

MARKING SCHEME AND MODEL ANSWERS

Chapter 14: Waves

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

Perpendicular.

Q2 - 1 mark

Longitudinal.

Q3 - 1 mark

$v = f\lambda$.

Q4 - 1 mark

$2\pi/\lambda$.

Q5 - 1 mark

Resultant displacement is the algebraic sum.

Q6 - 1 mark

Pulse is inverted.

Q7 - 1 mark

$|f_1 - f_2|$.

Q8 - 1 mark

Maximum displacement from equilibrium.

Q9 - 2 marks

100 m/s.

Q10 - 2 marks

2 m.

Q11 - 2 marks

4 Hz.

Q12 - 2 marks

Doubles.

Q13 - 2 marks

No.

Q14 - 2 marks

+x direction.

Q15 - 3 marks

30Hz; 1/30s.

Q16 - 3 marks

+2 cm.

Q17 - 3 marks

4 Hz; .25 s.

Q18 - 3 marks

Particles oscillate locally while the disturbance propagates.

Q19 - 4 marks

30m/s; $\lambda = 6\text{m}$.

Q20 - 4 marks

Alternating loudness occurs at 2 beats per second.