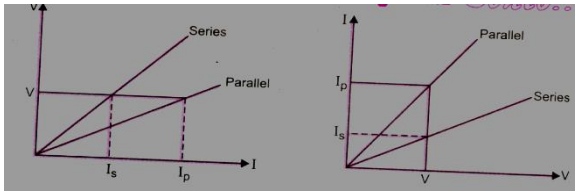
JASWANT MODERN SR. SEC. SCHOOL WORKSHEET CLASS 10TH

PHYSICS SET B

1. Compare how an ammeter and voltmeter are connected in a circuit?
2. Two resistances X and Y are connected turn by turn : i) in parallel and ii) in series. In which case the resultant resistance will be less than either of the individual resistances?
3. State two factors on which electrical energy consumed depends?

4. Two students perform experiments on series and parallel combinations of two given resistors R_1 and R_2 and plot the following V-I graphs:



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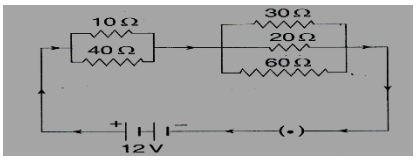
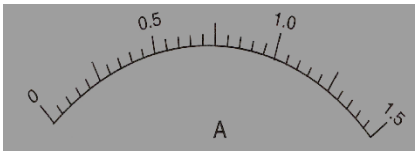
Which of the graph (are) correctly labeled in terms of the words 'series' and 'parallel' ? Justify your answer.

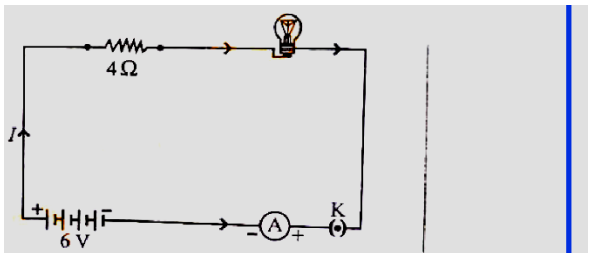
5. In the circuit diagram given below five resistances of 10 Ω, 40 Ω, 30 Ω, 20 Ω and 60 Ω are connected as shown to a 12V battery calculate total resistance and total current in the circuit.



6. A torch bulb is rated 2.5 V and 750 mA. Calculate (i) its power, (ii) its resistance and (iii) the energy consumed if this bulb is lighted for 4 hours?
7. What will be the least count of the ammeter shown below is:



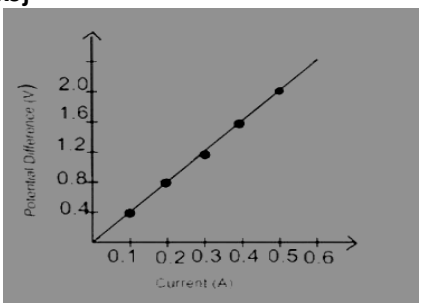
8. Why don't a bird sitting on a wire does not get electric shock?
9. How can three resistors of resistances 2Ω ,3Ω and 6Ω be connected to give a total resistance of 4 ohm?
10. A 6Ω resistance wire is doubled up by folding. Calculate the new resistance of the wire?
11. Show with the help of a diagram, how will you connected the three resistors each of resistance 6Ω, so that the combination has resistance of 9 ohm?
12. Write joules law of heating.
13. Two lamps one rated 100W;220V, and the other 60W;220V, are connected in parallel to electric mains supply. Find the current drawn by two bulbs from the line, if the supply voltage is 220V.
14. With the help of a suitable circuit diagram prove that the reciprocal of the equivalent resistance of a group of resistance joined in parallel is equivalent to the sum of the reciprocals of the individual resistance?
    An electric lamp of resistance 20Ω is connected to a resistor of 4Ω to a 6V battery as shown in the diagram below:



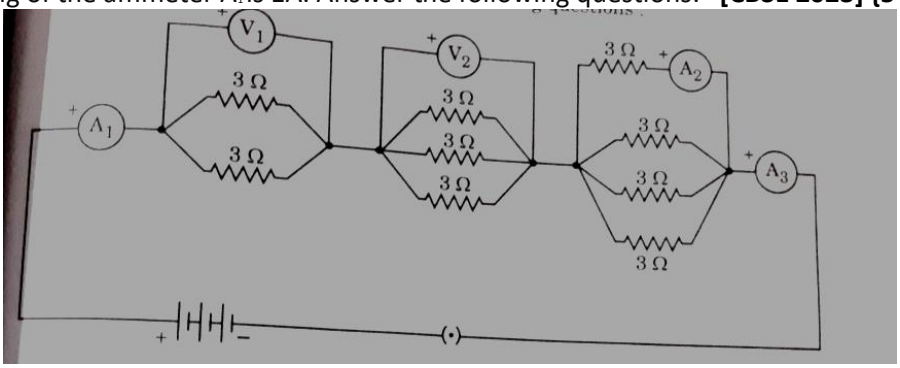
Calculate:

(a) The total resistance of the circuit
(b) The current in the circuit
(c) The potential difference across (i) electric lamp (ii) and conductor

15. A current of 500mA flows in a series circuit containing an electric lamp and conductor 10Ω when connected to 6V battery. Find the resistance of the electric lamp?
16. Two bulbs of 100W and 40W are connected in series. The current through the 100W bulb is 1A. find the current through the 40W bulb.
17. Compute the heat generated while transferring 96000coulombs of charge is two hours through a potential difference 40V?
18. A V-I graph for a nichrome wire is given below. What do you infer from this graph? Draw labeled circuit diagram to obtain such a graph**[CBSE 2020] {3 Marks}**



19. Define electric power and write its SI unit.
20. Consider the following electrical circuit diagram in which nine identical resistance of 3Ω each are connected as shown. If the reading of the ammeter A_1 is 1A. Answer the following questions: **[CBSE 2023] {5 Marks}**



a. What is the relationship between readings of A_1 and A_3 ? give reason for your answer.
b. What is the relationship between the readings of A_2 and A_3 ?
c. Determine the readings of the voltmeter V_1