Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Mark Schemes

Q1.

(a) (i) (dismantle and) remove radioactive waste / materials / fuels
accept nuclear for radioactive
*do **not** accept knock down / shut down*
1

(ii) increases it
*do **not** accept it has a negative effect*
1

(b) (i) *if efficiency is not mentioned it must be implied*
answers in terms of energy
generated only gains no credit

K most efficient
or
M least efficient
*accept **K** and / or **L** are more efficient than **M***
1

(efficiency) of **K** and **L** increases, (efficiency) of **M** (almost) constant / slightly reduced
all 3 power stations must be mentioned to get this mark
1

(ii) any **two** from:

- do not know how many (nuclear) power stations there will be
- power stations may continue to increase in efficiency
- do not know what type of power station new ones will be
  accept new methods may be found to generate electricity / energy
  accept other ways of generating energy may be expanded
- do not know future energy / electricity demands
  accept we may become more energy efficient
- may be new uses for uranium

2

[6]

Q2.

(a) (i) 0.75

*allow **1** mark for correct transformation and substitution*
ie 0.15 = 5

2

(ii) 2

accept 1.5 ÷ their (a)(i) correctly calculated

1

(b) any **one** from:

- seasonal <u>changes</u>

  accept specific <u>changes</u> in conditions
  eg shorter hours of daylight in winter

- cloud cover

  accept idea of <u>change</u>
  must be stated or unambiguously implied
  eg demand for water will not (always) match supply of solar energy
  *do **not** accept figures are average on its own*
  *do **not** accept solar panels are in the shade*

1

[4]

Q3.

(a) (i) tidal / tides

*do **not** accept water / waves*

1

(ii) any **three** from:

- shorter journey time
  accept easier to go from town to town
  accept less petrol / fuel used

- less pollution from traffic
  accept CO_2 / carbon emissions reduced

- energy source is free

- energy source / tides are predictable

- produces less / no pollutant gases (than fuel burning power stations)
  accept no CO_2 / greenhouse gases produced
  accept air pollution for pollutant gases

- conserves supplies of fossil fuels

- uses renewable energy (to generate electricity)

- provides employment

- no visual / noise pollution
  less harm to the environment is insufficient
  the electricity is cheaper is insufficient

*do **not** accept produces no radioactive waste*

the pollution mark scores twice only if it is clear one reference is to traffic and the other is to electricity generation

3

(b) (i) (sometimes) electricity demand may be greater than supply (of electricity from the system)

accept in case turbines / generators fail

or

can sell (excess) electricity (to the National Grid)

1

(ii) decreases the current

accept increases the voltage

1

reducing energy loss (along cables)

accept less heat / thermal energy lost / produced

1

[7]