Energy Sources And Their Trends In Their Uses 1 MS

QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	any three from: • produces a lot of energy for a small mass of fuel or is a concentrated energy source • it is reliable or it can generate all of the time • produces no pollutant gases • produces only a small volume of (solid) waste • advances in technology will make fuel reserves last much longer	accept amount for mass accept named gas or greenhouse gases do not accept no pollution accept amount for volume accept an argument in terms of supply and demand	
b)	any one from: • may leak into the ground / environment • geological changes • may get into the food chain • over time if location not correctly recorded it may be excavated	accept earthquakes etc do not accept answers in terms of property prices or 'damages the environment'	1
c)	any three from: • overall add no carbon dioxide to the environment • power companies can sell electricity at a higher price • opportunity to grow new type crop • more jobs • more land cultivated or different types of land utilised	accept do not add to global warming accept they are carbon neutral accept power companies make more profit accept specific examples e.g. growing plants in swamps accept extends the life of fossil fuel reserve	3
Total marks			7

QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	any two from: (burning) fossil fuels produces greenhouse gases / pollutant gases / acid rain / leads to global warming nuclear fuels produce dangerous waste fossil fuels are non-renewable renewable energy resources produce no pollutant gases large amounts of energy are available running costs are low	accept a named fossil fuel accept a named pollutant gas accept radioactive for dangerous accept reference to dangers of nuclear fuels accept running out of fuels accept renewable won't run out accept any reasonable benefit of renewables accept any reasonable drawback of non-renewables do not accept better for the environment on its own	2
b)	RUST	all in correct order allow 2 marks for 2 correct allow 1 mark for one correct	3
Total marks			5

QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	any one from: can fly at night can stay in the air for longer can fly in the winter can fly faster	accept can fly when it is cloudy accept as a back-up increases power is neutral	1
b)	any one from: produces no (pollutant) gases or no greenhouse gases produces no / less noise less demand for fuels	 accept named gas accept no air pollution do not accept no pollution accept less global warming accept harmful for pollutant	1

		accept produces no carbon do not accept environmentally friendly accept any other sensible environmental advantage	
c)	accept any sensible suggestion eg, map the Earth's surface / weather forecasting / spying / monitoring changes to the Earth's atmosphere, etc	do not accept ideas in terms of transporting accept use as a satellite	1
Total marks			3

QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	any one from: waves tides falling water biofuel / biomass solar geothermal	do not accept water accept hydroelectric accept sun / sunlight do not accept light accept solar cells / panels do not accept heat	1
a)ii)	decrease		1
b)i)	increases from 4 am (to 8 am) remains constant from 8 am (to 10 am)	accept increases from 30 000 accept stays constant from 40 000 allow 1 mark for goes up then stays the same for full credit must be some indication of time or power	1 1
b)ii)	natural gas		1
Total marks			5

QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	gas		1
a)ii)	one variable is categoric, the other is continuous		1

a)iii)	fuel is not burned	accept nothing is burned do not accept they don't use fossil fuels	1
b)i)	boiler steam turbine generator		1 1 1 1
b)ii)	any one from: wind waves tidal geothermal solar falling water	accept wind turbines accept tide accept the Sun / sunlight accept solar panels / cells do not accept light accept hydroelectric do not accept water do not accept any named biofuel	1
b)iii)	18000	allow 1 mark for showing a correct method ie 36 000 000 ÷ 2 000 an answer of 0.018 gains 1 mark	2
Total marks			10

QUESTION 6

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	(dismantle and) remove radioactive waste / materials / fuels	accept nuclear for radioactive do not accept knock down / shut down	1
a)ii)	increases it	do not accept it has a negative effect	1
b)i)	K most efficient or M least efficient (efficiency) of K and L increases, (efficiency) of M (almost) constant /	if efficiency is not mentioned it must be implied answers in terms of energy generated only gains no credit accept K and / or L are more efficient than M	1 1

	slightly reduced	all 3 power stations must be mentioned to get this mark	
b)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 □ do not know future energy / electricity demands □ may be new uses for uranium	accept new methods may be found to generate electricity / energy accept other ways of generating energy may be expanded accept we may become more energy efficient	2
Total marks			6