

[PRACTICE PAPER-03]

- The condition for the validity of ohm's law is that the
 - Temperature should remains constant
 - Current should be proportional to voltage
 - Resistance must be wire wound type
 - All of the above
- Twelve $1\ \Omega$ resistances are used as edges to form a cube. The resistance between two diagonally opposite corners of the cube is
 - $5/6\ \Omega$
 - $1\ \Omega$
 - $6/5\ \Omega$
 - $3/2\ \Omega$
- Ideal voltage source have
 - Zero internal resistance
 - Infinite internal resistance
 - Low value of current
 - Large value of emf.
- Ideal current source have
 - Zero internal resistance
 - Infinite internal resistance
 - Low value of voltage
 - Large value of current
- For a network of 11 branches and 6 nodes, what is the number of independent loops
 - 4
 - 5
 - 6
 - 11
- If an atom loses one or more electrons it becomes
 - electrically neutral
 - electrically positive
 - electrically
 - a neutral ion
- The space surrounding a charge body, within which the influence of its charge extends is called
 - coulombs
 - electric field
 - electric intensity
 - lines of force
- The unit of electric energy is
 - Watt
 - joule-second
 - KWh
 - Volt-Ampere
- Permittivity is expressed in terms of
 - N/m
 - Webers/m
 - Farad/meter
 - Farad/sq.m.
- The S.I. unit of power is
 - Henry
 - coulomb
 - watt
 - watt-hour
- The substances which have a large number of free electrons and offer a low resistance are called
 - insulators
 - inductors
 - semi-conductors
 - conductors
- Electric current passing through the circuit produces
 - magnetic effect
 - luminous effect
 - thermal effect
 - chemical effect
- Bulbs in street lighting are all connected in
 - parallel
 - series
 - series-parallel
 - end-to-end
- Temperature co-efficient of resistance is expressed in terms of
 - ohms/ $^{\circ}\text{C}$
 - mho/ohm $^{\circ}\text{C}$
 - $^{\circ}\text{C}$
 - mhos/ $^{\circ}\text{C}$
- The resistance of a conductor varies inversely as
 - length
 - area of cross-section
 - temperature
 - resistivity
- Which of the following materials has a negative temperature co-efficient of resistance?
 - Copper
 - Aluminum
 - Carbon
 - Brass
- Which is the best conductor of electricity?
 - Iron
 - Silver
 - Copper
 - Carbon
- The rating of a fuse wire is always expressed in
 - ampere-hours
 - ampere-volts
 - kWh
 - amperes
- A closed switch has a resistance of
 - zero
 - about 50 ohms
 - about 500 ohms
 - infinity
- The ratio of mass of proton to that of electron is nearly
 - 1840
 - $\frac{1}{1840}$
 - 30
 - 4
- What will be the capacity of four capacitors of equal capacity 'C', when connected in series
 - 4C
 - C/4
 - C
 - 3/4C
- A bank of condenser across the load of the factory is used.
 - for improving the power factor
 - for reducing the power factor
 - for improving the fluctuations
 - for quick starting of the motors

23. The electric flux and field intensity inside a conducting sphere is
 (a) zero (b) maximum
 (c) uniform (d) minimum
24. Dielectric strength of air is nearly
 (a) 30 kV/cm (max)
 (b) 30 kV/mm
 (c) 300 kV/mm
 (d) 3000kV/mm
25. The potential inside a charged hollow sphere is
 (a) zero
 (b) same as that on the surface
 (c) less than that on the surface
 (d) None of these
26. The capacity of capacitor used in power factor correction is expressed in terms of
 (a) kVA (b) kW
 (c) volts (d) kVAR
27. Which of the following expression is correct for electric field strength ?
 (a) $E = D/\epsilon$
 (b) $E = D^2/t$
 (c) $E = jtD$
 (d) $E = nD^2$
28. For the same rating which capacitor is physically smaller?
 (a) Paper capacitor
 (b) Ceramic capacitor
 (c) Both have identical dimensions
 (d) None of these
29. The absolute permittivity of free space is given by
 (a) 8.857×10^{-9} F/m
 (b) 8.857×10^{-10} F/m
 (c) 8.857×10^{-11} F/m
 (d) 8.854×10^{-12} F/m
30. Which of the following capacitors is marked for polarity?
 (a) Air
 (b) Paper
 (c) Mica
 (d) Electrolytic
31. The relative permittivity has the following units
 (a) F/m
 (b) m/F
 (c) Wb/m
 (d) no units
32. The unit of electric intensity is
 (a) N/C^2
 (b) Wb/m^2
 (c) N/C
 (d) N^2/C
33. One kilo-watt-hour is equal to
 (a) 4180 kilo calories
 (b) 829 kilo calories
 (c) 860 kilo calories
 (d) 4200 kilo calories
34. The direction of the induced current depends upon.
 (a) the length of the conductor
 (b) the speed of the movement of the conductor
 (c) the strength of the magnetic field
 (d) the direction of the magnetic field
35. The sign \otimes in a plan view of a conductor means
 (a) the current flows into the drawing area
 (b) the current flows out of the drawing area
 (c) there is a positive current in the conductor
 (d) we cannot apply the cork screw rule
36. The aim of shielding an instrument is
 (a) to prevent its damage due to moisture
 (b) to reduce the effect of stray magnetic fields on its reading
 (c) to increase the range of the instruments
 (d) none of these
37. The magnitude of e.m.f. induced in a wire does not depend on
 (a) length of wire
 (b) speed of wire
 (c) diameter of wire
 (d) none of these
38. An e.m.f. of 8 V is induced in a coil of inductance 4H. The rate of change of current must be
 (a) 32 A/s (b) 0.5 A/s
 (c) 2A/sec (d) None of these
39. Air gap has _____ reluctance as compared to iron or steel path
 (a) little (b) lower
 (c) higher (d) zero
40. The unit of relative permeability is
 (a) henry/metre (b) henry
 (c) henry/sq. m (d) it is dimensionless
41. One Telsa is equal to
 (a) 1 Wb/mm^2 (b) 1 Wb/m
 (c) 1 Wb/m^2 (d) 1 mWb/m^2
42. Permeability in a magnetic circuit corresponds to _____ in an electric circuit.
 (a) resistance (b) resistivity
 (c) conductivity (d) conductance
43. The unit of retentivity is

- (a) Weber (b) Weber/sq. m
(c) Ampere turn/meter (d) Ampere turn
44. The unit of flux is the same as that of
(a) Reluctance (b) Resistance
(c) Permeance (d) pole strength
45. The Biot-savart's law is a general modification of
(a) Kirchhoffs law (b) Lenz's law
(c) Ampere's law (d) Faraday's laws
46. Which form of energy can be easily converted into other forms of energy
(a) Mechanical Energy (b) Electrical Energy
(c) Chemical Energy (d) Heat Energy
47. Charging of battery is done by
(a) A.C. (b) D.C.
(c) A.C. or D.C. (d) None of these
48. Electrical energy is used for
(a) Lighting (b) Heating
(c) Fabrication (d) All of these
49. Frequency of A.C. used in India is
(a) 20 Hz (b) 40 Hz
(c) 50 Hz (d) 60 Hz
50. A.C.
(a) Changes it's direction periodically
(b) Always flows in the same direction
(c) Changes it's magnitude as well direction periodically
(d) Has no change in magnitude or direction
51. Potential difference is the
(a) Difference between the potentials at any two points
(b) Difference between voltage and current
(c) Difference between current at any two points
(d) None of the above
52. A cycle consists of two half cycles
(a) Both +ve halves
(b) Both -ve halves
(c) +ve half and -ve half
(d) None of these
53. The value of Power factor when phase difference between voltage and current is 0°
(a) Unity (b) Lagging
(c) Leading (d) None of these
54. If the area cross-section area of a conductor is doubled, its resistance (R) becomes
(a) $2R$ (b) $\frac{R}{2}$
- (c) $\frac{2}{R}$ (d) $\frac{3}{2}R$
55. If specific resistance of a material is more, its resistance will be
(a) More (b) Average
(c) Less (d) None of these
56. The energy meter measures the energy in
(a) Watts (b) Kilo-watts
(c) Kilo-Watt-hour (d) Mega watts
57. KVA is the unit of
(a) Actual-Power (b) Apparent Power
(c) Reactive Power (d) None of these
58. If 1 A current flows in a wire of 2.5Ω resistance, the power lost in form of heat is
(a) 2.5 watts (b) 5 watts
(c) 1 watt (d) 0.4 watt
59. The moving part in an energy meter is
(a) Magnet (b) Colls
(c) Terminals (d) Aluminium disc
60. Lights and ceiling fans are controlled by switches of
(a) 2 A (b) 5 A (c) 15 A (d) 25 A
61. The maximum value of load that can be connected in power sub circuit is
(a) 500 Watts (b) 1000 Watts
(c) 1500 Watts (d) 2000 Watts
62. Fans and radios etc. are connected to supply by
(a) Cables (b) Flexible cords
(c) Main fuse (d) None of these
63. In domestic installation, the supply from service line is brought to
(a) Distribution board
(b) Main switch
(c) Energy meter
(d) Fuses
64. Fans, radios etc, are connected to socket outlet by
(a) Cables (b) Flexible cords
(c) Switch (d) Plugs
65. The supply to various sub-circuits is given from
(a) Main switch
(b) Distribution board
(c) Service line
(d) Energy meter
66. A device used for making and breaking the electrical circuit is
(a) Fuse (b) Plug

- (c) Junction box (d) Switch
67. Supplier's fuse is provided
 (a) After the energy meter
 (b) Before the energy meter
 (c) After the main switch
 (d) Before the main switch
68. Which wiring system is most suitable for temporary wiring
 (a) Wooden casing and capping wiring
 (b) Lead sheathed wiring
 (c) Cleat wiring
 (d) Conduit wiring
69. Casing and capping wiring is commonly used for
 (a) Residential and office buildings
 (b) Outdoor wiring
 (c) Damp conditions
 (d) Sunny conditions
70. Which of following is kept in mind. While making a choice of wiring system for a building
 (a) Type of wire
 (b) Nature of load
 (c) Material Used
 (d) All of these
71. Industrial wiring requires
 (a) 2-phase, 3-wire supply
 (b) 3-phase, 3-wire supply
 (c) 3-phase, 4-wire supply
 (d) None of these
72. Three phase energy meters have
 (a) 4 terminals
 (b) 6 terminals
 (c) 8 terminals
 (d) 10 terminals
73. Function of a switch is to
 (a) Make of circuit
 (b) Break the circuit
 (c) Make or break a circuit
 (d) None of these
74. A switch is provided on
 (a) Phase wire
 (b) Neutral wire
 (c) Earth wire
 (d) None of these wires
75. Five resistances of 1.0Ω each are available. The minimum resistance by combining all these will be
 (a) 1Ω (b) 5Ω
- (c) $\frac{1}{10}\Omega$ (d) $\frac{1}{5}\Omega$
76. Three resistance each of $R\Omega$ are connected to form a triangle. The resistance between any two terminals will be
 (a) $R\Omega$ (b) $\frac{3}{2}R\Omega$
 (c) $3R\Omega$ (d) $\frac{2}{3}R\Omega$
77. Three capacitors of values $2\mu F$, $4\mu F$ and $4\mu F$ are connected in parallel, the capacitance of the combination is
 (a) $8\mu F$ (b) $10\mu F$
 (c) $1\mu F$ (d) None of these
78. The unit for flux density is.
 (a) tesla (b) A/mm^2
 (c) N/m^2 (d) Wb/m
79. The phase displacement between various phases of a 3-phase system is equal to,
 (a) 90° (b) 180°
 (c) 120° (d) 360°
80. In a balanced 3-phase delta connected system, the relationship between the rms values of line currents and the phase current is given by,
 (a) $I_L = I_{ph}$ (b) $I_L = \sqrt{3}I_{ph}$
 (c) $I_{ph} = \sqrt{3}I_L$ (d) $I_L = \sqrt{2}I_{ph}$
81. The apparent power and active power drawn are equal for an ac circuit of,
 (a) inductive type (b) capacitive type
 (c) resistive type (d) none of these
82. Capacitive reactance of the above circuit is expressed as,
 (a) $X_c = \omega c$ (b) $X_c = \frac{1}{\omega c}$
 (c) $X_c = \frac{\omega}{c}$ (d) $X_c = \frac{c}{\omega}$
83. The power factor of a purely inductive circuit is,
 (a) lagging (b) leading
 (c) zero lagging (d) unity
84. The power factor of a capacitive circuit is always
 (a) lagging (b) leading
 (c) unity (d) zero leading

85. If the operating power factor of any circuit is 0.8 lagging, current flowing can be expressed as,
 (a) $(10 - j0)A$ (b) $(8 - j6)A$
 (c) $(8 + j6)A$ (d) $-j10A$
86. A cycle of ac wave can be represented by,
 (a) π radians (b) 2π radians
 (c) 180° (d) none of these
87. The rms value of voltage for ac sine wave in terms of its maximum value, E_{\max} is,
 (a) $\frac{E_{\max}}{\pi}$ (b) $0.637 E_{\max}$
 (c) $0.707 E_{\max}$ (d) $0.5 E_{\max}$
88. Two current wave shapes are represented by,
 $i_1 = I_{\max 1} \sin(\omega t)$; $i_2 = I_{\max 2} \sin(\omega t + 30^\circ)$;
 The current wave i_1 is,
 (a) i_1 lagging the current i_2 wave by 30°
 (b) i_1 leading the current i_2 wave by 30°
 (c) i_1 in phase with current wave i_2
 (d) none of these
89. The leading power factor of ac circuit implies that,
 (a) The current leads the applied voltage
 (b) The current lags the applied voltage
 (c) The current and voltage are in same phase.
 (d) The current lags 90° by voltages.
90. The most commonly used system for transmission is:
 (a) 3 phase 3 wire system
 (b) 3 phase 4 wire system
 (c) 2 phase 3 wire system
 (d) 1 phase 2 wire system
91. The maximum transmission voltage used in India is:
 (a) 66 KV (b) 132 KV
 (c) 220 KV (d) 765 KV
92. Which of following is not a component of a transmission line?
 (a) Supports (b) Generator
 (c) Conductor (d) Insulator
93. The voltage between any two phases of a three phase system is known as
 (a) Line voltage (b) Phase voltage
 (c) Mains voltage (d) Supply voltage
94. Street lighting is controlled from
 (a) Feeders (b) Sub-stations
 (c) Distributors (d) Service mains
95. Overhead system:
 (a) Has more faults than underground system
 (b) Gives a good look
 (c) Has high initial cost
 (d) Fault location is very difficult
96. A distribution system consists of
 (a) Distributor
 (b) Feeders
 (c) Service mains
 (d) All of the above
97. Feeders may be defined as
 (a) conductors which deliver power to consumer's premises
 (b) conductors which deliver current to service mains
 (c) conductors which carry current to the feeding points
 (d) none of these
98. An iron clad switch is closed when it's handle is in
 (a) Up position
 (b) Down position
 (c) Horizontal position
 (d) None of these
99. Supply is given to consumer at
 (a) Input of energy meter
 (b) Output of energy meter
 (c) Input of main switch
 (d) Output of main switch
100. Economizer is used in a thermal power plant
 (a) To heat the feed water
 (b) Condensation of steam
 (c) To heat air
 (d) To handle ash

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1.	d	26.	d	51.	a	76.	d
2.	a	27.	a	52.	c	77.	b
3.	a	28.	a	53.	a	78.	a
4.	b	29.	d	54.	b	79.	c
5.	c	30.	d	55.	a	80.	b
6.	b	31.	d	56.	c	81.	c
7.	b	32.	c	57.	b	82.	b
8.	c	33.	c	58.	a	83.	c
9.	c	34.	d	59.	d	84.	d
10.	c	35.	a	60.	b	85.	b
11.	d	36.	b	61.	d	86.	b
12.	a	37.	c	62.	b	87.	c
13.	a	38.	c	63.	c	88.	a
14.	c	39.	c	64.	d	89.	a
15.	b	40.	d	65.	b	90.	a
16.	c	41.	c	66.	d	91.	d
17.	b	42.	c	67.	b	92.	b
18.	d	43.	b	68.	c	93.	a
19.	a	44.	d	69.	a	94.	b
20.	a	45.	c	70.	d	95.	a
21.	b	46.	b	71.	b	96.	d
22.	a	47.	b	72.	b	97.	c
23.	a	48.	d	73.	c	98.	a
24.	a	49.	c	74.	a	99.	a
25.	b	50.	c	75.	d	100.	a

