

1.

Complete the second sentence so that it has a **similar meaning** to that of the first one. Use the word given in brackets to complete the sentence. The first sentence is done for you as an example.

The assistant still hasn't typed the report. (needs)
 The report
 The report *still needs to be typed by the assistant.*

		Scores
1.	I am sure they have replaced the faulty parts already. (must) The faulty parts.....	
2.	If the keyword is too general, the results listings may not be useful. (unless) The result listings may not be useful,	
3.	They made us accept their terms of payment. (made) We	
4.	You can't find such good specialists as ours. (can) Nowhere	
5.	If it hadn't been for the austerity measures, our company could have gone bankrupt. (but) Our company would have gone bankrupt	
6.	I'm sorry we haven't found the right solution. (wish) I	
7.	They are just servicing the copier. (serviced) You can't use the copier, it's	
8.	I don't think it's a good idea to order that equipment. (rather) I'	
9.	„Don't rush into a decision“ my HR manager asked me (warned) My HR manager	
10.	„ I certainly didn't pass on any industrial secrets,“ my boss said. (denied) My boss	

2.

Complete the text below by writing a suitable word in the space provided. There is an example for you.

NASA seeks help with space station cargo

Nasa is seeking to off-load some of the cargo-carrying duties required ...*to*...(0) complete the International Space Station to commercial aircraft. In the US president's budget proposal ...(1)... 2006, released on Monday, NASA gets \$ 160 million to find alternatives ...(2)... the space shuttles.

The largest modules of the space station have to ...(3)... carried into orbit by the shuttle because no other launcher is large ...(4)... to carry them. But before the Columbia shuttle disaster in February 2003, several shuttle flights ...(5)... year were devoted to hauling smaller items such as food, water, clothing, science experiments and spare parts.

...(6)...the shuttle fleet currently grounded, the ISS is completely reliant ...(7)...Russian supply ships launching on time. Later in 2005, the European Space Agency will make the first test flight of its Automated Transfer Vehicle, ...(8)...cargo ship designed to supplement the Russian Progress ship. But NASA is looking for ...(9)...alternatives to supply the station. Now it appears there ...(10)...be a couple of real contenders. The agency will issue a call for proposals in summer 2005.

New Scientist

	Answers	Scores
0	<i>to</i>	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Read the text and statements following it. Match the statements with the paragraphs of the text. Put the letters of the paragraphs that contain the given information in the boxes and put an X beside the statements you cannot find information about.

Less Is More

- A. Walk into a car showroom tomorrow and you could buy a vehicle that parks itself, or one that warns you if you're about to crash. Next year there could even be a car you can drive into the sea and race through the waves like a speedboat. So why can't you buy a car that can go 100 miles on a gallon of fuel? Doubling a car's fuel efficiency doesn't just save you money at a time of soaring oil prices, it also halves the vehicle's planet-warming CO₂ emissions. Yet in the US – the world's largest market for cars – there has been little improvement in fuel efficiency for decades.
- B. So there was good news in December 2007, when President Bush signed a new US energy bill into law, which demanded an increase in the fuel efficiency of cars and light trucks by 40%, to an average of 35 miles per US gallon. At the same time the US car industry is under pressure from 17 states that would like to impose their own strict emissions limits on all new vehicles – the same tough „clean car” standards that were mooted by California back in 2004. Although the federal Environmental Protection Agency insists that no state is allowed to set stricter standards of its own, that ruling is now being challenged in the courts.
- C. Whatever the result, US citizens are likely to be buying a very different breed of car five years from now. With a pot of \$10 million for the winners, the Automotive X Prize – announced in 2007 – is designed to change the face of the car manufacturing industry. The idea is to stimulate the production of affordable, desirable high-performance vehicles that can drive at least 100 miles on a US gallon of fuel, emitting around 60 grams of CO₂/km. It is not simply a technological challenge. The problem is that if the only cars that fit the bill are ugly, expensive or offer low performance most people will stick with what they've got. So the big question is, can you create an attractive but inexpensive vehicle based on an existing engine design that packs a punch but doesn't cost the earth?
- D. The answer is yes, you can – it's already happening in the European Union. The EU is considering new legislation to ensure that every new car rolling onto its roads will emit no more than 130 grams of CO₂/km corresponding to a fuel efficiency of about 42 miles per US gallon. Car manufacturers firmly believe that quite a bit can be achieved with existing technologies. Component manufacturers – the car makers' suppliers claim there is a wide range of innovations and plenty of options that can bring greener cars onto the roads.
- E. Simply switching to new, cleaner diesel engines can reduce CO₂ emissions by as much as a quarter. Better still, a hybrid vehicle that can use either its diesel engine or its battery for propulsion would generate about two-thirds the CO₂ emissions of existing petrol-powered cars. A simple measure is adding a „stop-start” system that cuts the engine when the car is stationary, then fires it up again as soon as the driver touches the accelerator. The system can be incorporated into any new vehicle design, and even be retrofitted.
- F. The BMW Mini Cooper, a hybrid car that can be driven by its petrol engine or its electric motor, or both, uses it.. This parallel arrangement gives it good fuel efficiency – it releases just over 100 grams of CO₂/km– even though the complex system adds weight, and heavy vehicles use more fuel. A more promising option may lie in „series-hybrid” cars where a small combustion engine, running almost continuously at optimum efficiency, drives a generator which in turn feeds an electric motor that turns the wheels. Unused electricity tops up the battery.

- G. Electric motors can provide the torque needed for rapid acceleration and they are several times more efficient than combustion engines. The GM Chevrolet Volt concept car, for example, has a 1-litre petrol combustion engine that has no connection to the drive train, but simply powers a 53-kilowatt generator that drives the motor. GM claims this arrangement can manage at least 150 miles per US gallon of fuel.
- H. The Volt boasts a range of energy and carbon-saving technologies that are being touted as the way forward for greener auto design, including lightweight body panels, generative braking, lithium-ion batteries and the ability to use bioethanol as well as gasoline. Putting all these into a concept car, however, is not enough to save the planet, says the X Prize Foundation, which offers the Automotive X Prize.
- I. The AXP was conceived with a similar aim to the foundation's aerospace prize: it is designed to stimulate an otherwise stagnant industry. Its multimillion-dollar payout is on offer for a desirable, efficient, low-emissions, high-performance car that can be mass-produced and sold at a reasonable price.. In short, not only must the cars' green credentials be impeccable, but the vehicle must also be attractive to both investors and consumers. There is a sense within the auto industry that the market is not yet showing lots of interest in paying more and reducing fuel consumption. The only thing consumers are willing to pay more for is more power.
- J. One of the obvious ways forward involves reducing vehicle weight: make the car lighter and it's easier to accelerate, and there's less work to do against gravity when you drive uphill. A lighter car also has less „rolling resistance“ from its tyres, though this raises safety issues.
- K. Some car-makers have moved into producing vehicles with aluminium bodies, though these are typically high-end cars: aluminium is expensive both to buy and to use as it requires manufacturers to switch to unfamiliar fabrication techniques. Carbon composites are another option. They can help with aerodynamic styling because they are shaped easily, but can cost as much as 100 times more than steel
- L. Some composites factories claim that this expense is a mirage, however. Axon, which will compete for the AXP, has patented a mass-production technique to make a range of structural elements and body panels from carbon composites. The products are made from carbon fibre „ropes“ each braided over a foam core and infused with epoxy resin. They are as strong as steel but only 40 % of the weight.
- M. The AXP is encouraging a trend that had already begun: many people are choosing smaller cars, going for style rather than out-and-out performance. Speed restrictions and traffic congestion mean that today's cars are far more powerful than they need to be. As long as people can accelerate sharply enough to overtake at between 60 and 100 km/h – and feel they look good in their car – they will happily reject the traditional “big is beautiful” automobile ethos.

New Scientist

	Answers
1. ALU is an alternative to achieve weight- reduction in automotive industry but it's expensive and difficult to work with during manufacture, and switching from steel faces hefty capital costs.	
2. Fitting a vehicle with an „intelligent“ system that cuts the engine when the car stops and fires it up as soon as the driver steps on the gas pedal both boosts fuel efficiency and reduces CO2 emissions.	
3. „Regenerative breaking“ recaptures some energy lost in breaking and uses it to recharge batteries.	
4. The aim of the Automotive XPrize is to break the „bottleneck of innovation“ that has hit the US auto industry and to give manufacturers an incentive to improve fuel efficiency.	
5. A new trend is taking shape: in a classic oversupply situation when cars are much better, far more powerful and luxurious than we need them to be, people tend to be choosing smaller cars, shifting from power output to fuel economy and cleaning up the highway.	
6. A number of US states would like to impose stricter emission limits on new vehicles and have taken their fight to court.	
7. When less power is required, the system turns off half the cylinders by closing their intake valves, which allows the remaining cylinders to run at high power making the process more efficient.	
8. A new mass-production technology can make carbon-fibre shell and chassis commercially competitive with aluminium body panels.	
9. Low rolling resistance tyres allow a car to use less power to move but the idea of losing grip also rings alarm bells as due to lower friction and longer stopping distance maintaining safety remains a significant challenge.	
10. Improved fuel efficiency and boosted engine-power are manifested in hybrid cars where the wheels are driven by an electric motor which receives power from either the battery or from a generator run by the combustion engine.	

Read the text below. Then sum it up for a colleague of yours who doesn't speak English, in Hungarian (260-280 words). Do not translate any part of the text.

Chip revolution poses problems for programmers

"Our researchers have achieved a wonderful and key milestone." So said Intel's chief technology officer Justin Rattner last month, when the company unveiled a prototype chip equipped with 80 microprocessors, or "cores", each capable of handling a separate task independently of the others.

A milestone it certainly is. Although the chip maker has no plans to release this "supercomputer-on-a-chip" as a commercial product, it is clear that gains in computing performance will in future be made by increasing the number of cores. The traditional path, of switching transistors at ever greater speeds, is about to hit the buffers, because as the speed at which transistors switch increases, so too does the amount of electricity they use and the waste heat they produce.

Whether multi-core chips will be as wonderful as Rattner hopes will depend upon what happens next. Adding more cores to a chip is only half the battle. The next tricky stage is for software developers to figure out how to program the chips to exploit their multitasking abilities. To do this, they need to be able to divide up their programs into smaller tasks that can be carried out by the different cores. There is so far no agreement on how best to do this.

Most observers are hoping that researchers will find simple, cheap ways to program multi-core chips. If they do not, software could go the same way as the games-console industry, with only a few companies equipped with the money and know-how to program them. The result would be a market devoid of innovation.

In a bid to ensure this does not happen, researchers and chip makers such as Intel and IBM are investigating ways to make programming in parallel more accessible, by creating programming languages and tools, and redesigning the arrangement of cores on chips.

The first hurdle to overcome is the clutch of software problems that parallel processing introduces. One of the most serious is the deadlock bug. This is the name given to the situation in which two tasks are supposed to be running in parallel, but each requires an output from the other to continue. The result is a stalemate as each task stalls, waiting for the other to finish.

IBM has created an open-source programming language called X10 to deal with this. X10 classifies parallel tasks as either "parents", which begin first, or "children", which branch off from parents. Unlike other programming languages in which parents and children can be instructed to wait for each other, it also contains a command called "Finish" that allows parents to wait for children, but no vice versa. By separating tasks in this hierarchical way, and ensuring all parent tasks start first, a deadlock never arises.

X10 is also being designed to run a supercomputer IBM is building with funding from US Defense Advanced Research Projects Agency, due to be completed in 2010. This means it is being designed to work across multiple servers, as well as multiple cores, which gives average PC programmers far more capabilities than they need. Some worry that because of its wider goal X10 may not be designed to meet all of the problems specific to multi-core chips.

The strategy computer scientists favored is a concept called "transactional memory", or TM, which is focused on making multi-core chips easier to program. Like X10, TM can be used to solve another type of parallel-programming problem, called a "race bug". These occur when two tasks or programs need to access the same piece of information from memory. This is not a problem in conventional sequential programming, where tasks take turns to run, but in parallel programming one task might update the memory before the other one has finished using it.

The traditional way to deal with this is to “lock” a piece of memory while it is used, ensuring that no other task can touch it until that first task is completed. But this can also cause problems, by introducing deadlocks if two programs are both waiting for a piece of memory that the other has locked. It also slows down overall processing, as the programmer is likely to lock away a larger section of memory than is necessary, and may lock it for the duration of the task, rather than just for the time it is needed.

With TM or X10, rather than specifying what needs to be locked, programmers specify which tasks do not generally interfere with each other and so are likely to work well in parallel. The systems then work out when these tasks will require the same piece of memory, and lock those pieces of memory at only the times required by each task. The result is that commutation is only slowed down by a lock when absolutely necessary, and is unlikely to be locked in a way that might create a deadlock, as the system ensure tasks are staggered to avoid this.

Researchers are also investigating hardware modifications that could make programming multi-core chips easier no matter what software is used. MIT is experimenting with chip design that provide better communication between cores. Until now, processors have been designed to communicate with other elements as little as possible, as talking to something off-chip, where bandwidth is lower, slows everything down. Now that many cores are on the same chip, communication between them would no longer have the same drawback, and could make it easier to divvy up tasks between them.

Switching to multi-core will also be something of a shock to programmers. For years, Intel and others have stuck with the same basic design for their chips even as performance has soared. Now programmers will need to put in some hard work if they are to see increased performance returns.

To encourage them, IBM has launched the “Cell Beyond Gaming Challenge”, which in July will award \$10,000 to whoever comes up with the most innovative way to program its nine-core Cell Broadband Engine, which powers Sony’s PlayStation 3. Similarly, Intel last year began supporting the teaching of multi-core programming at 45 universities around the world.

The need for a solution is pressing. Multi-core chips will be pointless if programmers cannot exploit the gains in performance offered by adding more cores to chips.

New Scientist

Criteria	Points max	Points
Communicative value	10	
Organisation, cohesion	5	
Style, register	5	
Overall impression	5	
Total :	25	

You are working for Vodatel Ltd. as a junior assistant to the Purchasing Manager. You got the following e-mail from him. Read it carefully and write a letter of inquiry following his instructions in about 100-150 words. Use the conventions of a formal business letter.

Hi, Peter, you know that I will be out of town this coming week, but we have to sort out the problem of our **call center** by all means. I'd like to ask you to write a letter of inquiry in my name to EuroCall Ltd.

Remember to include the following points in your letter:

- what business we are in / our clients / range of our activities
- we have problems with our present call center operator (don't go into details!) that's why we are looking for a new supplier
- tell them what we need (a well-run call center with cutting-edge hardware and software plus reliable customer service support round the clock)
- ask for references and a detailed quotation

I'll be back next Wednesday, so you could also arrange a meeting with their sales rep either on Thursday or Friday morning.

Thanks a lot.

If in any doubt, my cell is on; just give me a ring if need arises.

George

Criteria	Points max	Points
Communicative value	5	
Expressiveness	5	
Accuracy	5	
Total :	15	

Take part in Arup's unique online forum running through to the end of September 2009, to share your views with experts worldwide on the topic below, in the form of an Opinion essay, in 300-350 words.

“Stop Talking, Start Doing”

This is the new motto of environmentalist groups worldwide who firmly believe that any further delay in taking global action will lead to irreversible climate change and could seriously jeopardize the future of our planet.

Include the following points:

- a global revolution needed in ways energy is supplied and used
- problems with renewables – environmental energy comes at an environmental cost
- the effect of economic downturn and global financial crisis on the investments in clean energy
- the fatal shortcoming of market solutions to environmental problems (Emissions Trading Scheme)

Criteria	Points max	Points
Communicative value	10	
Organisation	5	
Expressiveness	5	
Accuracy	5	
Total :	25	