

Handling case study questions

Case study questions are common in the exam. But how do you score well in them? What is the examiner looking for in a successful case study exam answer? Take a look at this past paper question and the mark scheme to help you come to answer these questions.



(e) Name an earthquake you have studied.

(i) Explain the cause of the earthquake.

(ii) State fully two strategies put in place after the event to reduce loss of life in future earthquakes.

MARK SCHEME

Cause

Level 1 (1)

A simple stated cause e.g.

- The earthquake in Japan was caused by plate movement.

Level 2 (2)

A cause stated with some explanatory detail e.g.

- The earthquake in Japan was caused by movement along a complicated destructive plate boundary/one plate goes under the other.

Level 3 (3)

A cause stated with good detail – including one fact or figure, e.g. plates named

- Kobe, in Japan, January 1995. This earthquake was caused by movement along a plate boundary where the Pacific, Eurasian and Philippine plates meet. This particular earthquake was caused by the subduction of the Philippine plate beneath the Eurasian plate. Although this averages 10 cm per year, friction had stopped the smooth movement of these plates for some time, until the pressure to move was so great that they shunted and moved just over 2 m horizontally in the space of 20 seconds. This created shockwaves felt on the earth's surface as an earthquake.

Notes

Note the facts (highlighted in yellow). A top level answer will include at least some of these.

Note also the terminology (highlighted in green). Again, top level answers will include these.

You also get a good sense that this answer is talking about a specific earthquake event and that it shows a good grasp of how earthquakes occur.

Earthquake Loma Prieta, 1989

(i) Cause

The last major earthquake prior to 1989 was in 1906 (measuring 7.8). Since then, the Pacific & North American plates moved in different directions. But friction at the plate margin resulted in a build up of pressure which caused the plates to slowly deform. Then, in October 1989, all the pressure was suddenly released in a massive 6.9 earthquake whose epicentre was at Loma Prieta. (3)

Look at the facts and terminology used here. Notice also how it includes a lot of detail and shows a good understanding of the processes that led to this specific earthquake occurring. It's not just a general explanation of how earthquakes occur. It's about a specific earthquake and so includes specific details.

Two strategies (2 x 3 marks)

Level 1 (1)

Only one strategy noted – with a low standard of detail
e.g.

- After the event new building codes were introduced.

Level 2 (2)

Two strategies covered fairly well **or** one strategy covered well

- Buildings were strengthened after the earthquake. This meant that in future events they would absorb the shockwaves rather than falling down. This would reduce the overall damage caused by another strong earthquake in a MEDC.

Level 3 (3)

A top level answer which addresses two strategies in detail. One fact included for each strategy.

- After the quake new building codes were introduced that meant high rise buildings had to have flexible frames. This meant that they would sway rather than collapse. This would reduce the number of buildings that would collapse, reducing the deaths, as buildings tend to be a major cause of deaths in earthquakes.
- Following this the government invested money to build several 100 000 litre water cisterns to supply clean water, and bought 11 bulk water supply units for the ground fleet of the fire service and new wider (100 mm) hoses for the fire ships, so that large quantities of water could be dispatched by the fire brigade in any future quakes, thus reducing damage caused by out-of-control fires.

Similar to the previous mark scheme answer, top level responses need good facts, along with a detailed description of the strategies used.

(ii) Strategies

In the immediate aftermath of the earthquake emergency services were dispatched to rescue survivors. These included the fire service who attended the collapsed Cypress overpass in Oakland. They managed to rescue some people including Dorothy Otto, whose leg was trapped by the dash board of her car on the bottom tier of the overpass.

In the longer term, many of the structures damaged during the earthquake were repaired and, in some cases, made more resistant to future earthquakes. For example, the Bay Bridge re-opened within one month. The work needed to protect it from another big earthquake started in 2002 and was finished in 2011.

(6)

Note again the facts. Also note the detail given about this particular earthquake. This is not vague material that could apply to any earthquake anywhere. It's specific to Loma Prieta.

Notice also that the answer is clearly structured. The question asks for two strategies – two strategies are clearly given and it's easy to pick them both out from the way in which the answer is written. Work on your ability to communicate clearly and effectively.