

Dangers of electricity

Mark Scheme 1

Level	IGCSE
Subject	Physics
ExamBoard	CIE
Topic	Electricity and Magnetism
Sub-Topic	Dangers of electricity
Paper Type	(Extended) Theory Paper
Booklet	Mark Scheme 1

Time Allowed: 21 minutes

Score: /17

Percentage: /100

- 1 (a) output of A: 1, 1, 0, 0 c.a.o. [1]
output of B: 0, 1, 0, 0 e.c.f. from candidate's output of A [1]
- (b) dark AND hot owtte [1]
note: must be consistent with answer to (a)
- (c) B cannot provide enough power / current for lamp, or equivalent [2]
OR allows remote lamp
note: statement of function of a relay without reference to context gains 1 mark

- 2 (a) (i) current/electricity could flow through/across switch due to dampness / humidity
 OR water (good) conductor B1
 danger of shock/electrocution B1
 accept alternative:
 short (circuit) (B1)
 (danger because) lights go out when fuse blows (B1) [2]
- (ii) pull switch with long cord of insulating material
 OR normal switch outside workroom
 OR switch with non-contact operation / insulating cover / sensor actuation B1 [1]
- (b) friction with hose M1
 reasoning relating to charge moved to/from aircraft OR to/from hose
 OR rubber insulates A1 [2]
- (ii) (water conducts) charge to/from aircraft OR away/to ground OR through
 tyres/wheels
 OR earthing o.w.t.t.e. B1 [1]
- [Total: 6]**
- 3 (a) (i potential difference OR e.m.f. OR voltage ignore volts }
 (ii) frequency accept cycles/s ignore waves/s } all 3 B1
 (iii) power accept energy/s }
- (b) case/frame/outside/base/parts that can be touched ignore metal parts B1
 (ii) electric shock/electrocution/death by electricity o.w.t.t.e. ignore anything else B1
 live wire touches case B1
- (c) heaters in parallel with any supply
 (M0 if no supply, clear break in circuit, short across supply or heater) M1
 one switch controlling both heaters and one switch controlling one heater
 OR one switch in series with each element A1
- special case: heaters in series with supply and one switch shorting out one
 resistor AND another switch in series with supply B2 [6]