Exam-style questions

Chapter 3: Earthquakes and volcanoes

Question 1

(a) Fig. 3.1 shows the world’s plates, plate margins and plate movements.

(i) What is meant by the term *plate*? [1]

(ii) Name two plates on either side of a divergent plate boundary. [2]

(iii) The northern part of the Atlantic Ocean is getting about 40 mm wider every year. Give evidence from Fig. 3.1 to support this statement. [3]

(iv) Explain how earthquakes occur at divergent plate boundaries. [4]
(b) Fig. 3.2 shows the intensity (strength) of an earthquake. Fig. 3.3 shows the Mercalli scale of earthquake intensity.

![Diagram showing earthquake intensity and Mercalli scale]

**Fig. 3.2**

<table>
<thead>
<tr>
<th>Intensity</th>
<th>Observed effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Felt by only a few people under very special circumstances</td>
</tr>
<tr>
<td>II</td>
<td>Felt by only a few people at rest, especially on the upper floors of buildings</td>
</tr>
<tr>
<td>III</td>
<td>Felt noticeably indoors, especially on upper floors of buildings</td>
</tr>
<tr>
<td>IV</td>
<td>Felt indoors by many people, outdoors by a few; some awaken</td>
</tr>
<tr>
<td>V</td>
<td>Felt by nearly everyone; many awaken; dishes and windows break; plaster cracks</td>
</tr>
<tr>
<td>VI</td>
<td>Felt by everyone; many frightened and run outdoors; heavy furniture moves</td>
</tr>
<tr>
<td>VII</td>
<td>Everyone runs outdoors; slight to moderate damage in ordinary structures</td>
</tr>
<tr>
<td>VIII</td>
<td>Considerable damage in ordinary structures; chimneys and monuments fail</td>
</tr>
<tr>
<td>IX</td>
<td>Considerable damage in all structures; ground cracks; underground pipes break</td>
</tr>
<tr>
<td>X</td>
<td>Most structures destroyed; rails bend; landslides occur; water splashes over banks</td>
</tr>
<tr>
<td>XI</td>
<td>Few structures left standing; bridges destroyed; broad fissures in the ground; underground pipes break</td>
</tr>
<tr>
<td>XII</td>
<td>Damage total; waves seen on ground surfaces; objects thrown in air</td>
</tr>
</tbody>
</table>

**Fig. 3.3**

(i) Using Figs. 3.2 and 3.3, describe the effects of the earthquake on Newtown. [3]

(ii) Suggest the reasons why the intensity of an earthquake may vary from place to place. [5]

(c) For an earthquake that you have studied, describe its effects on people and the environment. [7]

[Total: 25]
Question 2

(a) Fig. 3.4 shows a shield volcano.

![Fig. 3.4](image)

(i) Identify one area of the world where volcanoes like this occur. [1]

(ii) Explain the meaning of the terms vent and magma chamber. [2]

(iii) Describe the features of the volcano shown in Fig. 3.4. [3]

(iv) Explain how this type of volcano forms. [4]

(b) Fig. 3.5 shows a stratovolcano.

![Fig. 3.5](image)
(i) Give **three** differences between the volcano shown in Fig. 3.4 and the volcano shown in Fig. 3.5. [3]

(ii) Explain how the volcano shown in Fig. 3.5 may endanger human life and property. [5]

(c) For a named volcano that you have studied, explain the advantages that it brings to people who live near it. [7]

[Total: 25]

**Question 3**

Fig. 3.6 is a diagram of a plate margin where earthquakes occur.

**Fig. 3.6**

(a) Name **one** example of this type of plate boundary. [1]

(b) Explain the meanings of the terms *focus* and *epicentre*. [2]

(c) Explain how earthquakes occur at the type of plate boundary shown in Fig. 3.6. [3]

(d) Explain why some of the earthquakes are shallow focus and some are deep focus. [2]

[Total: 8]
Question 4

Fig. 3.7 shows an active volcano in Tenerife, Spain.

Fig. 3.7

(a) Describe the features of the volcano shown in Fig. 3.7. [5]

(b) Explain the meanings of the terms *crater, shield volcano* and *stratovolcano*. [3]

[Total: 8]