

Pocket answer section for SQA Standard Grade Physics General Level 1998 to 2003

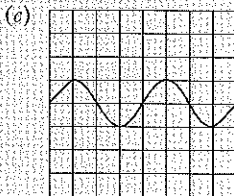
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Physics General Level 1998

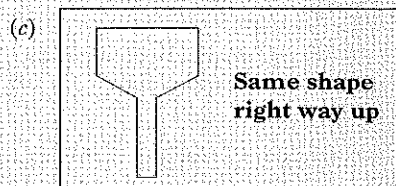
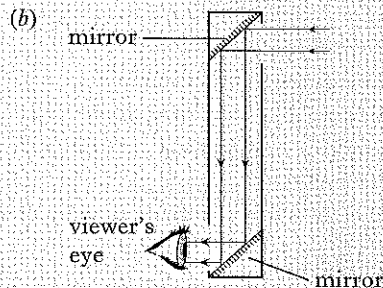
1. A 2. C 3. A
4. E 5. B 6. D
7. D 8. C 9. $P = 50 \text{ W}$
10.

Dangerous Situation	Action required to remove danger	Explanation of why the situation was dangerous
Drill	Replace two core flex with three core flex or Use flex with L, N and E wires Replace with plastic casing or insulation Change to 3 pin plug	Earth wire should be connected to casing to act as safety device Metal cased appliance is not double insulated so needs earth wire Becomes double insulated Earth connection needed Prevents shock if fault occurs
Soldering Iron	Replace 13A fuse with 3A fuse Smaller fuse or Accept values in range 220mA–3A	Power rating less than 700 W should have 3A fuse or Flex could overheat if current bigger than 3A Protects flex Iron has low power rating

11. (a) $d = 850 \text{ m}$
(b) (i) 240 Hz (ii) C
(iii) Speed does not depend on frequency

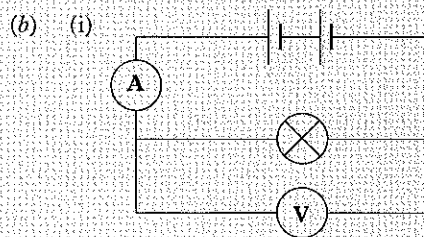


12. (a) 
eyepiece lens objective lens



- (d) Part X: Tuner **or** Tuned circuit
selects one frequency/wavelength/signal/station
Part Y: Amplifier
increases amplitude } (of signal)
 strength
 size
or
boosts signal

13. (a) (i) Resistance
(ii) A: implication of (extremely) high [resistance]
eg 10 M Ω /flashing/"1" on highest range etc
B: implication of (very) low [resistance]
eg zero resistance
no reading/nothing



- Ammeter in series
Voltmeter in parallel
(across lamp or supply)
(ii) $P = 4.5 \text{ W}$

Physics General Level 1998 (cont)

14. (a) $I = 0.06 \text{ A}$
 (b) As temperature **increases**
 resistance of thermistor **decreases**
 current **increases**
 reading on gauge **increases**
15. (a) (Inside a busy) supermarket
 (b) Wear ear protectors/plugs/muffs
 (c) Sound level is not the same for all tests
or Source of sound changes **or** louder/
 quieter sound **or**
 Material thickness is not the same for all tests
16. (a) Hyperthermia
 (b) (i) Thermometer has to be left in mouth for
 at least 3 minutes/a long time
 (ii) (Accuracy) variation with angle **or**
 distance **or** flatness of skin
or Accuracy varies
 (c) Gives very accurate reading **or** reading very
 quickly

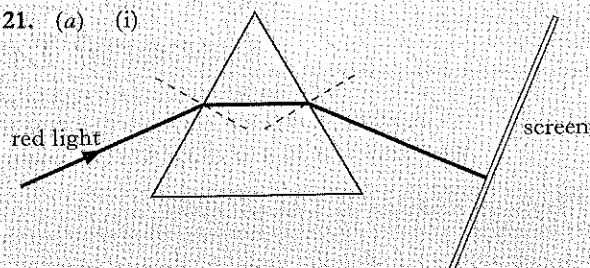
17. (a)

Component	Box number
microphone	1 or input devices
amplifier	4 or process devices
loudspeaker	5 or analogue output devices
transistor	4 or process devices

(b) $V_{\text{gain}} = 40$

18. (a) $W = 16\,000\,000 \text{ N}$
 (b) Equal to (weight of ferry)
 (c) $a = 0.0625 \text{ m/s}^2$
 (d) Frictional forces increase (to $100\,000 \text{ N}$)
or (horizontal) forces are balanced
 (e) $t = 15\,000 \text{ s}$
19. (a) (i) $E_p = 900 \text{ J}$
 (ii) $P = 30 \text{ W}$
 (b) Advantage: No running costs **or** free
 energy (from sun) **or** no
 cables **or** environmentally
 friendly
 Disadvantage: Would not operate if
 insufficient sunlight **or** costly
 to install **or** unsightly
20. (a) (In range) 4 – 4.25 hours
 (b) As liquid changes to solid **or** during change
 of state
 (latent) heat **or** energy released (to patient)
 (c) Substance reaches room temperature

21. (a) (i)



(ii) (visible) spectrum **or** colours which
 make up white light **or** colours of
 rainbow



22. (a) *The Milky Way is the name of our galaxy. It is a collection of about 100 000 million stars, one of which is our Sun. It takes 8 minutes for light to travel from the Sun to Earth and 100 000 years for light to reach Earth from the edge of the Milky Way.*
 (b) Effect 1: Spacecraft slows down **or**
 decelerates **or** loses kinetic energy
 Effect 2: (Spacecraft) heats up **or**
 temperature increases **or** burns up/glows
 Effect 3: Turbulence, shakes etc
 Any two from three