

Full name :

Section :

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Despite/ however their acronymic similarity, LEDs **but / (and)** LCDs represent distinct display technologies. In LEDs, two different semiconductor materials are layered together: n-type, in which mobile electrons carry negative charge, and p-type, in which "holes" in an **eventhough / otherwise** bound sea of electrons carry positive charge. When electric current flows through the p-n junction between layers, an n-type electron falling into a p-type hole releases a photon, a specifically colored particle of light.

The dominant technology currently used in most consumer product displays is the active matrix liquid crystal diode display (LCD). LCDs apply TFTs of amorphous silicon sandwiched between two glass plates. The TFTs supply voltage to liquid-crystal-filled cells, or pixels, between the sheets of glass. Liquid crystals can twist the polarization, **for / or** wave orientation, of light. Just as a guitar string can vibrate sideways or up and down, **so / because** a light wave can be polarized horizontally or vertically. Polarizing filters act as selective gates, transmitting light polarized one way **or / but** not the other. Within a pixel, liquid crystals in their relaxed, coiled state rotate the polarization of ambient light enough to make surrounding filters transparent. Alternatively, applied electrical signals uncoil the crystals, causing the filters to block light and the pixel to become opaque. LCDs that are capable of producing color images, **such as / meanwhile** in televisions and computers, reproduce colors by blocking out particular color wavelengths from the spectrum of white light until only the desired color remains. The variation of the intensity of light permitted to pass through the matrix of liquid crystals enables LCD displays to present images full of gradations of different colors.

The amount of power required to untwist the crystals to display images is much lower than that required for analogous processes using other technologies, such as plasma. The dense array of crystals displays images from computer sources extremely well, with full color detail, no flicker, and no screen burn-in. **Thus / Moreover**, the number of pixels per square inch on an LCD is typically higher than that for other display technologies; LCD monitors are excellent at displaying large amounts of data with exceptional clarity and precision.

I Reading comprehension

A Circle the right answer. (3pts)

1. According to the passage, the application of an electrical signal or current to both a LED and an LCD pixel results in which of the following?
 - A. Both the LED and the LCD pixel become bright.
 - B. The LED becomes dark, but the LCD pixel transmits light.
 - C. The LED becomes bright, but the LCD pixel ceases to transmit light.
 - D. The LED becomes dark, but the liquid crystals in the pixel uncoil.
 - E. The LED becomes bright, but the liquid crystals in the pixel coil up.
2. The author most likely mentions "plasma" in the third paragraph in order to:
 - A. provide an example of a technology that operates differently than LCDs
 - B. reinforce the importance of the commercial development of LCDs
 - C. describe the contrasting workings of another technology
 - D. indicate the greater number of applications for LCDs
 - E. explain the features of a competing type of display

3. The process through which an LCD monitor displays different colors is most closely analogous to:
- A. the partial blocking of an hourglass so that a limited stream of grains of sand fall into the lower portion
 - B. the use of rigid sizing boxes at an airport security checkpoint in order to allow the passage of certain sizes of luggage while excluding other sizes of luggage
 - C. the soundproofing of a recording studio so that any performances within are muted to those outside
 - D. the cutting out of characters from a sheet of paper so that a lamp in front of the paper casts shadows in the shapes of the characters
 - E. the emission of warmer air by an air vent on the outside of a building while an air conditioning system cools the interior of the building
4. The word "coiled" in the second paragraph means:
- A. streamed
 - B. rolled
 - C. bent
5. The word "flicker" in the third paragraph means:
- A. still
 - B. shine steadily
 - C. shine unsteadily
6. What do these acronyms stand for?
- A. cd /m²
 - B. TFT
 - C. DPI

II Terminology

Which terms do these definitions refer to? (3pts)

1. A device used to read text or pictures on paper and transfer the information onto the computer.
.....
2. A technology that allows computers to recognize text input into a system with a scanner.
.....
3. The maximum number of pixels in the horizontal and vertical directions of the screen.
.....
4. A still camera that uses a flash memory card.
.....
5. An input device used to select menu options, text and graphics displayed on the monitor.
.....
6. A professional printer that generates high-resolution output on paper or microfilm.
.....

III Language work

- A. Circle the right conjunction in the text. (2pts)
- B. Find examples of the following in the text. (3pts)

1. Two compound sentences

.....

.....

2 Two complex sentences

3 Two compound-complex sentences

C Insert the right preposition in the following passage. (2pts)

By above for in to without in on

Medical devices

..... October 24, 2014, a five-year-old girl born fully formed fingers her left hand became the first child the UK to have a prosthetic hand made with 3D printing technology. Her hand was designed by US-based E-nable, an open source design organisation which uses a network of volunteers to design and make prosthetics mainly children. The prosthetic hand was based on a plaster cast made her parents. A boy named Alex was also born with a missing arm from just the elbow. The team was able to use 3D printing to upload an e-NABLE Myoelectric arm that runs off of servos and batteries that are actuated by the electromyography muscle. With the use of 3D printers, E-NABLE has so far distributed more than 400 plastic hands children.

D Correct the mistakes in the following sentences. (3pts)

- 1 You should always leave many room behind the monitor for unobstructed movement.
.....
- 2 Some screens use a few energy.
.....
- 3 Do you know of some health problems caused by using a computer?
.....
- 4 I bought a new PC and a paid a few attention to how many it costs.
.....
- 5 Some printers can be use as a hard copy device for some user on the Internet.
.....

IV Writing

Write a short paragraph about the causes and effects of the continuous use of computers. Start your paragraph like this:

There are a number of health and safety problems that

.....
.....
.....
.....