

*Berkeley's WIT 7: Packet by Wake Forest, courtesy of Heinrich Böll IV*

**Tossups**

1. This city in Union county New Jersey was the first site of the College of New Jersey, which later became Princeton University. It grew rapidly in the late 1800s when it was the headquarters of the Singer Sewing Machine Company. FTP, name this city which shares its name with the daughter of Peter the Great who reigned as empress from 1741 to 1762 and also with the daughter of Anne Boleyn and Henry VIII.

Answer: Elizabeth

2. Charles Lindbergh was impressed by his work and persuaded philanthropist Daniel Guggenheim to award him a \$50,000 grant so he could continue to set up an experimental station in Roswell, New Mexico. Among his classic works were *A Method of Reaching Extreme Altitudes* (1919) and *Liquid-Propellant Rocket Development* (1936). FTP, name this man whose estate NASA paid \$1 million in 1960 for use of his 214 rocketry patents and whose name is given to NASA's facility in Greenbelt, Maryland.

Answer: Robert Goddard

3. His *Madonna of Loreto* caused quite a stir because it was said that he based the Virgin Mary on the cadaver of a prostitute who had drowned in the Tiber. He also painted morbid visions of ghastly events, as in his *Beheading of St. John the Baptist* and *David with the Head of Goliath*, both of which are darkened scenes bathed in an eerie light. FTP, name this Mannerist painter noted for his turbulent personal life and for his chiaroscuro techniques in such paintings as the *Calling of St. Matthew*.

Answer: Michelangelo Merisi da Carravaggio

4. Fearful of losing his luxurious monopoly on their fur trade, Sir William Berkeley made only half-hearted attempts at repelling Native American assaults on English colonists. So a member of the Governor's Council took matters into his own hands, forced the governor to give him a commission, and defeated the Indians at the Battle of Bloody Run. However, popular discontent on account of the Navigation Acts led to poor relations between colonists and the government, and Berkeley raised his own army to fight them. FTP, identify this colonial revolt, which saw the burning of Jamestown in September 1676.

Answer: Bacon's Rebellion

5. The story centers around Robert Cohn, a Princeton grad, former collegiate boxer, and writer who lives in Paris; Brett Ashley, an oversexed Englishwoman; and Jake Barnes, a veteran of WWI now working as a newsman. Throw in a wealthy Greek count and a couple of matadors and you have the makings, FTP, of what Ernest Hemingway novel?

Answer: *The Sun Also Rises*

6. He died on the twenty-third anniversary of the Brown vs. Board of Education ruling, a ruling which he played a major role in shaping, despite not being an American. His influence came through his monumental 1944 work sponsored by the Carnegie Corporation and subtitled *The Negro Problem and Modern Democracy*. Author of *An American Dilemma*, he shared the 1974 Nobel Prize in Economics with Friedrich Hayek. FTP, name this Swede, whose wife, Alva, won the Nobel Peace Prize eight years later.

Answer: Gunnar Myrdal

7. Founding members included Felix Frankfurter, Eugene Debs, Helen Keller, Norman Thomas, and Jane Addams. It has become involved in the Sacco and Venzetti, Scopes, and Scottsboro trials, as well as cases involving segregation, the loyalty acts, and religious and artistic rights. Michael Dukakis' membership in the organization was made an issue in the 1988 Presidential campaign. FTP, name this organization founded by Roger Baldwin in 1920 to protect constitutional rights and freedoms.

Answer: American Civil Liberties Union (ACLU)

8. Like Dickens, this author fills his works with people from all classes of society. Like Salman Rushdie, he has been subject to a *fatwa* due to the secular slant of his books. His best known work is a trilogy comprised of *Palace Walk*, *Palace of Desire*, and *Sugar Street*, but he was virtually unknown in the West until 1988. FTP, identify this author of the *Cairo Trilogy*.

Answer: Naguib Mahfouz

9. In 1811, while he was Minister Plenipotentiary to Russia, he learned that he had been nominated and confirmed by the Senate to the U.S. Supreme Court. He immediately refused the post. Seven years later, he became James Monroe's Secretary of State and soon negotiated a treaty in which Spain ceded Florida to the U.S. FTP, name this man who on February 9, 1825 won the presidency in a 13 to 11 vote in the House of Representatives.

Answer: John Quincy Adams

10. Ordained in 1703 and called the Red Priest due to his hair color, he never worked as a priest, however, but began to teach violin at a hostel for orphan girls in Venice. He composed a set of 12 concertos for solo violins and string orchestra, called *l'estro armonico* and the operas *Orlando Furioso*, and *Juditha Triumphans* which he wrote to stir up patriotism during a war with the Turks. FTP, who composed a set of 1725 concertos called *The Contest between Harmony and Invention*, which includes *The Four Seasons*?

Answer: Antonio Vivaldi

11. This son of Beor was originally hired by King Balak of Moab to curse Israel. However, he was told by God not to curse Israel and to instead send Balak's officials away. When he did go with Balak's messengers anyway, he angered the Lord who sent an angel to block his ass's path. FTP, name this man who is best known for his ass who spoke to him after he beat it three times.

Answer: Balaam

12. In 1927 he acquired 2,471,000 acres in the Brazilian state of Para. He wanted to turn the land into a rubber plantation that wouldn't be vulnerable to the Japanese war machine. His plan failed, but his image-maker W.J. Cameron, planted phony stories about it in the press. His earlier anti-Semitic rumblings in the Dearborn Independent and use of a tough security squad in his plants turned him from a public hero into a controversial figure. He once stated that his customers could buy his best-selling product in "any color they wanted, as long as it was black." FTP name this automobile industrialist.

Answer: Henry Ford

13. At age 4, armed with a toy spear, he went into battle against his uncle Conchobar's (CON-a-har) 150 best soldiers - and won, after going into one of his trademark paroxysms. This and other tales are recounted in "The Ulster Cycle of the Knights of the Red Branch," which served as a basis for later Arthurian legend. His uncle became Arthur; he became Gawain. FTP identify this Irish folk hero.

Answer: Cuchulainn (ca-HOO-lee)

14. In the second half of the 16th century, he virtually liquidated the royal debt of Edward VI by manipulating the Antwerp stock exchange. Later, as the royal financial agent, he found that his tasks were difficult to execute because of the lower value of English currency in relation to the currencies of other countries; he attributed this situation to the earlier debasement of English currency. FTP, who, in attempting to restore the currency of England, observed that "bad money drives out good."

Answer: Thomas Gresham (Gresham's Law)

15. One of this city's most famous ceremonies was enjoined upon it by Pope Alexander III, after the city helped his forces against Frederick Barbarossa. On Ascension Day it was the tradition for the head of state to be rowed out to sea in the state barge, the Bucentaur. In the presence of this city's nobility and foreign diplomats, the head of state would throw a ring into the Adriatic as a symbol of the marriage of the city and the sea. FTP, name the city-state whose leader was called the Doge.

Answer: Venice

16. His novels are characterized by a focus on hunted men, and the discrepancy between the outer man and the inner man. The settings are often off the beaten path, as in *A Burnt-Out Case*, set in a leper colony, and *The Heart of the Matter*, which is set in Africa. FTP, name this English-born author and screenwriter of *The Third Man*, whose most famous works, often set in Latin America, include *The Honorary Consul* and *The Power and the Glory*.

Answer: Graham Greene

17. A result of the Coriolis forces due to the rotation of the Earth, in the Northern Hemisphere they move from southeast to northwest in the from 30 degrees N Lat. to the equator. Consequently, islands in its path generally have sunny weather and clear skies, making them popular tourist destinations. FTP, name this type of wind, named for their importance to transatlantic commerce.

Answer: Trade winds

18. He was born Barret Hansen and earned a master's degree in music from UCLA. His long-running program debuted in 1970 and he wears a tux and top hat behind the mike even though no one is watching. Some say he was singularly responsible for launching the career of "Weird Al" Yankovic, whose earliest songs were played on his show, along with tunes like "The Cockroach That Ate Cincinnati," and "Poisoning Pigeons in the Park." FTP, name this radio personality.

Answer: Dr. Demento

19. This chemical process used to identify unknown compounds employs tetramethylsilane (TMS) as an internal standard in both the Carbon-13 and proton methods. It reports chemical shifts in parts per million (ppm) relative to TMS, with shielded atoms showing up close to 0 ppm and deshielded atoms appearing on the left hand side of the spectrum. With C-13, this method allows one to determine the number of magnetically different carbons in a molecule and with protons, spin-spin coupling is observed and areas under the hydrogen peaks are directly proportional to the number of protons. FTP, name this technique developed by Purcell and Bloch and commonly abbreviated NMR.

Answer: Nuclear Magnetic Resonance Spectroscopy (accept NMR before "abbreviated")

20. A fervent abolitionist and opponent of the Mexican War, he succeeded Longfellow as head of Harvard's modern language department and became the first editor of the *Atlantic Monthly*. Later he became minister to Spain and then Britain. FTP, identify this relative of Amy and Robert who asked "and what is so rare as a day in June?" and wrote the satiric *Biglow Papers*.

Answer: James Russell Lowell

21. Purple was the color of ancient kings, largely because the dye to make it was so expensive to produce, coming from a small gland which had to be removed from a living snail that lived primarily in the eastern Mediterranean. The trunculus and brandaris species were the most commonly used of these snails. FTP, name the genus of snail used.

Answer: Murex

22. Common symptoms of this disorder contain nervousness, a constant feeling of being hot, insomnia and fatigue, hair and weight loss, and sometimes protruding eyeballs. All the body's processes speed up with this disorder, the most common type of which is Graves' disease. FTP name this disorder which may result from an abnormal immune response or from lumps or tumors that form on the thyroid and disrupt hormone production.

Answer: Hyperthyroidism

23. Residents were surprised on October 12, 1999, when Prime Minister Nawaz Sharif was toppled by the army led by General Pervez Musharraf. This action jeopardized billions of dollars in much-needed international loans and rekindled fears of unstable nations in possession of nuclear weapons. FTP, name this nation of 138 million, which borders Iran, Afghanistan and India.

Answer: Pakistan

24. Working at the Harvard College Observatory, Williamina Fleming created a classification system based on fifteen categories named alphabetically from A to Q and largely based on spectrographic evidence. FTP, name her colleague who rearranged these categories from the hottest stars to the coolest stars, giving us the new sequence OBAFGKM, using Fleming's original letter designations.

Answer: Annie Jump Cannon

25. When he arrived at the mouth of the Tiber, he was hospitably received by King Latinus and became betrothed to his daughter, Lavinia. Before he could marry her, he had to fight her rejected suitor, Turnus.

By marrying Lavinia, he accomplished the union of Trojans and Latins that would eventually produce the Roman people. FTP, name this hero, son of Anchises and Aphrodite, whose epic story is told by Virgil.

Answer: Aeneas

26. Examples of this type of force include gravity and the spring force. The work it does on an object moving between any two points is independent of the path taken by that object. Therefore, the work this force does on any object moving through a closed path is always zero. FTP, name this type of force.

Answer: Conservative Force

27. When Black History Month rolls around, this Robb Armstrong creation informs us of the achievements of many African-Americans. The rest of the year, we laugh at the antics of Charlene, Clarence, Joe, Marcy, Jojo, and Sunny. FTP identify this comic strip, also a two-word term for something you might do to a battery to get a car started again.

Answer: Jump Start

28. A sailor is adrift ten days on a life raft without food or water, proclaimed a hero of the nation, kissed by a beauty queen, made rich by publicity, loathed by the government and then forgotten forever in his first book, an exposee titled *The Tale of a Shipwrecked Sailor*. Other works include *Chronicle of a Death Foretold*, *The Autumn of the Patriarch*, *The Evil Hour*, *Leaf Storm*; *No One Writes to the Colonel*, and *One Hundred Years of Solitude*. FTP, name this Colombian-born Nobel Laureate.

Answer: Gabriel Garcia Marquez

29. She wrote in the New Yorker, in October 1998, that Bill Clinton "is our first black president." He "displays almost every trope of blackness: single-parent household, born poor, working-class, saxophone-playing, McDonald's-and-junk-food-loving boy from Arkansas." FTP, name this author, born Chloe Anthony Wofford, whose works include *Jazz*, *Song of Solomon*, *Sula*, *The Bluest Eye*, *Beloved*, and *Tar Baby*.

Answer: Toni Morrison

30. It is commonly formed in SN1 reactions in organic chemistry as it is relatively stable when it has somewhat bulky R groups. In these reactions, it is often the site of nucleophilic attack, and it always consists of a carbon atom which has only three substituents, and as a result, a positive charge. FTP, name this general intermediate.

Answer: Carbocation

## Bonus Questions

1. Answer the following about the inner workings of the human eye, FTP each.

a) There are two types of photoreceptors in the eye. Name the type that allows us to see under a low level of illumination, but are unable to resolve fine detail.

Answer: Rods

b) The eye has approximately 6 million cones, mainly concentrated here, a small area on the retina on which images are fixated.

Answer: Fovea

c) X-Cells are concentrated in the fovea and are responsible for the early detection of patterns, while Y-cells are more widely distributed in the retina and are responsible for the early detection of movement. What is the collective name for these specialized nerve cells?

Answer: Ganglion Cells

2. For five points each, give the father and mother of these mythical beings.

a) Orestes, Iphigenia, and Electra

Answer: Agamemnon and Clytemnestra

b) King Arthur

Answer: Uther Pen-Dragon and Ygraine

c) Osiris, Isis, and Set

Answer: Geb and Nut

3. Name the voices of the following characters on The Simpsons for 5 points each.

a) Selma

Answer: Julie Kavner

b) Moe

Answer: Hank Azaria

c) Krusty the Clown

Answer: Dan Castellaneta

d) Lionel Hutz

Answer: Phil Hartman

e) Sideshow Bob

Answer: Kelsey Grammar

f) Todd Flanders

Answer: Nancy Cartwright

4. Identify these African nations on a 15-10-5 basis.

a) (15) It was ruled for nearly three decades by Hastings Banda, who used to throw the bodies of dissidents to the crocodiles in the Shire River.

(10) It was the British colony of Nyasaland

(5) Its capital is Lilongwe.

Answer: Malawi

b) (15) Its tourism website promises that despite the unfortunate tragedy recently at Bwindi Impenetrable forest, there are many perfectly safe destinations to visit and beckons you to click on views of the stunning night of the Murchison Falls and the flower-strewn foothills of the 'Mountains of the Moon'.

(10) Known as the Pearl of Africa, it has achieved some stability under the presidency of Yoweri Museveni.

(5) You can reach it by flying into Entebbe International Airport, which is not far from Lake Victoria.

Answer: Uganda

5. FTPE, name these mallet percussion instruments, none of which are the xylophone.

a) This is a type of xylophone originally of southern Africa and Central America with resonators beneath each bar.

Answer: Marimba

b) This instrument often used in marching bands consists of a series of graduated metal bars tuned to the chromatic scale and played with mallets.

Answer: Glockenspiel

c) This resembles the xylophone but has metal bars instead of wooden bars and also has motor-driven resonators for sustaining the tone and producing a vibrato.

Answer: Vibraphone

6. Name these people associated with the poem, "The Courtship of Miles Standish," FTPE.



a) The author of the poem

Answer: Henry Wadsworth Longfellow

b) The subject in the poem who is the object of Standish's desire

Answer: Priscilla Mullins or Priscilla or Mullins

c) The man who acted as Standish's messenger in the poem and who fell in love with and eventually married Priscilla Mullins

Answer: John Alden

7. Name these compounds common in organic chemistry from descriptions of their structures, FTPE.

a) The ringed compound with formula  $C_6H_6$

Answer: Benzene

b) A benzene ring with a methyl group substituted for one of the hydrogen atoms.

Answer: Toluene

c) A benzene ring with methyl groups substituted for 2 of the hydrogen atoms

Answer: Xylene

8. Answer these questions about the conquest of the Aztecs, FTPE.

a) Name the island, conquered by Diego Velázquez in 1511, from which Cortes and his 550 men sailed in 1518.

Answer: Cuba

b) One of the keys to Cortes's success came when he found an Indian woman who could act as translator. Many Mexicans regard her as a villainous traitor. Name her.

Answer: Dona Marina or Malinche

c) After the death of Moctezuma, Cortes and his men were surrounded and the Aztecs removed their escape route by removing the bridges spanning the gaps in the causeways leading out of the city. The Spanish and their Tlaxcalan allies built a portable bridge and most were able to fight their way out. What name is given to this escape, which took place July 1, 1520?

Answer: Noche Triste or Sad Night

9. Identify this physicist-engineer on a 30-20-15-10 basis.

a) (30) At the end of his life he became a lonely, uncommunicative egotist, unwilling to shake hands for fear of germ contamination, frightened by round surfaces (like billiard balls) and dissipating his great talent by trying to invent death rays, or devices for photographing thoughts on the retina of the eye.

b) (20) A large statue of this rival of Edison can be found at the site of the first hydroelectric facility in the world-on the American side of Niagara Falls.

c) (15) The SI unit of magnetic flux density is named for him.

d) (10) He was born in Croatia, but spent his adult life in the US and invented alternating current motors, the fluorescent light and the transformer.

Answer: Nikola Tesla

10. Answer these questions about Cervantes' Don Quixote.

a) Quixote chooses as his lady love a peasant girl named Aldonza Lorenzo. What fanciful name does he select for her?

Answer: Dulcinea del Toboso

b) What equally fanciful name does he give to the poor country gentleman whose given name is Alonso Quijano?

Answer: Don Quixote (i.e. Quixote's real name is Alonso Quijano)

c) Quixote retires after being defeated by which knight?

Answer: Knight of the White Moon

11. Identify these meetings that took place on boats, ten points each.

a) After defeating both the Prussian and Russian armies at Jena, Auerstadt, Eylau, and Friedland, Napoleon arranged to meet Tsar Alexander I of Russia and King Frederick-William IV of Prussia on a raft in the Niemen River to sign this peace treaty. For ten, name this 1807 treaty.

Answer: Treaty of Tilsit

b) It was a joint declaration issued on August 14, 1941, by Winston Churchill and Franklin D. Roosevelt,

after five days of conferences aboard warships in the North Atlantic. It was subsequently incorporated by reference in the Declaration of the United Nations

Answer: Atlantic Charter

c) Since the Southern representatives were authorized to accept independence only, no settlement was possible at this unsuccessful peace talks in 1865.

Answer: Hampton Roads

12. Identify these Florentine painters, FTP each:

a) (10) This master of Michelangelo's notable works include *An Old Man and His Grandson* and *Christ Calling Peter and Andrew*, which is in the Sistine Chapel.

Answer: Domenico Ghirlandaio or Domenico di Tommaso Bigordi

b) (10) This founder of the Florentine School, a pupil of Cimabue, lived from 1266 to 1337, and painted scenes which presented human figures in rounded sculptural forms that appeared to have been based on living models. His works include a series of frescoes in the church of Saint Francis in Assisi and he began work on the bell tower to the cathedral in Florence.

Answer: Giotto di Bondone

c) (10) Born Alessandro di Mariano Filipepi, this artist's major works include *The Mystic Nativity* and *Allegory of Spring*.

Answer: Sandro Botticelli

13. Answer these questions about the Bible's King David, FTP each:

a) (10) Name his father.

Answer: Jesse

b) (10) Name the prophet who visited Jesse, asked to see his son and anointed the young David.

Answer: Samuel

c) (10) Name the woman who became David's wife after her husband, Nabal, who had been threatened by David and his gang of outlaws, dropped dead of a heart attack.

Answer: Abigail

14. Answer these questions about the building of the Panama Canal, FTPE.

a) Name the Frenchman who as Panama's first ambassador to the US, negotiated the treaty gaining independence for Panama.

Answer: Philippe Jean Bunau-Varilla

b) Name the French engineer of the Suez Canal, whose failure in Panama led to a five year sentence for fraud.

Answer: Ferdinand de Lesseps

c) For 5 points each name two of the three chief U.S. engineers for the project.

Answer: John Wallace, John Stevens, George Washington Goethals

15. Identify these characters from the cast of animals in George Orwell's *Animal Farm*, FTSNOP.

a) (5) This ruthless pig, whose career parallels that of Stalin, is the master of Animal Farm by the end.

Answer: Napoleon

b) (10) This enormously strong horse has two slogans, "I will work harder," and "Napoleon is always right." In the end, he works himself to death and is shipped off to the glue factory by Napoleon.

Answer: Boxer

c) (15) This raven, Mr. Jones' pet, is a spy, and becomes useful to the pigs because his story of the Sugarcandy Mountains keeps the animals quiet. He symbolizes the Russian Orthodox Church.

Answer: Moses

16. Identify these Hungarian scientists instrumental in the Manhattan Project, ten points each.

a) A professor of physics at University of Chicago and later UC Berkeley, he was instrumental in the development of the first successful US hydrogen bomb.

Answer: Edward Teller

b) Working at the University of Chicago with Enrico Fermi, he developed the first self-sustained nuclear reactor based on uranium fission. Also one of the first to realize that the new technology could be used to make bombs, he was instrumental in urging the US to prepare the first atomic bomb.

Answer: Leo Szilard

c) A leader in the design of high-speed electronic computers enabled the US to produce and test the world's first hydrogen bomb. For ten, name this person that also made fundamental contributions to quantum theory as well as game theory.

Answer: John von Neumann

17. Identify these terms from geology, all of which begin with the letter C, FTPE.

a) A large, basin-shaped volcanic depression, more or less circular in form. They are usually steep-sided and found at the summit of a shield volcano.

Answer: caldera

b) These steep-walled hollows in mountain sides, shaped like an amphitheater with one side partially cut away, are the places of origin of mountain glaciers.

Answer: cirque

c) The breaking away of ice from the front of the glacier when it ends in a lake or an ocean. It produces icebergs.

Answer: calving

18. Answer these questions about the Persian invasion of Greece, for ten points each.

a) Which Persian king led his army of nearly 200,000 men into Greece in 480 B.C.E.?

Answer: Xerxes

b) The Persian army crossed the Hellespont at a place where it was only one mile wide by crossing a double bridge of ships lashed together. Where was this bridge? Hint there is a similarly named city in Egypt, site of the Temple of Seti I and a poem by Byron tells the tragic story of a bride from this place.

Answer: Abydos

c) Persian ambitions on the Greek mainland were finally crushed at this 479 B.C.E. battle, at which Pausanias' Greek army defeated the Persians under Mardonius on the slopes of Cithaeron.

Answer: Battle of Plataea

19. Answer these related questions, FTPE.

a) The first rocket sent into orbit, Sputnik, was launched by the Soviet Union in 1957. The launch did not take place in Russia, but in the desert near Tyuratam in what Central Asian republic?

Answer: Kazakhstan

b) Only a month after launching Sputnik, the Soviets launched Sputnik II, with the first mammal sent into orbit - a female husky. Name her.

Answer: Laika

c) Now for five points each, in what year did Yuri Gagarin become the first man in space and what was the name of his spacecraft?

Answer: 1961, Vostok I

20. Identify these people and events from nineteenth-century British history, 15 points each, for a maximum of 30 points.

a) This revolt of underemployed agricultural workers, centered in the corn-growing southern and eastern counties of England, was named for their mythical leader. The government crushed the revolt and imprisoned or transported 1,100 people. Identify this movement whose name sounds like it could refer to a military dance band.

Answer: Captain Swing

b) He was the leading mid-nineteenth-century spokesman for free trade, *laissez-faire* and internationalism in Britain. Name this MP who served from 1841 to 1865, who founded the Anti-Corn Law League.

Answer: Richard Cobden

c) This group sprung out of an 1838 document drafted by William Lovett which consisted of six points setting out the basis for a political democracy.

Answer: Chartism or Chartists

21. FTPE, answer these questions about an American author who was the son-in-law of the noted Massachusetts Chief Justice, Lemuel Shaw and who worked for twenty years as the Deputy Inspector in the New York Customs House.



a) First, name him.

Answer: Herman Melville

b) Which novel of Melville was left unpublished at his death?

Answer: Billy Budd

c) Name the two books he published in 1846 and 1847, which were largely based on his experiences in the South Pacific for 5 points each.

Answer: Typee and Omoo

22. Identify this writer on a 15-10 basis.

a) (15) His first two books of poetry *Oak and Ivy* and *Majors and Minors*, were republished as *Lyrics of a Lowly Life* and included an introduction written by William Dean Howells.

(10) The first nationally known black poet, he died of TB at age 33 in 1906.

Answer: Paul Dunbar

Now answer these additional questions about Dunbar.

b) (10) Early in his career, Dunbar worked in the Callahan Building in Dayton, Ohio. What was his profession?

Answer: elevator operator (accept variants)

c) (5) Dunbar published an African-American newsletter in Dayton with help from two white Daytonians who later became world famous. Name these brothers, who were classmates of Dunbar in high school.

Answer: the Wright brothers (Orville and Wilbur)

23. Answer these questions from the field of Public Choice economics, FTPE.

a) Who presented the first integrated axiomatic treatment of the government sector and the election process and showed how economic tools can be applied to non-market decision processes in his seminal book *An Economic Theory of Democracy*?

Answer: Anthony Downs

b) What two-word term refers to the inclination to devote resources toward promoting redistribution through government policy rather than new production.

Answer: Rent seeking

c) Who showed from a microeconomic perspective in *The Logic of Collective Action* that individuals and small groups may expect greater net benefits from using their resources to lobby for benefits for themselves. The harmful consequences will be spread out among society overall. So while there are net losses to society, those expected to achieve the concentrated benefits will fight harder for the policy than the majority who bear the diffuse costs. He later extended his work to examine macroeconomic consequences in *The Rise and Decline of Nations*.

Answer: Mancur Olson

24. For 5 points each, classify each of the following programming languages as imperative, functional, logic, or object-oriented languages.

a) C

Answer: imperative

b) Smalltalk

Answer: object-oriented

c) Pascal

Answer: imperative

d) Prolog

Answer: logic

e) Lisp

Answer: functional

f) C++

Answer: object-oriented

25. In 1995 the federal government established a ten-year program by creating ten empowerment zones in which employers were given credits for investing and hiring in specially designed poverty-prone areas. Each of the urban empowerment zones included a \$100 million block grant and each rural zone received a \$40 million block grant. For five points each, name any of the six cities and three rural areas where these

empowerment zones are located.

Answer: Cities: Atlanta, Baltimore, Chicago, Detroit, the Bronx (New York City), Philadelphia/Camden,

Rural areas: Kentucky highlands, Mid-Delta region of Mississippi, Rio Grande valley of Texas.

26. In the SI system, the units of length, mass, and force are the meter, kilogram, and newton, respectively.

For 5 points each, name these units

In the cgs or Gaussian system:

a) Mass

Answer: gram

b) Length

Answer: centimeter

c) Force

Answer: dyne

In the British engineering system:

d) Mass

Answer: slug

e) Length

Answer: foot

f) Force

Answer: pound

27. Answer these questions related to the human heart, FTPE.

a) Name the valve that connects the left atrium with the left ventricle.

Answer: mitral

b) Name the valve that connects the right atrium with the right ventricle.

Answer: tricuspid valve

c) Name the wall that separates the right and left sides of the heart.

Answer: septum

28. The greatest problem in physics at the end of the 19th century was understanding the nature of blackbody radiation, and a number of individuals made significant contributions to the theory before Max Planck finally solved the problem at the turn of the century. Identify these individuals FTPE.

a) (20) The members of a pair that developed the classical prediction for the intensity per unit wavelength that was proportional to the temperature and inversely to the fourth power of the wavelength. Their formula often bears the name "ultraviolet catastrophe."

Answer: Lord Rayleigh and Jeans

b) (10) This thermodynamicist deduced a valid property of blackbody radiation for which he is most remembered today, but he also developed a formula for the intensity per unit wavelength that was inversely proportional to the wavelength to the 5th power and proportional to an exponential of  $-1/\lambda T$ .

Answer: Wilhelm Wien

29. Name these "barbarians" who attacked the dying Roman Empire during the 400s.

a) In 452 they invaded Italy taking Pavia and Milan, but Pope Leo I intervened and paid tribute to avoid the sack of Rome.

Answer: Huns

b) They set up an independent kingdom in Spain after 410, but were driven out by the Visigoths and crossed over to North Africa, dominating the Western Mediterranean for almost a century.

Answer: Vandals

c) In the late 480s, they were invited to Italy by Zeno. Led by king Theodoric, they defeated Odoacer and created a large kingdom in Italy at the beginning of the sixth century.

Answer; Ostrogoths