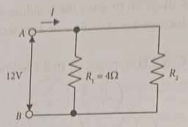
34. *Attempt either option A or B.*

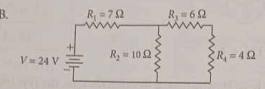
A. A student has two resistors 2 Ω and 3 Ω. She has to put one of them in place of R_2 as shown in the circuit. The current that she needs in the entire circuit is exactly 9A. Show by calculation which of the two resistors she should choose. *(2)*



(CBSE SQP)

OR

B.



Calculate the total resistance of the circuit and find the total current in the circuit. *(CBSE SQP)*

35. (i) List two causes of hypermetropia. *(3)*

(ii) Draw ray diagrams showing (a) a hypermetropic eye and (b) its correction using suitable optical device.

36. (i) Calculate the resistance of a metal wire of length 2 m and area of cross-section 1.55×10^{-6} m^2. *(3)*
(Resistivity of the metal is 2.8×10^{-8} Ω m)

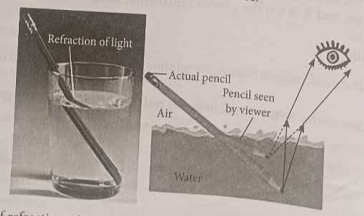
(ii) Why are alloys preferred over pure metals to make the heating elements of electrical heating devices?

37. What are magnetic field lines? Justify the following statements:

(i) Two magnetic field lines never intersect each other. *(3)*

(ii) Magnetic field lines are closed curves.

38. Refraction of light is the bending of light as it passes from one media to another like from air to water or glass. This bending occurs because light travels at different speeds in different media, causing its path to change direction at the boundary between them as shown here. *(4)*



A. State the laws of refraction of light.

B. If the speed of light in vacuum is 3×10^8 m/s, find the absolute refractive index of a medium in which light travels with a speed of 1.4×10^8 m/s.