

1991 A/L Structured Essay Question No (04)

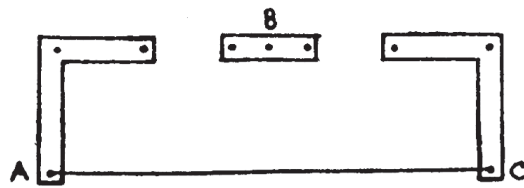


Diagram shows a slide wire metre bridge. You are provided with a resistance box R, a spring with unknown resistance X, slider S, sensitive galvanometer G, battery E, key K and connecting wires.

- (a) Draw the circuit on the above diagram to find X resistance using the above equipment.
- (b) When trying to find out the equilibrium point by connecting the circuit using an appropriate value for R, it was observed that the galvanometer deflected to the same direction. What can be the reason for this?

- (c) (i) What is the most suitable value for R to find out the unknown resistance correctly?

- (ii) Give reasons for your answer.

- (d) When performing these experiments it is not suitable to drag S along the wire or press hard on the wire while finding the equilibrium point. Give the main reason for this.

- (e) During all meter bridge experiments, two lengths for equilibrium are taken for the same value of X and R by changing the positions of X and R. Explain the reason for this.

- (f) In this experiment it is suitable to use an additional resistance box R' along with the galvanometer. Explain the use of R'.

- (g) When measuring or comparing small resistance values less than 1Ω , it is more suitable to use a voltmeter than a meter bridge. Explain the reason for this.
