

MARKING SCHEME AND MODEL ANSWERS

Chapter 5: Work, Energy and Power

Maximum Marks: 40 | Suggested time: 60 minutes

Use after attempting the paper. Accept equivalent correct methods.

Suggested mark allocation:

1 mark: Correct fact, formula, unit or direction.

2 marks: Principle/formula (1); explanation, working or result (1).

3 marks: Relation (1); working/reasoning (1); final result and unit (1).

4 marks: Principle (1); setup/equation (1); working (1); result/interpretation (1).

Mark splits are a guide; award partial credit for valid steps.

Q1 - 1 mark

When force is perpendicular to displacement.

Q2 - 1 mark

mv^2 .

Q3 - 1 mark

Watt.

Q4 - 1 mark

Net work equals change in kinetic energy.

Q5 - 1 mark

kx^2 .

Q6 - 1 mark

Momentum and kinetic energy.

Q7 - 1 mark

mgh .

Q8 - 1 mark

Zero.

Q9 - 2 marks

40 J.

Q10 - 2 marks

24 J.

Q11 - 2 marks

2000 J.

Q12 - 2 marks

0 J.

Q13 - 2 marks

1 J.

Q14 - 2 marks

1 m/s.

Q15 - 3 marks

32 J.

Q16 - 3 marks

$\sqrt{60}$ approx 7.75 m/s.

Q17 - 3 marks

18 J.

Q18 - 3 marks

-200 kJ; 4000 N.

Q19 - 4 marks

10 m/s; $\sqrt{80}$ approx 8.94 m/s.

Q20 - 4 marks

2 m/s; 24 J lost.