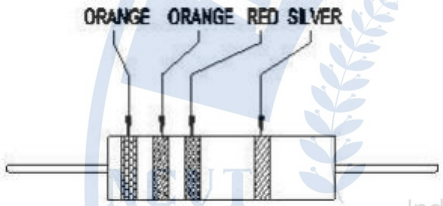
Electrical and Magnetic circuits

1. Which electrical quantity is directly proportional to the eddy current?
(A) Voltage
(B) Current
(C) **Frequency**
(D) Resistance
Correct Answer: C

2. What is the reading of the galvanometer in wheat stone bridge at balanced condition?
(A) High deflection
(B) Low deflection
(C) **Nill deflection**
(D) Oscillate
Correct Answer: C

3. What is the value of resistance of the resistor?



(A) 330 ± 5% Ohm
(B) **3300 ± 10% Ohm**
(C) 3300 ± 5 % Ohm
(D) 33000 ± 10% Ohm

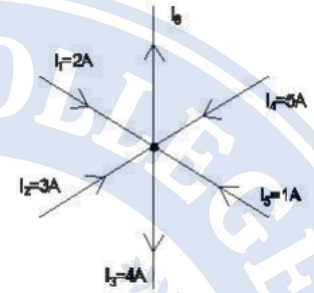
4. Which is the diamagnetic substance?
(A) **Wood** (B) Nickel
(C) Platinum
(D) Manganese
Correct Answer: A

5. What indicates the shape of a BH curve (Hysteresis loop) of material?
(A) Reluctance of the material
(B) Field intensity of the substance
(C) **Magnetic properties of the material**
(D) Pulling power of the magnetic material
Correct Answer: C

6. Which rule is applied to find the direction of magnetic fields in a solenoid coil?
(A) Cork screw rule
(B) **Right hand palm rule**
(C) Flemings left hand rule
(D) Flemings right hand rule
Correct Answer: B

7.

7). What is the value of current in the I_6?



(A) 8 A
(B) 7 A
(C) 5 A
(D) 3 A

Correct Answer: B

8. Which is inversely proportional to the resistance of a conductor?
(A) Length
(B) Resistivity
(C) Temperature
(D) **Area of cross section Correct Answer: D**

9. What electrical quantities are related with the Ohm's law?
(A) Current, resistance and power
(B) Current, voltage and resistivity
(C) **Current, voltage and resistance**
(D) Voltage, resistance and current density
Correct Answer: C

10. Which is an application of series circuit?
(A) **Fuse in circuit**
(B) Voltmeter connection

(C) Electrical lamp in homes
(D) Shunt resistor in ammeter
Correct Answer: A

11). Calculate the hot resistance of 200W / 250V rated lamp.

(A) 31.25Ω

(B) 62.5Ω

(C) **312.5Ω**

(D) 625Ω

Correct Answer : C

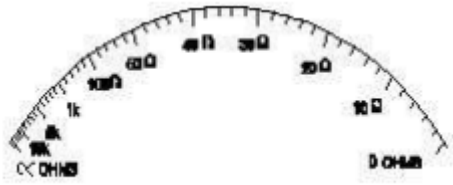
12). What is the change in value of resistance of the conductor, if its cross section area is doubled?
(A) No change
(B) Decreases 2 times
(C) Increases 2 times
(D) Decreases 4 times
Correct Answer : B

13). When the no current will flow through the galvanometer in the wheat stone bridge?
(A) In balanced condition
(B) In unbalanced condition
(C) In short- circuited condition
(D) In open- circuited condition
Correct Answer : A

14). What is the capacitance value of a capacitor that requires 0.5 coulomb to charge to 35 volt?
(A) 0.014 F
(B) 0.025 F
(C) 0.14 F
(D) 0.25 F
Correct Answer : A

15). What is the effect of inductance if the distance between the turns increases?
(A) Increases
(B) Decreases
(C) Becomes zero
(D) Remains same
Correct Answer : B

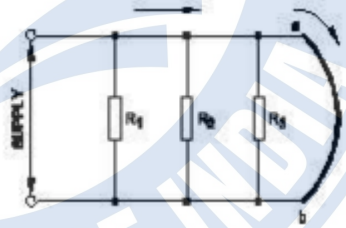
16). Why the ohmmeter is graduated with non-linear scale?



(A) Voltage is directly proportional to resistance
(B) Current is inversely proportional to resistance
(C) Resistance is inversely proportional to the square of current
(D) Voltage is directly proportional to the square of the current
Correct Answer : B

17). What is the effect on the surrounding metal placed in an alternating magnetic field?
(A) Hysteresis
(B) Skin effect
(C) Eddy current
(D) Dielectric stress
Correct Answer : C

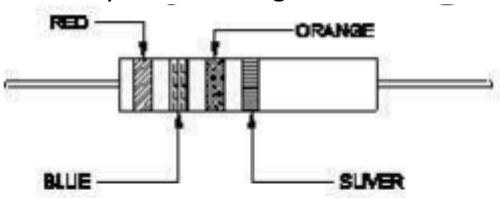
18). What is the effect of the circuit, if points 'ab' are shorted as shown in the figure?



(A) Circuit resistance will become zero
(B) Same current will flow in all branches
(C) Supply voltage will increase in each branch
(D) Each branch current is equal to total current
Correct Answer : A

19). Which material is the paramagnetic substance?
(A) Water
(B) Copper
(C) Bismuth
(D) Graphite
Correct Answer : B

20). Calculate the resistance value of the resistor by colour coding method.



(A) $23 \times 10^3\ \Omega \pm 5\%$

(B) **$26 \times 10^3\ \Omega \pm 10\%$**

(C) $32 \times 10^4\ \Omega \pm 10\%$

(D) $37 \times 10^4\ \Omega \pm 5\%$

Correct Answer : B

21). Calculate the value of resistance by colour coding method.
[Diagram of a resistor with color bands: Green, Red, Orange, Gold]

(A) $22 \times 10^3 \pm 10\%$

(B) $23 \times 10^4 \pm 10\%$

(C) $25 \times 10^3 \pm 5\%$

(D) $36 \times 10^4 \pm 5\%$

Correct Answer : C

22). What is the unit of capacitance?
(A) Mho
(B) Henry
(C) Farad
(D) Coulomb
Correct Answer : C

23). What will happen, if the polarized electrolytic capacitor is reversely connected?
(A) No effect on the capacitor
(B) Explode due to excessive heat
(C) Current is reduced in the circuit
(D) Value of capacitance will be increased
Correct Answer : B

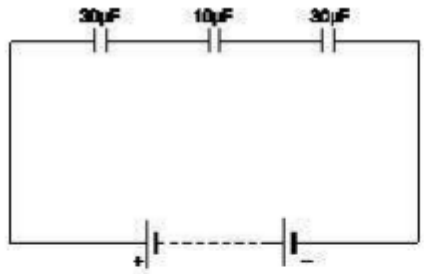
24). Which type of capacitor is used for space electronics?
(A) Plastic film type
(B) Ceramic disc type
(C) Electrolytic-Aluminium type
(D) Electrolytic-Tantalum type
Correct Answer : D

26). What will happen if a resistor is opened in a series circuit?
(A) More power loss in the opened resistor
(B) Full current will flow through the opened resistor
(C) Total supply voltage will appear across the opened resistor
(D) No voltage will appear across the opened resistor
Correct Answer : C

27). What will be the change in value of capacitance if the distance of the plates are decreased in the capacitor?
(A) Becomes zero
(B) Remains same
(C) Decreases
(D) Increases
Correct Answer : D

28). How the value of capacitance can be decreased?
(A) Increasing the plate area
(B) Decreasing the resistance of the plates
(C) Increasing the distance between the plates
(D) Using high dielectric constant material
Correct Answer : C

29). Calculate the total capacitance value in the circuit.



(A) 0.16 μF

(B) 6 μF

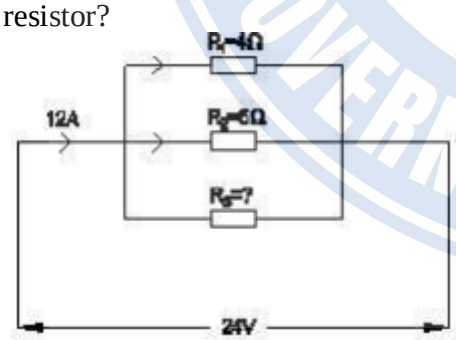
(C) 30 μF

(D) 70 μF

Correct Answer : B

30). What is the formula to find the Electro Motive Force (EMF)?
(A) EMF = Potential difference – voltage drop
(B) EMF = Potential difference + voltage drop
(C) EMF = Potential difference + voltage drop/2
(D) EMF = Potential difference + 2 x voltage drop
Correct Answer : B

31). Calculate the resistance value in R3 resistor?



(A) 4 Ohm
(B) 6 Ohm
(C) 8 Ohm
(D) **12 Ohm**
Correct Answer: D

32). Which type of effect occur if current is passed through a spirally wound coil?
(A) Heating effect
(B) **Magnetic effect**
(C) Chemical effect
(D) Thermal effect
Correct Answer: B

33). What precaution to be taken before connecting the different voltage rating capacitors in series?
(A) All the capacitors must be same manufacturer
(B) **Each capacitors voltage drop must be less than its voltage rating**
(C) Total capacitors value must be less than the lowest value of capacitor
(D) Break down voltage of each capacitor must be same
Correct Answer: B

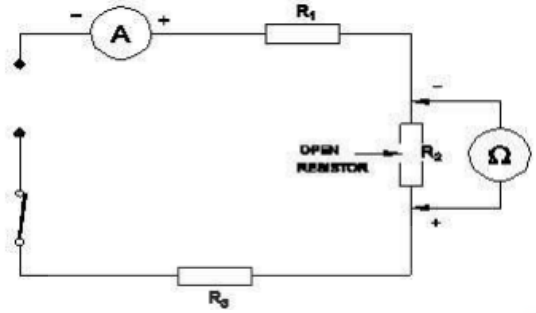
34). Which is an application of the series circuit?
(A) Voltmeter connection
(B) Lighting circuits in home
(C) Shunt resistor in ammeter
(D) **Multiplier resistor of a voltmeter**
Correct Answer: D

35). What is the similar term in magnetic circuit for "conductance" in electrical circuit?
(A) Reluctivity
(B) **Permeance**
(C) Reluctance
(D) Permeability
Correct Answer: B

36). Which method of magnetization is used to make commercial purpose permanent magnets?
(A) **Induction method**
(B) Single touch method
(C) Double touch method
(D) Divided touch method
Correct Answer: A

37). What is the unit of permeance?
(A) Ampere - turns
(B) **Weber / Ampere turns**
(C) Ampere turns / Weber
(D) Weber / Square metre
Correct Answer: B

38). What is the reading of the ohmmeter connected across the opened 'R_2' resistor as shown in the circuit?**



(A) Indicate zero reading
(B) **Indicate infinite resistance**
(C) Difference in the value of the resistance of R_1 and R_3 only
(D) Sum of the resistance of R_1 and R_3 only
Correct Answer: B

39). Which method is used for measuring 1 Ohm to 1 megohm range resistance?**
(A) Substitution method
(B) Kelvin bridge method
(C) **Wheat stone bridge method**
(D) Voltmeter and ammeter method
Correct Answer: C

40).

40). What is the total inductance if 3 inductors (L_1, L_2 and L_3) are connected in series?

(A) $LT = L_1 \times L_2 \times L_3$

(B) $LT = L_1 + L_2 + L_3$

(C) $L_T = \frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3}$

(D) $L_T = \frac{1}{L_1 + L_2 + L_3}$

Correct Answer: B

41). Which is a paramagnetic substance?
(A) **Air**
(B) Steel
(C) Glass
(D) Water
Correct Answer : A

42). Which factor changes the permeability of a material?
(A) Length
(B) **Flux density**
(C) Diameter
(D) Cross sectional area
Correct Answer : B

43). What is the effect of the electrolytic capacitor, if open circuit fault occurs?
(A) **It will not function**
(B) It will burst at once
(C) It will become leaky
(D) It will function normally
Correct Answer : A

44). Which is the correct expression of capacitance 'C' if the electric charge is 'Q' and the voltage is 'V'?

(A) $C = \frac{Q}{V}$

(B) $C = \frac{V}{Q}$

(C) $C = VQ$

(D) $C = \sqrt{VQ}$

Correct Answer : A

45). What is the change of resistance value of the conductor as its diameter is doubled?
(A) Increases to two times
(B) **Decreases to four times**
(C) Decrease to half of the value
(D) No change in value of resistance
Correct Answer : B

46). Which factor is determining the value of capacitance in capacitor?
(A) **Area of the plates**
(B) Weight of the plates
(C) Volume of the plates
(D) Thickness of the plates

Correct Answer : A

47). Which defines that the flux density is always lagging behind the magnetising force?
(A) **Hysteresis**
(B) Magnetic intensity
(C) Magnetic induction
(D) Residual magnetism
Correct Answer : A

48). What is the value of resistance of an open circuit?
(A) Zero
(B) Low
(C) Medium
(D) **Infinity**
Correct Answer : D

49). Where the air capacitors are used?
(A) In VHF unit
(B) In oscillator
(C) In loudspeaker
(D) **In radio receiver**
Correct Answer : D

50). What is the name of the resistor if its resistance value increase with increase in temperature?
(A) Varistors
(B) **Sensistors**
(C) Thermistors
(D) Light Dependent Resistor (LDR)
Correct Answer : B