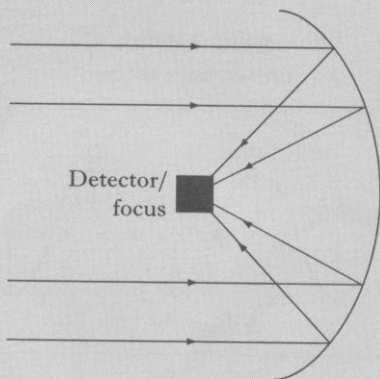


Pocket answer section for SQA General Physics 2002 – 2006

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Physics General Level 2003

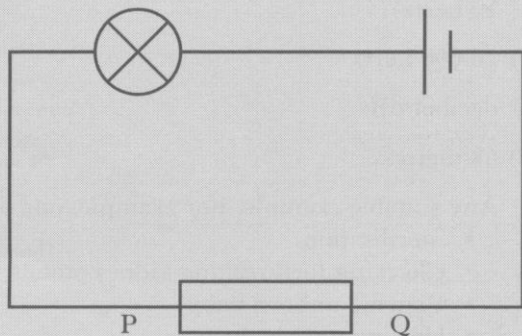
1. C
2. A
3. C
4. B
5. D
6. E
7. (a) Amplifier/Amp
(b) To increase the amplitude (of the signal)(from the decoder)
(c) To provide (extra) energy/power needed (by the amplifier)
8. (a) 3×10^8 m/s
(b) The curved dish collects more of the signal and focuses it (at the detector)



- (c)
 - geostationary
 - 24 hours or 1440 minutes or 1 day
 - ground station/earth station/receiving station/satellite dish/curved dish/dish aerial
 - cable/wire/optical (fibre)/microwave/radio
9. (a) Lasts 10 times as long/more efficient/cheaper to run/lasts longer
(b) Annual saving = £9.60
(c) 20 W lamp produces same light as 100 W conventional lamp (therefore less energy 'wasted' [as heat])
or
Same light energy for 20p with energy saving compared to £1.00 with conventional (so same light for 1/5 cost)
(d) (i) (metal) filament **or** (coil of) wire
(ii) gas
10. (a) $R = 440$ ohms
(b) 400 (ohms)
(c) (i) More significant figures in the meter readings/more decimal places

10. (c) (ii) Use the "ohms" scale/setting

11. (a)



(b) Connect P to Q, check lamp lights, (re)place fuse (between P & Q), lamp does not light

12. (a) To measure temperature

(b) Any **two** from:

- Clinical thermometer has a smaller range
- Clinical thermometer is more accurate/reads to more (significant) figures/decimal places/more sensitive/narrower column
- Clinical thermometer can maintain reading/temperature
- Clinical thermometer has a kink/constriction/button to reset

13. (a) Laser can (cut through tissue and) seal blood vessels (immediately)

(b)



(c) Light (energy) to heat (energy)

(d) Blue, green, red

(e) Image (broken) bones/treat cancer **or** tumours/ image (soft) tissue/obtain a 3-D image (in a CAT scanner)

14. (a) (i) LDR

(ii) Thermistor

(iii) Microphone

(b) (i) Any **two** from:

- Lamp
- LED
- 7-segment display

(ii) Any **two** from:

- Loudspeaker
- relay
- solenoid
- (electric) meter

15. (a) shape

speed/velocity

direction (of movement)

(b) 45 m/s^2

16. (a) (i) 1.2 N

(ii) 30 J

(b) (i) 16 J

(ii) 46 J

(iii) 9.2 W

17. Conduction: any **one** from:

- double glazing
- carpets
- cavity walls
- (under) floor insulation
- loft insulation
- wall insulation

Convection: any **one** from:

- (cavity) wall insulation
- loft insulation
- radiators under windows
- under floor insulation
- draught excluders
- better fitting doors and/or windows

Radiation: any **one** from:

- (closed) curtains
- foil backed plasterboard
- foil behind radiators
- double glazing

18. (a) $E_h = 94\,500 \text{ J}$

(b) (i) (latent heat supplied to) change state/break bonds of solid/latent heat

(ii) remains constant

19. (a) A large non-luminous satellite of a star **or** an object that orbits a star **or** an object that orbits the Sun

(b) $a = 12 \text{ m/s}^2$

(c) When there are no external **or** unbalanced forces the motion will not change.

(d) Different from its weight on Earth