

The Questions Concerning Technology
By WB
Round 10

1. In the 1950s, the company this man founded partnered with a British company to create the HOB0 group. This man hired Alfred Doughty as an assistant. He started his company by renting space from the inventor of one of the first successful pneumatic hammers. That hammer maker was Joseph Boyer. In the 1970s, Dijkstra worked in this man's company's research center in Austin. This man's invention used a nine column design with a locked keyboard. This man's company would later use its Master Control Program in its "large systems." This man's Registering Accountant was a calculator designed for store and bank use. That Registering Accountant was the first adding machine to be widely commercially successful. For 10 points, name this inventor whose grandson of the same name wrote *Electronic Revolution 1970-71*, *The Soft Machine*, and *The Naked Lunch*.
ANSWER: William Seward **Burroughs I**

2. The Chikhi-Rizk construction encodes these structures using a Bloom filter to save space. The Koorde with a K distributed hash table improves upon the Chord with a C hash table by embedding one of these structures on the circle. In one application, the use of these objects was introduced by Tang and Pavel Pevzner. Programs based on these mathematical constructs include AbySS, SOAPdenovo, and Velvet. These constructs were developed to solve the minimal cyclic superstring problem. In one applications, methods based on these objects are a competitor to overlap-layout-consensus approaches, the later of which uses Hamiltonian as opposed to Eulerian cycle finding. In that application, these objects are used on short sequence reads. They consist of nodes corresponding to k-1 mers and edges corresponding to kmers. For 10 points, name these graphs useful in the assembly of DNA sequences, named for a Dutch mathematician.
ANSWER: **de Bruijn** graphs

3. In 1917, thousands of striking workers from these facilities were forcibly rounded up, put in train cars full of manure, and dumped in New Mexico as a part of the Bisbee Deportation. Those of you who would prefer more computer stuff in this tournament might know that the second generation Pentium IIIs were named for these facilities. Resolution is one of these facilities still in the planning phases to be built near Superior, Arizona. It was at a factory that processes the output of these facilities, that James M. Hyde introduced the first froth flotation in the U.S. These facilities provided the raw material that was the primary interest of the Anaconda Company. The largest "open" one of these in the world is Chuquicamata which is located in Chile. These facilities extract chalcopyrite. For 10 points, name these facilities that extract the metal used in wiring and the coating of pennies from the Earth.
ANSWER: **copper mine**

4. Award winning programs of this type have included Planet Risk, Ephemera, and Agenda Circling Forth. Andromeda Software Development and Farbrausch are famed creators of these programs. Information about these programs is stored in XNFO files, which can be uploaded to community sites like Pouet. One DVD collection of these programs is MindCandy. More than any other type of program, disk magazines were about these programs and the people that created them. The awards for the year's best these are given at the summer Assembly, which is held in Finland. The "intro" type of these programs must be written to be less than 64kb. Historically two of the most popular platforms for these programs have been Amiga and the Commodore 64, but on modern platforms these are made using OpenGL and DirectX. For 10 points, name these programs that show off realtime rendered graphics usually set to music.
ANSWER: **demos** [or **demoscene**]

5. The tracks "War Porn", "Black Atheist", and "Dopamine Kata" appear on an album of this name that follows *The Compton Effect* and *The CPT Theorem* in the output of atheist rapper Greydon Square. The development of this sequence lead to the observations of CTA-102 by the Soviet Union and Betty Hill's claim that CTA-102 was near the spheres of her map. John barrow proposed extending this to take into account nanotechnology and atomic manipulation. Michio Kaku calculated it would take approximately 3200 years to reach the second region of this ladder. Carl Sagan proposed a modification of this spectrum by instead considering information processing and using A to Z as labels. This metric ranges from one to either three or four, with Type IIs being able to construct objects like Dyson Spheres. For 10 points, name this scale that measures how much energy a civilization can harness.
ANSWER: **Kardashev** scale

6. Kurt Pfeifle wrote a blog post about the difficulties of synchronizing with this project. One attempt to speedup this software was called SquirrelFish. It introduced the box-reflect feature. This software is used to display the store of Valve's Steam. It's not iCab, but this codebase was the first to handle Acid2 correctly. This project introduced the Canvas element so that one participant could render Dashboard widgets. This codebase was originally a fork of KHTML. For 10 points, name this browser engine that powers Safari and Chrome.

ANSWER: WebKit [prompt on Safari before mentioned]

7. In 2005 this company acquired the Burton Group and the Meta Group. This company's CEO as of July 2012 is Gene Hall. One stupid and obvious thing this company somehow makes money off of is a chart with "Complexness of Vision" and "Ability to Execute" for axes while "Trough of Disillusionment," "The Slope of Enlightenment," the "Technology Trigger," and the "Peak of Inflated Expectations" are all part of another of this company's proprietary methodologies. This company uses the Hype Cycles and Magic Quadrant approaches. For 10 points, name this IT Research and Consulting firm from Connecticut.

ANSWER: Gartner, Inc.

8. These devices are based on level 3 functors in the Witten-Chern-Simons theory for SU(2). These devices are contingent upon an excitation in 2D space that can have any phase factor of the form $e^{i\alpha}$. Alexei Kitaev came up with the idea for these devices. These devices could conceivably implement using a material experiencing the 5/2 fractional quantum hall effect. Computation in these devices are accomplished by braids of world lines. For 15 points, name this proposed type of quantum computer that uses non-abelian anyons.

ANSWER: topological quantum computer

9. This object was not made by Bell, but parts of this object and the Italian Terni sphere were used to make its successor that was officially designated the X-1. This structure was itself the follow-up to the FNRS-3. This machine was transported by the *Santa Maria* during the events of Operation Nekton. Don Walsh traveled in this craft during its most successful outing. This craft located the remains of the *USS Thresher*. This vessel was designed by Auguste Piccard and piloted by his son Jacques. For 10 points, name this bathyscape that was the first manned submersible to reach the bottom of the Challenger Deep.

ANSWER: Trieste [prompt on bathyscape]

10. Albert's solution is a high potassium solution containing EDTA used for this practice, particularly in South East Asia. This method is usually carried out in buildings equipped with CEA. Bato Buckets are containers with in and out lines in which this activity can be done. This practice can be conducted in an expanded clay aggregates medium. The most basic type of this activity is carried out by ebb and flow systems. Many of Epcot's Living With the Land exhibit are created with forms of this technique, such as certain orange Mickey shaped objects. Bag culture is a very simple way of doing this. A small amount of moving water is used in the nutrient film technique, which is one form of this practice which is done in a greenhouse. For 10 points, name this growing of plants without soil.

ANSWER: hydroponics

11. Joseph Cordes of Winthrop, Massachusetts was charged with disturbing the peace after using one of these devices against the opposing team's goalie in his daughter's soccer game. Amazon sells many different QQ-Tech branded products of this type. Wicked's products of this type include Krypton and Artic. By using control and a left click, a user can simulate one of these devices in a PowerPoint. These come in 532 and 650 nanometer forms and are usually limited to around 5 milliwatts. For 10 points, name these dot making, light emitting devices that are used in presentations and in exercising cats.

ANSWER: laser pointer [prompt on partial answer]

12. This weapon accidentally killed Nathan D. White. This weapon can be moved around by a HEMTT tractor. A still in development successor to this weapon system offers "360 degree capability." That successor is MEADS. One recent upgrade of this system is GEM-T. Peter Zimmerman testified before Congress that attempts to measure the effectiveness of this weapon was hampered by poor recordings. One failure of this weapon was caused by using a 24 bit register to convert an integral clock to floating point. Theodore Postol claimed that this weapon possibly had a zero percent success rate in one conflict. One failure of this weapon caused the death of 28 soldiers in Dhahran. This weapon replaced the Nike Hercules in many of its roles. During the First Gulf War, this weapon was deployed in an effort to shoot down SCUDs. For 10 points, name this American surface-to-air missile system used to shoot down enemy rockets.

ANSWER: MIM-104 Patriot [or Phased Array Tracking Radar to Intercept on Target]

13. **Welford's algorithm for variance is this type of algorithm. Ukkonen's algorithm for making suffix trees is linear and this. A classical problem for the study of these algorithms is the Secretary Problem. One strategy for this type of algorithm in the List Update Problem is move-to-front. The performance of these algorithms to more traditional approaches is characterized by their competitive ratio.** The answer to this question is not greedy, but LRU is this type of caching algorithm. For 10 points, name these algorithms acting on a stream of inputs that have to make choices step by step as the input comes in and without knowing future values in the stream.

ANSWER: online algorithm [be overly generous and prompt on “greedy”]

14. **Think & Go is a company that provides solutions based on this technology for grocery stores such as allergy alerts and couponing. At the 2012 Black Hat conference, Charlie Miller demonstrated several hacks based on this technology. Isis is a commerce infrastructure and an app based on this technology. The first phone to use this technology was the Nokia 6131 and the Nokia Shakespeare Shuffle is game requiring this technology where one must reassemble Shakespeare quotes. It addition to bar and QR codes, the FidMe loyalty program app can use this technology. Blacberry Tag is a feature in the Blackberry OS for sharing URLs, documents, and other stuff using this technology. As of July 2012, this is the most hyped technology working at 13.56 megahertz. Google Wallet is a payment system based around this communication technology.** For 10 points, name this RFID based technology that is not Bluetooth, but is used for close proximity communication between smartphones.

ANSWER: NFC [or Near field communication]

15. **This man remarked of Oppenheimer, ““It was clear to me that when it came to fundamental physics, there was no point in competing with a person like that.” He proposed that secondary phase particles in metallic systems could limit grain boundary migration through pinning pressure. His work on extracting heat from the oceans used his technique of Geometric programming, which is an optimization scheme based on posynomial functions. With Landau, this man names the formula giving the probability of a nonadiabatic transition through an avoided crossing region. This man invented a device that is used with one resistor in parallel and one in series to create a simple shunt regulator. This man characterized the tearing of electrons from covalent bonds when a high reverse bias voltage is present across a p-n junction.** For 10 points, name this man whose diodes allow for reverse current flow once the breakdown point has been reached.

ANSWER: Clarence Melvin Zener

16. **It's not Socket Communications' Digital Phone Card, but one ad for this product includes the phrase “put your computer on the phone” and seems to be titled “How to Send Mail at 670,000,000 mph”. A different ad for this product claimed its competitors couldn't “cope with simple addition.” This product was designed by a team lead by Wendell Sander. The ProFile was originally released for this product. One officially sanctioned debugging technique for this product was to lift it up and drop it on the desk to re-seat the loosely connected chips. Its RTC would die after several hours of use. It used the operating system SOS. The charge of being “too noisy and inelegant” lead to no cooling fans in this product. Consequently this product had major overheating problems leading to charges that it would melt disks. This product was slightly redesigned and reintroduced, but that was also a failure leading to yet another failure in the Lisa. For 10 points, name this terrible Apple product from 1980 that was a business oriented computer.**

ANSWER: Apple III

17. **One program for doing this activity integrates with the external Mojo DX. The data used by this activity can be stored in DPX files. The Mercury Engine is used to accelerate one program used to do this. High-end software that does this can export projects through XML files of decision lists. One way to manage these projects is nested timelines. In 2011, a certain company angered users by releasing version X of their program for doing this, but removed a great number of features like support for Red files. Useful features to have in software for this include timecode display and multicam support. Programs for doing this include Avid Symphony, Adobe Premiere, and Final Cut Pro.** For 10 points, name this act of trimming and compiling files of moving images.

ANSWER: non-linear video editing

18. **The head of this undertaking gave a speech to the Traveler's Club where he stated that Job had a “pretty clear perception of the value and power of electricity” and that the inventions of education and free government had culminated in this project. One local leader encountered during this event threatened to throw rocks on Captain Butler if Butler passed through a canyon. One group of scientists in this undertaking took their name from a slang term for wolverines. One setback during this undertaking occurred when an**

engineer forgot to bring critical parts for *Lizzie Horner's* engine. The former slave-ship the *Nightingale* was the flagship of this undertaking. One particularly difficult task in this undertaking was given to Colonel Robert Bulkley. Robert Kennicott was chief scientist on this expedition, but died during the trip. This project was the brainchild of Perry Collins. The first message to be carried over one completed part of this project was the news of Lincoln's assassination. Part of this project ran along the Cariboo Road. Seward's involvement in this action might have played a role in certain impulse buy afterwards. For 15 points, name this unsuccessful mission to create a telegraph line across the Bering Sea with the hope of eventually linking San Francisco to Moscow.

ANSWER: The Russian–American Telegraph Expedition [or Western Union Telegraph Expedition ; accept Collins Overland Telegraph Expedition before Collins is mentioned]

19. This company was founded by a survivor of the Singapore Airlines Flight 006 disaster. This company's Co-Star Stream Player is powered by Google TV. Some of its products come with its trademarked Razor LED backlighting. At CES 2012, this company announced it would start making PCs and those computers would come with a clean install of Windows. This company's 21:9 offerings are called CinemaWide. Many of its displays have support for “Internet Apps” and it also has a trademark of “Theater 3D.” As of 2012, this company sponsors the Rose Bowl. For 10 points, name this maker of LCD and LED TVs from Irvine California.

ANSWER: Vizio

20. Matthias Koops developed the first modern method for recycling this product. De Schoolmeester is one of the only surviving factories of its type dedicated to making this product to survive and another Dutch innovation in making this was the Hollander beater. Nicholas-Louis Robert developed a “continuous” machine that produced this while in the employ of Pierre-Francois Didot. Amate was an Aztec version of this product. Friedrich Keller and Charles Fenerty developed the modern way of making this. James Whatman created an exceptionally uniform woven form of this. This technology spread after several masters of it were captured at the Battle of the Talas River and this was legendarily invented by the Eunuch Cai Lun. Historically this was made from plants like rattan, hemp, and rags. Vellum was a historical alternative to this. For 10 points, name this material on which one writes.

ANSWER: paper

Tiebreaker:

This class uses AAG along with EMALS which is based on linear induction. It's not the Zumwalt class, but this class of ships will be outfitted with new combination dual-band X-band SPY-3 plus S-band VSR. This design uses the A1B reactor as a powerplant. The first of these should be done in 2015 and will be CVN-78. For 10 points, name this new class of aircraft carrier named after a former president.

ANSWER: Gerald R. Ford Class carrier