Answers
Using Electricity revision questions

1. Electrical
2. television 100W
   hair dryer 1500W
   table lamp 60W
3. Is it double insulated and its power rating
4. to protect the flex
5. to protect the cables
6. live, neutral and earth
7. brown, blue and green and yellow
8. yes
9. it acts as a safety device
10. to the metal outer casing
11.
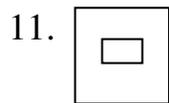
12. it has a low resistance
   if a fault develops a high current flows to earth
   this causes the fuse to overheat and break
   **stopping the current from getting to the appliance**
13. so that the current is cut off before it gets into the flex and appliance
14. a current is a flow of electrons (charges) and it flows from negative to
   positive
15. ac and dc
16. mains --- ac
    battery --- dc
17. frequency –50Hz
     voltage –230V

18. battery   resistor

   Fuse   capacitor

   Switch   diode

   lamp   variable resistor
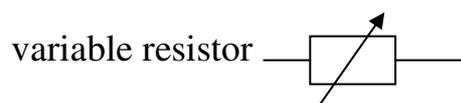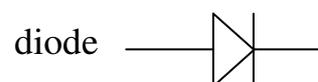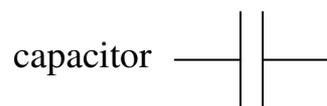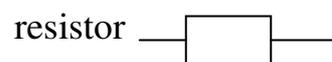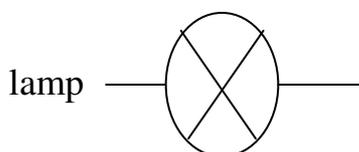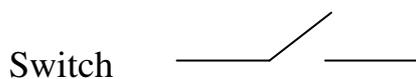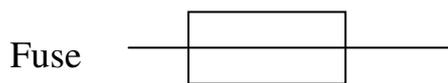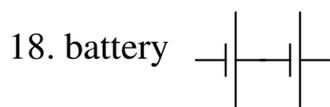
19. they have electrons (charges) which can move
20. Coulombs--- C,   Amperes ---A ,   Volts----V

*21. the peak voltage is higher than the stated value.*
22. 1920C
23. they carry more energy
24. the current is reduced
25. Ohm--- Ω
26.
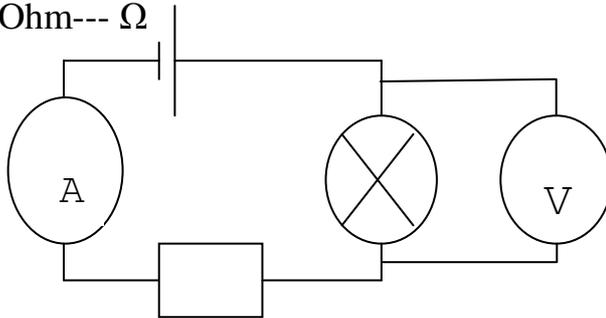
27. 460 *Ω*
28. brightness control for a TV
    dimmer switch
29. its temperature increases
30. toaster, cooker, kettle
31. Power –Watts
    Energy ---Joules
32. power is the energy converted each second – $P = \frac{E}{t}$
33. 8.3W
34. 575W
35. they waste less heat energy
*36. $R = \frac{V}{I}$ **temperature has to constant***
37. 212 Ω
38.

$V = (IR)$ And $P=VI$ If we replace V with IR $P = (IR)I$ $P = I^2R$	$I = \frac{V}{R}$ And $P=VI$ If we replace I with $\frac{V}{R}$ $P = V\left(\frac{V}{R}\right)$ $P = \frac{V^2}{R}$

So $P = I^2R = \frac{V^2}{R}$

39. Table lamp and a computer (most things connected with a socket)
40. They are the same at all points ---- $I_1 = I_2 = I_3 = I_{4\ldots\ldots}$

41. They combine to give the total current------ $I_P = I_1 + I_2 + I_{3......}$
42. They combine to give the total voltage------ $V_S = V_1 + V_2 + V_{3.....}$
43. They are the same across each branch---- $V_1 = V_2 = V_3 = V_{4......}$
44. Short circuit and open circuit
45. resistance
46. a lamp and wires to connect into the circuit
47. open circuit
48. *see page 11 of the summary notes*
49. *80 Ω*
50. *5.9 Ω*
51. parallel circuit
52. ring circuit
53. fuses
54. 21kWh
55. energy
56. *thinner wires which are cheaper*
    less heat is produced in the wires
57. *there are 2 routes for the current to flow*
    Less current flows in a ring circuit
58. *easier to reset than replace a fuse and they cut off the current faster*
59. *E = P x t*
    = 2000 x (60x 60)
    =7 200 000J
    =7.2MJ
60. brushes
    commutator
    magnets
    rotating coils
61. a magnetic field
62. electric motors and electric bells
63. it will try to move
64. *swap the positions of the north and south poles of the magnets*
    reverse the polarity of the wire
65. *the rotator coil has a current in it and there is a force produced between it*
    and the magnetic field
66. *brushes—carry current to the commutator and are made of graphite*
    this wears into the shape of the commutator
    rotating coils – have current flowing through them and are made to
    rotate by the force produced by the electromagnets
    field coils—act as electromagnet
    multi-segment commutators—reverse the direction of the current to the
    rotating coils every half turn and produce a
    smoother rotation