabbits. For 10 points--name this city on the Avon River, home of the Teddybear Museum and William Shakespeare.
ANSWER: Stratford-upon-Avon
17 Secretary of the Admiralty during the Dutch War of 1674 , he was named Secretary for Admiralty Affairs, a post created explicitly for him and never occupied by another, in 1684. He was President of the Royal Society from 1684 to 1686 , when Newton and Wren were admitted. For 10 points--name this relative and one-time secretary of Admiral Ed ward Mountagu, best known for his fam ous diary.
ANSWER: Sam uel Pepys [peeps]

18
In 1647, he became the director-general of a 21 -year-old colony in North America. He remained in charge of that colony until it was surrendered to Great Britain in 1664. For 10 points--name this man, born in 1592, who, despite the fact that he was missing a limb, served as the director-general of the New-Netherlands Colony and namesake of Manhattan's most famous public high school.
ANSWE R: Peter Stuyvesant

19This physicist spent the majority of his honeymoon studying a waterfall. From this experiment, he found that the temperature of the water at the base of the waterfall was higher than the temperature at the top, and concluded that the water was being converted into heat e nergy as it reached the bottom. For 10 points--name this British physicist who found the mechanical equivalent of heat.
ANSWER: James Prescott Joule

20 Despite her reputation as a great humanist, much of her work was censored by the US government until 1972. The Whitney Museum commissioned 27 of her photographs for their Executive Order 9066 exhibit. Surprisingly, she was hired by the War Relocation Authority to support the Japanese Intemment program. For 10 points--name this photogra pher who photographed migrant farm workers during the Great Depression.
ANSWER: Dorothea Margaretta Nutzhorn Lange

21
In humans, th is region of the brain expressed a feed back loop of the proteins period- 1 and $c$-fos. Controlling body temperature, melatonin and cortisol production, and the sleep cycle, it houses the control center for the human circadian rhythm. For 10 points--name this area of the hypothalamus located above the optic chiasm.
ANSWER: SupraChiasmatic Nucleus or SCN
22 Born in Persia, his name is Arabic for "gate." A merchant, he took this name, as he believed he was the portal through which God's revelation to all humanity would come, a promise he made in 1844 . For 10 points--name this man whose role can be compared to that of John the Bap tist, a herald to the coming revelation of Baha'i.
ANSWER: the Bab or Mirza 'Ali Muhammad of Shiraz [do not prompt on "Muhammad"]

23
It may be one of the seven summits, but at only 2,228 meters, it's the shortest, earning it scorn from the mountain climbing community as being far too simple to scale. There's even a road to its peak. Located 100 miles southwest of Canberra--for 10 points--name this Austrlian mountain which shares its name with a Polish military leader who aided the Americans at the Battle of Saratoga.
ANSWER: Kosciuszko [kuh-SHOO-sko]

24 Carrie is bothered by roosters and then gets a surprise phone call. Mirand a wonders if she's in a sexual rut. Charlotte questions her marriage. Samantha goes to war with the transsexuals on her block. All of this takes place in the finale of season three of--for 10 points--what TV comedy which earned Sarah Jessica Parker a Golden Globe? ANSWER: Sex and the City

25 A seven-time National League All-Star, he was born on 4 September 1968, and began his career with the Los Angeles Dodgers. Finishing seventh in 1999 in home runs per at bat, he earned NL Rookie of the Year honors in 1993. For 10 points--name this holder of seven Louisville Slugger Awards; a Norristown, Pennsylvania native who wears number 31 as catcher for the New York Mets.

## ANSWER: Mike Piazza

26 In The Church of the Lukumi Bablu Aye $v$. Hialeah, the Supreme Court found that a city law prohibiting the killing of any sort of animal for ritual purposes unconstitutional. The petitioning Church was--for 10 points--a member of what religion whose beliefs are a fusion of African beliefs and Catholicism, that evokes orishas through animal sacrifice?
ANSWER: Santería [san-tuh-REE-uh]

27 He once entered seven teams into the chariot race at the Olympic games, and won first, second and fourth places. Though he was an Athenian, he switched sides in the Peloponnesian war many times, and aided Sparta at some points. For 10 points--name this student of Socrates, called back from his position of commander of the Sicilian Expedition, to stand trial for breaking the Herms.

## ANSWER: Alcibiades

28 At the start of the Magdelian age, the entrance to this site was a rocky escarpment. Located midway up a hillside, and covered over by erosion, a pine tree felled by a 1940 storm left such a large hole near its entrance that Marcel Ravidat, Jacques Marsal, Georges Agnel, and Simon Coencas managed to enter. They found pictures of horses, buffalo, deer, and goats on the walls of--for 10 points--what cave, dating to $15,000 \mathrm{BC}$, in southern France?
ANSWER: Lascaux [laa-SKOH]

29 Some suggest the childhood ditty about "four and twenty blackbirds" was really a coded message to sailors looking to sign on to this pirate's latest escapade. A pirate for just three years, he was first known as Thatch. Eventually gaining two boats and numerous pardons from the British crown-for 10 points-which pirate, who died in the Battle of Ocracoke Inlet in 1718 aboard his ship the Queen Anne's Revenge?
ANSWER: Blackbeard or Edward Teach
30 Found in three small Dom inican Republic villages, it provides evidence against the theory that gender identity is fixed in early childhood. At birth, affected children are raised as children. But when these "girls" reach puberty, they are suddenly flooded with male hormones, and they become boys physically and psychologically. For 10 points-name this synd rome whose name comes from Spanish for "testes" and "twelve."
ANSWER: Guevedoces syndrome

## Boni by <br> Bryn Mawr and New York Univ.

1 Name these countries with assisted-suicide laws, 10 points per part.
This European country became the third to legalize assisted suicide, though voluntary euthanasia had been practiced there for decades.

## ANSWER: The Netherlands

Two countries allow assisted suicide for terminally ill patients: doctors can provide lethal doses of medications, though the y cannot adm inister them the mselves. Name either.
ANSWER: Colombia or Switzerland
In a recent poll, $75 \%$ of this British common wealth member's popu lation wanted to extend its euthanasia laws.

## ANSWER: Australia

2 Name these early psychologists, 15 points each.
This student of Wilhelm Wundt established the first American psychology laboratory at Johns Hopkins University in 1883.
ANSWER: Granville Stanley Hall
This German psychologist, who wrote Principles of Psychology and Summary of Psychology reported the first experiments on memory.
ANSWER: Hermann Ebbinghaus
3 Name these relatively common operations Samer has seen performed, 10 points each.
[10] This operation, in which the uterus is removed, can be performed abdominally or vaginally. ANSWER: hysterectomy
[10] The traditional incision site for this operation is McBurnie's point.
ANSWER: appendectomy
[10] This operation corrects undescended testes.
ANSWER: orchiopexy
Answer the following about the Seleucid Empire, 10 points each.
The empire was founded by Seleukos I, a commander under whom?
ANSWER: Alexander the Great
What was the dominant language of the empire?
ANSWER: Greek
The intrusion of Hellenism on the Temple in Jerusalem by the Seleucids resulted in the uprising of what family?
ANSWER: Maccabees or Maccabeus or Hasmonean

Name these Crusades, 10 points each.
Eleanor of Aquitaine accompanied the soldiers on this crusade, to help tend the wounded
ANSWER: Second Crusade
Called by Pope Urban II in 1095, the crusaders took the cities of Edessa, Antioch and Jerusalem.
ANSWER: First Crusade
This crusade began in 1212. Innocent III released some of the crusaders from their vows.
ANSWER: Children's Crusade
BHe died in 1909 of Hodgkin's disease. 10 points each.
Name this Irish playwright, whose last play, Deirdre of the Sorrows, was performed posthumously.
ANSWER: J (ohn) M(illington) Synge [sing]
In this 1907 Synge "comedy," the title character arrives in a small village claiming to have killed his father; he is received rather hospitably.
ANSWER: The Playboy of the Western World
In this one-act 1904 tragedy, Maurya has already lost all but one of her sons; she has a prem onition she will lose the last, and she does.
ANSWER: Riders to the Sea
7 Name these medieval manuscripts, 10 points each.
This type of devotional book evolved in France during the late $13^{\text {th }}$ century, including a sequence of prayers devoted to the daily canonical schedule.
ANSWER: Book of Hours or Livre d'heures
This special book, made for the bishop's use, contains the solemn blessings given during the Mass in preparation for Communion.
ANSWER: Benediction
This manuscript, also called the Gospel of Columkille, is said to have been saved from the Vikings, and is now housed at Trinity College Library in Dublin.
ANSWER: Book of Kells
$830-20-10$. Name the poet from works.
[30] "Hermaphroditus," "The Descent into Hell," Ave Atque Vale
[20] "Hymn of Proserpine", "Itylus," "The Triumph of Time"
[10] "The Last Oracle," Atalanta in Calydon
ANSWER: Algernon Charles Swinburne

Name these Hudson River school artists, 10 points each.
This British-born founder of the Hudson River school produced two series of allegorical paintings, The Voyage of Life and The Course of the Empire.
ANSWER: Thom as Cole
This painter of The Beeches, A River Landscape, and Kindred Spirits, done partly in tribute of William Cullen Bryant, represented the naturalist spirit of the school.
ANSWER: Asher B(rown) Durand
This painter was known for his dramatic depiction of the Arctic in The Icebergs.
ANSWER: Frederic Edwin Church
(C) 2001 PADT. Questions may not be distributed without express written permission.

Penn Bowl 10. Boni by Bryn Mawr and NYU.
$1030-20-10$. Name the director.
[30] He began his career by bringing the works of Noel Coward to the screen, including In Which We Serve, This Happy Breed, and Blithe Spirit.
[20] He also filmed successful adap tations of Charles Dickens no vels such as Oliver Twist and Great Expectations.
[10] In the US, he is probably best known for his later epics, including Bridge on the River Kwai, Lawrence of Arabia, and Doctor Zhivago.
ANSWER: Sir David Lean
11 Answer the following about Jainism, 10 points each.
This is the central principle of Jainism, it is pure, unchangeable, eternal law, it may only be accomplished through ascetism and non violence, name this defining characteristic of Jainism
ANSWER: ahimsa [uh-HEEM-suh]
These three crucial beliefs of Jainism are right knowledge, right faith, and right conduct.
ANSWER: the Three Jewels of Jainism
This Jain term for enlightenment is characterized by its om niscience, state of perfect and complete knowledge, and being free from karma's negative effects.
ANSWER: kevala
12 Name these swimming strokes, 10 points each.
[10] A long axis, performed with your face in the water, if you have an efficient body roll, you don't need to turn your head too far to the side while stroking with your arms to breathe.
ANSWER: freestyle or crawl
[10] This short axis stroke's timing can be summed up in four words: pull, breathe, kick, glide.
ANSWER: breaststroke
[10] Often called the most difficult stroke to learn, it is also a short axis that requires a large amount of body undulation. The motion originates from the hips and head.
ANSWER: butterfly [prompt on "fly"]
13 Name the se characters from Sci-Fi's Farscape, 10 points each.
This IASA astronaut got caught in a wormhole, and ended up on Moya.
ANSWER: John or John Crichton
This Delvian priestess has occasionally succumbed to her dark side-even though her plant nature makes her crave sunlight.
ANSWER: Pu'ah Zotoh Zhaan [zaan]
This half-Sebacean, half-Skarran bad guy implanted a neural clone of himself in Crichton's brain at the end of season one. He apparently died at the end of season two.

## ANSWER: Scorpius

1430-20-10. Name the author.
[30] A vehement Macintosh supporter, he recently narrated a BBC series on technology, the Internet, and the future.
[20] His book Last Chance to See tells the story of the kakapo, an endangered flightless bird from New Zealand.
[10] His works include Starship Titanic and Mostly Harm less.
ANSWER: Douglas Adams
(C) 2001 PADT. Questions may not be distributed without express written permission.

15 He composed one of the shortest songs on record, "Slugging a Vam pire," which takes less than 30 seconds to perform. 10 points each.

Name this US composer born in Connecticut.
ANSWER: Charles Edward Ives
The four sections of this piano sonata are "Emerson," "Hawth orne," "The Alcotts," and "Thoreau."
ANSWER: Piano Sonata No. 2, "Concord"
In this early Ives work, a trumpet reite rates a theme that is answered dissonantly and confusedly by flutes, all over simple string harmon ies.
ANSWER: The Unanswered Ouestion
16 Answer the following abo ut the drive to revoke Americ an colonial charters, for the stated nu mber of points.
[5] Connecticut's colonial charter was hidden in this tree in Hartford, which was struck by lightning in 1856. ANSWER: Charter Oak
[10] The movement to seize the colonial charters happened under the aegis of this unpopular English king of the 1680s.

## ANSWER: King James II

[15] Spearheading the drive to override the colonial charters was this man James II appointed as Governor over all the New England colonies.
ANSWER: Sir Edmund Andros
17 Given a city, name the sea it borders, 10 points each.

Karachi
Hong Kong
Jakarta

## ANSWER: Arabian Sea

ANSWER: South China Sea
ANSWER: Java Sea

18 It was discovered by Smithson Tennant in 1804. 10 points each.
Name this metal, generally considered the most dense element.
ANSWER: Osmium
This is the highest oxidation state of osmium.
ANSWER: $\underline{8+}$ or $\underline{+8}$
Tennant discovered osmium after dissolving a crude sample of this element in aqua regia.
ANSWER: platinum or $\mathbf{P t}$ [aqua regia dissolves more than gold]

Name these people who lived at Yaddo, a writer's colony in New York, 10 points each.
This wife of a Poet Laureate was the only wo man allowed to co-habitate with her husband. Th is was years before she stuck her head in an oven.
ANSWER: Sylvia Plath
This novelist was just 19 when he stayed in the tower room, years before he wrote In Cold Blood.
ANSWER: Truman Capote or Truman Streckfus Persons
This long-term director of Yad do was known for her strict rules.
ANSWER: Elizabeth Ames
(C) 2001 PADT. Questions may not be distributed without express written permission.

20 Answer the following about Il Duce for the stated nu mber of points.
[5] Name this Italian dictator who died in W orld War II. ANSWER: Benito Mussolini
[10] Mussolini and his mistress were found in a con voy near this northern Italian lake. Killed there, their dead bodies were taken to Milan and hanged upside-down.
ANSWER: Lac Como
[15] Name Mussolini's mistress.
ANSWER: Claretta Petacci
21 Given the country and the reigning Prime Minister, name his or her party, for the stated num ber of points.
[5] UK, Tony Blair
ANSWER: Labour Party
[10] Germany, Gerhard Schroeder
ANSWER: Social Democrat Party
[15] India, Atal Bihari Vajpayee

ANSWER: BJP or Bharatiya Janata Party

22 Given the function $f$, give its derivative, 10 points per part.
$f(x)=3 \ln 2 x[f$ of $x$ equals 3 natural $\log$ of $2 x$ ]
ANSTEER: G/X [Doverx]
$f(x)=\tan 2 x[f$ of $x$ equals tangent of $2 x$ ]
ANSWER: $\underline{\mathbf{2} \sec ^{2} 2 \boldsymbol{x}}$ [ 2 secant squared $2 x$; do not accept anything with " $x$ squared"]
$f(x)=\cosh 2 x$ [ $f$ of $x$ equals hyperbolic cosine of $2 x$ ]
ANSWER: $2 \sinh 2 x$ [ 2 times the hyperbolic sine of $2 x$; do not accept negative]
23 Answer these questions on the Boer War, 15 points per part.
Five for one, 15 for both, which two Afrikaaner republics fought with Britain?
ANSWER: Orange Free State and African Free State or Transvaal
During the war's first phase, the Boers besieged Ladysmith, Mafeking, and Kimberley in this December 1899 offensive.
ANSWER: Black Week
24 Like Froot Loops? How about C ++ loops? 10 points each.
An iteration structure, it repeats a statement as long as a control expression is true at the end of the loop.
ANSWER: do-while loop
A loop in an event driven program which constantly ite rates waiting for an event to occur.
ANSWER: event loop
Iteration structure that repeats one or more statements a specified number of times.
ANSWER: for loop
25 Given the one-hit wonder, name the singer or band, 10 points each.
"Far Behind"
"Popular"
"Crush"

ANSWER: Candlebox
ANSWER: Nada Surf
ANSWE R: Jennifer Paige
© 2001 PADT. Questions may not be distributed without express written permission.

26 Name the se French Gothic Cathed rals, for the stated nu mber of points.
[5] The flying buttress was first used in this $12^{\text {th }}$ century Paris church noted for its rose window. ANSWER: Notre Dame de Paris
[10] French kings were coronated at this cathedral. ANSWER: Cathedral of Notre Dame of Reims
[15] Commissioned by St. Louis to hold the Crown of Thorns, this church has been called "a reliquary turned inside out" for its extravagant gilding, glazing, and stained glass on the inside.
ANSWER: Sainte-Chappelle
27 This British ph ilosopher was inspired by Jeremy Bentham. For the stated nu mber of points.
[5] Name this author of Subjection of Women.
ANSWER: John Stuart Mill
[10] Mill derived this ethical theory from his work.
ANSWER: Utilitarianism [accept word forms, prom pt on "utility"]
[15] This Princeton philosopher, based on M ill's theory, claims that "killing a disabled infant is not morally equivalent to killing a person."
ANSWE R: Peter Singer

28 This class of ship carries over 100 airplanes, but unfortunately, the wooden decks left them easy prey for the Japanese kamikaze pilots. 10 points each.

Name this class of aircraft carriers that dominated the Pacific theatre in WWII.
ANSWER: Essex
This Essex class ship, docked in the Hudson River in Manhattan, serves as a museum for naval technology.
ANSWER: USS Intrepid
Within $10 \%$, how much does an Essex Class carrier weigh in tons?
ANSWER: $\underline{\mathbf{2 4 . 7 5 0}}$ to $\underline{\mathbf{3 0 . 2 5 0}}$ tons [ $27,500 \mathrm{tons}$ ]
29
30-20-10. Name the linguist.
[30] His study of natives in Martha's Vineyard found that fishermen tend to have a higher occurrence of the centralized vowel speech variable more often than any other group.
[20] During his time as a professor at Columbia University, he researched the usage of the post-vocalic $r$ among New York City departm ent store employees.
[10] This Penn professor's recent papers have analyzed the prevalence of reading problems in inner-city children.
ANSWER: William Labov
30 Given the ach ievement for which the prize was won, give the name of the Nobel Prize Laureate in Physics.
In recognition of the services he rendered to the advancement of physics by his discovery of energy quanta.

## ANSWER: Max Planck

For the creation of quantum mechanics, the application of which has, inter alia, led to the discover of allotropic forms of hydrogen.
ANSWER: Werner von Heisenberg
For the discovery of heavy hydrogen.
ANSWER: Harold Clayton Urey
© 2001 PADT. Questions may not be distributed without express written permission.

