

STUDYNEST | CLASS 11 PHYSICS MARKING SCHEME AND MODEL ANSWERS

Chapter 10: Thermal Properties of Matter

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

No net heat transfer between systems in thermal equilibrium.

Q2 - 1 mark

300.15 K, approximately 300 K.

Q3 - 1 mark

Heat needed to raise 1 kg by 1 K.

Q4 - 1 mark

$Q = mc\Delta T$.

Q5 - 1 mark

$Q = mL$.

Q6 - 1 mark

Radiation.

Q7 - 1 mark

$pV = nRT$.

Q8 - 1 mark

Rate is approximately proportional to excess temperature for small differences.

Q9 - 2 marks

4000 J.

Q10 - 2 marks

1.2×10^{-3} m.

Q11 - 2 marks

373.15 K.

Q12 - 2 marks

400 J/K.

Q13 - 2 marks

66,800 J.

Q14 - 2 marks

Energy supplies latent heat for phase change.

Q15 - 3 marks

21,000 J.

Q16 - 3 marks

1.2×10^{-3} m.

Q17 - 3 marks

44 deg C.

Q18 - 3 marks

150 kPa.

Q19 - 4 marks

Conduction via microscopic interactions; convection by bulk flow; radiation via electromagnetic waves.

Q20 - 4 marks

$mL + mc\Delta T = 83,600$ J.