Practice Question Set For A-Level
Subject : Physics
Paper-1 Topic: Further Mechanics

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Name of the Student:_____
Max. Marks : 16 Marks **Time : 16 Minutes**

Mark Schemes

Q1.

(a) (i) Unchanged

B1 **1**

(ii) ½ OWTTE

B1 **1**

(iii) $T = 2\pi\sqrt{(M/k)}$

B1

$T^2 = 4\pi^2 \times M/k$ (square and re-arrange)

B1 **2**

(iv) $T = 1/0.91$ [= 1.1 s]

C1

$1.1^2 \times 190000 / 4\pi^2$

A1

So $m_{platform}$ = (cand ans for M –5300) leading to correctly evaluated answer

B1 **3**

(b) *v* shape correct [*cos* graph]

B2

or *v* shape inverted [-*cos* graph]

B1

k.e. always +ve

M1

k.e. freq doubles

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M1

k.e. shape acceptable

A1

5

(c) **max 4 from**:
mention of forced oscillation
platform frequency always matches lorry's frequency
mention of resonance
small amplitude when well away from resonant frequency
large amplitude at resonance [do not infer small amp point from this] resonant freq close to 0.91 Hz

B4

4

[16]

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