

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

- (a) (i) £190
nb mention idea of cost per J in £ will come to an approx figure full credit given
allow 1 mark for showing that the energy loss through the roof is 1/4 of the total energy loss ie 150 / 600 2
- (ii) £142.50
allow ecf 50 % of their (a)(i) x 1.5 ie their (a)(i) x 0.75 1
- (b) transferred to surroundings / atmosphere
or becomes spread out 1

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Q2.

- (a) (i) national grid 1
- (ii) increases voltage / potential difference
accept decrease current
accept step-up / boosts the voltage
*do **not** accept increases energy / power / current*
ignore reference to voltage going through 1
- (iii) any **two** from:
- reduce current
ignore increased voltage / pd
 - reduces energy loss / power loss (from cables)
accept reduces heat loss
*do **not** accept stops energy loss*
 - increases efficiency (of distribution) 2
- (b) any **one** from:

- produces pollutant gases
accept produces carbon dioxide / sulfur dioxide / nitrogen oxides
accept global warming / greenhouse effect / carbon emissions / air pollution / acid rain
ignore ozone layer
*do **not** accept carbon monoxide*
- produces solid waste / ash / smoke
accept global dimming
ignore produces pollution

1

(c) (i) any **two** from:
any two valid points gains the marks

- using renewable energy
accept don't use up non-renewable / fossil fuels
accept named fuels
- non-renewable fuels can be used for other processes
- no pollutant gases produced
accept the opposite of (b)
ignore no pollution
- land can still be used for farming
ignore economic issues

2

(ii) any **two** from:

- cause noise pollution
- cause visual pollution
accept spoils the landscape
accept sunlight flicker
- may interfere with TV / radio / mobile phone signals
- need to put in new infrastructure
accept new roads needed
- not reliable owtte
- dangerous to birds
- lots of concrete needed for the bases
or
producing cement is environmentally damaging
accept reduces house prices
ignore any references to cost / jobs / number required
ignore takes up a lot of land
accept reference to obstruction of shipping etc. if clear reference
tooffshore wind farm

2

[9]

Q3.

(a) only accept answers in terms of the argument of the nuclear power scientist any **three** from:

- produces a lot of energy for a small mass of fuel **or** is a concentrated energy source
accept amount for mass
- it is reliable **or** it can generate all of the time
- produces no pollutant gases
*accept named gas or greenhouse gases do **not** accept no pollution*
- produces only a small volume of (solid) waste
accept amount for volume
- advances in technology will make fuel reserves last much longer
accept an argument in terms of supply and demand

3

(b) any **one** from:

- may leak into the ground / environment
- geological changes
accept earthquakes etc
- may get into the food chain
*do **not** accept answers in terms of property prices or 'damages the environment'*
- over time if location not correctly recorded it may be excavated

1

(c) any **three** from:

- overall add no carbon dioxide to the environment
accept do not add to global warming
accept they are carbon neutral
- power companies can sell electricity at a higher price
accept power companies make more profit
- opportunity to grow new type crop
accept specific examples e.g. growing plants in swamps
accept extends the life of fossil fuel reserve
- more jobs
- more land cultivated **or** different types of land utilised

3

[7]