

The Questions Concerning Technology  
By WB  
Round 3

1. Lewis Noble's take on this device launched the “perfume craze” period in the history of these machines. Simeon Denham received the first patent for a completely realized version of this machine. The company that became Dixie Cup got started as a maker of disposables used in early versions of these devices. In response to some of his employees being jailed for selling copies of Thomas Paine's *The Age of Reason*, Richard Carlisle invented one of these machines. Stores that were designed around these machines were pioneered by Horn and Hardart. In America, the commercial use of one form of this technology was made popular by the Adams Gum company as a part of their Tutti-Frutti gum business. Stores that are almost entirely based around these machines are called automats. One modern example are Redbox installations. For 10 points, name these machines that when supplied with coins or dollar bills will give out soda and snacks.

ANSWER: **Vending** Machine [ anti-prompt on **automat**; anti-prompt on **gumball** machine; or **automated retail** machine]

2. This approach is done in Haskell through Bird Style lines and Sweave is used to bring this approach to R. The most common manifestation of this paradigm uses the at symbol and a name blocked off by greater than and less than symbols to denote the start of a new module. The Ctangle program allows one to create more conventional code from this type of code. WEB is one subtype of this, which is implemented in CWEB. Systems based on this strategy often use Latex as a formatter and this paradigm is based makes extensive use of natural language coding. For 10 points, name this coding paradigm based around human readable code and deeply embedded descriptive documentation, advocated by Don Knuth.

ANSWER: **literate programming**

3. Utopian Turtletop, Pluma Piluma, and Mongoose Civique were among the gems of names for this product that Marianne Moore suggested after being brought in on this project. It was unusual for its impact ring surrounded by a horsecollar grill. Particular models with this name included the Citation, Ranger, and Corsair. This car introduced electronic hood release and a transmission that locked in park until the key was turned. It had the teletouch transmission control, which was a pushbutton found in the middle of the steering wheel. Goldwater accused McNamara of being behind this product, thus bringing the controversy of product into the 1964 campaign. It was named after the son of the producing company's founder's son. Many of these cars arrived at dealerships missing parts. For 10 points, name this line of cars introduced by Ford in the 1950s that was a notable flop.

ANSWER: Ford **Edsel** [accept **Marianne Moore** before “product”]

4. In old school anti-aircraft batteries, two of these objects made up the Brocq electronic corrector. Chester Moor Hall and John Dollond independently discovered how to overcome one limitation of these devices by using two different materials in their construction. James Bradley that these objects need to be tilted to account for an effect modeled as  $\tan \alpha = v/c$ . Jean Picard attached one of these to a quadrant to aided in his angle determination efforts. In the Cavendish experiment, one of these devices was used to measure the torsion balance. One type of these objects was improved by adding a hyperboloidal plate, a technique introduced by Cassegrain. It is often claimed that this device was invented by Johannes Lippershey. Walter Adams helped design the 60 and 100 inch ones at Mount Wilson. Newton invented the reflecting type which worked the light using mirrors as opposed to lenses. For 10 points, name these optical devices used to discover objects like the Gallilean Satellites and Pluto.

ANSWER: **telescopes**

5. The creator of this file format hired the exotic dancer Chastity Fischer to be his chauffeur and companion. That inventor of this format was so bad at cleaning that the Police got a warrant to search his house because of complaints about the smell and he later died from chronic alcoholism while cradling a bottle of peppermint schnapps. This format includes an extended local header and recent versions of its specification have added support for PPMd. The initial version of this file format was developed by Phil Katz. The central location and protagonist within the central entity of this question is the central directory. The specification for this format is maintained by PKWARE. This file format often contains data that has been processed by the DEFLATE algorithm. JAR files are actual a variant of this format. On Unix systems, input data is often run through tar before being sent to a program that outputs of this file format in part because each file is archived separately in this format. Programs for handling these files include 7 this and Win this. For 10 points, name this common format for

compressing files.

ANSWER: zip

6. **These weapon systems destroyed five of their own at the 20<sup>th</sup> century Battle of Norfolk. It served as the basis for the Wolverine Heavy Assault Bridge. It's not the Stryker, but this weapon system is currently built in Lima, Ohio, however because we have no money the plant is scheduled to be closed in 2013. The sensors on this system were upgraded to give it "situational awareness" as a part of TUSK. It's not a British product, but it is by a material named for Chobham. Originally it used a variant of the 105 mm L7, but its main weapon is now the M256 canon. For 10 points, name this primary battle tank of the US.**

ANSWER: M1 Abrams [accept either]

7. **This company produced a flop that was derided in the press as "meter-tall stack of the worst business decisions you could possibly want." This company produces a product whose Cbell-1 based communication protocol consists only of the words "affirmative" and "negative." This company produced a product for Greel Wood Logging Company to cut down trees for crimson timber production. Bornaryn Trading eventually acquired control of this company. Many of their products are powered by the Intellex line of computers. In an effort to move into its competitors market space, it created the LOM series which resembles a bug. Its knockoff of a Veril Line Systems product resembles a walking trash can and makes a GONK noise. This company's main competitor is Cybot Galactica. Its most famous product contains such gadgets as a fire extinguisher, an arc welder, and a holographic projector in its domed chasis. That astromech product could act as a co-pilot in a X-Wing. For 10 points, name this maker of the R2 droid line in the Star Wars Universe.**

ANSWER: Industrial Automation

8. **The specification for the edge of this medium is eNodeB. This medium can be made to support one form of communication by the Circuit Switched Fallback. Qualcomm's WTR1605L chip is designed to handle this medium. The all IP network design used by this medium is called the SAE. Much of the implementation of this medium in the U.S. are of its Band classes 13 and 17 which are in the 700 MHz range. This medium's main competitor is HSPA+. Support for this feature is a defining feature of the LG Lucid, the HTC One X, and the North American edition of the Samsung Galaxy S III. As of July 2012, the current generation iPad supports this medium but the current iPhone does not. It has a theoretical 300 megabits per second downlink capacity. For 10 points, name this mobile broadband technology that Verizon and ATT market as a 4G connection.**

ANSWER: LTE [or Long Term Evolution; prompt on 4G]

9. **One type of these objects are realized by the SW mode of Habanero Phasers. The X10 programming language's clock is an example of a construct with name. Three phase designs for these units include a tree of MCS objects and Grunwald's f-way Tournament. One type of these can be divided into compiler or CPU instances, the later of which can be achieved in x86 chips using the SFENCE instruction. Since compilers and CPUs reorder instructions including memory accesses, the memory type of these constructs are useful when dealing with multiprocessor systems. One simple implementation of these keeps a count of all threads in play, but unlike a semaphore will put threads to sleep while the count is still above zero. For 10 points, name this term that identifies a synchronization object that makes a thread wait at a certain point until all other such threads reach that point.**

ANSWER: barrier [prompt on synchronization; or memory barrier; antiprompt on fence]

10. **One of the enterprise platforms made by this company uses DCUI for administration and partitions programs into user worlds. Aficionados of the radioactive badlands that is graphics drivers on Linux will know that this company inherited development of Gallium3D after it acquired Tungsten Graphics. One would imagine that Dr. Chuck is a big fan of this company's SlideRocket dynamic presentation system. It owns the email and collaboration platform used by Georgia Tech, Zimbra. It was the leading force in the development of the OVF format, which allows one to exchange appliances. One of its products creates what appears to be a Sound Blaster Ensoniq AudioPCI device and the key technology behind its products was once based on dynamic recompilation. This company was bought by EMC in 2004. It makes the ESX hypervisor platform and Its Fusion software allows for the running of Windows on a Mac. For 10 points, name this specialist in virtualization.**

ANSWER: VMWare [prompt on EMC]

11. **This technology is the most commercially successful, yet distinct improvement of an older tech for which the Gooch and Tarry minima was derived. Kiefer and Baur were the first to come up with the effect upon which this technology is based. It was developed by M. Oh-e and K. Kondo at Hitachi. It uses at least two patterned electrodes to generate an electric field in a polyimide cell, thereby keeping the inner content of the**

cell in a parallel configuration. The logo used on many devices utilizing this is of green and red lines falling over onto a blue line. One of the first consumer products to use this technology was the iPad, which used a 9.7 inch slab of it. This technology has better viewing angles than competitors, but is more expensive. For 10 points, name this LCD technology tends to make better displays than twisted nematics.

ANSWER: IPS LCD [or In-plane switching LCD; prompt on twisted nematic LCD (LCD=Liquid Crystal Display)]

12. **This inventor of a wig for self-defense claims that the future of the car is a single boot attached to the insides of a remote control toy car, a construct he uses in a documentary to terrorize bicyclists and dogs. This man asserts that smell should be used to evaluate the quality of cameras, which might have something to do with his photographing of every meal he eats, an effort that won him the 2005 IG Nobel in Nutrition. He invented a magnet containing condom which according to his patent application utilizes the motion of sex to generate electrical current in the female's blood vessels. His plan for living to 144 involves eating only 700 calories a day, sleeping at most four hours a day, and use of his infrared emitting Cerebrex recliner. This man invented a love jet "intended to make sex three times more enjoyable" in an effort to reverse his country's declining birth rate. He claimed that almost drowning himself inspired him to invent the floppy disk and karaoke, however there is little evidence that he ever did such things. He also claims to have thousands of more patents than Edison. For 15 points, name this insane old Japanese guy who likes to invent really dumb weird shit.**

ANSWER: Dr. NakaMats [or Yoshiro Nakamatsu]

13. **LaMarcus Adna Thompson built some of these structures because he believed they would be a more wholesome alternative for young people than drinking. Frederick Ingersoll helped popularize these machines in America by creating a series of locations stocked with these. These structures got their start when Catherine the Great wanted to enjoy a winter activity during the summer. The Virginia Reel type of these employed a zig-zag design. The industry for these structures is dominated by players like Vekoma, Intamin, and Bolliger & Mabillard. X2 is a "4<sup>th</sup> dimension type of these structures that allows extra rotation. An example of the floorless type of these structures is the Dominator. Millennium Force is a particular tall example of these that is located at Cedar Point. For 10 points, name these amusement park rides that can have hairpins and loops.**

ANSWER: Roller Coasters

14. **This man invented independently from Wolfgang Strasser the Z-buffer. With Clark, this man names a method for subdividing meshes. This man co-names a cubic hermite interpolation where the tangent is proportional to the vector between the preceding and next control points and that interpolation was developed with Rom. He helped develop Renderman. For a graduate school class he created a clip of a moving model of his hand. That clip is one of the earliest examples of computer rendered 3D animation. This man is as of April 2012, president of Walt Disney Animation Studios. For 10 points, name this computer graphics pioneer and co-founder of Pixar.**

ANSWER: Edwin Catmull

15. **One of the inventors of this device commanded the pro-life forces in the war to outlaw the death penalty in Wisconsin. The launch of this product was almost derailed by Charles A. Washburn's lawsuit and preceded by Giuseppe Ravizza's invention. The first manufacturing run was handled by Densmore and it was invented with the aide of Samuel Soule. A key test for this device was the line "Now is the time for all good men to come to the aid of the party." Cyberspeculators have pundited that the use of a sowing machine table as a base for this device was an attempt to attract women users. Despite not being a weapon, it was manufactured by E. Remington and Sons. One of its features was the QWERTY layout. For 10 points, name this first successful typewriter.**

ANSWER: Sholes and Glidden Typewriter [accept Remington No. 1 Typewriter before mentioned; prompt on Typewriter]

16. **One important advance in the development of an industrial version of this machine was William Brown's crossfield amplifier. Michael Mingos designed some of the vessels used with these devices and gave theoretical explanations of their mechanism. Alterman modified the procedure of Buchwald-Hartwig to utilize this device. Good solvents to use in conjunction with these machines have a high tan delta value. A 1986 paper by Gedye saw the birth of the field of organic chemistry based on these machines. Percy Spenser invented this device while visiting Raytheon. The first commercial produced version of this device was the Radarange. The key component of these machines is a magnetron. These devices can induce the superheating effect and their action is based on dielectric heating. For 10 points, name these machines that use a particular type of radiation to cook food.**

ANSWER: microwave oven

17. **Daria Sorokina identified several hundred instances of theft on this website. A very minor controversy erupted when this website would not include trackbacks from Peter Woit's blog. This website was founded by Paul Ginsparg.** A blog dedicated to this website is hosted by the MIT Technology Review. While this website was initially run out of Los Alamos, it is currently run by Cornell. The preferred upload format of this website is LaTeX. This website is where Grigory Perelman initially posted his proof of the Poincare conjecture and in 2011, this website was bombarded with lots of probably shitty papers about superluminal neutrinos. For 10 points, name this website that hosts preprints of scientific articles.

ANSWER: arXiv [pronounced "archive"]

18. **TMQ is an antioxidant used to treat this material. This material is dried so it can be sold in a form called ribbed smoked sheet. Its quality is assessed by SMR grades and this material is usually reinforced with carbon black. One class of alternatives to this material are the TPEs.** This material can be made into an object whose ply reinforced interior is called a carcass. This substance is made from *Hevea brasiliensis*, a tree. It is made more durable after being treated with sulfur, a process called vulcanization. For 10 points, name this polymer of isoprene found in tires.

ANSWER: rubber

19. **A minor controversy has erupted over plans to upgrade this product to include a technology that is very similar to one shown off by Joe Clark at the NBAA. One optional feature on some models of this product is the unpaved kit for use on gravel. Military devices based on this product include the C40-A Clipper, the P-8 Poseidon, and the T-43. Recently, eyebrow windows were removed from this still produced machine. This still made product's direct competitor was recently upgraded to include sharklets.** At one point this product was to be replaced through the Yellowstone 1 project, but that effort seems to have fallen by the wayside. An upcoming version of this product will feature dual feather winglets to improve energy efficiency. The 100 model of this machine was launched in 1967 but only used by Lufthansa. In 2017, the first of the MAX line of this product should be delivered. Models of this product since 1996 are based on the Next Generation platform. This product's main competitor is the A320. Various models of this plane make up the vast majority of Southwest's fleet. For 10 points, name this current family of Boeing single aisle aircraft.

ANSWER: Boeing 737

20. **One technology used in these sort of devices began as a Xerox Palo Alto Research Center project called Gyricon and Joseph Jacobson later developed a similar technology for these machines.** Lab126 was set up for the purpose of designing one family of these devices. One manufacturer of a key component of these devices was purchased by Prime View International. The BBEB standard is used by one line of these machines and that product line has model numbers prefixed by PRS. One of these machines uses Whispernet as a distribution platform and comes in a larger DX form. Common file formats used by these devices include mobi and ePub. The displays of these devices are often eInk based. For 10 points, name these devices exemplified by the Nook and the Kindle.

ANSWER: ebook reader [or electronic book reader; accept digital paper ; prompt on partial answer]

Tiebreaker:

**William David Coolidge determined how to soften a certain metal to the point where it could be used in these devices. Irving Langmuir improved this device by adding a gas that slowed metal evaporation. Early versions of this device were invented by Joseph Wilson Swan.** The first versions of this of this device used carbon instead of tungsten. These are slowly being replaced by LEDs and compact fluorescent sources. For 10 points, name this light source invented by Edison.

ANSWER: incandescent light bulb [or filament light bulb ]