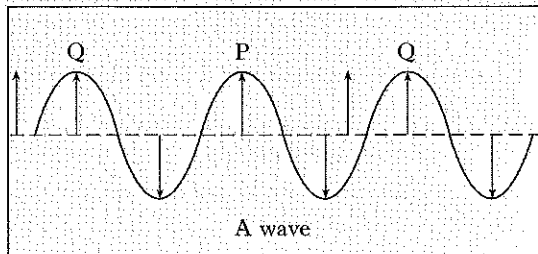


9. (b)

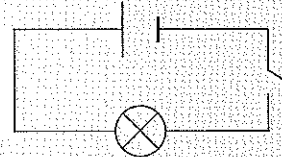
Quantity	Definition	Unit
wavelength	The shortest distance before the wave pattern repeats	metre or m or cm or mm or km or nm
frequency or freq	Number of waves that pass a point in one second	hertz or Hz or $\text{second}^{-1}$ or $\text{s}^{-1}$ or cycles per second
speed	distance travelled in unit time	metre per second or $\text{m/s}$ or $\text{m s}^{-1}$ or $\text{cm s}^{-1}$
amplitude	Distance from the rest position to the top of a crest or the bottom of a trough	metre or m or cm or mm or km or nm

**Physics General Level 2002**

1. E                      2. D                      3. D
4. B                      5. E
6. Radiation P is **gamma**  
Radiation Q is **alpha**
7. The particles that make up the nucleus are **protons and neutrons**.  
The particles that orbit the nucleus are **electrons**.
8. (a) Speed of light is (far) greater than the speed of sound  
(b) 6800 metres  
(c) The thunder and/or lightning or storm are closer or The camper moves **towards** the thunder and lightning
9. (a) (i) Either point Q shown  
(ii) Any **one** of lines shown



10. (a)



or for battery

- (b) When the torch is on, **charge** moves around the circuit.  
This movement is called a **current**.
- (c) **electrical to light**
- (d) to reflect light
11. (a) (i) two  
(ii) live – brown  
neutral – blue
- (b) 2 amperes
- (c) (i) 3 amperes  
(ii) to protect the flex/hairdryer/appliance
12. (a) Any **two** from  
aeroplane; road works/pneumatic drill;  
traffic/road/lorries/cars; (noisy) children/  
football players; school
- (b) 0 dB
- (c) (i) sounds **greater than 80 dB**  
(can) cause damage to hearing/ears  
**or** cause deafness  
(ii) lower: because student is behind  
glass/inside building  
**or**  
higher: because student is closer to the  
source of sound/lorry

13. (a) **heat to electrical**  
 (b) analogue  
 (c) (i) 0.0016 A  
 (= 1.6 mA)  
 (ii) 7-segment display/LED/LCD
14. (a) microphone  
 (b) output voltage/input voltage  
 (c) 5000 Hz or "the same"  
 (d) Energy = 9000 joules
15. (a) Weight = 400 newtons  
 (b) 400 newtons  
 (c) Work done = 3000 joules  
 (d) power = 25 watts
16. (a) (i) diameter of ball or chord or suitable dimensions of **ball** eg length, width, height ( $d$ )  
 time for ball to pass through beam ( $t$ )  
 (ii) speed =  $\frac{d}{t}$   
 (b) (i) force of friction **or** air friction **or** air resistance **or** drag  
 (ii) acceleration = -0.5 metre per second per second  
 (iii)  $F = 2.5$  newtons
17. (a) (i) fossil fuel (or any one named)  
 (ii) Any **one** from  
 will run out/non-renewable/pollution/  
 cost of extraction/ $\text{CO}_2$  emission  
 (b) (i) Any **one** from  
 free source/renewable/no pollution  
 (ii)  $2.5 \text{ m}^2$
18. (a)  $5^\circ\text{C}$   
 (b) (i) Changes from solid to liquid/melts/  
 changes state/liquifies  
 (ii) heat from the food  
 is transferred to the coolant  
 (c) to reduce heat transfer from the outside/the surroundings/the air outside
19. (a) (triangular) prism  
 (b) helium  
 hydrogen
20. When the rocket rises, it exerts a force **downwards** on the **water** and the **water** exerts a force **upwards** on the rocket.