

1998 Penn Bowl 007 Carnegie Mellon University

Tossups ~~~~~

Science: Physics

My big toe isn't where I see it in the bath tub. When light strikes water it bends at a different angle than that of the incident ray. If we wish to calculate the angle of the refracted ray, FTP, we use what law of optics, which states that the ratio of the sines of the angles equal the inverse ratio of the two indexes of refraction?

Answer: _Snell_'s law (accept refraction if given before the "calculate" is read)

Fine Arts

The son of a Swedish consular official, he studied at the Art Institute of Chicago then moved to New York City in 1956. He created a sculpture of an oversized shuttlecock specially for a 1995 retrospective of his work at the Solomon R. Guggenheim Museum, and other works include "Clothespin", "Batcolumn", and "Colossal Ashtray with Fagends". FTP, name this American Pop-art sculptor best known for giant soft sculptures of everyday objects.

Answer: Claes _Oldenburg_

Literature: Ancient and Non-western

He got his pseudonym from the Japanese word describing the simple hut in which he stayed in retirement. After his lord's death in 1666, he abandoned his samurai status to devote himself to poetry. He is well known for his trips from Edo into the countryside, which he wrote about. FTP, give the pseudonym of Matsuo Munefusa, whom many consider the saint of haiku.

Answer: Matsuo _Basho_

Literature: Poetry

A failure at Oxford, he became Professor of Latin at Cambridge. From 1911 to 1936 his main work was as an editor, and his edition of the difficult Latin astronomer Manilius is regarded as his masterpiece. A bachelor and recluse, he published his first book of poems in 1896. FTP, name this English poet and classicist, from whose famous books of poems comes "Loveliest of trees, the cherry now" and "When I was One-and-twenty".

Answer: A. E. _Housman_ (Alfred Edward)

Literature: Brit. Lit >

From 1925 to 1954 he was a fellow and tutor of Magdalen College, Oxford, and from 1954 to 1963 he was professor of medieval and Renaissance literature at Cambridge University. The author of some 40 books, most of them on Christian apologetics, he is probably the most famous lay theologian of the 20th century. FTP name this Anglican, whose autobiography is titled "Surprised by Joy".

Answer: C(live) S(taples) _Lewis_

History: Civil War

He is said to have originated the phrase "the solid South". It is fitting that he is the author of "Stuart's Cavalry Campaigns" and "Stuart's Cavalry in the Gettysburg Campaign", as he served in the cavalry under General J.E.B. Stuart during the Civil War. FTP, name this Confederate scout who left the regular forces early in 1863 and who commanded an independent cavalry body of adventurers and guerrilla warriors in Virginia and Maryland.

Answer: John Singleton _Mosby_ (Mosby's Rangers)

Current Events: Canadian Business

The toast of the financial community, this tiny Calgary junior exploration outfit watched its stock price explode from pennies to over \$250 a share. However, it is now known that executives David Walsh and John Felderhof did not have any proof of the largest gold deposit in the world, supposedly located in Indonesia. FTP, name this company that took much of Canada's Bay Street by surprise when its Filipino geologists report turned out to be fraudulent.

Answer: _Bre-X_

Pop Culture: Baseball

Derek was a member of World Series championship team in 1992. Jay was selected by the Minnesota Twins in the first round of the 1984 draft. David played infield for the St. Louis Cardinals and is the son of Buddy, the manager for the Detroit Tigers. They all share, FTP, what last name that if spelled with an e on the end would allow me to include Albert, who holds the Cleveland Indians all-time record for most home runs with 242.

Answer: _Bell_

Geography: Governmental

As a staffer for Iowa Congressman Neal Smith in 1970, he was responsible for exposing the world to the infamous "tiger cages" inside a South Vietnamese prison camp at Con Son Island. A principal sponsor of the 1990 Americans with Disabilities Act, he first won election to Congress in 1974. FTP, identify this graduate of Iowa State University who has been the first Iowa Democrat ever to earn a third term in the U.S. Senate.

Answer: Tom _Harkin_

Fine Arts: Art

The most celebrated artist of his time, he is most famous for his paintings of odalisques. The student of David, he fought against the Romantic style of painting. FTP, name this French Neoclassical artist, whose painting "Mme. Moitessier" hangs in the National Gallery.

Answer: Jean-Auguste Dominique _Ingres_

Religion: Non-Western

The largest bodies in this tradition are the Jodo Shinshu, the Nishi, the Honganji, and Higashi. Initiated by Shinran in the 13th century, it maintains that all religious practices, particularly the recitation of the name of the Buddha, express gratitude rather than achieve purification. FTP, identify this branch of Buddhism whose roots come from the Pure Land teachings of Honen in Japan.

Answer: _Shin_ Buddhism (Accept: _Pure Land_ if answered before given)

Science: Biology

In the body, this enlarges from about the 12th week of gestation until puberty, after which it begins to shrink. Coming from the Greek for warty excrescence, it is in this organ that lymphocytes develop and express receptors able to bind specifically foreign antigens in the body. FTP, identify this flask-shaped gland which occupies the area between the heart and the sternum in which T-cells are created.

Answer: Thymus

History: American

In his 1801 letter to Elias Shipman of New Haven, he wrote "If a due participation of office is a matter of right, how are vacancies to be obtained? Those by death are few; by resignation, none" although he is

usually quoted as "Few die and none resign." FTP, name this Founding Father from Virginia who wrote in his Notes on Virginia, "Indeed, I tremble for my country when I reflect that God is just."

Answer: Thomas _Jefferson_

Pop Culture: Music

Born Otha Ellas Bates in 1928, this guitarist was most famous for his odd-shaped instruments, such as oblong ones or even fur-covered. The Rolling Stones, among others, have been known to record and perform note-for-note versions of his songs. David Bowie used his "Cops and Robbers" as a basis for "Jean Genie." FTP, name this musician most recent claim to fame is having taught Vincent Edward Jackson to play the guitar in six months, adding another hobby to Jackson's seemingly endless repertoire.

Answer: Bo _Diddley_

Fine Arts: Architecture

In 1770, he attracted attention by building a wooden clock that kept precise time for years. From 1792 to 1802 he compiled an almanac titled "The Pennsylvania, Delaware, Maryland, Virginia Almanac and Ephemeris". FTP, name this free Negro and Black intellectual who is best known for his work with Andrew Ellicott as a surveyor under L'Enfant of the to-be Federal District.

Answer: Benjamin _Banneker_

Social Science: Psychology

There are several varieties of the illness, with a continuum of symptoms that range from the moodiness of cyclothymia. Type III is diagnosed when a patient has an episode precipitated by a drug or by electroconvulsive treatment prescribed for depression. Believed to be caused by imbalances of neurotransmitters in the brain, it is treated with lithium and other mood stabilizers. FTP, identify this disorder characterized by alternating periods of mania and depression.

Answer: _Bipolar_ Disorder

Misc: Truly tasteless trivia

This herb, *Allium sativum*, is a member of the lily family. Some claim it to be an aphrodisiac and from a medical point of view it can improve blood circulation significantly. Now it appears that a lack of an enzyme called nitric oxide synthase can cause impotence, and this food stimulates the production of the enzyme, as well as bad breath. Add these claims to the folklore of, FTP, what item that supposedly kept vampires away.

Answer: _Garlic_

History: African

In medieval times the African empire of Wagadugu was ruled by kings of this title. Geographically, the empire was 500 miles north of the country that now shares the name. The Portuguese who came here in the 15th century were impressed with the precious metals they found between the Ankobra and the Volta rivers. FTP, name this country known as the Gold Coast before March 1957, whose capital is located at Accra.

Answer: _Ghana_

Fine Arts: Music

The name's the same. The first is a famous song by Charles Gounod, based on the first prelude of Bach's 'Well-Tempered Clavier'. The second is the piece of music composed by Schubert which immediately follows 'Night on Bald Mountain' in Disney's Fantasia. FTP give the common name, which originates from the Gospel of Luke in the Latin Vulgate, translated as 'Hail Mary'.

Answer: _Ave Maria_

Religion: Christian

Warning: two answers required! First mentioned in Exodus 28:30, the Hebrew for these objects probably translates as "the curses and the perfections". These were sacred objects carried inside the breastplate of the high priest of ancient Israel and used as oracular media to divine the will of God. FTP, name these sacred lots which Joseph Smith claimed to have discovered as a type of miraculous spectacles and used to translate the golden plates.

Answer: the _Urim and Thummim_

Pop Culture: Film

In 1930, this character was played by John Barrymore. In 1956, he was played by Gregory Peck. In an upcoming TV version of the story, Peck will appear again, but this time in the role of Father Mapple. In Star Trek: First Contact, Patrick Stewart mentioned this character, which is appropriate seeing as he will portray the character in the 1998 version. FTP, who is this main character we associate with Starbuck, Queequeg, and Ishmael?

Answer: Captain _Ahab_ (Accept: _Ahab_ Ceely)

Science: Computer Science

A programming language has this attribute when a programmer can combine various features of the language in all possible combinations, with every combination being meaningful. Some programmers like this attribute in a language because there are fewer special cases to remember. FTP, identify this term which also applies to vectors having a scalar product equal to zero.

Answer: _Orthogonal_ity

Current Events: Non-Western

On 12 November 1997, this man claimed to be the victim of a "highly offensive, personal and diplomatic humiliation". Supposedly, Madeleine Albright approached him behind and touched his bottom right after a session of the UN Security Council. FTP, name this Deputy Prime Minister, whose country was condemned in that session for Iraq's refusal to allow Americans to participate in disarmament inspections.

Answer: Taraq _Aziz_

Social Science: Anthropology

Morris Jesup was a banking tycoon who headed New York's American Museum of Natural History. In 1897, this man came to Jesup with an a proposal to study the disappearing cultures of the North Pacific. His thesis that culture exists independent of race led him to study people from British Columbia to Siberia. FTP, identify this anthropologist considered the father of modern cultural study who went on teach Margaret Mead among others.

Answer: Franz _Boas_

Misc: Vocabulary

When used as a verb, it means to set, mark, or decorate conspicuously, often at intervals. When used as a noun, it refers to a group of animals such as horses kept primarily for breeding. When used as an adjective for poker, it refers to play where each player is dealt the first card facedown and the other four cards faceup with rounds of betting taking place in between. FTP, identify the four letter term that sometimes also refers to a male who is virile and promiscuous.

Answer: _Stud_

Science: Chemistry

This substance is produced by cosmic ray bombardment of water in the atmosphere. Radioactive, its half life is 12.26 years, and it decays by loss of a beta particle to form an unstable isotope of helium, ^3He . FTP, name this isotope found at a ratio of one to ten to the eighteen of ordinary hydrogen, with atomic mass of 3 amu.

Answer: Tritium

History: Chinese

During its reign, the boundaries of China extended through Siberia, Korea, and Vietnam. Killing her own son in the process of assuming power, the Empress Wu reigned during this time and is only woman to ever actually hold the title of Emperor in China. The dynasty is also remembered for the An Lushan Rebellion which helped to bring it down. FTP, give the name of the Chinese dynasty which lasted from 618 to 907 A. D.

Answer: Tang

Religion: Mythology

In a poem, this mythological man states, "Me only cruel immortality Consumes" and he laments that "The Gods themselves cannot recall their gifts." Eos, the goddess of the dawn, was his wife, and she had Zeus grant him eternal life. FTP, name this prince, who was not given eternal youth, and thus shriveled up into a cricket as time passed.

Answer: Tithonus

Geography: American

The largest relief sculpture in the world, its carving towers 400 feet above the ground, and measures 90 by 190 feet. Located east of Atlanta, this is the South's counterpart to Mount Rushmore. FTP, name the mountain in which the faces of Robert E. Lee, Stonewall Jackson, and Jefferson Davis are carved.

Answer: Stone Mountain

Literature: Am. Lit

Because of his father's death and his family's poverty this author was kept out of college. He ended up in New York City as secretary to newspaper columnist Heywood Brown. His first published short story appeared in The New Yorker in 1928, and he soon was a regular contributor to the magazine. FTP, name this author who in 1940 collected a number of New Yorker sketches about a nightclub singer into a book called 'Pal Joey'.

Answer: John O'Hara

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Boni ~~~~

Geography: Governmental

1) In November, 1997, the Middle East-North Africa Summit was held here. Mired in controversy, most Arab states boycotted the conference to protest lack of progress in Palestinian-Israeli peace talks. Located on the western shore of the Arabian Gulf, its currency is the Riyal. FFP for one, or fifteen for both identify the country and its capital.

Answer: Qatar, Doha 2) Qatar is bordered by three other countries of the Middle East.

FFP each, name them.

Answer: Saudi Arabia, the United Arab Emirates, Bahrain

Religion: Mythology

FFP per answer, identify the following related to King Agenor's daughter. 1) When Zeus appeared to Europa in the form of a white bull, he took her to what island of Zeus' childhood, over which he wanted her to rule? 2) Europa gave birth to three sons through Zeus. FFP each, name them. 3) Finally, give the name of Europa's brother, and the city that he founded.

Answer: 1) Crete 2) Minos, Sarpedon, Rhadamanthus 3) Cadmus, Thebes

Fine Arts: Art

Identify the artists generally credited with the development of the following techniques. 1) Perspective (One point)

Answer: Filippo _Brunelleschi_

2) Stumato and Chiaroscuro

Answer: Leonardo _da Vinci_

3) Divisionism

Answer: Jean-Antoine _Watteau_

Misc: Clinton's Cabinet.

Give the name of the individual who holds each of the following positions in Clinton's cabinet FTP each.

Secretary of Transportation Answer: Rodney _Slater_

Secretary of Labor Answer: Alexis _Herman_

Chairman of the Council of Economic Advisers. Answer: Janet _Yellen_

History: French & English

It didn't last exactly a century, but you'll receive exactly ten points by each of the following questions about the Hundred Year's War.

1) This Frenchman assumed the regency upon the death of Charles IV. When Charles' pregnant widow gave birth to a daughter, he was crowned King in May 1328, an act that may have instigated the war.

Answer: Phillip VI (Accept: Philip of Valois)

2) An attempt to end hostilities, in this treaty of 1360, Edward III renounced his claim to the French crown in return for the whole of Aquitaine.

Answer: Treaty of Calais

3) The Treaty of Calais was repudiated by this French King, who proceeded to back the decree with military might. He also gave the 1370 order for the construction of the structure that later became the Bastille.

Answer: Charles V

Science: Mathematics

Answer these questions about complex numbers for the stated number of points.

1) For 5: It is known from algebra that a polynomial of the form $a^2 + b^2$, with a & b real, has two complex factors of the form $a + bi$ and $a - bi$. Give the collective term for these two factors.

2) For 10: Carl Gauss provided the first definitive proof that every polynomial of the form $f(z) = 0$, with z complex, has at least one root, either real or complex. Give the common name for this result.

3) For 15: Irish mathematician William Hamilton created these hypercomplex numbers, a number system in which the commutative law of multiplication does not hold, and in which there are three distinct square roots of minus one, usually notated i , j , and k .

Answers: 1) _Conjugate_ Pair 2) The _Fundamental Theorem of Algebra_ 3) _Quaternions_

Pop Culture: Music

Time for the Piano Man! Given some lyrics, identify the Billy Joel song you'd hear them in FTP each.

1) She waits for me at night, She waits for me in silence.

2) Something's got to pay off. Something's got to break. Someone's got a fortune that they're begging me to take.

3) I've got bills to pay and children who need clothes. I know there's a fish out there but where God only knows.

Answer: 1) _All About Soul_ 2) _Easy Money_ 3) The _Downeaster "Alexa" _

History: American

Some Presidential candidates are lost in the winds of time, while the winner becomes a man of history. For each of the following US elections, given the winner, name the major opponent FTP each.

| | |
|-----------------------------|----------------------------|
| 1) 1884, Grover Cleveland | Answer: James _Blaine_ |
| 2) 1904, Theodore Roosevelt | Answer: Alton _Parker_ |
| 3) 1908, William Taft | Answer: William J. _Bryan_ |

Religion: Celtic

Identify each of the following Druid holy days FTP each.

1) This feast of the dead, held on November 1st marked the beginning of the new year. It is on this day that the boundary between this world and the Otherworld is thinnest.

2) Held on February 1st, it is the return of the light, and celebrates the coming springtime. In Anglo-Saxon and Wiccan culture, it is sometimes called Candlemas.

3) This holiday for the Fires of Bel is held on the first of May. Because it is a day of fertility and life, it was often a choice date for marriages.

Answer: 1) Samhain (SOW-win) 2) Imbolc (IM-volk) 3) Beltaine (BEL-tain-yuh)

Misc: Military Ranks

In the United States Air Force, there are ten officer ranks. The lowest, O-1 is a second lieutenant, and an O-2 would be a first lieutenant. For 5-10-20-30, what are each of the following ranks further up the officer totem pole?

O-3 Answer: Captain

O-4 Answer: Major

O-6 Answer: Colonel

O-10 Answer: General (do not accept Major, Brigadier or Lieutenant General)

Current Events: General

In the news in recent months has been the case of a 19 year old British au pair accused and convicted of murdering an 8 month old child in her care by violently shaking him and banging his head on a tile floor. FTP each, give 1) the name of the Elton, England resident who initially served 279 days in prison for her crime, 2) the name of the Middlesex County Superior Court Judge that decreed her time served was adequate punishment and reduced her conviction to that of manslaughter, and 3) the family name of which the infant Matthew was from.

Answer: (in order) Louise _Woodward_, Hiller _Zobel_, _Eappen_

History: Ancient History

Identify each of the following associated with Alexander the Great for the stated number of points.

5) Who was Alexander's father?

Answer: _Philip II_ of Macedonia

10) This man, was the son of Antiochus, a general of Philip II. He participated in the conquest of the Persian empire as one of Alexander's officers, and founded a Mesopotamian empire.

Answer: _Seleucus_ I

15) One of Alexander's generals, He played a key role in the defeat of the Indian prince Porus at the Battle of the Hydaspes in 326. During the struggle succession to Alexander's empire, He was killed while fighting the forces of Alexander's former secretary, Eumenes of Cardia.

Answer: Craterus

Science: Biology

Identify each of the following classes of viruses FTP each.

1) Coming from the Latin for threadlike, when the Marburg and Ebola viruses were isolated placed in a new family given what name.

2) Coming from the Greek for rod-shaped, there are more than 200 of these known, although only the Rabies virus infects man.

3) This family is divided into 3 genera which includes Mumps, Measles, Respiratory Syncytial Virus, and Canine Distemper Virus.

Answer: 1) Filoviruses 2) Rhabdoviruses 3) Paramyxoviruses

Pop Culture: Film

Bond, James Bond. Points, ten points (each).

1) Name the pair of men who together have produced many Bond films including "You Only Live Twice" and "Goldfinger" FFP each.

2) This Bond film was the first to star Roger Moore as 007, and the first to have its title theme done by a rock group, the group being Paul McCartney and Wings.

3) Well known as Dracula, this actor played Scaramanga, The Man with the Golden Gun.

Answer: 1) Albert _Broccoli_, Harry _Saltzman_, 2) _Live and Let Die_ 3) Christopher _Lee_

Fine Arts: Music

Name the major classical work where we find these well known short pieces, FTPE.

Verdi's "Anvil Chorus"

Answer: _Il Trovatore_

Rimsky-Korsakov's "The Flight of the Bumblebee"

Answer: _The Tale of Tsar Saltan_

Chopin's famous "Funeral March"

Answer: _Sonata in b flat minor_

History: 20th century American

Identify each of the following related to the Civil Rights movement FTP each.

1) FTP name the NAACP leader who was gunned down in front of his home in Jackson, Mississippi in 1963.

2) While Medgar Evers and other leaders placed emphasis on peaceful, court-ordered remedies to problems, others were impatient. Included in this category could be Floyd McKissick of CORE. FTP, all or nothing, what did CORE stand for?

3) The Rodney King incident isn't novel to the present. This area was a rundown district of shabby houses built near the highway approaching the L.A. Airport. When police stopped a young black man for suspected drunk driving on August 11, 1965, rumors of police brutality escalated to an angry mob. FTP, name the district in which four people died and millions of property damage occurred.

Answer: 1) Medgar Evers 2) Congress of Racial Equality 3) Watts

Literature: Philosophy

Identify the philosopher and writer from his works, 30-20-10.

For 30: "What I believe", "On Life", "Resurrection"

For 20: "The Kreutzer Sonata", "The Law of Violence and the Law of Love"

For 10: "Anna Karenina", "War and Peace"

Answer: Leo _Tolstoy_

Fine Arts: Architecture

Some claim that the Pyramids of Egypt are actually landing beacons for UFOs. Answer these questions about the Earthlings and structures they used FTP each.

- 1) Who was the architect of King Zoser's burial place, the step pyramid of Saqqara?
- 2) The world's largest obelisk stands in the Piazza of San Giovanni in Rome. FTP, from which Egyptian temple was it removed?
- 3) Including the Great Pyramid of Egypt in his list was this person who drew up the list of the seven wonders of the Ancient World.

Answer: 1) _Imhotep_ 2) The Temple of _Amon_ at Karnak (Accept: Karnak) 3) _Antipater_

Social Science: Law

With the slowness of the Judicial system at times, you might think that the lawyers all all out having tea. Identify each of the following legal terms that begin with "t" FTP each.

- 1) This is a private or civil wrong or injury, including action for bad faith breach of contract.
- 2) An English Law term for a bailiff, he is an appointed officer whose duty is to wait upon the court when it is in session. In the past, they carried a rod with a silver top.
- 3) Used often in civil law, this is another name for a trial by witnesses, a judicial examination that does not include a jury.

Answer: 1) Tort 2) Tipstaff 3) Trial per Testes

Literature: Science Fiction How well do you know Ayn Rand's works? Given a description, name the work FTP each.

- 1) As near to an autobiography as Rand will ever write, it portrays the impact of the Russian Revolution on three people who demand the right to live their own lives.
- 2) It is the story of what happens to the world when the men of the mind - the men of ability - go on strike. John Galt proclaims "I will stop the motor of the world".
- 3) This book is a collection of the author's written articles on the ethics of objectivism. It is subtitled, "A New Concept of Egoism".

Answer: 1) _We the Living_ 2) _Atlas Shrugged_ 3) _The Virtue of Selfishness_

Current Events: Business 30-20-10 Name the individual.

For 30: In 1962, with a borrowed \$5,000 he purchased a garbage truck. In 1984, his company Waste Management was worth over 3 billion dollars.

For 20: Other companies you may connect this individual to include WMX Technologies, Discovery Zone, Boston Market, and Republic.

For 10: He is perhaps best well known for his acquisitions of Blockbuster video and the Florida Marlins.

Answer: Wayne _Huizenga_

Religion: Christian

Although the Bishops of the undivided Church were (and are) equal to each other, they began to differ in rank according to the valuation of the places where their Sees were located. By 451 AD, the Bishops of five cities were known as patriarchs. FFP each, and a bonus five for all correct, name these cities.

Answer: Rome, Constantinople, Jerusalem, Antioch, Alexandria.

Geography: European

Identify the Italian city 30-20-10.

For 30: Located in the Tuscany region, The city lies on the Arno River plain, about 6 miles from the Ligurian Sea and 50 miles west of Florence.

For 20: Birthplace of Galileo, its Square of Miracles, located at the northwestern end of the medieval city contains the cathedral, the baptistery, and the campanile.

For 10: That campanile now has a marked inclination about 17 feet out of the perpendicular.

Answer: _Pisa_

Science: Chemistry

Rank all of the following chemically in order of acid strength, from least acidic to most. The chemicals are Perchloric Acid, Ammonia, Carbonic Acid, Water, Hydriodic Acid, Hydrochloric Acid.

Answer: Ammonia (NH₃), Water (H₂O), Carbonic Acid (H₂CO₃), Hydrochloric Acid (HCl), Perchloric Acid (HClO₄), Hydriodic Acid (HI).

Social Science: Economics Identify the following terms from economics F15PE.

1. A combination of firms that come together to act as a monopolist.

Answer: _trust_

2. An organization of firms that reduces output and increases price in an effort to increase joint profits.

Answer: _cartel_

Fine Arts

Answer the questions related to the Baths of Diocletian, FTPE.

1. What famous Florentine architect restored the monastery on the site of the baths of Diocletian, a monastery which now houses a museum of Greco-Roman art?

Answer: _Michelangelo_

2. The train station in Washington DC is modeled after the Baths of Diocletian. Give both the name of the train station and its architect who is better known for his city planning.

Answer: _Union Station_ and Daniel _Burnham_

Literature: Theater Identify the Russian, 30-20-10.

30. His successful staging of Anton Chekhov's 'The Seagull' inspired Chekhov to create 'Three Sisters' and 'The Cherry Orchard' especially for the theater. He himself acted leading roles in Chekhov's 'Uncle Vanya' and 'The Cherry Orchard', and in Ibsen's 'An Enemy of the People'.

20. He prospered in Moscow as an actor, director, and producer. In 1898 he formed the Moscow Art Theater, and in 1912 he became acting director of the Bolshoi Opera Studio. He describes his acting technique in "An Artist Prepares".

10. He is best known for his development of method acting, where actors identify with a role by becoming totally involved in the inner life of the character.

Answer: Constantine _Stanislavsky_

Literature Answer the following questions relating to the works of Charles Dickens, FTPE

1. In what book do we find the trial of Jarndyce vs. Jarndyce?

Answer: _Bleak House_

2. What former business partner of Ebenezer visited Scrooge before the Ghosts of Christmas made their arrivals?

Answer: Jacob _Marley_

3. What woman^Rs knitting is a sign of expectant death in A Tale of Two Cities?

Answer: Madame _Defarge_

Science: Physics

Answer the following questions from thermodynamics,

1. F5PE, identify the three terms describing a process which is constant in both volume and pressure and has no heat transfer into or out for the system.

Answer: _isochoric_, _isobaric_, and _adiabatic_

2. Five points for one and 15 points for both, give the maximum efficiency of a heat engine and a refrigerator operating between two reservoirs at temperatures 300 and 600 kelvin.

Answer: engine = $\frac{1}{2}$, refrigerator = $\frac{1}{2}$ (efficiencies are the same for all Carnot cycles between the same temperatures, whether the cycle is used as a heat engine or a refrigerator)

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