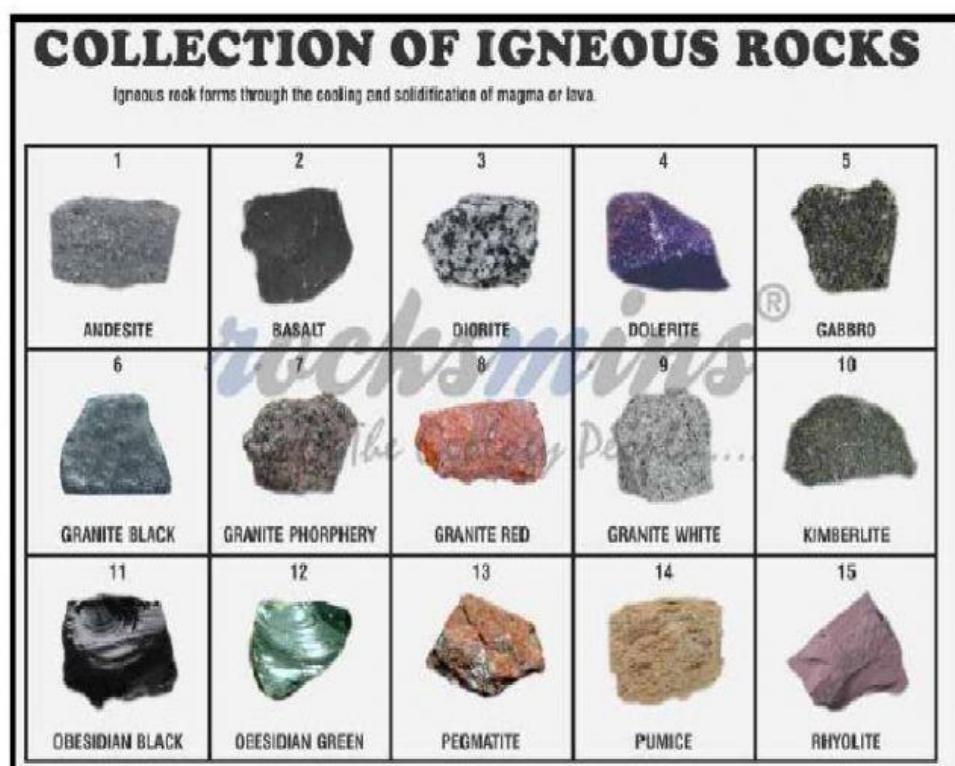


## SECTION A: THE ATMOSPHERE

### QUESTION 2: GEOMORPHOLOGY

FIGURE 2.4: TYPES OF IGNEOUS ROCKS



[Source: Google Images]

2.4.1 Define the term *igneous rock*. (1 x 1) (1)

2.4.2 Name any THREE types of igneous rocks from FIGURE 2.4. (3 x 1) (3)

2.4.3 Igneous rocks form from magma. What is *magma*? (1 x 1) (1)

2.4.4 Explain how igneous rocks are formed. (2 x 2) (4)

2.4.5 Discuss THREE uses of igneous rocks. (3 x 2) (6)

**FIGURE 2.5: TSUNAMI WARNING AND MITIGATION FOR THE INDIAN OCEAN REGION**



On 26th December 2004, the Indian Ocean was struck by a massive tsunami which killed 230 000 people and caused widespread destruction. Although we cannot prevent tsunamis, early warning of their approach combined with physical defences and well-practised evacuation procedures can save many lives.

Tsunamis can cause flooding and destructions to coastal areas of the world. This can be minimised if there are proper early warning systems in place. For instance, the 2011 Tohoku tsunami severely tested Japan's highly advanced warning system including seawalls and evacuation plans. Tragically 18 000 people lost their lives, totaling 4% of the population located in the coastal area. In comparison, the 2004 Indian Ocean Tsunami resulted in over 20% fatalities in the coastal area. While any fatalities are shocking, it is clear that the destruction in Japan was manageable.

[Source: [https://www.preventionweb.net/files/workspace/7935\\_casestudy1.pdf](https://www.preventionweb.net/files/workspace/7935_casestudy1.pdf)]

2.5 Study the extract in FIGURE 2.5 about tsunamis and answer the questions that follow.

2.5.1 State the percentages of the population that lost their lives in:

(a) 2004 (1 x 1) (1)

(b) 2011 (1 x 1) (1)

- 2.5.2 List ONE early warning system Japan set up to minimise the impact of tsunamis. (1 x 1) (1)
- 2.5.3 Discuss the impact of tsunamis on the people living along the coast of Indian Ocean. (3 x 2) (6)
- 2.5.4 How would you advise coastal communities to prepare in advance so that they cope during and after a tsunami? (3 x 2) (6)  
[60]

**TOTAL SECTION A: 60**