

Tossups

1. Sculptor, Mensa, Indus, Crater, Phoenix, and Lynx. Each of these names is a member of an elite club where they are joined by Scutum, Triangulum, Monoceros, Auriga, and Coma Berenices. This group - officially 88 in number - also includes Delphinus, Bootes, Draco, and Hercules. FTP, name these groups which include Cancer, Libra, Leo, and Ursa Major.

CONSTELLATIONS

2. During his life, this statesman became the leading British figure in Southeast Asia. He was supreme allied commander there during World War II and liberated Burma from the Japanese. He was the last viceroy of India and led negotiations for India's independence. But, the most memorable thing about him is his death. FTP, name this man killed in 1979 when IRA terrorists blew up his yacht.

Lord Louis MOUNTBATTEN

3. The grounds for this building were landscaped in 1850 by Andrew Downing. Extensive remodellings have occurred several times - including during the early 1900s by a local architectural firm, from 1948 to 1950, and most notably from 1814 to 1818. FTP, name this building, designed in the manner of a gentleman's country home by James Hoban, which lies opposite Lafayette Park in Washington, D.C.

WHITE HOUSE

4. This American authors' works deal mainly with Jewish life and traditions in the US; his heroes are often humble and solitary individuals although his 1979 work Dubin's Lives is an exception. He won a National Book Award for his 1958 work The Magic Barrel and the 1966 Pulitzer Prize for his novel The Fixer. FTP, name this author who also wrote the novel The Natural.

Bernard MALAMUD

5. Deriving its name from the French word for grotto work, this artistic and architectural style has some of its greatest achievements in the palaces and pilgrimage churches of Austria and Germany. The style first gained attention in France in the early 1700s and found expression in the works of Boucher and Fragonard. FTP, name this movement characterized by its arabesque forms.

ROCOCO

6. The brother of Sir Lambrooke and son of Sir Pellinore he was raised in the forest by his mother in complete ignorance of courtly behavior. Brought to King Arthur's court, he at first made a fool of himself but eventually became one Arthur's best knights. A virgin knight, he was judged as one of the three knights innocent enough to be allowed to glimpse the Grail. FTP, name this knight whose German counterpart was the basis of a Wagner opera.

PERCIVAL

7. The name of this condition was coined by psychiatrist Eugen Bleuler in 1911. Its symptoms can include disturbances of attention and thought, withdrawal from society, delusions, and hallucinations. FTP, name this condition that literally translates as "split mind," has subtypes catatonic and paranoid and which is often confused with multiple personality disorder.

SCHIZOPHRENIA

8. Variants of this mathematical tool include Laurent series which contain both positive and negative powers of the variable and are used in complex analysis and Maclaurin series which are merely expansions about the point  $x=0$ . Named after an English mathematician, they are used to rewrite functions as polynomials. FTP, name these power series that state, for example, that "sine of  $x$  equals  $x$  minus  $x$  cubed over 6, etc."

TAYLOR series

(Note: If an early buzzer answers "power series" ask for more specific)

9. The second party with this name was composed of farm and labor leaders who nominated a Presidential candidate in 1924. The third sought better relations with the USSR and was called a

Communist front when its candidate ran in 1948. The first was better known under another name when its candidate ran in 1912. FTP, give the common name of the organizations that nominated La Follette, Wallace, and Teddy Roosevelt for President. PROGRESSIVE party

10. The two groups of these mammals are distinguished by nose shape - family Cebidae has broad, flat noses while family Cercopithecidae has nostrils which are closer together. Old World types include langurs, guenons, and colubuses while New World forms include sakis, uakaris, and capuchins. FTP, identify these members of the suborder Anthroidea which also include macaques and howlers. MONKEYS

11. She is introduced in Ben Jonson's "The Staple of News" and is the subject of a tragedy composed in Thackeray's "The Virginians." Jonson's portrayal may be more accurate however, since it was written eight years after she came to England in 1616. Also known as Matoaka, at the age of 12 she supposedly intervened and stopped the execution of an English colonist. FTP, name this Native American who married John Rolfe. POCAHONTAS

12. Ethically, it stresses the importance of truthfulness and righteousness while opposing asceticism and celibacy. A distinctive practice is the disposal of the dead by feeding them to vultures. Although founded circa 600 BC, its true prominence came in Persia from 550-300 BC when it was the state religion. FTP, name this religion whose modern descendants are called Parsees and whose dualistic deities are Ormuzd and Ahura Mazda. ZOROASTRIANISM

13. It was the base for the Irish missionaries after Saint Patrick and at one time it was a Norwegian dependency that was sold to Scotland in 1266. Now a British dependency, it has its own legislature consisting of the Court of Tynwald and the House of Keys located in its capital, Douglas. FTP, name this island in the Irish Sea off the northwest coast of England that is most famous for a breed of cat. ISLE OF MAN

14. The Mousetrap completes 30 years of performances, Greenland votes to leave the Common Market, Helmut Kohl becomes Chancellor of West Germany, John De Lorean is arrested on drug charges, Prince Fahd ascends to the Saudi Arabian throne, Princess Grace of Monaco dies, the Falklands War begins, and the Republicans keep control of the U.S. Senate in the midterm elections. FTP, these newsworthy events all occurred in what year. 1982

15. This work's composer was fascinated by the idea of writing a piece based on the legendary Witches' Sabbath. In 1866, the composer began a tone poem called "The Witches" which he described as "an original Russian production." But, it was never performed during his lifetime. Only after Rimsky-Korsakov's version, in which the powers of evil are banished by a churchbell and the coming of dawn, was published did the piece achieve notoriety. FTP, name this work by Modest Mussorgsky. St. John's NIGHT ON (THE) BALD (or BARE) MOUNTAIN

16. Her "Canopus in Argus" series tells of an allegorical future that attempts to deal with the struggles of intellectual women for artistic, sexual, and political integrity as they interact with me and society. This series is her second major one, the first being the "Children of Violence" series which, along with her The Golden Notebook established her as a major feminist voice of the 1960s. FTP, name this English novelist and short-story writer, born in Persia, and longtime resident of Rhodesia. Doris LESSING

17. A war hero for his 1916 defense of Verdun, this man became chief-of-staff in 1917 and held several high positions in the French government, including minister of war in 1934. Recalled from his position as ambassador to Spain in 1940, he negotiated the French armistice with the Nazis and later became premier. After the war, he was tried for treason and sentenced to life imprisonment. FTP, name this man who was the first head of the Vichy government. Henri PETAIN

18. Protesting inhumane conditions in the US, he left at age 24 to live in France where he stayed for 29 years. Concerned with modern issues, his novel Another Country deals with sexual and racial identity while the 1986 work Evidence of Things Not Seen deals with racism in the context of the Atlanta child murders. Also a distinguished essayist, his Nobody Knows My Name is an indictment of modern American society. FTP, name this author whose works include If Beale Street Could Talk, Go Tell It On the Mountain, and The Fire Next Time. James BALDWIN

19. This black and white film was the first movie to be based on a television drama. It appealed to the viewers of the day who wanted films about common, unglamorous people since Paddy Chayefsky's screen adaptation, directed by Delbert Mann, featured Ernest Borgnine as a lonely Italian butcher from Brooklyn who blows his one shot at romance. FTP, name this film which won the 1955 Oscar for Best Picture and which has a small role in the current movie Quiz Show. MARTY

20. After examining the relation between the rate of change of wages and unemployment in Britain from 1861-1957, a British economist discovered that the data fit a general curve. Lower unemployment could only be obtained at the cost of high inflation, and low inflation at the expense of high unemployment. FTP, name this curve which was somewhat discredited by the combination of high inflation and unemployment of the 1970's. PHILLIPS CURVE

21. Supposedly written by Valmiki in one creative burst, it consists of seven books that date back to 500 BC. The hero, the seventh avatar of the god Vishnu, wins his bride in a contest but is exiled for 14 years. His wife is stolen from him by the king of Ceylon and the greater part of the epic tells of her recapture. After enlisting the help of the gods he succeeds. FTP, name this poem called the "lesser epic" of India. RAMAYANA

22. In 1942, Percy Spencer, an inventor employed by Raytheon, was testing a magnetron tube. After the test, he found that a chocolate bar he had in his pants had mysteriously melted. Raytheon attempted to market the effect, but it took until the 1960s and the invention of a compact electron tube for commercial success to be possible. The above description is, FTP, of what appliance, whose first home-size version was the 1967 Radarange. MICROWAVE OVEN

23. He seized power in a popular coup in 560 BC, was ousted in 552, but established himself firmly as ruler from 541-527. His reign was noted for its stability and culture, and during it Athens became the foremost city in Greece. Also, the works of Homer were edited and the first Greek tragedies were performed. FTP, name this ruler who succeeded Solon and was known as the greatest of the Greek tyrants. PISISTRATUS

24. His novels include A Life and Pierre and John, both of which focus on Norman peasants, one of the frequent subjects of his work. His vision of human life was generally pessimistic, using simple episodes to show the suffering of everyday life. A pupil of Gustave Flaubert, his teacher's naturalistic tendencies showed up in such stories as "The Umbrella" and 1881's "The House of Madam Tellier." FTP, name this French writer whose works such as "The Necklace" earned his reputation as a great short-story writer. Guy de MAUPASSANT

25. The ideal gas law interrelates the pressure, volume, and temperature of a gas. However, this law leaves out 2 effects - the small but finite volume occupied by the gas molecules and the effect of intermolecular forces on the motion of the particles. Including these effects leads to a new equation of state. It was named, FTP, after what Dutch physicist who first proposed these corrections and whose name is also applied to a weak interaction between atoms. J. D. VANDER WAALS



### Bonuses

1. The sensational story of the sailor Alexander Selkirk fascinated writers of the nineteenth century. For the stated number of points, identify the following works based on this story
  - a. (5) The most famous story based on Selkirk's adventures, it takes place on a deserted island  
ROBINSON CRUSOE
  - b. (10) This Johann Wyss work takes place on a deserted island unlike anyplace in the world. The shipwrecked title characters find a number of tropical animals including both ostriches and kangaroos.  
SWISS FAMILY ROBINSON
  - c. (15) This Jules Verne work concerns five Union soldiers lost at sea during the Civil War who must try to recreate civilization on a deserted island.  
THE MYSTERIOUS ISLAND
2. The Crusades were an instrumental part of reviving Europe from the Dark Ages by opening connections to the Arabic world. For 10 points each, identify the following concerning the beginning of the Crusades.
  - a. (10) First, what Pope began the Crusades with his impassioned plea to reclaim Jerusalem and the Holy Lands from the Saracens  
URBAN II
  - b. (10) For 10 points if within 10 years and five if within 30, in what year did Pope Urban II make this plea.  
1095 (accept 1085-1105 for 10, 1065-1125 for 5)
  - c. (10) Finally, Urban II made his 1095 speech at what Church council.  
Council of CLERMONT
3. One problem of statistical mechanics is counting the particles in a system. There are 3 types of statistics, each named after two scientists that apply in different cases. You can either name both scientists from a description of the statistics for 10 points, or you can name the men getting both the description and a sketch of each man for 5 points. You must get BOTH men in each set to earn points. Please choose now. (Note to reader: Order doesn't matter in the answers)
  - a. 10 pt - The statistics used when particles are mutually distinguishable, as in an ideal gas  
5 pts - One man was a Scottish scientist also famous for his 4 equations governing E&M and the other first formulated the equation relating entropy to the number of states of a system  
MAXWELL-BOLTZMAN
  - b. 10 pts - As opposed to Maxwell-Boltzman statistics, the particles are mutually indistinguishable. However, there is no limit to the number of particles that occupy a given state  
5 pts - One man was the scientist after whom bosons were named and the other won the Nobel Prize in 1921 for explaining the photoelectric effect.  
BOSE-EINSTEIN
  - c. 10 pts - Particles are mutually indistinguishable and obey the Pauli Exclusion Principle, so that no more than particle can occupy the same energy state.  
5 pts - One was an Italian scientist instrumental in developing the first controlled nuclear reaction and the second was an Englishman who won the Nobel Prize in 1933 for expanding the Schrodinger equation.  
FERMI-DIRAC
4. 30-15-5. Name this person from the clues provided
  - 30 pts - Born in 1888 in the Oklahoma Territory, he was of partial Sac & Fox ancestry and was given the Indian name Bright Path.
  - 15 pts - His achievements at school came under the tutelage of Pop Warner. In 1920, he became the first president of the NFL.
  - 5 pts - At the 1912 Olympics, he won both the pentathlon and the decathlon, earning King Gustav's praise as "the greatest athlete in the world" - to which he responded "Thanks, King."  
Jim THORPE
5. The Fourth of July, Cinco de Mayo, and July 14th are dates imbedded in history. Answer the following question about events occurring on one of their less distinguished cousins - August 27 - for the stated number of points.

- 5 pts - In 1883, this island volcano blew up, causing tidal waves which killed 36,00 in Java and Sumatra  
KRAKATOA
- 5 pts - In 1928, this treaty, which attempted to outlaw war and provide for the peaceful settlement of disputes, was signed in Paris.  
KELLOGG-BRIAND Pact
- 10 pts - In 1859, this man drilled the first successful US oil well near Titusville, PA  
Col. Edwin DRAKE
- 10 pts - In 1967, this manager of the Beatles was found dead in his London flat after overdosing on sleeping pills.  
Brian EPSTEIN

6. You are doing today's New York Times crossword puzzle and find yourself one four-letter word away from finishing the whole thing. From the other clues you see that the missing word begins with the letter "I" and ends with "S". For 5 points each, what word would you supply for the following clues.

- |                                               |             |
|-----------------------------------------------|-------------|
| a. Sister of Osiris                           | <u>ISIS</u> |
| b. Roman date                                 | <u>IDES</u> |
| c. Wading bird                                | <u>IBIS</u> |
| d. Murderer of Castor (Pollux's twin brother) | <u>IDAS</u> |
- For a final 10 points - since you're doing the NY Times puzzle, what former Games magazine contributor edited the puzzle you just finished?  
Will SHORTZ

7. Although some Southern tournaments seem to make it a requirement that there be a Civil War question in every packet, this question goes farther back and asks you to identify the Revolutionary War battle. You'll get 10 pts if you can do it off the first clue (the commanders and date) and 5 if you can do it off the second (the state).

- |                                                                              |                   |
|------------------------------------------------------------------------------|-------------------|
| a. 10 pts - Amer: Daniel Morgan, Brit: Banastre Tarleton; January 17, 1781   |                   |
| 5 pts - South Carolina                                                       | <u>COWPENS</u>    |
| b. 10 pts - Amer.: George Washington, Brit: William Howe; September 11, 1777 |                   |
| 5 pts - Pennsylvania                                                         | <u>BRANDYWINE</u> |
| c. 10 pts - Amer: George Washington, Brit: Lord Cornwallis; January 3, 1777  |                   |
| 5 pts - New Jersey                                                           | <u>PRINCETON</u>  |

8. As a Colorado resident, I couldn't resist the temptation to include a bonus about my home state. For ten points each, identify the following interesting things about Colorado.

- a. (10) The town of Manassa is buried deep in southwestern Colorado. Its only claim to fame is that it was the birthplace and is home to a museum dedicated to, for 10 points, what athlete?  
Jack DEMPSEY
- b. (10) Legend has it this town lost the race to Denver to be territorial capital by one vote - from a bribed legislator. It is now more famous as the home of the Coors Brewery, the largest single-site brewery in the country.  
GOLDEN
- c. (10) Two friars looking for an overland route from Santa Fe to Monterey first stumbled on the ruins of these people. They appear to have suddenly vanished from their ingenious cave dwellings around 1300 but are probably the ancestors of today's Pueblo tribes.  
ANASAZI

9. Names, names, names - that's all questions seem to be sometimes. Identify the following seemingly unrelated people from clues about them for the stated number of points.

- a. (5) Born Frances Gumm, she is famous for her performances of popular songs such as "You Made Me Love You" and acting in films such as A Star Is Born Judy GARLAND
- b. (10) At first, he was a Democrat but he joined the Republicans in 1856 because of his antislavery views. Before and after serving in his highest position, he was Senator from Maine from 1848-56 and from 1869-81.  
Hannibal HAMLIN
- c. (15) The works of this American author portray Midwest farm life. He is especially noted for the story collection "Main Travelled Roads" and for the autobiographical "Middle Border" series which won him a 1921 Pulitzer.  
Hannibal Hamlin GARLAND

10. Not all literature questions have to be about authors who never cracked the bestseller lists. This bonus will test your knowledge of the books of that modern literary luminary Michael Crichton.

a. (5) In this book, Crichton's latest, he examines sexual harassment in the workplace, this time with a man suing his female boss. DISCLOSURE

b. (5) This novel, Crichton's first popular success, dealt with the identification and containment of a killer virus that wiped out an entire town. THE ANDROMEDA STRAIN

c. (10) In this novel, Crichton recreates the Beowulf story from the point of view of Ibn Fadlan, a visitor from Baghdad. Grendel and his mother turn out to be members of a small tribe of Neanderthals. EATERS OF THE DEAD

d. (10) This novel, Crichton's first, was published in 1968 under the name Jeffrey Hudson. It concerns an investigation into the death of a young girl during an illegal abortion. It was recently re-released by the publisher to cash in on Crichton's fame. A CASE OF NEED

11. Denver Post critic-at-large Jeff Bradley had a large enough ego to choose the 100 best currently available classical recordings. For 5 points apiece, identify the composers of the following pieces that made Bradley's list. Hint: The answers are in alphabetical order.

a. St. Matthew Passion

J. S. BACH

b. Peter Grimes

Benjamin BRITTEN

c. Boris Gudonov

Modest MUSSORGSKY

d. Carmina Burana

Carl ORFF

e. Symphony #3 - the "Organ" Symphony

Camille SAINT-SAENS

f. Ma Vlast

Bedrich SMETANA

12. My tenth grade English course was Intro to World Literature. In addition to being classics, most of the books also had memorable opening lines. For the stated number of points, identify the works from the following opening lines. Note: Some lines may be translations.

a. (5) "It is a truth universally acknowledged that a single man in possession of a good fortune must be in want of a wife" PRIDE AND PREJUDICE

b. (5) "The boy with fair hair lowered himself down the last few feet of rock and began to pick his way toward the lagoon." LORD OF THE FLIES

c. (10) "This is the story of a man, one who was never at a loss." the ODYSSEY

d. (10) "A few miles south of Soledad, the Salinas River drops in close to the hillside bank and runs deep and green." OF MICE AND MEN

13. Now for something a little off the beaten path of world history. Answer the following questions about African empires for the stated number of points.

a. (10) The greatest of the Sudanese empires, it was founded in the 13th century and reached its height under Mansa Musa who ruled around 1320. It was a center of trade and Islamic culture.

MALI empire

b. (10) A West African empire it was founded in the 8th century around the Niger River. It expanded at the expense of the Mali Empire and reached its greatest extent under Askia I around 1500.

SONGHAI empire

c. (5) Under both the Mali and Songhai empires, this town in central Mali on the Niger River was a trading and cultural center.

TIMBUKTU

d. (5) This West African kingdom is known for its famous bronze sculptures. It was the namesake of the West African country with its capital at Porto Novo.

BENIN

14. Some people have noted that the earth sciences are under-represented in the usual packet. Well, here's your chance to prove that you do know something about the planet you live on. For the stated number of points, identify the following terms from earth science.

a. (5) The portion of a river that is affected by ocean tides above the mouth, resulting in a mixture

of salt and fresh water. The Hudson River and Chesapeake Bay are examples.

ESTUARY

b. (10) The action of water draining through soil taking away dissolved minerals or organic material from the upper layers. Since the material is usually alkaline, this process leaves the soil acidic.

LEACHING

c. (15) A zone of ocean water located between 100 and 2000 meters. It is generally located along the continental slope and has abundant biological activity due to the fact that light reaches the upper layer of the zone. It is located just above the abyssal zone.

BATHYAL ZONE

15. According to current theories, the age of the dinosaurs ended 65 million years ago when a giant asteroid hit the Earth, causing huge climatic changes. Answer the following questions about that big bang for ten points each.

a. (10) Geologic evidence for the impact occurs at a point called the K-T boundary names after the two geologic periods which it forms the border for. Name these two periods for 5 points each.

CRETACEOUS and TERTIARY

b. (10) One crucial piece of evidence is that the K-T boundary is heavily enriched with a certain metallic element which is rare on Earth, but is abundant on meteorites. Name this platinum-group metal.

IRIDIUM

c. (10) Two scientists, father and son, were the leading proponents in the 1980s of the asteroid-impact theory. The father also won a Nobel Physics Prize in the 1960s for his work with subatomic particles. Give their last name.

Luis and Walter ALVAREZ

16. No question packet is truly complete without a question concerning Dante's Divine Comedy. Throughout the work, Dante is guided by five people on his tour of the afterlife. For the stated number of points, identify these people who led Dante on part of his journey.

a. (5) This Roman poet, Dante's idol, meets Dante in the Wood of Error in the poems' first cantos and accompanies him through Hell and most of Purgatory.

VIRGIL

b. (10) Although Beatrice guides Dante through most of Paradise, the final steps of his journey are taken with this famous saint who founded a Cistercian monastery at Clairvaux and who was a principal organizer of the Second Crusade.

ST. BERNARD

c. (15) While Virgil guides Dante through Purgatory, they are also accompanied in the latter part of the journey by another Roman poet whose best known works are the Thebais and the Achilleis. Name him.

STATIUS

17. Roman history was ripe with intrigue. In fact, early in the imperial reign, four caesars all ruled in one calendar year.

a. (10) First, for ten points if exactly correct and 5 if within 10 years, which year was the year of four emperors?

69 A.D. (59-79 A.D. for 5 pts)

The four emperors who ruled during 69 AD were Vitellius, Galba, Vespasian, and Otho (not necessarily in that order). For 5 points each, identify these emperors after a description.

b. The first of the Flavian dynasty, the Colosseum was begun during his reign.

VESPASIAN

c. The first of the four, he succeeded Nero to the throne, but was ousted in a coup d'etat by the army after less than 7 months in office.

GALBA

d. (10) The biographies of these four men are included in a larger work that chronicles the lives of the first 12 emperors. Which Roman historian wrote The Twelve Caesars

SUETONIUS

18. Art questions don't have to concentrate on painters and sculptors. Identify the following dancers and choreographers for the stated number of points.

a. (5) This Russian was the premier dancer with Diaghilev's Ballet Russe and created the ballet roles in Petrouchka and Afternoon of a Faun. Mental illness ended his career in 1919.

Vaslav NIJINSKY

b. (10) This American choreographer formed the American Ballet Center in 1953 and his own company a few years later. He choreographed works for the New York City Opera including The



Devil and Daniel Webster and Regina.

Robert JOFFREY

c. (15) This man was ballet master of Copenhagen's Royal Opera, organized the Ballet Russe de Monte Carlo and founded the New York City Ballet with Lincoln Kirstein in 1948.

George BALANCHINE

19. Myth and religion, just like any other sector of everyday life, is not the sole province of men. Identify the following women from myth and religion for the stated number of points.

a. (5) This American religious leader and author founded the Church of Christ, Scientist in 1879 and the newspaper The Christian Science Monitor

Mary Baker EDDY

b. (10) The youngest daughter of Mohammed, she is, according to the Koran, one of the four perfect women. The name is also given to a shrine to the Virgin Mary located in Portugal.

FATIMA

c. (15) Her story is part of the Ulster Cycle and partially parallels the legend of Tristan and Iseult. The heroine's birth is accompanied by a prophecy that she will be the most beautiful woman in Ireland, yet will bring bloodshed and death. The prophecy comes true, and in some versions, the heroine kills herself at her lover's grave.

DEIRDRE

20. Now it's time for the social scientists on your team to show your stuff. Answer the following questions about social science for the stated number of points.

a. (10) This branch of intellectual thought focuses on the idea that all human behavior is governed by an underlying framework which forms the basis for societal patterns. Name this theory whose proponents include linguist Noam Chomsky

STRUCTURALISM

b. (5) The most important structural anthropologist is this Frenchman whose works include Structural Anthropology and The Savage Mind

Claude LEVI-STRAUSS

c. (15) This philosopher and historian emphasizes the basic structures that underlie the creation of social institutions. He analyzed insanity in Madness in Civilization and the manipulation of sexuality by economics in his History of Sexuality

Michel FOUCAULT

21. The early front runners for this year's Best Picture Oscar include Quiz Show and Pulp Fiction. But let's see how much you know about the early history of the Best Picture Oscar.

a. (5) The first 6 Best Picture Oscars were given out for films released over two years. For five points, identify either of the years for which the first Best Picture Oscar was given out.

1927 or 1928

b. (10) The winner in 1927-1928 was a large-scale action drama about two American pilots during World War I. Name it

WINGS

c. (15) At the first Academy Awards Banquet, there were actually two categories for Best Picture. Wings won in the "Best Production" category. However, another film won in the "Artistic Quality of Production" category. Name this F.W. Murnau film which chronicles the love of a married couple in the corruption of the city.

SUNRISE

~~22. The origin of the universe has been debated by every religion and society. Test your knowledge on modern science's response by answering the following questions on the Big Bang.~~

~~a. (5) One of the first clues about the Big Bang was the observation that distant galaxies appear to be receding from us. Name the physical effect which was used to measure the speed of this recession.~~

~~DOPPLER SHIFT or REDSHIFT~~

~~b. (10) Using Doppler shifts, it was determined that there is a simple proportionality between the distance to a galaxy and its velocity. Name this constant which can be used to find the age of the Universe.~~

~~HUBBLE CONSTANT~~

~~c. (10) Another clue to the Big Bang is the existence of a residual buzz - called the cosmic background radiation. To the nearest degree Kelvin, what is the temperature of this leftover static from the Big Bang.~~

~~3 K~~

~~d. (5) Finally, the background radiation at 3 degrees Kelvin is located in what part of the~~