

MARKING SCHEME AND MODEL ANSWERS

Chapter 1: Units and Measurements

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

Seven.

Q2 - 1 mark

kelvin (K).

Q3 - 1 mark

Three.

Q4 - 1 mark

$[LT^{-1}]$.

Q5 - 1 mark

$[MLT^{-2}]$.

Q6 - 1 mark

Yes.

Q7 - 1 mark

No.

Q8 - 1 mark

pascal (Pa).

Q9 - 2 marks

12.5.

Q10 - 2 marks

$[MLT^{-1}]$.

Q11 - 2 marks

ut and at^2 both have dimension L ; homogeneous.

Q12 - 2 marks

20 m s^{-1} .

Q13 - 2 marks

Four.

Q14 - 2 marks

Both are $[ML^2T^{-2}]$.

Q15 - 3 marks

Equating dimensions gives $a =$, $b =$, so T proportional to $\sqrt{l/g}$.

Q16 - 3 marks

$4\pi r^3/3 = 33.5 \text{ cm}^3$.

Q17 - 3 marks

$[M^{-1}L^3T^{-2}]$.

Q18 - 3 marks

51.68 cm^2 rounds to 52 cm^2 .

Q19 - 4 marks

$a =$, $b =$; T proportional to $\sqrt{m/k}$.

Q20 - 4 marks

18.2 cm^3 ; extra digits are unsupported.