

PMVI
Johns Hopkins Tossups
edited by Earl Cahill

1. This process can be accomplished using packed tower columns or rotating disk contactors, and the various streams involved include the solvent, raffinate and feed. The object is to achieve a high rate of mass transfer by maximizing contact between the phases. It can be used for processes for which the boiling points of two liquids are too close for distillation, and requires that one component has different solubility properties. FTP, name this process that can be performed in a laboratory using a separatory funnel.

Answer: _EXTRACTION_

2. In the words of its author, the most important character is Tiresias, who "although a mere spectator", unites the rest. Opening with a quote from the Satyricon of Petronius, its five sections are "A Game of Chess", "Death by Water", "The Fire Sermon", "The Burial of the Dead" and "What the Thunder Said". It was dedicated to Ezra Pound, who edited FTP, what poem by T.S. Eliot?

Answer: _THE WASTE LAND_

3. Prince Rupert's Land was the original name given to the area whose rivers drained into this body of water, whose outlets include the Foxe Channel to the north, and a namesake strait which empties into the Atlantic Ocean. It was named after an explorer whose ship was called "Discovery", and was thought to be part of the Northwest Passage, but instead ended up being a dead end. FTP, name this large bay in Canada.

Answer: _HUDSON BAY_

4. 27 men died during its construction, including its designer. His son, Washington, took over as chief engineer, and suffered a crippling attack of the bends at the construction site, though he continued to direct operations by sending messages to the site through his wife, Emily. FTP, name the landmark designed by John A. Roebling that was the first suspension bridge built of steel wires instead of iron, located in New York City.

Answer: _BROOKLYN BRIDGE_

5. Instead of a fiddle and a whip, he was what the father brought back from the trip to Liverpool. On his first night at the house, he was left out on the landing by Ellen Dean in the hopes that he would be gone by morning. This was just the first in a series of abuses, especially from Hareton, that eventually led to his seeking revenge. FTP, name this love of Catherine Earnshaw, one of the main characters in Emily Bronte's Wuthering Heights.

Answer: _HEATHCLIFF_

6. The story first appeared in serialized form in the Saint Nicholas magazine and was titled after the main character. It was so successful that the author wrote an extended version of the story about Miss Minchin's seminary and the little girl who lived there. FTP give name the book which has been made into several movies, the most famous of which starred Shirley Temple as Sara Crewe.

Answer: The _LITTLE PRINCESS_

7. As well as a composer, he was also one of the most influential teachers of the 20th century, and among his most significant pupils were Alban Berg and Anton Webern. He wrote musical textbooks, and was the first to put a vocal part in a string quartet: the line "I feel air from another planet" in his Second String Quartet, which was also his first work that attempted to transcend tonality. FTP, name this composer who is credited with inventing the 12 tone technique.

Answer: Arnold _SCHOENBERG_

8. It had a serial number of AS13486, and was highly rated in the December 1963 issue of Consumer Reports. Purchased from the Peacock Jewelry Company on Elm St, it was loaded with Kodachrome II safety film, the first few scenes of which were filled with family scenes. It also shows footage of other people standing in Dealey Plaza that day, though the person of most interest was just driving through. FTP, name the camera which showed in vivid detail the assassination of President Kennedy.

Answer: _ZAPRUDER_ Film

9. Formed in 1913, its members included Lawrence Harris, Arthur Lismer, Franklin Carmichael, and Alexander Young. Trying to create a national style, they were mainly known for their landscape paintings, particularly of the Northern Ontario wilderness. FTP, name this group of Canadian painters whose more famous members include J.E.H. McDonald and A.Y. Jackson, as well as Tom Thompson, who died in a mysterious boating accident in 1917.

Answer: _GROUP OF SEVEN_

10. In his early 20's he worked as an assistant to the New Jersey Quaker Benjamin Lundy, the publisher of the *Genius of Universal Emancipation*, but he soon grew frustrated with his employer's moderate tone. FTP, what abolitionist expressed his radical criticisms of gradualism and colonialism in his own publication *The Liberator*?
Answer: William Lloyd _GARRISON_

11. A vaccine that gives protection against the type b strain of *Haemophilus influenzae* became commercially available in the 1980s, which is the primary cause of this disease in infants and children. For adults, *Streptococcus pneumoniae* is a major cause when it is carried through the bloodstream from the nose and throat to infect the arachnoid, dura mater or pia mater. FTP, name this potentially deadly disease that can be diagnosed from the presence of bacteria in cerebrospinal fluid.
Answer: _MENINGITIS_

12. Although its exact location is not known with certainty, one hypothesis has it at a place now called the Grotto of the Agony, near a bridge that crosses the Kidron Valley. Its name comes from the Hebrew for oil press, which leads many churches to accept its location as an olive grove on the western slope of the Mount of Olives. FTP, name this garden where Jesus prayed and was betrayed on the night that he was arrested before Crucifixion.
Answer: _GETHSEMANE_

13. Born in Boston in 1836, this artist first achieved recognition during the civil war with his depictions of everyday camp life, which he submitted to *Harper's Weekly*. This experience also led to the painting "Prisoners From the Front". Later works include "Snap the Whip", but it was for his depictions of seascapes that he is best known. FTP, name the painter of "Fog Warning" and "The Gulf Stream"
Answer: Winslow _HOMER_

14. Among his creations were the twin spirits Spenta Mainyu and Angra Mainyu, also known as Ahriman. The former was beneficent, choosing truth, light, and life, while the latter was destructive, choosing deceit, darkness, and death. He was worshipped by Darius I and other Persian kings as the greatest of all gods and protector of the just king. FTP, name this chief god of Zoroastrianism.
Answer: _AHURA MAZDA_

15. Its units are measured in kilograms per meter per second squared, and for a fluid, it can be measured as the product of density, acceleration due to gravity and height, which gives the basis for Bernoulli's equation. Pascal's principle states that it is transmitted undiminished through an incompressible fluid, which allows the operation of hydraulic lifts. FTP, name this quantity that can be measured by a manometer, barometer, or tire gauge, and is probably what your feeling right now if you have answered the question yet.
Answer: _PRESSURE_

16. This country contains Europe's largest glacier and is one of the most geologically active areas on Earth. Settled first by Irish monks and later colonized by Vikings, this nation is home to the world's oldest parliament, the Althing. FTP, name this island nation whose population of 250,000 is mainly clustered around the geothermally heated capital of Reykjavik.
Answer: _ICELAND_

17. This church season begins on the Sunday nearest the feast of St. Andrew's the Apostle. It traditionally marks the beginning of the ecclesiastical year in Western churches, and was probably adopted by the church as a liturgical ceremony in the 6th century. FTP name this four week period, often referred to as "the Christmas Lent" in medieval times, and which occurs in December.
Answer: _ADVENT_

18. He presented the dynamical theory of heat, developed theorems for the mathematical analysis of electricity and magnetism, and investigated hydrodynamics, particularly wave-motion and vortex-motion. He also helped to develop the law of the conservation of energy. If he had not been made a peer in 1892, scientists might be measuring absolute zero as zero degrees Thompson. FTP name him.
Answer: Lord _KELVIN_ (accept William Thompson)

19. All hallucinatory drug demands set aside, toad-licking never really caught on in the United States. But kings in this culture liked to tote around the marine toad *Bufo Marinus* in their hip pouches for use in case of emergency. FTP, name this culture which for all intents and purposes disappeared around 1000 A.D. and whose cities included Uxmal, Caracol, and Chichen Itza.
Answer: _MAYA_

20. Postulated to have a zero spin, it's mass is not supposed to exceed 1 teraelectron volt (1 TeV), and it is being looked for in proton collisions. It has a key role in electroweak theory. FTP, identify this theoretical boson, carrier of all-pervading fundamental field endowing mass on elementary particles, named for the British physicist who postulated it.
Answer: _HIGGS BOSON_ or _HIGGS PARTICLE_

21. An amateur guitarist, he played the closing theme song for the last recorded episode of Monty Python's Flying Circus. He wrote two filmed scripts for Doctor Who, called "The Ribos Operation" and "Shada"; elements of "Shada" were later incorporated into his novel "The Long Dark Tea-Time of the Soul." 1978 brought his writing of a radio series based on an inspiration received while lying drunk in a field in Innsbruck, Austria. That radio series he in turn adapted to a book, bringing fame to, FTP, what author of The Hitch-Hiker's Guide to the Galaxy?
Answer: _D_ouglas _ADAMS_

22. He became an assistant to Helmholtz at Heidelberg in 1858. While there he produced his first major work "Contributions To The Theory of Sense Perception." Originally a physiologist, he transformed what was once a branch of philosophy into an experimental science. FTP identify this founder of experimental psychology.
Answer: Wilhelm _WUNDT_

23. Despite his piety, this Jew exiled to Nineveh was struck blind, though the archangel Raphael restores his sight. A close relative of Sarah, the book which bears his name contains a Judaicized version of the story of the Greatful Dead; his story found its way into the Catholic canon via the Septuagint. FTP identify this title character of an apocryphal Biblical book.
Answer: _TOBIT_

24. This poem consists of 3182 lines, each with four accents marked by alliteration and divided into two parts by a caesura (seh-zhoo-ruh). The oldest surviving copy is in the British Library and dates to the 10th century though it is thought to have been written in the 8th century. FTP, name this most important work of Old English Literature, the story of Scandinavian prince who rids a mead hall of the monster terrorizing it.
Answer: _BEOWULF_

PMVI

Johns Hopkins Bonuses

edited by Earl Cahill

1. Ismail Merchant and James Ivory have achieved success by adapting novels for the big screen. FTP each, give the author of the following works that have been adapted by Merchant and Ivory.

A) The Bostonians

Answer: Henry _JAMES_

B) Maurice

Answer: E.M. _FORSTER_

C) The Remains of the Day

Answer: Kazuo _ISHIGURO_

2. Given a biological polymer, name its monomeric unit FTP each.

A) Microfilament

Answer: _ACTIN_

B) Cellulose

Answer: _GLUCOSE_

C) Microtubule

Answer: _TUBULIN_

3. America may have new quarters on the way, but for now, I hope you're satisfied with these good old tokens. Name them FTP each.

A) In 1847, she was the first Massachusetts woman to earn a college degree, and her speech at a women's rights convention at Worcester, Massachusetts won over Susan B. Anthony to the cause. She is famous for keeping her own name after marriage and protesting against contemporary marriage laws.

Answer: _LUCY STONE_

B) Lucy's sister-in-law was also a pioneer, becoming the first woman of modern times to enter and graduate from medical school became the first female physician listed in the Medical Register of the United Kingdom.

Answer: Elizabeth _BLACKWELL_

C) Yet another sister-in-law also entered the history books when she was allowed ordination by the First Congregational Church becoming the first woman minister in an established Protestant denomination, though she soon resigned to become a Unitarian minister.

Answer: _ANTOINETTE BLACKWELL_

4. Answer the following questions about the a Chinese dynasty for the stated number of points.

A) F5P, name this dynasty which lasted from 206 BC to AD 220, considered to be the prototype for all later Chinese dynasties.

Answer: _HAN_ dynasty

B) FTP, the founder of the Han dynasty, Liu Pang, led a revolt against this oppressive practices of this short-lived dynasty immediately preceding the Han.

Answer: _CH'IN_ dynasty

C) F15P, the Han dynasty is divided into an early and late phase by this period featuring the struggles of Cao Cao, Liu Bei and Sun Quan.

Answer: _THREE KINGDOMS_ period

5. Answer the following questions about chemical kinetics for the stated number of points.

A) First, F5P, in this type of reaction, the rate is independent of the concentrations of the reactants.

Answer: _ZERO ORDER_

B) FTP, this is the term for the energy that is required to initiate a chemical reaction.

Answer: _ACTIVATION_ energy

C) Finally, F15P, this equation, named after a Swedish chemist, is used to find the relationship between the activation energy and the rate constant.

Answer: _ARRHENIUS_ equation

6. Answer the following questions about the geography of Hades for the stated number of points.

A) F5P. Souls entering Hades had to be ferried across this river by Charon.

Answer: _STYX_

B) FTP. Only the most blessed souls were allowed into this area of Hades.

Answer: _ELYSIUM_ (or Elysian Fields)

C) F15P. According to Plato, souls that be about to be reincarnated had to drink from this river of oblivion.

Answer: _LETHE_

7. Science fiction is the exploration of what humankind would be like under different conditions, so its no surprise that authors have come up with various religions and philosophies. Name the author who thought up these religions or philosophies:

- A) F5P. The Foundation. Answer: Isaac _ASIMOV_
B) FTP. Bene Gesserit. Answer: Frank _HERBERT_
C) F15P. Speakers for the Dead. Answer: Orson Scott _CARD_

8. 30-20-10 name the author from works

- 30: Coming Through Slaughter, Tin Roof, Rat Jelly
20: The Dainty Monsters, Elimination Dance, Secular Love
10: The Collected Works of Billy the Kid, The English Patient
Answer: Michael _ONDAATJE_

9. There's nothing like a good ending to a piece of music. Answer the following questions about cadences for the stated number of points.

- A) F5P, probably the most satisfying type of cadence, it proceeds from the dominant to the tonic.
Answer: _PERFECT_ or _AUTHENTIC_
B) F15P, although sometimes classified under the perfect cadence, this type has the subdominant as the penultimate chord, followed by the tonic.
Answer: _PLAGAL_
C) FTP, this "tricky" kind of cadence uses a substitute, such as the submediant, in place of the tonic, leading the listener unsatisfied until the real perfect cadence is played.
Answer: _DECEPTIVE_

10. Answer the following questions about muscle contraction FTP each.

- A) Muscle contraction is stimulated by the release of this divalent cation into the cytoplasm.
Answer: _CALCIUM_
B) In human muscle cells, calcium is released from these membranous structures similar to the endoplasmic reticulum.
Answer: _SARCOPLASTIC RETICULUM_
C) This is the basic contractile unit in striated muscle cells.
Answer: _SARCOMERE_

11. Ah... The joys of watching a baseball game indoors... I mean outdoors... I mean indoors... For the stated number of points, answer the following questions about stadiums with retractable roofs.

- A) These two stadiums, both in Canada, were the first to have a retractable roof. F5P each, name them.
Answer: _OLYMPIC_ Stadium _SKYDOME_
B) F5P, the only other stadium in North America currently with a working retractable roof, it is the home of the Arizona Diamondbacks.
Answer: _BANK ONE_ Ballpark
C) There are three other cities that will have stadiums with retractable roofs by the year 2000. You will get 15 points for 2 of the cities, 5 for one.
Answer: _SEATTLE_, _MILWAUKEE_, _HOUSTON_

12. On March 5th, 1998, President Clinton signed into law Senate Bill Number 927. The bill itself re-authorizes the Sea Grant Program, but a line item entered in the Bill makes another freshwater lake one of The Great Lakes.

- A) F5P, what lake became the new Great Lake?
Answer: Lake _CHAMPLAIN_
B) F5P each name the Senator who added the line item specifying Champlain's classification as a Great Lake and the state he represents.
Answers: Patrick _LEAHY_, _VERMONT_
C) F15P, name one of Vermont's four principal rivers that flows into Lake Champlain.
Answers: _OTTER CREEK_, _LAMOILLE_, _MISSISQUOI_, _WINOOSKI_

13. Forget electicity, magnetism and thermodynamics. Everyone knows that the only fun physics is Newtonian mechanics. Answer the following questions for the stated number of points.

- A) F5P. This force occurs perpendicular to the surface on which an object is resting. If an object is lying on a flat table, is has an equal magnitude but opposite direction than the gravitational force.
Answer: _NORMAL_ force
B) The normal force is used to calculate the force of friction by multiplying it by a constant. F5P each, what are the two different kinds of friction that an object can experience by the normal force?
Answer: _STATIC_ and _KINETIC_ friction

C) (Pencil and paper might be helpful) Finally, F15P, how much energy is lost to friction if a 1kg block is dragged for a distance of 2 metres over a table. The coefficient of kinetic friction is 0.5 (allow 10 seconds)
Answer: 9.8 JOULES (also accept 10 joules, if they assume g to be 10)

14. Answer the following about a famous gem for the stated number of points.

A) F5P name the famous cubic zirconia that passed for a large heart shaped blue diamond given to Kate Winslet's character by Billy Zane's in the recent movie Titanic.

Answer: HEART OF THE SEA (or Coeur de la Mer)

B) The first official copy is more valuable than the original because it uses real diamonds in a platinum setting and a 121 carat Sri Lankan Blue Sapphire, since it was difficult to find a blue diamond of the right size. FTP name the jewelers that rushed to finish the piece for Oscar night, when Celine Dion wore it.

Answer: Royal ASPREY'S of London

C) The original was auctioned off in Beverly Hills for a cool \$3 million, with the proceeds going to The Princess Diana Memorial Fund. But if you really had your heart set on your own, you can order it from this catalog for \$200. F15P name the company that has exclusive rights to market reproductions.

Answer: J. PETERMAN

15. The latest statistics say that 3,000 Americans under 18 become habitual smokers each day despite the fact that 32% of smokers will die from smoking-related illnesses.

A) FTP name the agency that recently put out these statistics, a branch of the United States Public Health Service based in Atlanta.

Answer: Centers for Disease Control

B) The number of American youths taking up smoking as a daily habit jumped 73% between 1988 and 1996. This corresponds with the introduction of a popular spokes-cartoon. FTPE name the character and the company which he represented.

Answer: JOE CAMEL, R.J. REYNOLDS

26. There were originally five of them, and they characterized themselves as "the people of the longhouse". The Tuscarora joined in 1722, and thereafter they were known as the six nations. F5P each and 5 points for all correct, name the original five members of the Iroquois confederacy.

Answer: MOHAWK, ONEIDA, ONONDAGA, CAYUGA, SENECA

16. Answer these questions about the author of the philosophical classic "Being and Nothingness" :

5 : The name of the author of "Being and Nothingness"

Answer: Jean-Paul SARTRE

5 : Sartre's longtime wife, the author of "The Second Sex."

Answer: Simone de BEAUVOIR

10 : The year in which Sartre was awarded the Nobel in Literature, but refused to accept the reward.

Answer: 19 64

10 : The simple two word title of his autobiography.

Answer: LES MOTS or THE WORDS

17. Answer the following questions on slasher movies for ten points each:

A) Due to this film's low budget the producers used an inside-out William Shatner mask painted white with the hair teased out to give the killer his now-famous look.

Answer: HALLOWEEN

B) The producers were originally going for a PG rating when they began shooting this film based loosely on killer Ed Gein who made masks out of his victims skin. They were so successful that the film is still banned in England and Germany while gaining cult midnight movie status in the US.

Answer: The TEXAS CHAINSAW MASSACRE

C) Such notable actors as Walt Gorney and Rex Everhart have Bacon numbers of one since they starred with the center of the universe, Kevin Bacon, in this 1980 film.

Answer: FRIDAY THE 13TH

18. Given a line of 19th century poetry, identify the poet for 15 each. You'll get 5 if you need the title of the poem.

A) 15 : "And we are here on a darkling plain / swept with confused alarms of struggle and might / where ignorant armies clash by night."

5 : "Dover Beach"

Answer: Matthew ARNOLD

B) 15 : "Thou wast not born for immortal death, my bird!"

5 : "Ode To A Nightingale"

Answer: John KEATS

19. Given the pathetic bad guy from Shakespearian comedy, identify the play, 15 points each. If you need a nastier baddie, you get 5.

15: The lecherous Lucio

5: The hypocrite Angelo

Answer: MEASURE FOR MEASURE

15: The hapless henchman Borachio

5: The bastard Don John

Answer: MUCH ADO ABOUT NOTHING

20. Name the musical group 30-20-10-5.

30- They formed in Jacksonville, FL in 1965 taking their name from their high school gym teacher who punished students for having long hair.

20- The cover of their album "Street Survivors" featured the band surrounded by flames but was changed shortly after the band was involved in a fatal plane crash.

10 - Their most successful hit single, from 1974, was actually a response to two anti-South songs by Canadian Neil Young.

5- Their first hit "Free Bird" was a tribute to Duane Allman who had died not long before.

Answer: LYNYRD SKYNYRD

21. Bill Clinton's not the only world leader in peril. Answer the following questions about political instability overseas for the stated number of points.

5 : The longest serving head of government in the industrialized world, his Christian Democrats have been removed from power in Germany.

Answer: Helmut KOHL

10 : This embattled Japanese Prime Minister holds a tenuous grip on power as his Liberal Democratic Party tries to hang on.

Answer: Keizo OBUCHI

15 : This Italian Premier recently lost a vote of confidence by one vote, driving his center-left coalition from power.

Answer: Romano PRODI

22. 30-20-10 Identify the composer from a list of works.

30 : The oratorio "The Apostles" and the song cycle "Sea Pictures"

20 : The oratorios "Lux Christi" or "The Light of Life" and "The Dram of Gerontius"

10 : The marches "Pomp and Circumstance"

Answer: Sir Edward ELGAR

23. Identify these figures important to the early career of Franklin Roosevelt for the stated number of points.

5: He was this Ohio governor's running mate on the 1920 Democratic ticket.

Answer: James M. COX

5 : In exchange for his support for the 1932 Democratic nomination, he became FDR's first Vice President.

Answer: John Nance GARNER

10 : During the Wilson Administration, he served as assistant to this Secretary of the Navy.

Answer: Josephus DANIELS

10 : This Albany newspaperman was an FDR advisor and friend from the state legislature through the White House.

Answer: Louis McHenry HOWE

24. Given the state, identify the capital, for the stated number of points.

5: Montana, U.S.A. Answer: HELENA

5: Bavaria, Germany Answer: MUNICH

10: Jalisco, Mexico Answer: GUADALAJARA

10: Tasmania, Australia Answer: HOBART