



## PHYSICS

### BOOKS - BETTER CHOICE PUBLICATION

### ELECTRICAL MEASUREMENTS

#### Very Short Answer Type Questions

1. Why electric current should not be passed through potentiometer wire for a long time continuously?



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**2. Write one use of metre bridge**



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**3. Write one use of potentiometer**



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**4. Write the use of electrical cell in a circuit**



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## Short Answer Type Questions

1. Draw a circuit diagram for determining the unknown resistance  $R$  using meter bridge. Explain briefly its working, giving the necessary formula used.



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2. State and explain Kirchhoff's laws.



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3. What is potentiometer? Discuss its principle.



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4. Explain the principle of Wheatstone bridge for determining and unknown resistance. How

is it realised in actual practice in the laboratory?



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5. Using Kirchoff's law, derive the condition for the balance of a Wheatstone bridge circuit.



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6. Using Kirchoff's law, derive the condition for the balance of a Wheatstone bridge circuit.



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7. State and explain Kirchhoff's laws.



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8. Explain the principle of a potentiometer.

How will you compare the e.m.f. of two primary cells by using potentiometer? Explain with proper circuit diagram.



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**9.** What is potentiometer? With the help of circuit diagram, explain how a potentiometer can be used to compare the emf of two primary cells.



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**10.** Draw a circuit diagram for determining the unknown resistance  $R$  using meter bridge. Explain briefly its working, giving the necessary formula used.



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**11.** With help of circuit diagram, explain how a meter bridge can be used to find unknown resistance of a given wire.



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**12.** What is the effect of temperature on the velocity of sound? Derive the relation.



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**13.** By which material is a potentiometer wire normally made and why?



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**14.** What is the principle of a potentiometer?

With the help of circuit diagram, explain the use of potentiometer to measure internal resistance of a given primary cell.



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**15.** Define e.m.f of a cell. How can you compare the e.m.f of the cells using potentiometer.



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## Long Answer Type Questions

**1.** State and explain Kirchhoff's laws.



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2. Explain the principle of Wheatstone bridge for determining and unknown resistance. How is it realised in actual practice in the laboratory?



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3. State and explain Kirchhoff's laws.



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4. Using Kirchoff's law, derive the condition for the balance of a Wheatstone bridge circuit.



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5. State the principle of a potentiometer.



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6. Explain the principle of a potentiometer.

How will you compare the e.m.f. of two primary

cells by using potentiometer? Explain with proper circuit diagram.



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7. State the principle of a potentiometer.



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**Numericals Problems**

1. A cell of e.m.f. 1 V gives a balance point at 40 cm length of a potentiometer wire. For another cell, the balance point shifts to 60 cm. Find the e.m.f. of the second cell.



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2. A cell of emf 1.4 volt gives a balance point 30.0 cm length of potentiometer wire, for another cell, the balance point shifts to 45.0 cm. Find the emf of the second cell.





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3. A cell of emf 1.4 volt gives a balance point 70cm length of potentiometer wire, for another cell, the balance point shift to 60cm. Find the value of emf of the second cell.



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4. A cell of e.m.f. 1 V gives a balance point at 40 cm length of a potentiometer wire. For another

cell, the balance point shifts to 60 cm. Find the e.m.f. of the second cell.



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5. A cell of e.m.f. 1 V gives a balance point at 40 cm length of a potentiometer wire. For another cell, the balance point shifts to 60 cm. Find the e.m.f. of the second cell.



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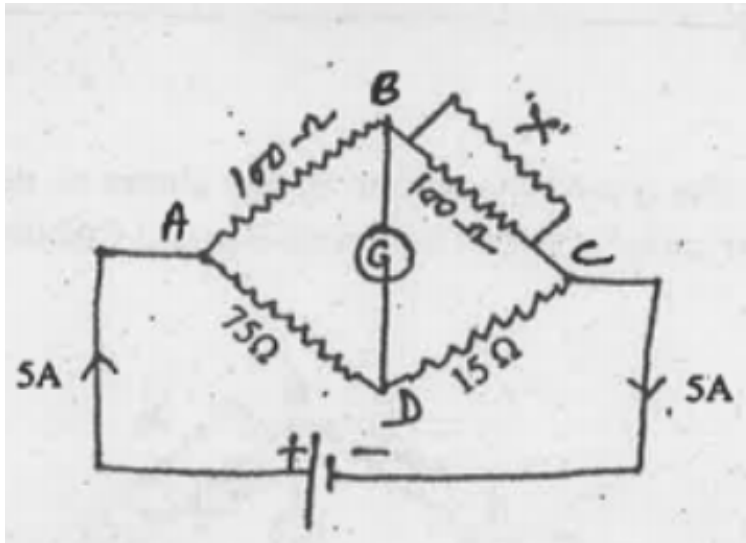
6. A cell of e.m.f. 1 V gives a balance point at 40 cm length of a potentiometer wire. For another cell, the balance point shifts to 60 cm. Find the e.m.f. of the second cell.



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7. The given Wheatstone Bridge shows no deflection in the galvanometer joined between

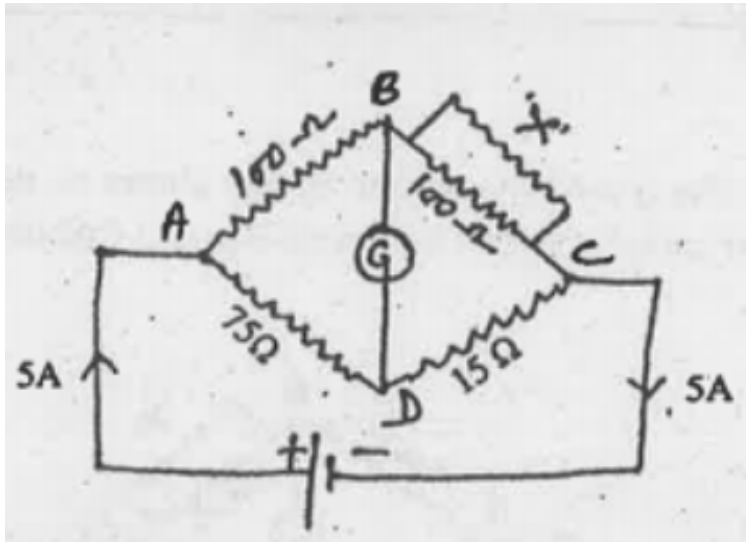
the points B and D. Calculate the value of 'X'.



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8. The given Wheatstone Bridge shows no deflection in the galvanometer joined between

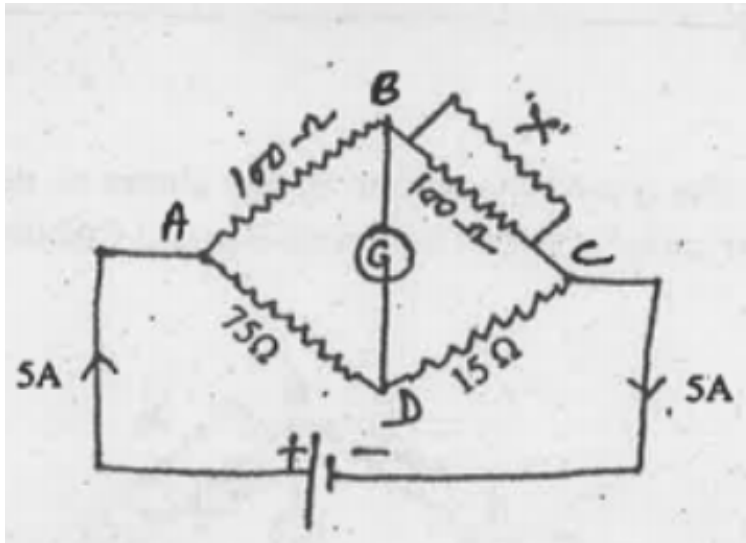
the points B and D. Calculate the value of 'X'.



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9. The given Wheatstone Bridge shows no deflection in the galvanometer joined between

the points B and D. Calculate the value of 'X'.



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**Most Expected Questions**

1. Why is a slide wire bridge also called a metre bridge?



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2. Name the device used to compare the emf's of two cells?



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3. By which material is a potentiometer wire normally made and why?



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4. What is Wheatstone bridge? Deduce the condition for which Wheatstone bridge is balanced.



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5. Give the two practical applications of potentiometer.



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6. What is potentiometer? With the help of circuit diagram, explain how a potentiometer can be used to compare the emf of two primary cells.



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7. Why voltmeter less accurate in measuring potential difference than a potentiometer?



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