

Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

PHYSICS PAPER 3 FOUNDATION TIER

MARK SCHEME

Specimen Paper 2003

1982/3

Qn	Expected answer	Marks	Additional guidance
1 (a)	tighten / use thinner string / shorten (1)	1	
(b) (i)	3/2 wavelengths (1)	1	
(ii)	600 (1)	1	allow e.c.f. from (ii)
		(3)	

2 (a)	moving water (1) turns turbine (1) turns generator (1)	2	Any two .
(b)	wind/solar/wave (1)	1	
(c)	present/communicate scientific evidence for use of renewable energy sources (1) saves using other resources (1) limitless supply (1) no pollution / clean / environmental issues (1) or arguments based on use of non-renewable sources.	3	Any three .
	QWC = 1 . This mark should only be awarded if the answer attempts to address the question and the quality of the description makes the meaning clear.	1	
		(7)	

3 (a) (i)	first three rows LOW fourth row HIGH	(1) (1)	2	
(ii)	first row LOW last three rows HIGH	(1) (1)	2	
(b)	AND (1)		1	
(c)	OR (1)		1	
(d)	remote / does not need watching / reliable		1	
			(7)	

Qn	Expected answer	Marks	Additional guidance
4 (a) (i)	45 minutes or ³ / ₄ hour (1)	1	
(ii)	12 °C (1)	1	
(b)	idea of different (specific) heat capacity/different amount of energy needed for same temp rise (1) less (1)	2	
(c)	$\begin{array}{c} 10 \times 4000 \times 20 = 800\ 000 \qquad (1) \\ J \qquad (1) \end{array}$	1 1	
		(6)	

5 (a)	trapped air (1) poor conductor/convector (1)	2	
(b)	reflects (1) radiation (1)	2	
	QWC = 1 . This mark should only be awarded if the answer attempts to address the question and the quality of the description makes the meaning clear	1 (5)	

6 (a) (i)	resonance	1	
(ii)	(frequency of) note matches natural frequency (of glass)	1	
(b)	interference	1	
		(3)	

7 (a)	ray hits screen below red ra refracting appropriately at b (1)		2	
(b) (i)	speed decreases frequency stays the same wavelength decreases	(1) (1) (1)	3	
(ii)	L straight on (1) M through principal focus	(1)	2	
			(7)	

Qn	Expected answer	Marks	Additional guidance
8 (a)	 high resistance in dark and low resistance in light (1) high resistance gives low voltage/ 0V and vice-versa (1) 	2	
(b)	Q falls and rises sharply as A passes $2.0 \vee (1)$ Q = 4.5 V when A less than $2.0 \vee (1)$ Q = 0.5 V when A greater than $2.0 \vee (1)$	3	by eye for all Q reversed = 1
(c) (i)	LOW (1) HIGH HIGH (1)	2	ACCEPT on/1/high, off/0/low
(ii)	OR gate	1	ecf truth table if wrong
		(8)	

Total = 50			
		(4)	
(ii)	(90/100) x 100 (1) correct value 90 (%) (1)	2	accept 0.9
(b) (i)	heat/thermal	1	
9 (a)	the Sun	1	