- Which one of the coastal management strategies below is a hard engineering strategy. (1)
  a) groynes
- 2) Describe one soft engineering strategy mentioned in figure 1 (1)

Any one from: e.g. beach nourishment is when sand and shingle from elsewhere or from lower down the beach is added to the upper part of beaches *[1 mark]*. / Dune regeneration is when sand dunes are created or restored by nourishment, or by planting vegetation to stabilise the sand *[1 mark]*. Beach nourishment creates wider beaches which slow the waves, giving greater protection from flooding and erosion

3) Give one benefit of this strategy (1)

Beach nourishment creates wider beaches which slow the waves, giving greater protection from flooding and erosion [1 mark]. / Dune regeneration restores or creates sand dunes that provide a barrier between the land and the sea. This means wave energy is absorbed, which prevents flooding and erosion [1 mark].

## 4) Describe 2 disadvantages of using this soft engineering method as a defence (2)

E.g. 1: Taking material from the sea bed for beach nourishment can kill organisms like sponges and corals *[1 mark]*.

2: Beach nourishment is also a very expensive defence that has to be repeated *[1 mark]*. /

1: Dune regeneration only protects a small area [1 mark].

2: Nourishment of existing dunes is very expensive [1 mark].

## 5) Suggest why coastal management at Cliffall does not include managed retreat ? (2)

Cliffall is a town, so managed retreat would mean allowing homes and businesses to be lost to the sea [1 mark]. This would have large social and economic costs [1 mark].