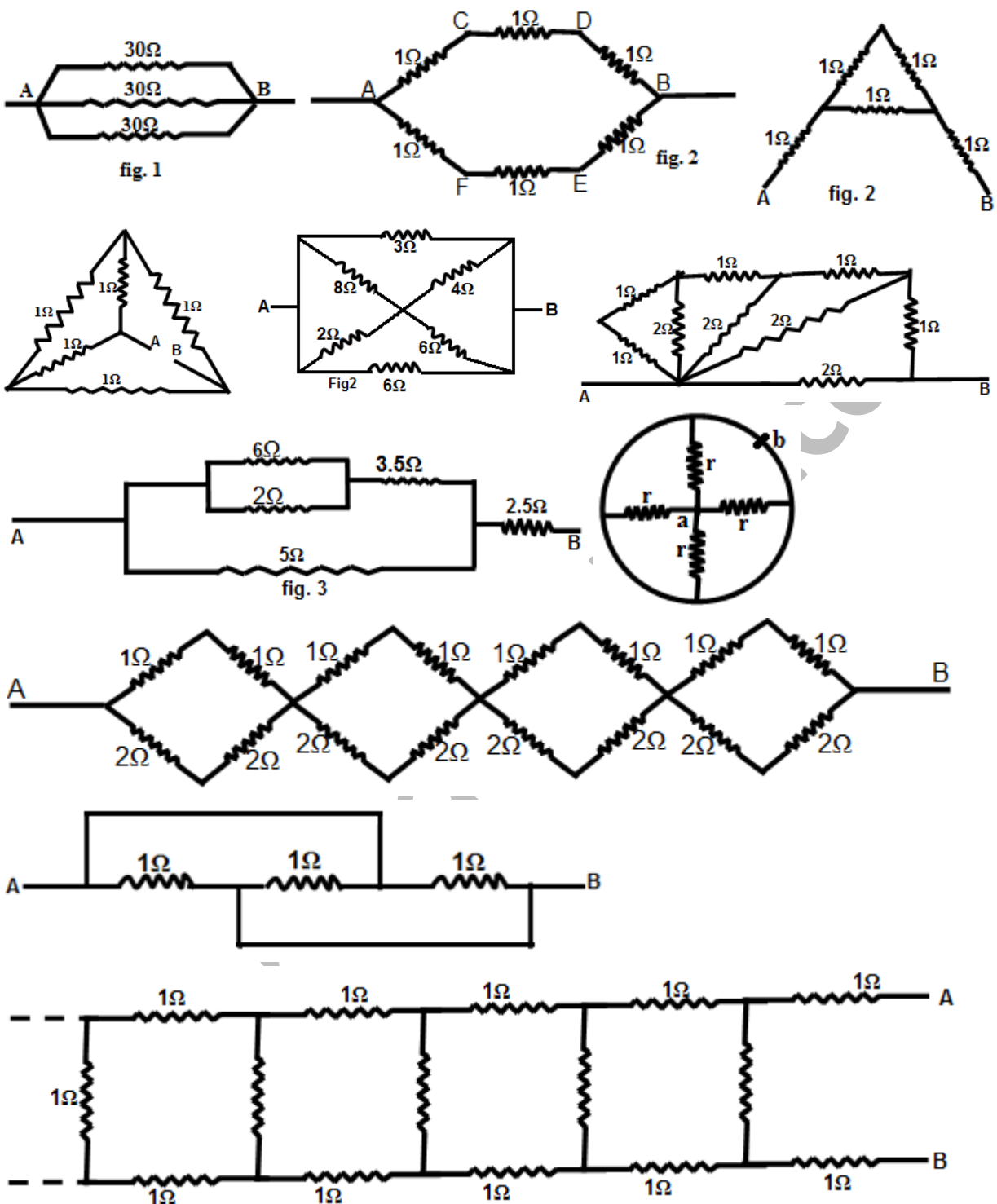
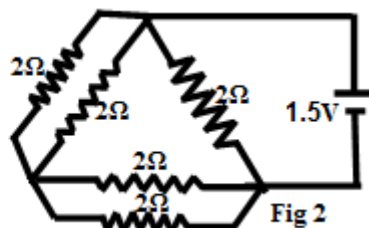
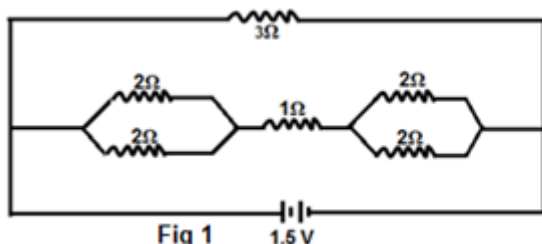


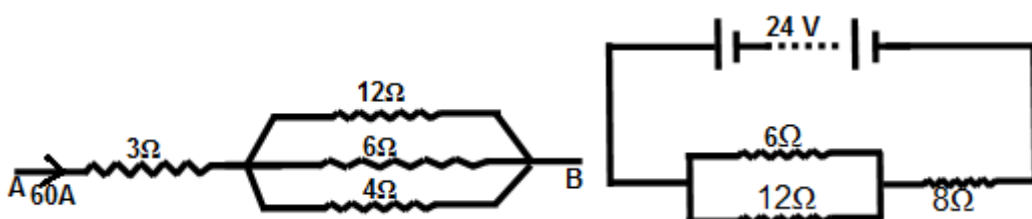
1. What is the resistance between A and B.



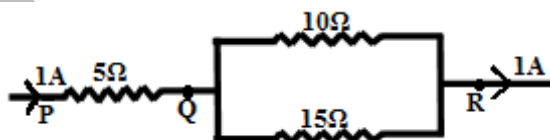
2. Find the current flowing through circuit?



3. When two unknown resistor are connected in series and in parallel, there equivalent resistances are  $9\ \Omega$  and  $2\ \Omega$  respectively. What are unknown resistors? [ $6\ \Omega$ ,  $3\ \Omega$ ]
4. Determine the total resistance in the circuit between points A and B. Also determine the current in each resistor and potential drop?

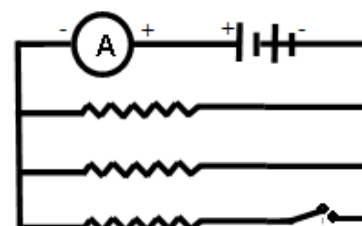


5. A resistor of  $5\ \Omega$  is connected in series with parallel combination of number of resistor each of  $6\ \Omega$ . If the total resistance of the combination is  $7\ \Omega$ , how many resistor are there? (3)
6. Three resistors are connected as shown. A current of  $1\text{A}$  flows through  $5\ \Omega$ .
- What is current through other two resistors?
  - What is p.d. across PQ and across PR
  - What is the total resistance

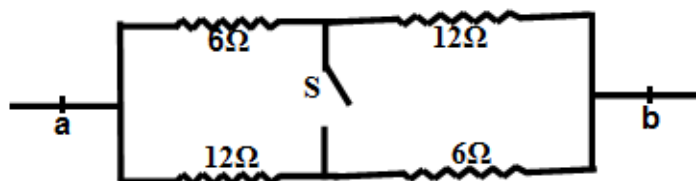
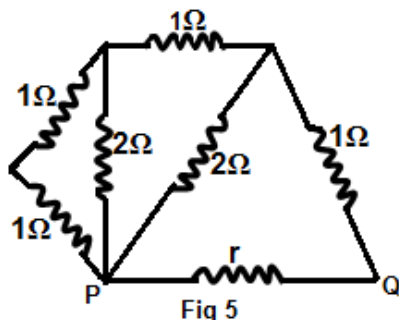


7. A p.d. of  $24\text{ V}$  from a battery is applied to the network of resistors.
- What is combined resistance of  $6\ \Omega$  and  $12\ \Omega$  resistors in parallel? [ $4$ ]
  - What is the current in the  $8\ \Omega$  resistor? [ $2\text{A}$ ]
  - What is p.d. across the parallel network. [ $8\text{V}$ ]
  - What is current in the  $6\ \Omega$  resistors? [ $1.33\text{A}$ ]

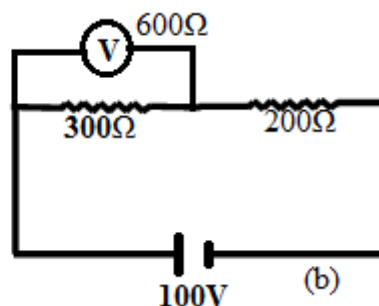
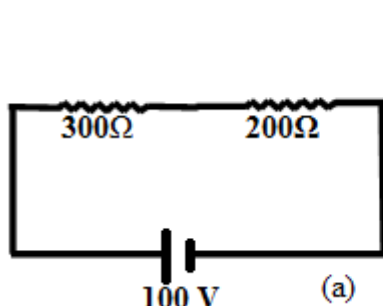
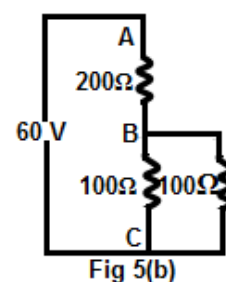
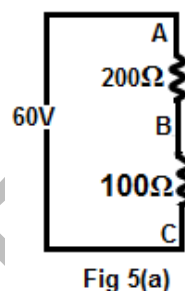
8. In the diagram shown, the cell and the ammeter both have negligible resistance. The resistors are identical. With the switch K open, the ammeter reads  $0.6\text{ A}$ . What will be the ammeter reading when the switch is closed? ( $0.9\text{A}$ )



9. A copper wire is stretched to double its length, keeping the volume same. If the original resistance of wire is  $4\ \Omega$ , what is new resistance? [ $16\ \Omega$ ]
10. What is the value of  $r$  in the following network? The effective resistance of the network between PQ is  $1\ \Omega$ . [ $2\ \Omega$ ]
11. Find the equivalent resistance of network shown in the figure between point a and b when (a) the switch 'S' is open (b) when switch 'S' is closed.



12. i. In the fig 5(a), what is the potential difference across  
(i) AB (ii) BC ?  
ii. What do there potential difference become, when the circuit is altered as in fig 5(b).
13. 2 m of resistance wire, area of cross section  $0.50 \text{ mm}^2$ , has a resistance of  $2.20 \Omega$ . Calculate (a) the resistivity of the metal (b) the length of wire which connected in parallel with 2 m length wire, will give a resistance of  $2.0 \Omega$ . [ $5.5 \times 10^{-7} \Omega\text{-m}$  ;  $20.0 \text{ m}$ ]
14. Two wires of  $10 \Omega$  and  $5 \Omega$  are in parallel and the arrangement is in series with  $20 \Omega$  wire. If the current in  $5 \Omega$  wire is  $2 \text{ A}$ , calculate the current in  $10 \Omega$  wire and potential difference  $V$  across the circuit.
15. An electric current of  $5 \text{ A}$  is divided into 3 parallel branches in which the lengths of wire are in the ratio  $2:3:4$  and the diameters  $3:4:5$ . Find the currents in each branch, if the wires are of the same material? ( $1.40 \text{ A}$ ,  $1.658 \text{ A}$ ,  $1.943 \text{ A}$ )
16. A wire of length  $1 \text{ m}$  and uniform diameter has a resistance of  $1.05 \Omega$ . What length of the wire of same material, but having half the diameter, would needed to make a  $5 \Omega$  coil? [ $1.19$ ]
17. Resistors of  $500 \Omega$  and  $3000 \Omega$  are placed in series with a  $60 \text{ V}$  supply. What will be the reading of a voltmeter of internal resistance  $2000 \Omega$ , when placed across (a) the  $500 \Omega$  resistor (b) the  $5000 \Omega$  resistor . [ $7.0 \text{ V}$  ;  $43.5 \text{ V}$ ]
18. (i) Find the potential drop across the two resistor show in fig (a) (ii) a voltmeter of resistance  $600 \Omega$  is used to measure potential drop across the  $300 \Omega$  resistor, what will be measured potential drop? [ $24 \text{ V}$ ,  $28 \text{ V}$ ]



19. **Heating effect of current**
20. An electric iron consumes energy at rate of  $840 \text{ W}$  when heating is at the maximum rate and  $360 \text{ W}$  when heating is at the minimum. The voltage is  $220 \text{ V}$ . What are the current and resistance in each case.

21. An electric iron of resistance  $20\ \Omega$  takes a current of 5 A. Calculate the heat developed in 30 seconds.
22. Which one of the two bulb have, one rated 100 W, 220 V and other 60 W, 220 V greater resistance?
23. For a heater rated at 4kW and 220 V, when connected to a source of 110V, calculate  
(a) the resistance of heater (b) the current (c) the energy consumed in 2 hr
24. Two bulb have the following rating: (a) 40 W, 200 V (b) 20 W, 110 V. What is ratio of their resistance? [2:1]
25. Two bulb have, one rated 100 W, 220 V and other 60 W, 220 V are connected in parallel to a 220 V supply. What is current flowing through each bulb.
26. You are provided with two bulbs operating at 220 V, one of 60 W and the other of 100 W. If the two are connected in series and then connected to 440 V, which one of them will fuse and why?
27. An electrical iron used for ironing clothes is marked 400 W and 220 V. What is the resistance when iron is hot? How long could it be used for three rupees if electrical energy costs 15 paise a unit? [50 hrs]
28. Compute the number of electron passing per minute through an electric bulb of 60 W, 220 V. [  $n = 1.02 \times 10^{20}$  electron ].
29. Two electric bulbs rated  $P_1$  watt, V Volt and  $P_2$  watt V Volt are connected in parallel and applied across V volt. Find total power.
30. N