P5: Electric circuits

1. Which of the following electrical appliances would you expect to use the most energy in a given time?

A kettle
B angle poise lamp
C television
D CD player
E microwave

2. Two light plastic balls are suspended on threads a short distance apart and are clearly seen to attract each other. This may mean that

A both balls are uncharged
B the balls posses like charges
C both balls are negatively charged
D one ball has a negative charge and the other is neutral
E gravitational effects are responsible

3. When a polythene rod becomes negatively charged by rubbing it means that it has

A lost electrons
B gained electrons
C lost protons
D gained protons
E lost some positive charge

4. When an electric current passes through a metal, charged particles move. These particles are called

A atoms
B electrons
C ions
D protons
E nuclei

5. A bulb operating normally has a voltage of 3 V across it and a current of 0.5 A through it. The resistance of the bulb, in ohms, is

A 1.5
B 2.5
C 3.5
D 4.5
E 6.0

6. In the above question, the power of the bulb is

A 1.5 W
B 2.5 W
C 3.5 W
D 4.5 W
E 6.0W

7. A resistor and a bulb are connected in series to a 6 V battery. The current through the resistor is 100 mA, and the voltage across it is 5 V. The current through the bulb will be

A 500 mA
B 20 mA
C 100 mA
D 120 mA
E 0

8. What is the most probable value of the current through a 12 V 24 W car headlight when it operates from a 6 V supply?

A 0.2 A
B 1 A
C 1.2 A
D 2 A
E 4 A

9. 1 kilowatt-hour of electricity is

A the actual time taken for a kilowatt of energy to be used up
B the power used by a device which stays on for 1 hour
C the energy used up in 1 hour by a device whose power is 1 kW
D the rate of energy supply in one hour
E the power supplied by 1C of charge

10. Electricity costs 6 p per kilowatt-hour. If you run a 3 kW bar fire for five hours, the cost will be

A 2 p
B 2.5 p
C 3.6 p
D 10 p
E 90 p

11. Which of the following devices responds to a change in light intensity?

A filament lamp
B light dependent resistor
C light emitting diode
D semiconductor diode
E rheostat

12. A thermistor is a device

A which converts thermal energy to electricity
B whose resistance depends on the amount of light falling on it
C whose resistance depends on its temperature
D which converts light into electricity
E which measures temperature electronically