

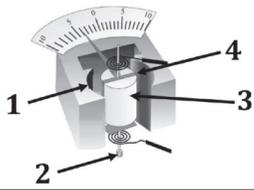


Physics: Third Secondary

Important Questions for Electromagnetic induction

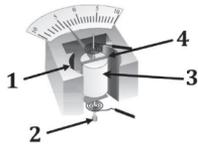
Bank of the most important ideas of the expected questions in the exam

1. The following figure shows a simplified diagram of the essential parts of a moving-coil galvanometer, which of the components is its function to minimize friction?



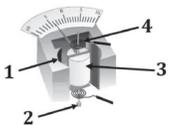
- A 1
- B 2
- C 3
- D 4

2. The following figure shows a simplified diagram of the essential parts of a moving-coil galvanometer, which of the components is its function to make radial magnetic lines?



- A 1,2
- B 2,3
- C 3,1
- D 4,3

3. The following figure represents the composition of the galvanometer, which of the components is its function to return the pointer to zero after turning off the current?



- A 1
- B 2
- C 3
- D 4

4. During the rotation of the galvanometer coil, the force acting on each of the two long sides is

- A increase
- B decrease
- C increase then decrease
- D remain constant

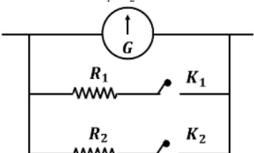
5. During the rotation of the galvanometer coil, the value of torque acting on the coil is

- A increase
- B decrease
- C increase then decrease
- D remain constant

6. If a current of $20\mu\text{A}$ is passed through a galvanometer coil, its indicator deviates by an angle of 40° , then the sensitivity of the galvanometer is

- A $0.5\text{deg}/\mu\text{A}$
- B $2\text{deg}/\mu\text{A}$
- C $800\text{deg}/\mu\text{A}$
- D $60\text{deg}/\mu\text{A}$

7. In the opposite figure, if (K_1) only is closed, the sensitivity of the device will decrease to one third. And if (K_2) only is closed, the sensitivity of the device will decrease to one sixth. The ratio between (R_1/R_2) will be



- A 3/2
- B 6/5
- C 5/3
- D 5/2

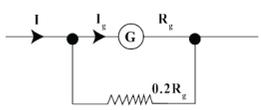
8. The resistance of the galvanometer (R_g) is connected to shunt resistance (R_s), so the resistance of the ammeter becomes ($R_g/4$), so the sensitivity of the device decreases to:

- A half
- B third
- C Quarter
- D the fifth

9. A galvanometer was modified to become an ammeter (A) with a resistance of 0.01Ω , then it was modified to become an ammeter (B) with a resistance of 0.001Ω , so ...

- A The sensitivity of (A) is greater than that of (B).
- B The sensitivity of (A) is smaller than that of (B).
- C The sensitivity of (A) is equal to that of (B).
- D No correct answer.

10. In the ammeter shown, the value of (I) is

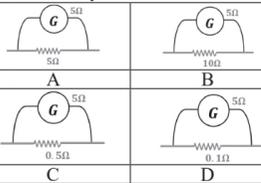


- A $0.2I_g$
- B $2I_g$
- C $5I_g$
- D $6I_g$

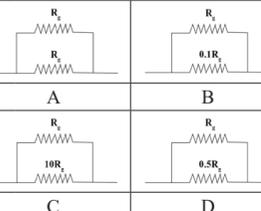
11. If 2% of the circuit current passes through the coil of the galvanometer whose resistance R_g , then the shunt resistance equals ...

- A $R_g/50$
- B $R_g/49$
- C $49 R_g$
- D $50 R_g$

12. Which of the following figures represents an ammeter of less sensitivity?



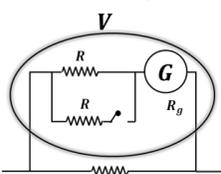
13. Which of the following figures represents an ammeter of less accuracy?



14. A shunt resistance of 0.1Ω decreases the sensitivity of the device to one tenth, so the value of the shunt resistance which decreases the sensitivity of the device to quarter is ... ohm.

- A 0.4
- B 0.3
- C 0.025
- D 0.2

15. In the opposite figure represents the structure of a voltmeter. If the key is closed, the maximum voltage will decrease from 20V to 11V , so the ratio between (R/R_g) is ...

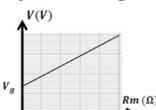


- A $\frac{20}{11}$
- B $\frac{19}{10}$
- C $\frac{9}{1}$
- D $\frac{18}{19}$

16. To decrease the sensitivity of the voltmeter, the

- A current intensity
- B torque acting on the coil
- C total resistance
- D area of the galvanometer coil

17. The opposite graph represents a relation between maximum voltage that the voltmeter measure and the voltage multiplier which is connected to the galvanometer, so the slope of the straight line is

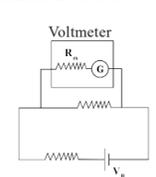


- A deflection angle (θ)
- B the galvanometer current (I_g).
- C maximum current (I).
- D total resistance of the device (R)

18. A galvanometer with a current of 0.02A passes through it to deviate its pointer to the end of the scale, and then the potential difference between its ends is 5V . What is the value of the multiplier resistance that makes it suitable for measuring a voltage difference of 150V ?

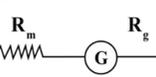
- A 250Ω
- B 5500Ω
- C 7250Ω
- D 1250Ω

19. When a voltmeter is connected in the circuit shown, it effects on the measuring potential difference, and this effect decreases at



- A Increase (V_B)
- B Increase (R_m)
- C Decrease (V_B)
- D Decrease (R_m)

20. The figure shown represents a voltmeter. If a resistance is connected in parallel with the galvanometer, the maximum potential difference measured by the device:

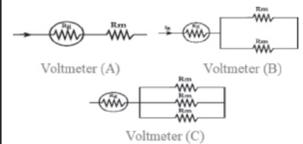


- A increase
- B decrease
- C does not change
- D increase or decrease

21. a galvanometer of resistance (R_g) is connected to a multiplier resistance of ($2R_g$) to convert it into a voltmeter of measured range (V_1). If the galvanometer is connected to a multiplier resistance of ($5R_g$), so its measured range becomes:

- A $3V_1$
- B $2.5V_1$
- C $2V_1$
- D $0.4V_1$

22. A galvanometer of coil resistance (R_g) is connected to a multiplier resistance to convert it into voltmeter (A, B, C), the order of the voltmeters according to the maximum reading for each device is



- A $V_C < V_B < V_A$
- B $V_A < V_C < V_B$
- C $V_C > V_B > V_A$
- D $V_B > V_A > V_C$

23. A galvanometer has the resistance of its coil (R), and the maximum current it can stand (I_g), and the maximum potential difference (V_g). What is the value of the resistance that must be connected to its coil in order for it to be valid to measure maximum current ($5I_g$)

- A $R/5$
- B $R/4$
- C $R/3$
- D $R/2$

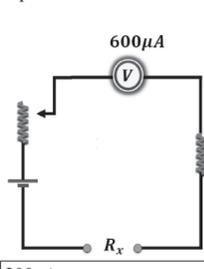
24. A galvanometer has the resistance of its coil (R), and the maximum current it can stand (I_g), and the maximum potential difference (V_g). What is the value of the resistance that must be connected to its coil in order for it to be valid to measure max potential difference ($5V_g$)

- A $5R$
- B $4R$
- C $3R$
- D $2R$

25. An ohmmeter which is used to measure a resistance 9000Ω deflects to one fourth of the scale, so the resistance that make the pointer deflects to ($1/6$) of the scale is

- A 10000
- B 60000
- C 15000
- D 50000

26. In the shown circuit, the maximum deflection of the galvanometer is $600\mu\text{A}$. When the two ends of the circuit are touched ($R_x=0$), when a resistance whose value is equal to twice the total resistance of the circuit is connected, so the deflection of the galvanometer is equal to

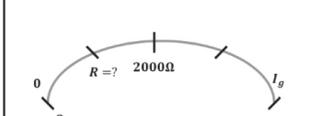


- A $200\mu\text{A}$
- B $300\mu\text{A}$
- C $600\mu\text{A}$
- D $1200\mu\text{A}$

27. If the unknown resistance measured by an ohmmeter is twice the total resistance of the device, so the pointer of the device will deviate to

- A $\frac{1}{2}$
- B $\frac{1}{4}$
- C $\frac{1}{3}$
- D $\frac{1}{6}$

28. In the figure, equal divisions of the ohmmeter scale, the resistance (R) is



- A 2500
- B 3000
- C 6000
- D 4000

An ohmmeter with resistance (R) and maximum current (I) is used to measure an unknown resistance, so

29.	Value of unknown resistance that, when connected to an ohmmeter, would cause passing a current		
		$I/5$	$I/2$
A		$4R$	R
B		$4R$	$3R$
C		$6R$	$2R$
D		$5R$	$2R$

30. The value of the current through galvanometer when connected to a resistance

	$6R$	$3R$
A	$\frac{I}{5}$	$\frac{I}{2}$
B	$\frac{I}{7}$	$\frac{I}{4}$
C	$\frac{I}{7}$	$\frac{I}{2}$
D	$\frac{I}{5}$	$\frac{I}{4}$

1.	B	16.	A
2.	C	17.	B
3.	D	18.	C
4.	D	19.	B
5.	D	20.	A
6.	A	21.	C
7.	D	22.	A
8.	C	23.	B
9.	A	24.	B
10.	D	25.	C
11.	B	26.	A
12.	D	27.	C
13.	C	28.	C
14.	B	29.	A
15.	C	30.	B