

The candidate is given a selection of civil engineering texts on B2 level. The provided text serves only as an example.

Scientists create innovative new 'green' concrete using graphene

Date: April 23, 2018

Source: University of Exeter. "Scientists create innovative new 'green' concrete using graphene." ScienceDaily. ScienceDaily, 23 April 2018. <www.sciencedaily.com/releases/2018/04/180423110721.htm>.

Experts from the University of Exeter a) _____ developed a pioneering new technique that uses nanoengineering technology to incorporate graphene b) _____ traditional concrete production.

The new composite material, which is more than twice as strong and four times more water resistant c) _____ existing concretes, can be used directly by the construction industry on building sites. All of the concrete samples tested are according to British and European standards for construction.

Crucially, the new graphene-reinforced concrete material also drastically reduced the carbon footprint of conventional concrete production methods, making it more sustainable and environmentally friendly.

The research team insist d) _____ new technique could pave the way for other nanomaterials to be incorporated into concrete, and so further modernise the construction industry worldwide.

The research is published in the journal *Advanced Functional Materials*, on Monday, April 23 2018.

Professor Monica Craciun, co-author of the paper and from Exeter's engineering department, said: "Our cities face a growing pressure from global challenges on pollution, sustainable urbanization and resilience to catastrophic natural events, amongst others.

"This new composite material is an absolute game-changer in terms of reinforcing traditional concrete to meet these needs. Not only is it stronger and more durable, but it is also more resistant to water, making it uniquely suitable for construction in areas which require maintenance work and are difficult e) _____ accessed .

"Yet perhaps more importantly, by including graphene we f) _____ reduce the amount of materials required to make concrete by around 50 per cent -- leading to a significant reduction of 446kg/tonne of the carbon emissions.

"This unprecedented range g) _____ functionalities and properties uncovered are an important step in encouraging a more sustainable, environmentally-friendly construction industry worldwide."

h) _____ work on using nanotechnology has concentrated on modifying existing components of cement, one of the main elements of concrete production.

In the innovative new study, the research team has created i) _____ new technique that centres on suspending atomically thin graphene in water with high yield and no defects, low cost and compatible with modern, large scale manufacturing requirements.

Dimitar Dimov, the lead author and also from the University of Exeter added: "This ground-breaking research is important as it can be applied to large-scale manufacturing and construction. The industry j) _____ to be modernised by incorporating not only off-site manufacturing, but innovative new materials as well.

SAMPLE TEST

"Finding greener ways to build is a crucial step forward in reducing carbon emissions around the world and so help protect our environment as much as possible. It is the first step, but a crucial step in the right direction to make a more sustainable construction industry for the future."

1) Fill in the gaps in the text using options A, B, C, D

- | | | | | |
|----|----------|----------|--------------------------------------|------------|
| a. | A have | B has | C would | D will |
| b. | A into | B for | C from | D within |
| c. | A then | B than | C since | D for |
| d. | A a | B an | C the | D those |
| e. | A to be | B can be | C will be | D be |
| f. | A must | B can | C able to | D have to |
| g. | A of | B for | C at | D also |
| h. | A Future | B Old | C This | D Previous |
| i. | A the | B an | C (there will be nothing in the gap) | D a |
| j. | A has | B must | C should | D can |

2) Answer the following questions. Use your own words.

A. What are the advantages of the new type of concrete? List as many as possible.

B. What makes the new concrete "green"?

C. Can this type of concrete be used on all types of constructions?

3) Rewrite the sentences in **bold** using the passive voice:

4) Write an annotation to this text. Do not use more than 30 words.

Gramaticko-lexikální část:

The candidate is given a selection of exercises from grammar and vocabulary on B2 level. The provided exercises serve only as an example.

B2 Grammar topics

Adjectives and adverbs

Future continuous

Future perfect

Future perfect continuous

Mixed conditionals

Modals – can't have, needn't have

Modals of deduction and speculation

Narrative tenses

Passives

Past perfect

Past perfect continuous

Phrasal verbs, extended

Relative clauses

Reported speech

Will and going to, for prediction

Wish

Would expressing habits, in the past

SAMPLE TEST

Example 1 Circle the correct word.

We were put in a room overlooking the main road, so / although / yet we had asked for a room at the back of the hotel. There was a long queue for taxis. *Because / However / Also*, we didn't have to wait very long to get one. We were disappointed because the art gallery was closed and the museum as *well / also / although*. Apart from the cathedral, I could *also / as well / too* see the river from my hotel room. The town is perfect if you're looking for a relaxing, peaceful holiday. *On the other hand / Also / Moreover*, if you want night life, this isn't the place for you. There are very few hotels. *However / Though / Besides*, we were lucky and we found a room.

Example 2 Complete the sentences with the suitable form of the verbs in brackets.

- 1.- If I _____ (find) a good job, I'll move to Madrid.
- 2.- He met his wife when he _____ (work) in Brussels.
- 3.- You can turn off the radio. I _____ (not listen) to it.
- 4.- Where _____ (you / have) dinner yesterday?
- 5.- This exercise is difficult. I _____ (help) you to do it.
- 6.- What _____ (you / cook) tonight?
- 7.- _____ (you / finish) your homework yet?
- 8.- My father _____ (go) to the bank. He'll be back soon.
- 9.- What _____ (they / do) at 9.00 last night?
- 10.- It _____ (snow) when we _____ (leave) the library.
- 11.- I usually _____ (listen) to the news in the car.
- 12.- My cousin is a writer. He _____ (write) three novels.
- 13.- Be careful! The baby _____ (put) those keys in his mouth!
- 14.- When _____ (Barack Obama / become) president of the USA?
- 15.- My students _____ (not listen) when I gave the instructions.

Example 3 SENTENCE TRANSFORMATIONS - b2 LEVEL

Complete the second sentence so that it has a similar meaning to the first sentence, using the word given. Do not change the word given. You must use between two and five words, including the word given.

Example: It hasn't taken Sam long to learn Spanish. picked Sam.
..... Spanish very quickly.

1 We must take as much advantage as possible of any opportunity to speak English.
most
We have any opportunity to speak English.

2 Honestly, I don't mind where we go for our summer holidays.
matter
Honestly, me where we go for our summer holidays.

3 Could you speak English when you were younger?
able
When you were younger, speak English?

4 What's the answer to sixteen minus eight?
away
If you sixteen, what's the answer?

5 Three hundred students entered the swimming competition last year.
part
Three hundred students the swimming competition last year.

6 The students will finish their English course at the end of June.
have
The English course the beginning of July.

Example 4 For each space, choose ONE word which you think best completes the sentence. Look carefully at the words both before and after each space.

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1. There were very _____ people at the party when we arrived but half an hour later, it was crowded.
 2. How was I to know that she would have an allergic reaction _____ the nuts in the cake? She should have said something!
 3. Arthritis is a very painful _____ that affects not only the old but also many younger people making many everyday activities difficult.
 4. He said he couldn't come to the meeting because of a previous engagement but I think he is just _____ excuses.
 5. You were driving at over fifty miles _____ hour and the limit here is only forty.
 6. I _____ to go to school now, otherwise I will be late.
 7. I can eat almost _____ type of fish or seafood except for octopus which I can't stand.
 8. The city is pretty safe although you may have some problems if you go into certain neighborhoods _____ night.