



# PHYSICS

## BOOKS - PUNJAB BOARD PREVIOUS YEAR PAPERS

### FORCE ON A CURRENT

#### Exercise

1. A Galvanometer has a resistance of 50 Ohm.  
A resistance of 5 Ohm is connected across its

terminals. What part of total current will flow through the galvanometer ?



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2. In a galvanometer there is a deflection of 10 divisions per mA. The internal resistance of the galvanometer is  $60\Omega$ . If a shunt of  $2.5\Omega$  is connected to the galvanometer, calculate the maximum current in which the galvanometer can be used.



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3. A Galvanometer coil has a resistance of 15 Ohm and the meter shows full scale deflection for a current of 4mA. How will you convert the meter into an ammeter of range 0 to 6A ?.



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4. A voltmeter reads upto 3V. Its resistance is 200 Ohm. It is to be used to measure a potential difference which may be as large as

60V. What measure you would take to protect the voltmeter ?



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5. It is desired to pass only 5% of the current through a galvanometer of resistance  $95\Omega$ . What shunt resistance should be connected across it ?



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6. A resistance of  $90\Omega$  is connected in series with a galvanometer of resistance  $100\Omega$ . A potential difference of  $1V$  produces a deflection of 100 divisions in the galvanometer. Find the figure of merit of the galvanometer.



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7. A Galvanometer coil has a resistance of  $15\Omega$  and the meter shows full scale deflection

for a current of 4mA. How will you convert the meter into an ammeter of range 0 to 6A ?.



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8. State the principle of moving coil galvanometer?



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9. What is shunt? State its S.I.units.



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**10.** State Fleming's left hand rule.



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**11.** State Fleming's left hand rule.



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**12.** State Fleming's left hand rule.



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**13.** State the principle of moving coil galvanometer?



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**14.** Is the resistance of an ammeter greater than or less than that of the galvanometer of which it is formed ?



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15. How can a galvanometer be converted into an ammeter?

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16. Why are pole pieces of a moving coil galvanometer made concave ?

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17. What is power ? Write its SI unit also.





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**18.** Give two factors by which the current sensitivity of a moving coil galvanometer can be increased.



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**19.** Define current sensitivity of a moving coil galvanometer and state its S.I. units.



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20. State the principle of moving coil galvanometer?



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21. What is shunt? State its S.I.units.



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22. "The resistance of voltmeter is less than galvanometer". Is the statement true or false ?



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23. “The resistance of voltmeter is more than resistance of ammeter.’. Is the statement true or false ?



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24. .The resistance of voltmeter is less than galvanometer". Is the statement true or false ?



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25. Which o. these has lowest resistor.  
e \_\_\_\_\_galvanometer, ammeter, voltmeter ?



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26. Find the magnitude and direction of the force between two parallel conducting wires carrying current and hence define ampere.



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**27.** Explain how a Galvanometer can be converted into voltmeter



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**28.** How can a galvanometer be converted into an ammeter?



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**29.** Derive an expression for the force experienced by a current carrying conductor

placed in a magnetic field. Under what condition the force is zero or maximum ?



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**30.** Derive an expression for the force experienced by a current carrying conductor placed in a magnetic field. Under what condition the force is zero or maximum ?



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**31.** Find an expression for the torque acting on a current carrying loop suspended in a uniform magnetic field. Under what conditions this torque will be maximum and minimum ?



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**32.** Explain how a Galvanometer can be converted into voltmeter



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**33.** Derive an expression of Force between two infinitely long parallel current carrying conductors.



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**34.** How does a voltmeter differ from a galvanometer?



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**35.** How can a galvanometer be converted into an ammeter?



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**36.** Give two points to compare a voltmeter and ammeter.



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**37.** Why is the coil of a dead-beat galvanometer wound on a metal frame ?



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**38.** Write four merits or two demerits of a moving coil galvanometer.



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**39.** What do you mean by current sensitivity of a moving coil galvanometer and how it can be increased ?



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**40.** Explain how a galvanometer can be converted into an ammeter. Why an ammeter is always connected in series in a circuit ?



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**41.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**42.** Explain how a Galvanometer can be converted into voltmeter



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**43.** How can a galvanometer be converted into an ammeter?



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**44.** Explain the construction and working of a deadbeat galvanometer with the help of a suitable diagram.



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**45.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**46.** Explain how a Galvanometer can be converted into voltmeter



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**47.** How can a galvanometer be converted into an ammeter?



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**48.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**49.** How can current sensitivity of moving coil galvanometer be increased ?



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**50.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**51.** Explain how a Galvanometer can be converted into voltmeter



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**52.** How can a galvanometer be converted into an ammeter?



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**53.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



**Watch Video Solution**

**54.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



**Watch Video Solution**

**55.** Explain how a Galvanometer can be converted into voltmeter



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**56.** How can a galvanometer be converted into an ammeter?



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**57.** Give two differences between voltmeter and ammeter.



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**58.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**59.** Explain how a Galvanometer can be converted into voltmeter



**Watch Video Solution**

**60.** How can a galvanometer be converted into an ammeter?



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**61.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**62.** Derive an expression for force experienced by a current carrying straight conductor placed in a magnetic field. How can we find the direction of force ?



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**63.** What is radial magnetic field ?



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**64.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**65.** How will you convert galvanometer into voltmeter ?



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**66.** How will you convert galvanometer into ammeter ?



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**67.** Find an expression for the torque acting on a current carrying loop suspended in a uniform magnetic field. Under what conditions this torque will be maximum and minimum ?



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**68.** Explain with the help of a labelled diagram, the principle, construction and working of a moving coil galvanometer.



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**69.** What is the purpose of using soft iron core in galvanometer.



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**70.** How can a galvanometer be converted into an ammeter?



**Watch Video Solution**

71. Derive an expression for the force experienced by a current carrying conductor placed in a magnetic field. Under what condition the force is zero or maximum ?



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72. Derive an expression for the force between two long parallel conductors carrying current in the same direction. What type of force is acting between two long parallel conductors

carrying current in the same direction ? Using the expression define S.I. unit of current.



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73. Why are pole pieces of a moving coil galvanometer made concave ?



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74. Explain how a galvanometer with resistance 'G' and current at full scale

deflection ' $I_g$ ' is converted into.....

Voltmeter of range (0-V) (volt)



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**75.** Explain how a galvanometer with resistance ' $G$ ' and current at full scale deflection ' $I_g$ ' is converted into..... Ammeter of range (0-I) ampere.



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