1. The Coulomb is the unit of ……

A. Power
B. Voltage
C. Energy
D. Charge

2. These units are the SI unit **EXCEPT** :

A. Mass
B. Length
C. Electric Current
D. Voltage

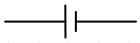
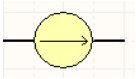
3. The/an …….. will be required between two points for current to flow in a circuit.

A. Energy
B. Power
C. Potential difference
D. Resistor

4. The voltage is a unit of

A. Current
B. Power
C. Energy
D. Electromotive force

5. Which of the following is TRUE :

A.  Battery
B.  Voltmeter
C. Variable resistor
D. Resistor

6. Which of the following circuit diagram symbol is **FALSE**?

A. Switch
B. Fuse
C. Inductor
D. Cell

7. Quantity of electricity or charge could be stated as:

A. Q = Pt
B. Q = It
C. Q = Wt
D. Q = Et

8. The quantity of electricity is Q,

A. Q = it
B. Q = iR
C. Q = iG
D. $Q = i^2t$

9. Potential difference is needed to flow the _____ in the circuit.

A. Power
B. Energy
C. Resistance
D. Current

10. 45sμ is equivalent to:

A. 0.045
B. 45 minutes
C. 0.000045s
D. 0.45s

11. Which statements TRUE about primary and secondary cell?

i. Primary cell cannot be recharged
ii. Secondary cell can be use once
iii. Secondary cell is reversible

A. i and ii
B. i and iii
C. ii and iii
D. All of the above

12. Which statement is **TRUE** about primary and secondary cell:

A. Primary cell is disposable and secondary cell is rechargeable.
B. Primary cell is expensive and secondary cell is cheap.
C. Primary cell is a wet cell and secondary cell is a dry cell.
D. Primary cell has high power level discharge and secondary cell has low power discharge.

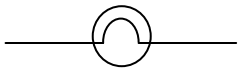
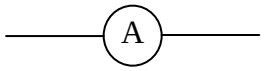
13. A battery consist of :

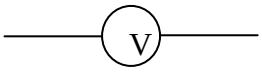
A. A cell
B. A number of cell
C. A generator
D. A circuit

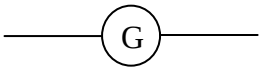
14. How many cell is needed to produce 9V if e.m.f each cell is 1.5V

A. 8 cells in series
B. 6 cells in parallel
C. 8 cells in parallel
D. 6 cells in series

15. Which of the following electrical component symbol is voltmeter?

A. 
B. 

C. 

D. 

16. How long must the current of 50mA flow so that the charge of 40C can be transferred?

A. 60s
B. 800s
C. 100s
D. 6 minute

17. The power dissipated by the resistor of 4Ω when the current of 5A passes through is:

A. 6.25W
B. 20W
C. 80W
D. 100W

18. Which statement is TRUE

A. Resistance is directly proportional to the cross sectional area.
B. Resistance is inversely proportional to the resistivity.
C. Resistance is directly proportional to the length.
D. Resistance is inversely proportional to the length.

19. Given resistivity = 1.83×10^{-8} Ωm, length = 100m and A = 1.5×10^{-6} m^2 . What is the value of resistance?

A. 12.2 Ω
B. 1.22 Ω
C. 122 Ω
D. 1.2 kΩ

20. Resistance is $R = \frac{\rho l}{A}$, where ρ is:

A. Cross sectional area
B. Resistivity
C. Current
D. Length

21. Electrical resistance depends on the following factors, **EXCEPT:**

A. Length of conductor
B. Temperature
C. Cross sectional area of conductor
D. Shape of the conductor

22. If voltage in a circuit 12V and the total resistance is 6Ω, what is the current flow?

A. 2A
B. 3A
C. 4A
D. 2.5A

23. The potential difference will be applied to a 1kΩ resistance in order that the current of 100μA may flow is:

A. 1V
B. 100V
C. 0.1V
D. 10V

24. If two 4Ω resistors were connected in series, the effective resistance of the circuit is:

A. 2Ω
B. 4Ω
C. 8Ω
D. 10Ω

25. The following are the effects of an electric current **EXCEPT**

A. Heating effect
B. Chemical effect
C. Magnetic effect
D. Temperature effect

26. Potential difference is the quantity need to _____.

A. Drop the voltage at the resistor
B. Flow the current in circuit
C. Dissipate the power of circuit
D. Resist the current in the circuit

27. A 150W electric light bulb is connected to a 200Vsupply. Determine the current flowing in the bulb.

A. 0.3A
B. 0.5A
C. 0.75A
D. 0.125A

28. Which is the effect of an electric current?

A. Resistant effect
B. Pole effect
C. Shape effect
D. Magnetic effect

29. The current flowing in the branches of a d.c circuit may be determined using:

A. Lenz's law
B. Faraday's law
C. Kirchoff's laws
D. Fleming's left-hand rule

30. All the following statements are true, **EXCEPT**

A. I_{TH} is the ratio of source voltage and Thevenin resistance
B. Thevenin voltage is the open circuit voltage at the required terminals
C. R_{TH} is the total resistance seen at required terminals by replacing short circuit at voltage sources
D. Thevenin equivalent circuit consist of Thevenin resistance, load resistance and single voltage source in series

31. Which statement is **FALSE** in maximum power transfer?

A. $V_S = E$
B. $R_L = R_{IN}$
C. $I_L = I_{short\ circuit}$
D. Efficiency = 100%

32. The total resistance of the circuit in Figure A(9) is

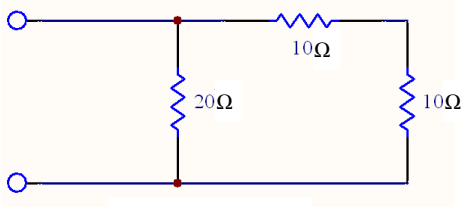


Figure A (9)

A. 30Ω
B. 20Ω
C. 10Ω
D. 5Ω

33. How much the energy consumed if the 250Watt power is transferred in 2 minutes.

A. 30 kJ
B. 35 kJ
C. 40 kJ
D. 45 kJ

34. The main effect of electric current and applications are true, **EXCEPT** :

A. Chemical effect - electrolysis
B. Resistance effect – resistor
C. Heat effect – filament bulb
D. Magnetic effect – inductor

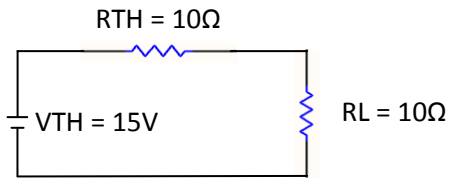
35. Determine the voltage which be applied to a 3kΩ resistor such that the current of 6mA may flow.

A. 2V
B. 5V
C. 18V
D. 20V

36. *'In the complete circuit, the sum of the voltage drop for each resistor is equal to the terminal voltage''*. This statement is referred to :

A. Voltage Divide Rule
B. Current Divide Rule
C. Kirchhoff's Current Law
D. Kirchhoff's Voltage Law

37. Based on the Figure A(13) find I_{TH}



A. 0.15 A
B. 0.35 A
C. 0.55 A
D. 0.75 A

38. Which is the following statement is TRUE?
A. V_{TH} is the short circuit voltage at the required terminal
B. I_{TH} is the ratio of source voltage, Thevenin resistance and load resistance
C. I_{TH} is a total resistance seen at required terminal by open circuit at voltage source
D. Thevenin equivalent circuit consist of single resistance and single voltage source in series

39. The following factors that effecting capacitance EXCEPT
A. Surface area of plate
B. Thickness of dielectric
C. Material between two plate
D. Length between two plate

40. The base unit of capacitance is _____.
A. Henry
B. Ohm
C. Farad
D. Siemens

41. If four capacitors are connected in **PARALLEL**, formulate the total capacitance :
A. $C_T = C_1 + C_2 + C_3 + C_4$
B. $C_T = \dfrac{1}{C_1 + C_2 + C_3 + C_4}$
C. $C_T = C_1 \times C_2 \times C_3 \times C_4$
D. $C_T = \dfrac{C_1 \times C_2}{C_3 \times C_4}$

42. Which types of capacitor below is unpolarised capacitor?
i. Mica
ii. Ceramic
iii. Air-gap
iv. Electrolytic
A. i and ii
B. ii and iv
C. i , ii and iii
D. i , ii , iii and iv

43. Four 2µF capacitors are connected in parallel. The equivalent capacitance is
A. 0.5µF
B. 2µF
C. 8µ
D. 10µ

44. Which of the following statement is **FALSE**.
The capacitance of capacitor
A. depends on the number of plates
B. is proportional to the distance between the plates
C. is proportional to the cross-sectional area of the plates
D. is proportional to the relative permittivity of the dielectric

45. 'The induced e.m.f is the product of self-inductance and the rate of change in current.'
Which formula is related to this statement?

A. $e = -N\frac{d\phi}{dt}$
B. $e = L\frac{di}{dt}$
C. $e = -M\frac{di}{dt}$
D. $e = L\frac{d\phi}{dt}$

46. The following factors influence the inductors, EXCEPT
A. Number of turns in a coil
B. Diameter circumference
C. Type of core
D. Dielectric material

47. Formulate the total inductance L_T in Figure 1.

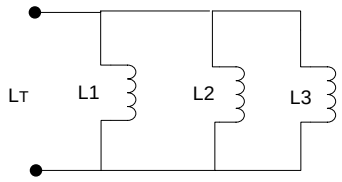


Figure 1

A. $L_T = L1 + L2 + L3$
B. $L_T = \frac{1}{L1} + \frac{1}{L2} + \frac{1}{L3}$
C. $L_T = \frac{L1 \times L2 \times L3}{L1 + L2 + L3}$
D. $\frac{1}{L_T} = \frac{1}{L1} + \frac{1}{L2} + \frac{1}{L3}$

48. The following statements are true about characteristics of magnetic field EXCEPT
A. Forming a closing loop
B. Has a certain direction
C. Repel between one another
D. Crossed against each other

49. Which is the rule to determine the magnetic field direction.
A. Len's Rule
B. Magnetic Rule
C. Left Hand Rule
D. Screw Rule

50. Electromagnetism is defined as follows, EXCEPT
A. Magnetism caused by a permanent magnet
B. Magnetism produced by an electric current
C. Magnetism produced by electric charge in motion
D. Transient magnetism of conductor caused by electric current.

51.

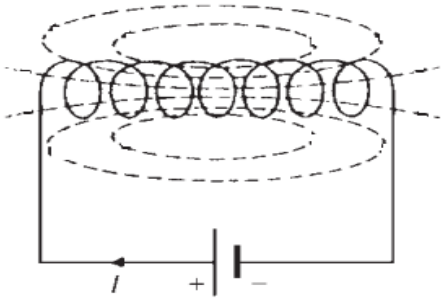


Figure 2

The Figure 2 shows the magnetic field produced by solenoid and it seen to be similar to a bar magnet. Based on Figure 2, what polarity the magnetic field produce?

A. South to East
B. South to North
C. North to South
D. North to West

52. "The ratio between the potential difference or voltage and the thickness of dielectric." The statement above is the definition of

A. Electric flux
A. Electric flux density
B. Electric field strength
C. Absolute permittivity