



MONDAY TEST ELECTRICITY

By RAMANUJAN CONCEPT SCHOOL

Duration: 30 mins

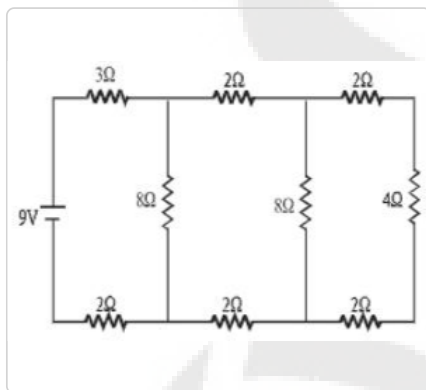
Total No. of Questions: 20
Total Marks: 20

Assessment Instructions:

ALL QUESTIONS ARE COMPULSORY AND EACH CARRY 1 MARK.

1. Resistance of conductor is doubled keeping the potential difference across it constant. The rate of generation of heat will Marks: 1
A. become one fourth B. be halved C. be doubled D. become four times
2. What should be the characteristic of fuse wire? Marks: 1
A. High melting point, high specific resistance B. Low melting point, low specific resistance
C. High melting point, low specific resistance D. Low melting point, high specific resistance
3. The resistance of an ideal voltmeter is Marks: 1
A. zero B. very low C. very large D. Infinite
4. The electric resistance of a certain wire of iron is R . If its length and radius are both doubled, then Marks: 1
A. The resistance will be doubled and the specific resistance will be halved B. The resistance will be halved and the specific resistance will remain unchanged
C. The resistance will be halved and the specific resistance will be doubled D. The resistance and the specific resistance, will both remain unchanged
5. Three resistances 4Ω each of are connected in the form of an equilateral triangle. The effective resistance between two corners is Marks: 1
A. 8Ω B. 12Ω C. $3/8\Omega$ D. $8/3\Omega$
6. The heating element of an electric heater should be made with a material, which should have Marks: 1
A. high specific resistance and high melting point B. high specific resistance and low melting point
C. low specific resistance and low melting point D. low specific resistance and high melting point
7. The resistance R_1 and R_2 are joined in parallel and a current is passed so that the amount of heat liberated is H_1 and H_2 respectively. The ratio H_1/H_2 has the value Marks: 1
A. R_2/R_1 B. R_1/R_2 C. R_1^2/R_2^2 D. R_2^2/R_1^2
8. Two electric lamps each of 100 watts 220 V are connected in series to a supply of 220 volts. The power consumed would be - Marks: 1
A. 100 watts B. 200 watts C. 25 watts D. 50 watts

9. Across a metallic conductor of non-uniform cross section a constant potential difference is applied. The quantity which remains constant along the conductor is: Marks: 1
- A. current B. drift velocity C. electric field D. current density
10. When a wire of uniform cross-section a , length ℓ and resistance R is bent into a complete circle, resistance between any two of diametrically opposite points will be Marks: 1
- A. $R/4$ B. $R/8$ C. $4R$ D. $R/2$
11. Which of the following terms does not represent electrical power in a circuit? Marks: 1
- A. $I^2 R$ B. IR^2 C. VI D. V^2/R
12. The filament of an electric bulb is of tungsten because Marks: 1
- A. Its resistance is negligible B. It is cheaper
C. Its melting point is high D. Filament is easily made
13. A certain piece of silver of given mass is to be made like a wire. Which of the following combination of length (L) and the area of cross-sectional (A) will lead to the smallest resistance Marks: 1
- A. L and A B. $2L$ and $A/2$
C. $L/2$ and $2A$ D. Any of the above, because volume of silver remains same
14. In the circuit shown in the figure, the current through Marks: 1



- A. the 3Ω resistor is 0.50 A B. the 3Ω resistor is 0.25 A
C. the 4Ω resistor is 0.50 A D. the 4Ω resistor is 0.25 A
15. Which one of the following heater element is used in electric press Marks: 1
- A. copper wire B. nichrome wire C. lead wire D. iron wire
16. What length of the wire of specific resistance $48 \times 10^{-8}\Omega - \text{m}$ is needed to make a resistance of 4.2Ω (diameter of wire = 0.4 mm) Marks: 1
- A. 4.1m B. 3.1m C. 2.1m D. 1.1m
17. Two wires of same metal have the same length but their cross-sections area in the ratio $3 : 1$. They are joined in series. The resistance of the thicker wire is 10Ω . The total resistance of the combination will be Marks: 1
- A. 40Ω B. $40/3\Omega$ C. $5/2\Omega$ D. 100Ω

18. A certain wire has a resistance R . The resistance of another wire identical with the first except having twice of its diameter is

- A. $2R$ B. $0.25R$ C. $4R$ D. $0.5R$

Marks: 1

19. A solenoid is at potential difference 60 V and current flows through it is 15 ampere , then the resistance of coil will be

- A. 4Ω B. 8Ω C. 0.25Ω D. 2Ω

Marks: 1

20. A strip of copper and another of germanium are cooled from room temperature to 80K . The resistance of

- A. Each of these increases B. Each of these decreases
C. Copper strip increases and that of germanium decreases D. Copper strip decreases and that of germanium increases

Marks: 1



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