Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Mark Schemes

Q1.

(a) product of mass and velocity

1

(b) (i) 4kg or 4000g

1

(ii) M = 8kgm/s or Ns
for 3 marks

else M = 8
for 2 marks

else M – mv or 4 × 2
for 1 mark

3

(iii) 8 kgm/s (watch e.c.f.)

1

(iv) v = 400
for 3 marks

else v = 8/0.02
for 2 marks

else M – mv, v – M/m or 8 = 0.02v
for 1 mark

3

(v) ke = 8
for 3 marks

else ke = 1/2 (4×2^2)
for 2 marks

else ke = 1/2 (mv^2)
for 1 mark

3

(vi) transferred to heat and sound
or does work against wood/pushing wood aside/deforming bullet

1

[13]

Q2.

*do **not** give any credit for renewable **or** non-renewable **or** installation **or** decommissioning costs*

fossil fuel advantage

1

a reliable source of energy

fossil fuel disadvantage

pollution by carbon dioxide /

accept causes acid rain
accept highest costs / more expensive than nuclear / more expensive than renewable

1

nuclear advantage

do not produce gases that increase the greenhouse effect **or** cause acid rain

accept nuclear is cheaper than fossil

1

nuclear disadvantage

accidents / waste can release very dangerous radioactive material radiation

*accept it produces waste that stays dangerously radioactive for thousands of years **or** radioactive waste has to be stored safely for thousands of years*

1

renewable advantage

there are no fuel costs

almost pollution free (apart from noise and visual)
accept cheaper than fossil

1

renewable disadvantage

not a reliable source of energy except for hydroelectric

accept (most) require large areas of land
accept visual / noise pollution

1

[6]

Q3.

(a) **(oil / natural gas / coal)**

no marks are given for choosing the correct non-renewable energy source

burning releases carbon dioxide (1) greenhouse effect (1)

OR

allow 2 effects for 2 marks

burning (releases sulphur dioxide (1) acid rain (1)

OR

(nuclear power)

no marks given for choosing the correct non-renewable energy source

accidents can release very dangerous radioactive material (1)

produces waste that stays dangerously radioactive for thousands of years **or** radioactive waste has to be stored safely for thousands of years (1)

accept the cost of installation and decommissioning is high

2

(b) any four from:

(wind power)

no marks are given for choosing the correct non-renewable energy source

- considered unsightly / visual pollution (1) very large areas of land (1)
- noisy for people living nearby / noise pollution (1)

(tidal power)

no marks are given for choosing the correct non-renewable energy source

- barrages / visual pollution (1)
- destroys the habitat of many living organisms (1)

(hydroelectricity)

no marks are given for choosing the correct non-renewable energy source

- damming / visual pollution (1)
- very large areas of land (1) flooding (1)

4

[6]