DPP
DAILY PRACTICE PROBLEMS

CLASS : XIITH   SUBJECT : PHYSICS
DATE :   DPP NO. : 10

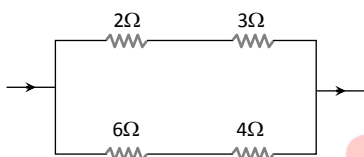## Topic :- Current Electricity

1. In the circuit as shown in the figure, the heat produced by 6 ohm resistance due to current flowing in it is 60 $calorie$ per $second.$ The heat generated across 3 ohm resistance per second will be


   a) 30 $calorie$ b) 60 $calorie$ c) 100 $calorie$ d) $120\ calorie$

2. Two identical incandescent light bulbs are connected as shown in the figure. When the circuit is an AC voltage source of frequency f, which of the following observations will be correct?
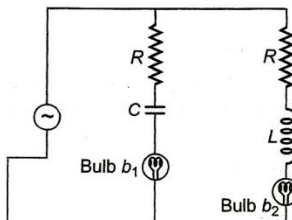

   a) Both bulbs will glow alternatively

   b) Both bulbs will glow with same brightness provided frequency $f = \frac{1}{2\pi}\sqrt{(1/LC)}$

   c) Bulb b_1 will light up initially and goes off, bulb b_2 will be ON constantly

   d) Bulb b_1 will blink and bulb b_2 will be ON constantly

3. A wire of length $5m$ and radius 1 mm has a resistance of 1 ohm. What length of the wire of the same material at the same temperature and of radius 2 mm will also have a resistance of 1 ohm

   a) 1.25 m b) 2.5 m c) 10 m d) 20 m

4. It is possible that any some constant value of emf, but the potential difference between the plates is zero?

   a) Not, possible

   b) Yes, if another identical battery is joined in series

   c) Yes, if another identical battery is joined in opposition

   d) Yes, possible, if another similar battery is joined in parallel

5. Six equal resistances are connected between point s P,Q and R as shown in the figure. Then the net resistance will be maximum between
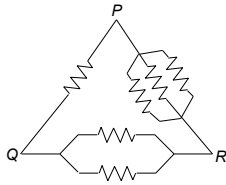
a) P and Q b) Q and R c) P and R d) Any two points

6. When a 12Ω resistor is connected with a moving coil galvanometer then its deflection reduces from 50 divisions to 10 divisions. The resistance of the galvanometer is
a) 24 Ω   b) 36 Ω   c) 48 Ω   d) 60 Ω

7. A galvanometer having a resistance of 8 ohm is shunted by a wire of resistance 2 ohm. If the total current is 1 amp, the part of it passing through the shunt will be
a) 0.25 amp b) 0.8 amp c) 0.2 amp d) 0.5 amp

8. Resistors of 1, 2, 3 ohm are connected in the form of a triangle. If a 1.5 volt cell of negligible internal resistance is connected across 3 ohm resistor, the current flowing through this resistance will be
a) 0.25 amp b) 0.5 amp c) 1.0 amp d) 1.5 amp

9. A galvanometer of resistance 50 Ω is connected to a battery of 3V along with a resistance of 2950 Ω in series. A full scale deflection of 30 divisions is obtained in the galvanometer. In order to reduce this deflection to 20 divisions, the resistance in series should be
a) 5050 Ω   b) 5550 Ω   c) 6050 Ω   d) 4450 Ω

10. If a 30 V, 90 W bulb is to be worked on a 120 V line, a resistance of how many ohms should be connected in series with the bulb
a) 10 ohm b) 20 ohm c) 30 ohm d) 40 ohm

11. n equal resistors are first connected in series and then connected in parallel. What is the ratio of the maximum to the minimum resistance
a) n b) $\dfrac{1}{n^2}$ c) n^2 d) $\dfrac{1}{n}$

12. Figure shows a simple potentiometer circuit for measuring a small e.m.f. produced by a thermocouple. The meter wire PQ has a resistance 5 Ω and the driver cell has an e.m.f. of 2 V. If a balance point is obtained 0.600m along PQ when measuring an e.m.f. of 6.00 mV, what is the value of resistance R

a)   995 Ω   b)   1995 Ω   c)   2995 Ω   d) None of these
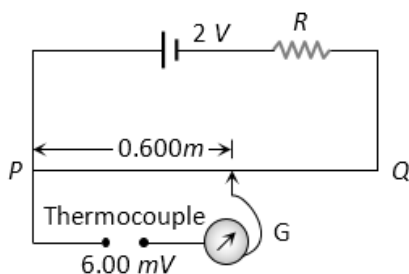
13. The ammeter has range 1 *ampere* without shunt. The range can be varied by using different shunt resistances. The graph between shunt resistance and range will have the nature
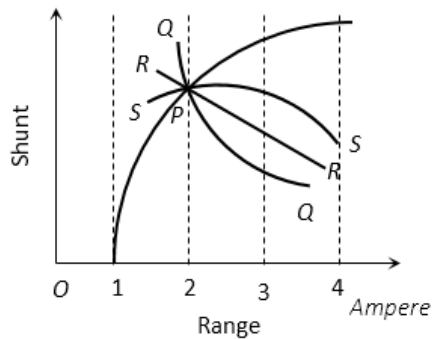
a) P b) Q c) R d) S

14. In a Wheatstone's network $P = 2\Omega$, $Q = 2\Omega$, $R = 2\Omega$ and $S = 3\Omega$. The resistance with which S is to be shunted in order that the bridge may be balanced is

a) $1\ \Omega$ b) $2\ \Omega$ c) $4\ \Omega$ d) $6\ \Omega$

15. In the Wheatstone's bridge shown, $P = 2\Omega$, $Q = 3\Omega$, $R = 6\Omega$ and $S = 8\ \Omega$. In order to obtain balance, shunt resistance across $'S'$ must be
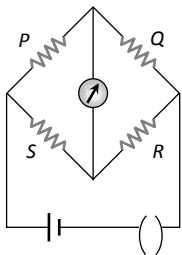
a) $2\ \Omega$ b) $3\ \Omega$ c) $6\ \Omega$ d) $8\ \Omega$

16. If an observer is moving with respect to a stationary electron, then he observes

a) Only magnetic field   b) Only electric field   c) Both (a) and (b)   d) None of the above

17. If $2.2kW$ power is transmitted through a 100Ω line at $22,000V$, the power loss in the form of heat will be
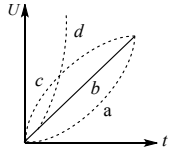
a) $0.1\ W$ b) $1\ W$ c) $10\ W$ d) $100\ W$

18. The resistance of a bulb filament is $100\ \Omega$ at a temperature of $100°C$. If its temperature coefficient of resistance be 0.005 per°C, its resistance will become $200\ \Omega$ at a temperature of

a) $300°C$ b) $400°C$ c) $500°C$ d) $200°C$

19. Find out the value of current through 2Ω resistance for the given circuit
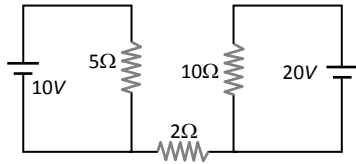
 a) 5 A b) 2 A c) Zero   d) 4 A

20. Which of the plots shown in figure may represent the thermal energy produced in a resistor in a given time as a function of the electric current?

 a) a b) b c) c d) d