1ª Questão: traduza para o Português **valor: 3,0 pontos**

The Virtual Retinal Display

Immediate access to visual information is often necessary, sometimes even vital for survival. Far too often, however, the only opportunities an individual has to receive that information are from display technologies that cannot and do not meet personal usage requirements. While conventional flat panel displays, for example, provide reasonable image quality in most instances, they do not meet key requirements that a changing personal imaging marketplace is demanding.

With the Virtual Retinal Display (VRD) technology, the viewer can employ a simple, elegant approach to create a high quality (monochrome or full color) visual display by scanning a single electronically encoded beam of light onto the retina. The VRD is fundamentally different from previous display technologies.

By using a modulated, low-power beam of laser light to 'paint' an image directly onto the retina of the viewer's eye (in a raster scan pattern similar to that in a conventional television set), the VRD creates a high-resolution, multi-color image without the use of screens or externally projected images.

The application opportunities for Microvision's VRD are varied, but currently are realizing their initial acceptance within the defense and aerospace marketplace.

2ª Questão: traduza para o Português **valor: 4,0 pontos**

ALBERT EINSTEIN (1879-1955)

Albert Einstein was born on March 14, 1879, in Ulm in what is now West Germany. His father was a manufacturer of electrical equipment. Business failure led his father to move Einstein's family first to Munich and later to Milan. There were no early indications of Einstein's intellectual capabilities; in fact, there was even some concern on the part of his parents when he was a small child that he might be somewhat backward. During his school years he showed no special aptitude because of his dislike for rigid methods of instruction, and he was cited by school officials as being disruptive. Einstein was fascinated by mathematics and science, subjects that he studied on his own. He became a high-school dropout when he left school to join his family in Milan. Einstein had his German citizenship revoked in 1896 and became a Swiss citizen in 1901. He died as a naturalized citizen of the United States on April 18, 1955, in Princeton, New Jersey.

The year 1905 was a momentous year for science, for without any academic connections, Einstein published, at the age of 26, four papers that were to alter the course of twentieth-century physics. The first dealt with the Brownian motion. Einstein's second paper reinforced the quantum theory of light developed by Max Planck in 1900. In it Einstein established the photon nature of light by accounting for the photoelectric phenomenon discovered in 1902. For this contribution, Einstein was awarded the Nobel Prize in physics in 1921. The third and most famous of Einstein's 1905 papers dealt with the special theory of relativity. And the final paper of that year introduced the now famous equivalence between mass and energy in the equation $E = mc^2$.

3ª Questão: interpretação de texto **valor: 3,0 pontos (0,5 cada item)**

LEIA ATENTAMENTE O TEXTO A SEGUIR:

Sound moves from its source to the ear by wavelike fluctuations in air pressure, something like the crests and troughs of ocean waves. One way to keep from hearing sound is to use ear plugs. Another way is to cancel out the sound with anti-sound.

Using a noisemaker controlled by a micropocessor, engineers have produced sound waves that are half a wavelength out of phase with those of the noise to be quieted - each crest is matched to a trough, and vice versa. Once the researchers have recorded the offending sound, a microprocessor calculates the amplitude and wavelength of sound that will cancel out the crests and troughs of the noise. It then produces an eletronic current that is amplified and fed to a loudspeaker, which produces anti-sound and wipes out the noise. If the anti-sound goes out of synchronization, a microphone picks up the leftover sound and sends it back to the microprocessor, which changes the phase of the anti-sound just enough to cause complete silence.

The research team has concentrated on eliminating low-frequency noise from ship engines, which causes fatigue that can impair the efficiency and alertness of the crew, and may mask the warning sounds of alarm and fog signals.

ASSINALE A ALTERNATIVA ADEQUADA:

1. Qual o principal objetivo do texto ?

a. Discutir sobre uma desvantagem física.
b. Alertar sobre um perigo crescente.
c. Descrever a estrutura do ouvido.
d. Relatar uma nova invenção.

2. O texto compara o som com

a. o movimento das ondas do mar.
b. as cristas e vales de uma cadeia de montanhas.
c. uma bandeira tremulando ao ar.
d. uma máquina produzindo ar comprimido.

3ª Questão: **continuação**

3. Uma das funções do microprocessador descrito no texto é

a. produzir sons musicais.
b. monitorar padrões sonoros.
c. registrar diferentes tipos de ruído.
d. aumentar o volume de sons de fundo.

4. O microprocessador descrito no texto será, provavelmente, empregado para

a. compor música.
b. corrigir sistemas de alarme.
c. eliminar ruídos de motores.
d. intensificar alarmes de nevoeiro.

5. Os pesquisadores mencionados no texto estão preocupados com barulhos indesejados pois podem

a. causar surdez.
b. criar condições perigosas de trabalho.
c. influenciar ondas oceânicas.
d. danificar alto-falantes e equipamentos de som.

6. De acordo com o texto, qual grupo de pessoas irá obter benefícios mais imediatos com o emprego do microprocessador ?

a. Tripulantes de navios.
b. Engenheiros e pesquisadores.
c. Pessoas com insônia.
d. Equipes de manutenção de motores.