

10 Electricity and its application at home**10.1 More on electrical circuits**

- 1 Three identical lamps are connected in series . The voltage across one lamp is 1.5 V.
What is the voltage across all the three lamps together ?

A 0.5 volts B 1.5 volts C 3.0 volts **D 4.5 volts**

- 2 Study the electric circuit as shown in the figure. (2000S)

2000S Q 35

When the switch is closed ,voltmeters V_1 , V_2 and V_3 show the readings as indicated in the table below.

| Voltmeter | Voltmeter reading in volts (V) |
|-----------|--------------------------------|
| V_1 | 1.0 |
| V_2 | 3.5 |
| V_3 | 1.5 |

What will be the reading on the voltmeter V_4 ?

A 3.5V B 4.5V C 5.0V **D 6.0V**

- 3 Study the circuit diagram as shown in the figure. (2000IS)

2000IS Q 17

What would be the voltmeter reading if both lamps are identical?

A 4 volts **B 6 volts** C 8 volts D 12 volts

- 4 Study the electric circuit as shown in the figure. (2000IS)

2000IS Q 38

When all the switches are closed, the ammeters A_1 , A_2 and A_3 give the readings as shown in the table below.

| Ammeter | Ammeter reading in Ampere (A) |
|---------|-------------------------------|
| A_1 | 1.5A |
| A_2 | 0.5A |
| A_3 | 0.8A |

What will be the reading on the ammeter A_4 ?

A 0.2A B 0.5A C 0.8A D 1.0A

10.2 Resistors in parallel and series

1 A current of 6 ampere is flowing through the ammeter in the circuit in the figure. (97BJCE)

97BJCE Q 19

What is the current flowing through resistor Q?

A 1 ampere B 2 amperes C 3 amperes D 4 amperes

2 In the figure, the amount of the current flowing through X is (97PMB)

97PMB Q 24

A 1A B 2A C 3A D 4A

3. In the following figure, determine the potential difference across each resistor which is connected in series.

Secondary normal 2
Pg 90 Q 7

A 1.5 V B 4.5 V C 6.0 V D 9.0 V

3 (NO answer due to incomplete information)

Questions 4 and 5 refer to the following figure.

The total voltage in the circuit is 4 V and the resistors are equal.

4 Across which points will a voltmeter be put to measure the voltage across R_2 ?

A 3 and 1 B 1 and 2 C 4 and 2 D 2 and 5

5 Which of the following readings in the following ammeters is/are true ?

I $A_1 > A_2$ II $A_1 = A_4$ III $A_3 = A_2$

A I only B I and II only C II and III only D I,II and III

6 (NO answer due to incomplete information)

7 D

8 C

9 D

10 C

11 A

10.3 Household wiring and safety devices

- 1 The wire in our household circuits are insulated by a covering of rubber .
The main reason for doing so is
- A to reduce the loss of heat C to make the wires stronger
B to prevent short circuit D to prevent the wires from getting rusty
- 2 How does a fuse wire in a household circuit help ?
- A It lowers the resistance in the circuit C It uses less electricity
B It makes the bulbs glow brighter D It prevents extra current passing through the circuit
- 3 A copper wire melts when a current of 5A passes through it . A second copper wire is used and it only melts when the current gets to 8A . What causes this difference ?
- A The second wire is a new wire C The second wire must be longer
B The second wire must be thinner D The second wire must be thicker
- 4 The bulbs in our houses are not connected in series because
- A more electrical energy would be used C too much heat would be produced
B more fuses would be required D switching off one bulb would switch off the rest
- 5 Figure shows the face of a joulemeter. It reads

Section 13 Q 2 Delete one answer!

- A 2396kWh B 6932kWh C 1486kWh D 1386kWh
- 6 The unit of electrical energy is
- A watt B ohm C joule D volt.
- 7 The most suitable fuse for an electric kettle marked 1000W 230V is
- A 1A B 3A C 5A D 10A
- 8 A 2-kW air-conditioner uses 250-volt supply. Which of the following fuses should be placed in the plug?
- A 1A B 3A C 5A D 10A
- 9 An electric iron marked 1.56 kW 240 V. What is the current through it when in use?
- A 1.56 A B 5.6 A C 6.5 A D 10 A

10.3 Household wiring and safety devices

- 10 How many joules of electrical energy are used when a 60-watt lamp is switched on for one hour?
A 60 J B 180 J C 3600J **D 216 000 J**
- 11 How many amperes of current is flowing through a 115-watt television set in a 230 volts household mains?
A 2.0 A B 1.5 A C 1.0 A **D 0.5 A**
- 12 An electric iron is marked 1.2kW. When it is in use, the current through the circuit is 5A. The voltage of the supply is
A 110 V B 220 V C 230 V **D 240 V**
- 13 How many joules of energy are there in 2 kWh?
A 7 200 J B 72 000 J C 720 000 J **D 7 200 000J**
- 14 How much current is used by a 120-watt radio operated on 240V mains supply?
A 0.5A B 2 A C 120 A D 28800A
- 15 Based on the present international colour code, the **live** wire in the 3-pin plug is covered with Insulating material of colour. (95)
A green B blue **C brown** D yellow
- 16 The voltage of the electrical energy supplied by the Brunei Electrical Services to our homes is
A 1.5 volts B 12 volts C 110 volts **D 240 volts**
- 17 A bulb takes a current of 0.4A from a 3V supply for 2 minutes. How much electrical energy is used ? (98)
A 2.4J B 15.0J C 100.0J **D 144.0J**
- 18 Which of the following fuses should be placed in a plug of an electrical appliance marked 240V 300W ?
A 1A **B 3A** C 5A D 10A
- 19 Ahmad used a 15A fuse for a vacuum cleaner marked 500W 240V. What can you say about the fuse that Ahmad used ? (2000S)
A The fuse is the most suitable for the vacuum cleaner
B The fuse is too large and thus will take less time to clean a room
C The fuse is too large and will not melt when the vacuum cleaner is used
D The fuse is too small and will melt down when the vacuum cleaner is used

10.3 Household wiring and safety devices

20 Ali switched on an electric fan on a hot day from 11.00 am until 3.00 pm. The electric fan consumed about 200W. Then, the electrical energy used on that day was (2000S)

- A 0.8 kWh B 8 kWh C 80 kWh D 800 kWh

21 Siti uses her computer to surf the Internet for one hour each day. The computer is rated at 1 kW. If the cost of each unit of electrical energy is 10 cents, what will be the cost of energy used by Siti each day? (2000S)

- A 10 cents B 60 cents C \$1.00 D \$10.00

22 The wires of electric circuits at home are all insulated. The main reason is to

- A allow the current to flow easily
B prevent corrosion of the wires
C prevent short-circuiting
D reduce heat loss

- 23 A
24 C
25 C
26 C
27 B
28 A
29 B
30 B