

## Most Repeated Questions in JEE Main Physics from Moving Coil Galvanometer

Q: A galvanometer having a coil of resistance  $30\Omega$  need 20 mA of current for full-scale deflection. If a maximum current of 3 A is to be measured using this galvanometer, the resistance of the shunt to be added to the galvanometer should be  $30/X\ \Omega$ , where X is

Q: Consider a moving coil galvanometer (MCG):

- A. The torsional constant in moving coil galvanometer has dimensions  $[ML^2T^{-2}]$
- B. Increasing the current sensitivity may not necessarily increase the voltage sensitivity.
- C. If we increase number of turns (N) to its double (2N), then the voltage sensitivity doubles.
- D. MCG can be converted into an ammeter by introducing a shunt resistance of large value in parallel with galvanometer.
- E. Current sensitivity of MCG depends inversely on number of turns of coil.

Choose the correct answer from the options given below:

- (a) A, D only
- (b) A, B only
- (c) A,B,E only
- (d) B,D,E only

Q: A galvanometer has a coil of resistance  $200\Omega$  with a full scale deflection at  $20\mu A$ . The value of resistance to be added to use it as an ammeter of range (0 - 20)mA is:

Q: In an ammeter, 5% of the main current passes through the galvanometer. If resistance of the galvanometer is G, the resistance of ammeter will be :

Q: A galvanometer of resistance  $100\Omega$  when connected in series with  $400\Omega$  measures a voltage of upto 10 V. The value of resistance required to convert the galvanometer into ammeter to read upto 10 A is  $x \times 10^{-2}\Omega$ . The value of x is :

Q: A galvanometer having coil resistance  $10\Omega$  shows a full scale deflection for a current of 3 mA. For it to measure a current of 8A, the value of the shunt should be:

Q: The number of turns of the coil of a moving coil galvanometer is increased in order to increase current sensitivity by 50%. The percentage change in voltage sensitivity of the galvanometer will be:

Q: When a resistance of  $5\ \Omega$  is shunted with a moving coil galvanometer, it shows a full scale deflection for a current of 250 mA, however when  $1050\ \Omega$  resistance is connected with it in series, it gives full scale deflection for 25 volt. The resistance of galvanometer is  $\Omega$ .

Q: The current sensitivity of moving coil galvanometer is increased by 25%. This increase is achieved only by changing in the number of turns of coils and area of cross section of the wire while keeping the resistance of galvanometer coil constant. The percentage change in the voltage sensitivity will be: