

OBJETIVO

ITA
Inglês

9



Atividades
Outros met
Não-Meta
Casos not

26 Mn Manganês 54.938045	26 Fe Ferro 55.845	27 Co Cobalto 58.933200	28 Ni Níquel 58.6934	47 Ag Prata 107.8682	50 Sn Estanho 118.710	54 Xe Xenônio 131.29	56 Ba Bário 137.327	58 Ce Cérebro 140.12	60 Nd Néodymio 144.242	62 Sm Samaritium 150.36	64 Gd Gádo 157.25	66 Dy Díscido 162.50	68 Er Erbócio 167.26	70 Yb Íterbio 173.054	72 Hf Hafnócio 178.49	74 Ta Tântalo 180.948	76 Os Ósmio 190.23	78 Pt Platina 195.084	80 Au Ouro 196.967	82 Pb Chumbo 207.2	84 Bi Bismuto 208.980	86 Po Pólo 209	88 Ra Rádócio 226	90 Th Tório 232.038	92 U Urânio 238.029	94 Pa Protáctíno 231.036	96 Cm Cúrio 247	98 Cf Califórnia 251	100 Fm Férmio 253	102 No Néólio 259
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MÓDULO 17

ELECTRIC CARS

GREENS may not like it, but once people have enough to eat and somewhere tolerable to live, their thoughts turn to buying a car. The number of cars in the rich world will grow only slowly in the years ahead, but car ownership elsewhere is about to go into overdrive. Over the next 40 years the global fleet of passenger cars is expected to quadruple to nearly 3 billion. China, which will soon overtake America as the world's biggest car market, could have as many cars on its roads in 2050 as are on the planet today; India's fleet may have multiplied 50-fold. Forecasts of this kind led Carlos Ghosn, boss of the Renault-Nissan alliance, to declare 18 months ago that if the industry did not get on with producing cars with very low or zero emissions, the world would "explode".

Cars already contribute around 10% of the man-made greenhouse gases that are responsible for climate change. In big cities, especially those in fast-developing countries in Asia and Latin America, gridlocked traffic is responsible for health-threatening levels of local air pollution. To its credit (and under increasing pressure from legislators), the car industry is heeding Mr Ghosn's call. Biofuels have fallen out of favour because of concerns that those produced in rich countries are not particularly green; but huge efforts are being made to develop cleaner conventional engines and, at the same time, move beyond them to electric, battery-powered vehicles, which produce fewer emissions even when the generation of the electricity needed to charge them is taken into account.

By the end of next year, in addition to the increasing number of petrol-electric hybrids on offer, it will be possible for the first time to buy proper cars from mainstream manufacturers that are propelled solely by electric motors. Among them will be Nissan's Leaf and Chevrolet's Volt. The Leaf will rely on battery power alone and will have a range of about 160km (100 miles) before it needs to be plugged in for a fresh charge. The Volt will have a small petrol-engine generator to recharge its batteries on trips of more than 65km. Both are medium-sized cars offering decent performance, practicality and safety _ and neither looks offputtingly weird. Electric cars from other mainstream manufacturers are not far behind.

Problem solved, then? Alas, electric cars still face several roadblocks. The Leaf and the Volt will be expensive, costing around twice as much as comparable petrol-engined cars. That is because of the high cost of batteries, and because other components must be redesigned for electric vehicles. In an industry driven by scale, small volumes lead to high costs. A further problem is that the Volt and the Leaf must be plugged into the mains every night _ fine if you have your own garage or driveway, but a bit tricky otherwise. All this could limit the appeal of electric cars to affluent greens living in leafy suburbs.

The Economist. September 5th 2009 (CEAG-FGV)

1. According to the information in the article,
- too many people in the world today have no access to cars.
 - even without a decent place to live, people still find a way to buy cars.
 - when the problem of food and shelter has been taken care of, people like to buy cars.
 - environmental disaster can be avoided only if the rich world stops buying cars.
 - the expansion of the world's car industry has increased both pollution and poverty in Asia and Latin America.

2. Which of the following is **not** supported by the information in the article?

- The people of China may soon purchase more cars than do the people of the United States.
- Within 40 years the number of cars on the roads may equal today's world population.
- Though the number of cars in the world will probably increase dramatically in the coming years, most of that increase should take place in developing countries.
- By the year 2050, China by itself may have as many cars as the entire world has today.
- At least one important car-industry executive believes that the manufacture of conventional cars is moving the world towards disaster.

3. The information in the article supports which of the following?

- Car-produced air pollution is not equally a problem in all of the world's major urban areas.
- Climate change has especially caused problems in the major urban areas of Asia and Latin America.
- Cars are fast becoming the main contributors of greenhouse gases.
- Without pressure from legislators, the car industry would still be manufacturing vehicles that pollute heavily.
- Rich countries will benefit the most from the development of cleaner conventional car engines.

4. With respect to biofuels, the article affirms that

- they are seen as a valid fuel option for rich countries.
- it is hoped that soon they will be used in newly developed conventional car engines.
- they are no longer considered a valid alternative fuel.

- the development of battery-powered vehicles has made such fuels obsolete.
- there are worries that some kinds are not ecologically correct.

5. According to the information in the article, electric, battery-powered vehicles may be considered

- one part of a double effort in new transportation development.
- the only completely clean form of transportation.
- the definitive answer to the problems caused by conventional car engines.
- at best, a transitional means of transportation.
- the ultimate goal of the world's major car manufacturers.

6. Which of the following is a difference between Nissan's Leaf and Chevrolet's Volt?

- On one battery charge, the Volt can travel only half the distance that the Leaf can travel.
- The Leaf is more efficient and cheaper to run than the Volt.
- Mainstream manufacturers believe the Volt has a more practical design.
- Unlike the Leaf, the Volt has two ways to recharge its batteries.
- Unlike the Volt, the Leaf uses a plug to be recharged.

7. According to the information in the article, both Nissan's Leaf and Chevrolet's Volt

- are expected to be the only all-electric cars for a long time.
- are somewhat conventional in appearance.
- have a top speed of about 65 km per hour.
- can travel about 160 km before needing to recharge their batteries.
- weigh less than similarly sized conventional cars.

8. At the beginning of paragraph 4, the sentence "Problem solved, then?" most likely means the same as which of the following?

- How will it be possible to reduce the cost of electric cars?
- When can we say that the problem of greenhouse gases has finally been solved?

- c) Will electric cars ensure the survival of the mainstream automotive industry?
- d) Will enough electric cars replace conventional cars in time to reduce global warming?
- e) Can we say that electric cars are a practical alternative to conventional cars?

9. According to the information in the article, which of the following is most likely the fundamental reason for the relatively high cost of electric cars?

- a) There are still various problems to solve before such cars can be produced.
- b) Batteries powerful enough to propel such cars are still very expensive.
- c) Many of the components that electric-car manufacturers had planned to use will have to be redesigned.
- d) The car industry is not set up to produce cheaply in small quantities.
- e) New technology must necessarily be expensive so that investors can earn a profit.

10. Which of the following is a prediction that the author of the article makes about electric cars?

- a) Within 40 years they could completely substitute conventional cars.
- b) Without government subsidies they will remain too expensive for the average consumer.
- c) Practical considerations may restrict their popularity.
- d) It will take decades for the car industry to begin mass production.
- e) They will be especially popular with people living in big cities.

As questões de 1 a 4 referem-se ao texto a seguir:

Taking Measure With Hardware and Software

The researchers who founded National Instruments Corp switched from building their own equipment to beefing up other people's.

"You could start a company." That offhand comment by Jim Truchard got Jeff Kodosky and Bill Nowlin thinking. Within days, Truchard and his two employees at the Applied Research Laboratories (ARL) at the University of Texas at Austin (UT) decided to give it a go. That was in February 1976. By May, the trio had incorporated. Today, National Instruments Corp has annual Sales topping \$425 million, employs more than 3100 people, sells some 1500 hardware and software products, and, for five years running, has been rated by Fortune magazine as one of the 100 best companies to work for.

At ARL, Truchard headed an underwater acoustic measurements lab. "I had about two dozen different projects, all the way from basic acoustics to pragmatic testing of military sonar beam formers," he says. Truchard went into science because of Sputnik. "I was right on the cusp of that movement. We were all taking Russian and physics," he says. He earned bachelor's and master's degrees in physics and did his PhD — on a nonlinear parametric acoustic receiving array — in electrical engineering, all at UT. Kodosky and Nowlin both worked part-time for Truchard while enrolled at UT. Nowlin earned a master's in electrical engineering and Kodosky, who has a bachelor's in physics from Rensselaer Polytechnic Institute, worked toward a PhD; he drifted between theoretical high-energy physics and computer science but did not complete the degree. (...)

Physics intuition

Both Kodosky and Truchard point to their physics training as playing a role in their success with National Instruments. Says Truchard, "Acoustical measurements are fairly tricky, and it happens to be a smaller area where you didn't have off-the-shelf equipment. You had to build equipment. That background, and the measurements themselves, created a basis." What's more, he adds, "the physics background helps create good intuition. I think having solved differential equations and learned about gradients, you know how things are going to work out. I've always felt it helped me develop intuition about business."

In leaving academic research, says Kodosky, "we took a giant step back from what we were working on. ARL was cutting edge. Now it was customers who were doing the interesting experiments." Still, he and Truchard say they have more impact on science by supplying tools than they would have had as researchers. "We can have a nonlinear effect on the productivity of the science and engineering community. There is plenty of anecdotal evidence that our virtual instrumentation can make people 5 to 10 times as productive," Kodosky says. "I personally would find it frustrating [to do research] because it's slow, but dropping by a customer's site every couple of years is fun. We live vicariously through them."

Toni Feder. Physics Today, July 2004

1. Considere as seguintes afirmações:
 - I. Truchard, Nowlin e Kodosky fundaram a empresa National Instruments Corp, em 1976.
 - II. A National Instruments Corp atua na área de informática e, de acordo com a Revista *Fortune*, está entre as 100 empresas mais produtivas nesta área.
 - III. Nowlin e Kodosky trabalhavam para Truchard, em tempo parcial, enquanto estudavam na Universidade do Texas.

Está(ão) correta(s)

- a) apenas a I.
- b) apenas a II.
- c) apenas a III.
- d) apenas I e III.
- e) apenas II e III.

2. Considere as seguintes afirmações:
I. Truchard estudou Física na Rússia e tem doutorado em Engenharia Elétrica.
II. Nowlin é mestre em Engenharia Elétrica.
III. Kodosky não concluiu o doutorado.

Está(ão) correta(s)

- a) apenas a II. b) apenas I e II.
c) apenas I e III. d) apenas II e III.
e) todas.

3. Considere as seguintes afirmações:

- I. A formação acadêmica dos proprietários da National Instruments Corp foi importante para o sucesso da empresa.
II. Para Truchard, Nowlin e Kodosky, o ingresso no mundo corporativo representou um retrocesso em termos de pesquisa acadêmica.
III. A graduação de Kodosky e Truchard em Física foi um fator relevante para o desenvolvimento da intuição para os negócios.

Está(ão) correta(s)

- a) apenas a I. b) apenas I e II.
c) apenas I e III. d) apenas II e III.
e) todas.

4. A expressão *What's more* (*Physics intuition*, 1º Parágrafo) **NÃO** pode ser substituída por

- a) Nevertheless. b) Besides.
c) Also. d) Moreover.
e) Furthermore.

exercícios-tarefa

❑ Módulo 17

As questões de 1 a 3 referem-se ao seguinte texto:

Botelho a worthy Award Winner

This year, Brazil and the world have been celebrating the 100th anniversary of the first flight at a public event by Brazilian Alberto Santos-Dumont.

With his imminent retirement next April as president and chief executive officer of Embraer, Mauricio Botelho must be seen as another Brazilian aviation hero, one who turned a small money-losing company into a vibrant world-class aircraft manufacturer.

Botelho spent the first 15 years of his working career at Embraer before leaving to pursue other opportunities. When he returned in 1995, Embraer had been privatised and was embarking on production and delivery of its first regional jets, several years behind competitor Bombardier.

The Embraer ERJ-145 had its maiden flight just weeks before Botelho came on board. First delivery was in late 1996, and the company has never looked back. Nearly 1,000 aircraft based on the ERJ-145 platform have been delivered to 87 operators around the world. A decade on, the ERJ-145 program has reached the 10 million flight-hour milestone.

Under Botelho's leadership, Embraer has had a penchant for seizing market opportunities. It saw an unfilled market niche for aircraft seating 70-110, and its four-model 170/190 program has won 731 orders to date from airlines around the world.

Embraer also used the ERJ platform to develop an Intelligence, Surveillance and Reconnaissance aircraft, and to produce the Legacy, its first foray into business jets. It is now raking in orders for three other business aircraft in development.

Botelho's "legacy" is a dynamic company, one of Brazil's leading exporters, investing in its employees and technology to produce top-notch aircraft.

Airline Business Daily @ ALTA, 2 December, 2006 p.6

1. De acordo com o texto, pode-se inferir que Maurício Botelho
 - a) trabalha na EMBRAER há quinze anos e é considerado um herói da aviação brasileira.
 - b) deixou as atividades na EMBRAER em 1995, época em que o modelo ERJ-145 foi projetado.
 - c) voltou a trabalhar na EMBRAER em 1995, antes da privatização da empresa.
 - d) iniciou sua vida profissional na EMBRAER.
 - e) deixou a presidência da EMBRAER em abril de 2006.

2. Considere as seguintes informações:

- I. O modelo ERJ-145, fabricado pela EMBRAER, teve Maurício Botelho como um dos idealizadores.
- II. A empresa Bombardier passou a produzir jatos regionais para competir com os jatos do mesmo padrão, fabricados pela EMBRAER.
- III. A gestão de Maurício Botelho na EMBRAER foi bem-sucedida devido ao investimento em tecnologia e em recursos humanos.

Está(ão) correta(s)

- a) apenas a I.
- b) apenas a II.
- c) apenas a III.
- d) apenas I e II.
- e) apenas I e III.

3. Considere as seguintes afirmações:

- I. *maiden* em “*The Embraer ERJ-145 had its maiden flight just weeks before...*” (4º Parágrafo) pode ser substituído por *single*.

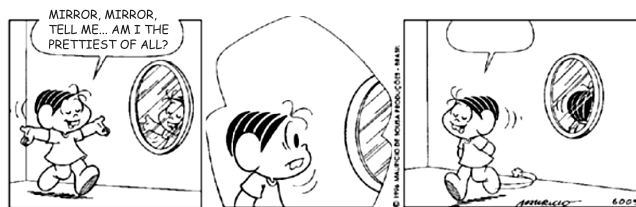
- II. *penchant* em “... *Embraer has had a penchant for seizing market opportunities.*” (5º Parágrafo) pode ser substituído por *tendency*.
- III. *foray* em “... *its first foray into business jets.*” (6º Parágrafo) pode ser substituído por *attempt*.

Está(ão) correta(s)

- a) apenas a I.
- b) apenas a II.
- c) apenas a III.
- d) apenas II e III.
- e) todas.

❑ Módulo 18

1. Assinale a opção que melhor expressaria a fala da Mônica no 2.º balão.



www.monica.com.br/ingles/comics/tirinhas/tira_18.htm
Data da visita ao site: 20/9/2007

- a) Actions speak louder than words...
- b) Silence implies consent...
- c) Better late than never...
- d) He who laughs last, laughs best.
- e) Appearances are deceptive...

respostas dos exercícios-tarefa

❑ Módulo 17

1) D. De acordo com o texto, pode-se inferir que Maurício Botelho iniciou sua vida profissional na EMBRAER.

No texto:

“*Botelho spent the first 15 years of his working career at Embraer before leaving to pursue other opportunities.*”

2) C. De acordo com o texto, a gestão de Maurício Botelho na EMBRAER foi bem-sucedida graças ao investimento em tecnologia e em recursos humanos.

No texto:

“*Botelho’s ‘legacy’ is a dynamic company, one of Brazil’s leading exporters, investing in its employees and technology to produce top-notch aircraft.*”

3) D. – maiden = inaugural, inicial
– single = único

❑ Módulo 18

1) B. Na “charge” desta questão a personagem Mônica pergunta ao espelho se ela era a mais bonita de todas. O espelho não responde, mas ela se retira com ar satisfeito.

* “*Silence implies consent...*” = “*Quem cala, consente.*”