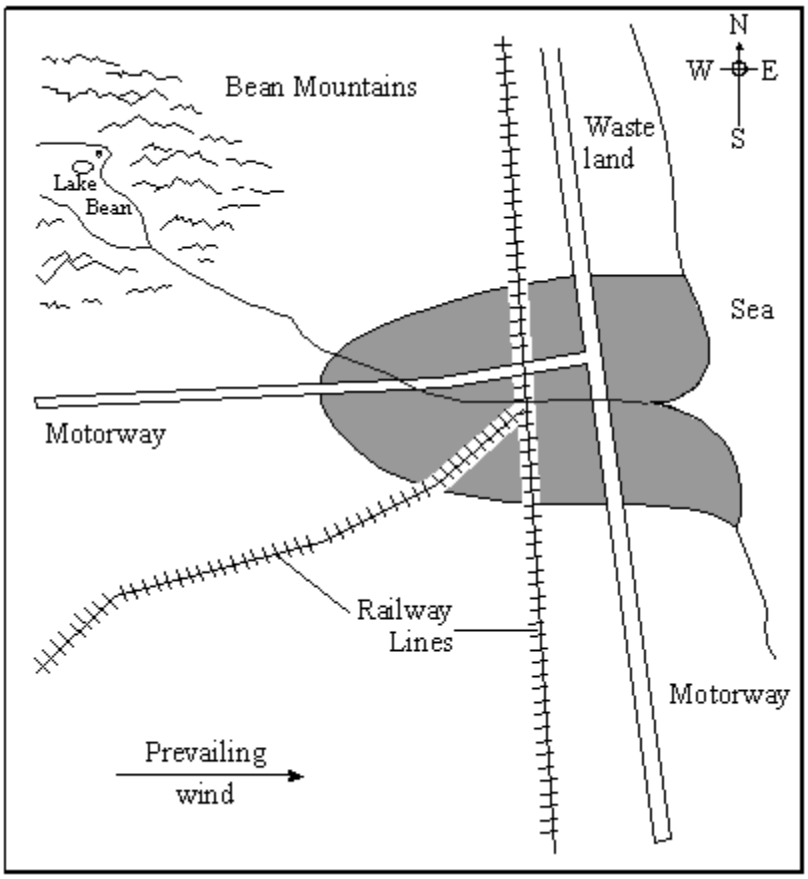
Name of the Student:_____
Max. Marks : 16 Marks **Time : 16 Minutes**

Q1.

The map below shows an industrial region (shaded).



The prevailing wind is from the west. There is a nearby mountainous area, from which a river flows through the region. The major road and rail links are shown.

A power station is to be built to supply electrical energy to the region. The energy will be for a range of domestic and industrial uses.

The choice is between a coal fired power station, wind turbines and a hydroelectric scheme.

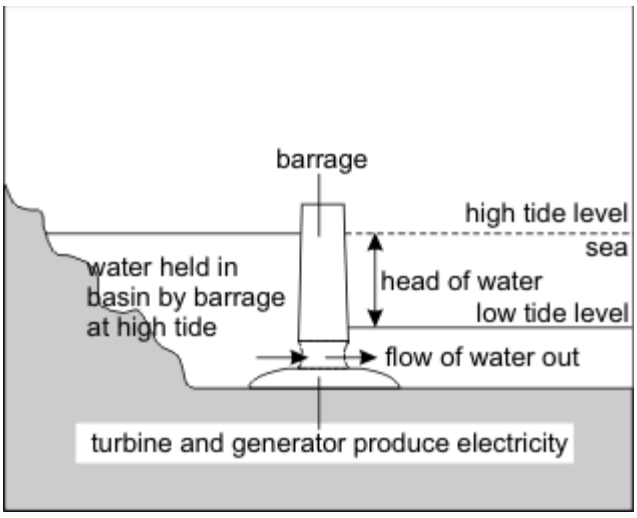
Three local groups each support a different option. Choose which option you would support and justify your choice by making reference to the financial, social and environmental implications of your choice compared with those of the alternative systems.

(Total 8 marks)

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Q2.

The outline diagram below shows a tidal power generating system.



Gates in the barrage are open when the tide is coming in and the basin is filling to the high tide level. The gates are then closed as the tide begins to fall.

Once the tide outside the barrage has dropped the water can flow through large turbines in the barrage which drive generators to produce electrical energy.

In one second 1.2×10^9 kg of water flows through the turbines at a speed of 20 m/s.

(a) When used with a water speed of 20 m/s the system has an efficiency of 90% in converting the kinetic energy of the water into electrical energy. Calculate the power output of the generators.

_____

_____

_____

(2)

(b) The power output of a coal fired power station is 1000 MW (1×10^9 W).

(i) Suggest **two** advantages of coal fired power stations over tidal power generating systems.

1. _____

_____

2. _____

_____

(ii) Suggest **two** advantages of tidal power generating systems over coal fired power stations.

1. _____

_____

2. _____

_____

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(iii) Suggest and explain **one** disadvantage of a tidal power generating system.

_____

_____

_____

_____

(6)

(Total 8 marks)

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