1. Kirchhoffs current law is applicable to only

   (A) Closed loops in a network (B) Electronic circuits (C) Junctions in a network (D) Electric circuits

2. Kirchhoff's laws are applicable to.....

   (A) AC circuits (B) DC circuits (C) Both a and b (D) None

3. Kirchhoffs voltage law is concerned with

   (A) IR drops (B) battery e.m.fs. (C) junction voltages (D) both (a) and (b)

4. According to KVL, the algebraic sum of all IR drops and e.m.f.s in any closed loop of a network is always

   (A) zero (B) positive

   (C) negative (D) determined by battery e.m.fs.

5. The algebraic sign or polarity of an IR drop is primarily dependent upon the

   (A) amount of current flowing through it (B) value of R

   (C) direction of current flow (D) battery connection.

6. Maxwell's loop current method of solving electrical networks

   (A) uses branch currents (B) utilizes Kirchhoff's voltage law

   (C) is confined to single-loop circuits (D) is a network reduction method.

7. The sign or polarity of the battery e.m.f. is..... of the direction of the current through that branch.

   (A) independent (B) dependent (C) either a or b (D) None

8. The sign or polarity of voltage drop across a resistor .....on the direction of current through that resistor but is..... of the polarity of any other source of e.m.f. in the circuit under consideration.

   (A) depends, dependent (B) depends, independent (C) independent, dependent (D) independent, independent

9. An ideal voltage source should have internal resistance.....

   (A) zero (B) Infinity (C) either a or b (D) None

10. An ideal voltmeter will have internal resistance.....

    (A) zero (B) Infinity (C) either a or b (D) None

11. An ideal current source should have internal resistance.....

    (A) zero (B) Infinity (C) either a or b (D) None

12. An ideal ammeter should have internal resistance.....

    (A) zero (B) Infinity (C) either a or b (D) None

13. Energy stored in a capacitor is.....

    (A) $\frac{1}{2}CV^2$ (B) $\frac{1}{2}LI^2$ (C) Both a and b (D) None

14. Energy stored in an inductor is.....

    (A) $\frac{1}{2}CV^2$ (B) $\frac{1}{2}LI^2$ (C) Both a and b (D) None

15. 1watt=.....

    (A) columb/sec (B) kolumbs/sec (C) joule/sec (D) sec/columb

16. Nodal analysis or Nodal voltage method=.....

    (A) KVL+ohm's law (B) KCL+ohm's law (C) Both a and b (D) None

17. Mesh analysis or maxwell's loop analysis=.....

    (A) KVL+ohm's law (B) KCL+ohm's law (C) Both a and b (D) None

18.is the smallest particle of an element.

(A) Atom (B) Matter (C) Compound (D) Molecule

19.is the chemical combination of two or more atoms.

(A) Atom (B) element (C) Compound (D) Molecule

20. The chemical combination of two or more elements is called as.....

(A) Atom (B) element (C) Compound (D) Molecule

21. Number of electrons in K,L,M,N,O,P,Q shell are.....

(A) 2,8,18,32,18,12,2 (B) 2,12,18,32,18,12,2 (C) 2,12,18,36,18,12,2 (D) 2,10,18,32,18,12,2

22. Atomic number is given by ..... in nucleus.

(A) Number of electrons (B) Number of Neutrons

(C) Number of Protons (D) Sum of protons and neutrons

23. Atomic weight is given by..... in nucleus.

(A) Number of electrons (B) Number of Neutrons

(C) Number of Protons (D) Sum of protons and neutrons

24. Flow of electrons is

(A) Protons (B) Charge (C) Current (D) Voltage

25. Current I=.....

(A) t/q (B) qt (C) q/t (D) None

26.is the force that moves electrons in a circuit.

(A) Voltage (B) Potential difference (C) Electromotive force (D) All the above

27. The opposition to the flow of electrons is called.....

(A) Resistance (B) Conductance (C) neglectance (D) recklessness

28. Ability to pass electrons or the reciprocal of resistance is.....

(A) Inductance (B) Resistance (C) Conductance (D) Persistence

29. Conductance is measured in.....

(A) Ohms (B) Simens (C) Joules (D) Watt

30. Insulators are materials with

(A) High resistance (B) Low conductance (C) Both a and b (D) High conductance

31. An Inductor is a device that store energy in ..... field.

(A) Electric (B) Magnetic (C) Electromagnetic (D) Biotec

32. A capacitor is a device that store energy in ..... field.

(A) Electric (B) Magnetic (C) Electromagnetic (D) ECE

33. Capacitance is affected by:

(A) Area of the capacitor plates (B) Distance between the plates

(C) temperature and type of dielectric material (D) All the above

34. The amount of .....flow through the body that determines the severity of a shock.

(A) Voltage (B) Current (C) Power (D) None

35. Factors which influence electric shock are.....

(A) Intensity of current (B) Frequency of current

(C) current path through body (D) Length of time current passes through body

36. 1 columb= charge of.....

(A) $6.24 * 10^{18} electrons$ (B) $6.28 * 10^{-18} electrons$ (C) $6.24 * 10^{14} electrons$ (D) None

37. Ability of source to perform electrical work

(A) Potential (B) Impedance (C) Energy (D) None

38. What is the standard unit of Inductance?

(A) milli Henry (B) Henry (C) Farad (D) μ Farad

39.of resistor is the amount that its resistance can vary and still be acceptable.

(A) Admittance (B) Conductance (C) Resistance (D) Tolerance

40. In Ohm's law the following statement is valid at constant temperature.

(A) Voltage is directly proportional to current (B) Voltage is directly proportional to Resistance

(C) Current is directly proportional to Voltage (D) Both a and c

41. Rate of doing work is

(A) B1401 (B) Capacity (C) Energy (D) Power

42. Capacity to do work is called as

(A) B1402 (B) Capacity (C) Energy (D) Power

43. What are the units of power and energy?

(A) Watt and VAR (B) VAR and Watt (C) Joule and Watt (D) Watt and Joule

44. Maximum value of meter scale is called——

(A) Full scale value (B) Half scale value (C) Quarter scale value (D) Kingfisher scale value

45. 1G Ω is equals to

(A) $10^{-9}\Omega$ (B) $10^{9}\Omega$ (C) $10^{10}\Omega$ (D) $10^{12}\Omega$

46. 1n Farad is equals to

(A) $10^{-9}Farad$ (B) $10^{9}Farad$ (C) $10^{10}Farad$ (D) $10^{12}Farad$

47. 1T (Tetra)Farad is equals to

(A) $10^{-9}Farad$ (B) $10^{9}Farad$ (C) $10^{10}Farad$ (D) $10^{12}Farad$

48. A variable resistor used to control voltage is.....

(A) Rheostat (B) Potentiometer (C) Both a and b (D) None

49. A variable resistor used to control current is.....

(A) Rheostat (B) Potentiometer (C) Both a and b (D) None

50. Combination of two or more cells is.....

(A) Battery (B) Current (C) Power (D) I don't know

51. Tolerance of resistor will be satisfactory up to which percent?

(A) 10 (B) 20 (C) 30 (D) 40

52. VOM stands for.....

(A) Volt-Ohm-milliammeter (B) Variance of memory (C) Voice of Men (D) Voice of WoWmen

53. What is the time constat of an RL circuit?

(A) R/L (B) L/R (C) RL (D) (R/L)*t

54. What is the time constat of an RC circuit?

(A) R/C (B) C/R (C) RC (D) (RC)*t

55. How many time constants are required to fully build up a magnetic field(electric field) for an inductor(Capacitor)?

(A) 10 (B) 5 (C) 2.5 (D) 0

56. A resistor has the colours Brown, Black and Red in serial order. What is value of the resistance by neglecting tolerance colour?

(A) 100 Ω (B) 10 Ω (C) 1000 Ω (D) None

57. A 120 Ω resistor having 10 percent tolerance. What is its minimum and maximum value of resistance you will see practically.

(A) $120 \pm 12\Omega$ (B) $120 \pm 10\Omega$ (C) $100 \pm 12\Omega$ (D) $100 \pm 10\Omega$

58. What is the equivalent value of resistance when 4 resistors of 8Ω connected in series?
(A) 32 Ω (B) 12 Ω (C) 2 Ω (D) None

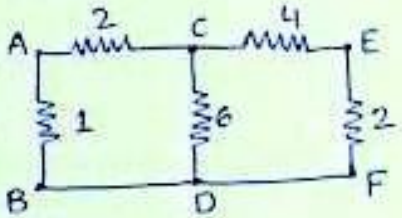
59. What is the equivalent value of resistance when 4 resistors of 8Ω connected in parallel?
(A) 32 Ω (B) 12 Ω (C) 2 Ω (D) None

60. What is the equivalent value of resistance when parallel combination of two 10Ω resistances are in series with 5Ω resistance?
(A) 5 Ω (B) 10 Ω (C) 15 Ω (D) 20 Ω

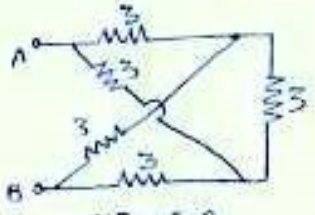
61. What is the equivalent value of capacitance when 6F capacitance is connected in series with 3F?
(A) 0.5F (B) 2F (C) 9F (D) .9F

62. What is the equivalent value of capacitance when 6F capacitance is connected in parallel with 3F?
(A) 0.5F (B) 2F (C) 9F (D) .9F

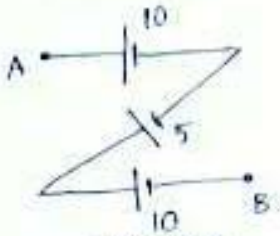
63. What is the equivalent value of capacitance when parallel combination of two 3F capacitances are in series with 3F capacitance?
(A) 0.5F (B) 2F (C) 9F (D) .9F



CIRCUIT-1



CIRCUIT-2



CIRCUIT-3

64. What is the equivalent value of resistance between A and B terminals in above circuit1?
(A) 1.5 Ω (B) $\frac{5}{8}\Omega$ (C) $\frac{4}{3}\Omega$ (D) $\frac{8}{5}\Omega$

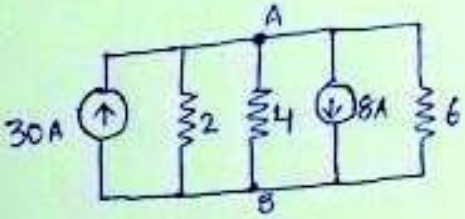
65. What is the equivalent value of resistance between C and D terminals in above circuit1?
(A) 1.5 Ω (B) $\frac{5}{8}\Omega$ (C) $\frac{4}{3}\Omega$ (D) $\frac{8}{5}\Omega$

66. What is the equivalent value of resistance between A and C terminals in above circuit1?
(A) 1.5 Ω (B) $\frac{5}{8}\Omega$ (C) $\frac{4}{3}\Omega$ (D) $\frac{8}{5}\Omega$

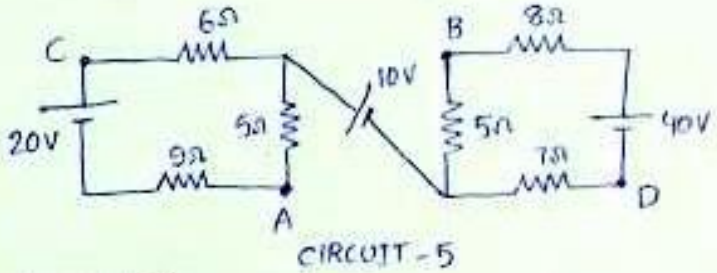
67. What is the equivalent value of resistance between A and B terminals in above circuit2?
(A) 3 Ω (B) 1.5 Ω (C) 5.2 Ω (D) 6 Ω

68. What is the voltage between terminals A and B in above circuit3?
(A) 25 V (B) 15 V (C) -15 V (D) None

69. What is the voltage between terminals A and B in below circuit4?
(A) 24 V (B) -24 V (C) I don't know (D) 42 V



CIRCUIT-4



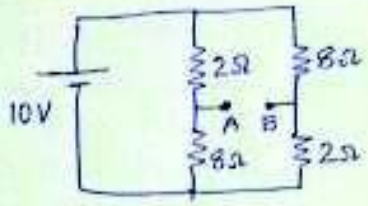
CIRCUIT-5

70. What is the voltage between terminals A and B in above circuit5?
(A) 30 V (B) -30 V (C) 5 V (D) -5 V

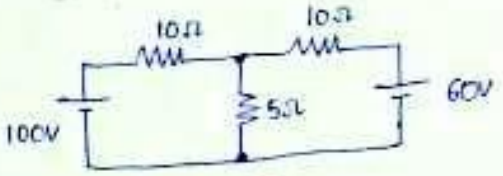
71. What is the voltage between terminals C and D in above circuit5?
(A) 30 V (B) -30 V (C) 5 V (D) -5 V

72. What is the voltage between terminals A and B in below circuit6?
(A) 10 V (B) -10 V (C) 6 V (D) -6 V

73. What is the total power consumed in below circuit6?
(A) 10 W (B) 20 W (C) 40 W (D) None



CIRCUIT-6



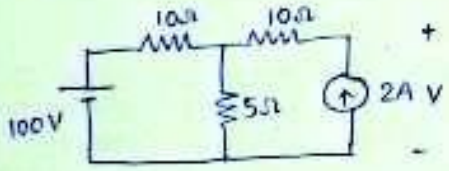
CIRCUIT-7

74. What is the value of current passing through 100 V voltage source in above circuit7?
(A) 2 A (B) 6 A (C) -2 A (D) 8 A

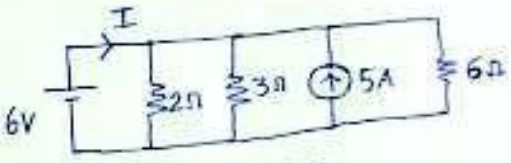
75. What is the total power consumed in above circuit7?
(A) 320 W (B) 720 W (C) 840 W (D) None

76. What is the value of Voltage across current source in below circuit8?
(A) 20 V (B) 40 V (C) 60 V (D) None

77. What is the value of Power across current source in below circuit8?
(A) 2 W (B) 20 W (C) 200 W (D) 120 W



CIRCUIT-8

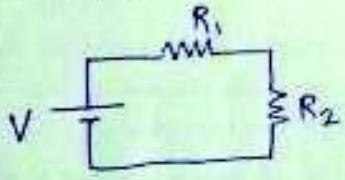


CIRCUIT-9

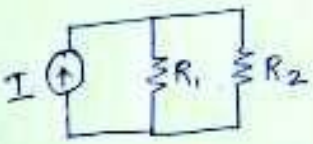
78. Calculate I in above circuit9.
(A) 10 A (B) 1 A (C) 11 A (D) None

79. What is the voltage across resistor R_1 in the following circuit10?
(A) $\frac{R_2}{R_1+R_2}$ (B) $\frac{VR_2}{R_1+R_2}$ (C) $\frac{VR_1}{R_1+R_2}$ (D) none

80. What is the current across resistor R_2 in the following circuit11?
(A) $\frac{R_2}{R_1+R_2}$ (B) $\frac{IR_2}{R_1+R_2}$ (C) $\frac{IR_2}{R_1+R_2}$ (D) $\frac{IR_1}{R_1+R_2}$



CIRCUIT-10



CIRCUIT-11

81. Circuit10 is the.....division circuit and circuit 11 is the.....division circuit
(A) Voltage, current (B) Voltage, Voltage (C) Current, Voltage (D) None

82. Three parallel connected resistors when connected across a d.c. voltage source dissipate a total power of 72 W. The total current drawn is 6 A, the current flowing through the first resistor is 3 A and the second and third resistors have equal value. What are the resistances of the three resistors?
(A) 4,8,8 (B) 4,12,12 (C) 4,4,4 (D) None

83. RMS value or effective value for the V(t) signal is given by:
(A) $\sqrt{\frac{1}{T}\int_0^T V(t)dt}$ (B) $\sqrt{\frac{1}{T}\int_0^T V^2(t)dt}$ (C) $\frac{1}{T}\int_0^T V(t)dt$ (D) none

84. Average value for the V(t) signal is given by:
(A) $\sqrt{\frac{1}{T}\int_0^T V(t)dt}$ (B) $\sqrt{\frac{1}{T}\int_0^T V^2(t)dt}$ (C) $\frac{1}{T}\int_0^T V(t)dt$ (D) none

85. What is the time period for the signal $V(t) = 100sin(10t)$?
(A) 10 sec (B) 0.628 sec (C) 1.591 sec (D) 100 sec

86. What is the Angular frequency for the signal $V(t) = 100sin(10t)$?
(A) 10π rad/sec (B) 100 rad/sec (C) 141.414 rad/sec (D) 10 rad/sec

87. An AC current given by $i = 14.14sin(\omega t + \frac{\pi}{6})$ has an RMS value or effective value of.....amperes.
(A) 10 (B) 14.14 (C) 1.96 (D) 7.07

88. A Voltage sine wave has a peak value of 100 Volt. What is its effective value?
(A) 70.71 V (B) 141.42 V (C) 100 V (D) 50 V

89. If e1 $=Asin(\omega t)$ and e2 = $bsin(\omega t - \varphi)$, then
(A) e1 lags e2 by φ (B) e2 lags e1 by φ (C) e2 leads e2 by φ (D) None

90. The r.m.s. value of a half-wave rectified current is 10A, its value for full-wave rectification would be .....amperes.
(A) 20 (B) 14.14 (C) $\frac{20}{\pi}$ (D) $\frac{40}{\pi}$

91. The r.m.s. value of sinusoidal a.c. current is equal to its value at an angle of..... degree
(A) 30 (B) 45 (C) 60 (D) 90

92. Two sinusoidal currents are given by the equations : $i1 = 14.14sin(\omega t + \frac{\pi}{3})$ and $i2 = 14.14sin(\omega t - \frac{\pi}{4})$ The phase difference between them is.....degrees.
(A) 105 (B) 75 (C) 15 (D) 60

93. The reactance offered by a capacitor to alternating current of frequency 50 Hz is 10Ω. If frequency is increased to 100 Hz reactance becomes.....ohm.
(A) 20 (B) 5 (C) 2.5 (D) 40

94. A complex current wave is given by $i = 5 + 5sin(100\pi t)$ ampere. Its average value is .....amperes.
(A) 10 (B) 0 (C) 5 (D) $\sqrt{50}$

95. In a purely Inductive circuit, Voltage ..... the current by 90degrees.
(A) lags (B) leads (C) Both A and B (D) None

96. In purely resistive circuit Voltage and current are in..... phase.
(A) lags (B) leads (C) same (D) Different

97. Impedance is given by the vector sum of
(A) conductance and suceptance (B) resistance and conductance
(C) Resistance and reactance (D) Suceptance and resistance

98. Admittance is given by the vector sum of
(A) conductance and suceptance (B) resistance and conductance
(C) Resistance and reactance (D) Suceptance and resistance

99. How much voltage is required for 86 mA to flow through a 100 mH inductor at 50Hz?
(A) 7.2 V (B) 2.7 V (C) 20.7 V (D) 70.2 V

100. What is the capacitive reactance of a 1 μ Farad capacitance at 60Hz?
(A) 2.652 Ω (B) 2652 Ω (C) 2652 F (D) 2.652 kF

101. Capacitive suceptance is positive and Inductive suceptance is negative.Is it true or false?
(A) True (B) False (C) Neutral (D) None

102. Power factor in series RLC is given by

(A) cos(angle between V and I) (B) Realpower/Apparent power

(C) R/Z (D) All the above

103. In a series RL circuit, V_L ..... V_R by 90 degrees.

(A) lags (B) leads (C) equals (D) none

104. At resonance, In series RLC circuit, the current passing through the resistor is.....

(A) Maximum (B) Minimum (C) Meadium (D) 1

105. At resonance, In parallel RLC circuit, the current passing through the resistor is.....

(A) Maximum (B) Minimum (C) Meadium (D) 1

106. At resonance, Impedance for the parallel RLC circuit is.....

(A) Maximum (B) Minimum (C) Meadium (D) 1

107. At resonance, Impedance for the series RLC circuit is.....

(A) Maximum (B) Minimum (C) Meadium (D) 1

108. Power in an AC circuit is given by

(A) $V\,I\cos\varphi$ W (B) $V\,I\sin\varphi$ VAR (C) Real power in the circuit (D) Both a and c

109. Reactive power in a circuit is given by.....

(A) $V\,I\cos\varphi$ (B) $V\,I\sin\varphi$ (C) VI (D) None

110. The phase angle of series RLC circuit is lagging if

(A) $X_L > X_C$ (B) $X_L < X_C$ (C) $X_L = X_C$ (D) None

111. Power factor of an RC circuit is

(A) Lies between 0 and 1 (B) Negative value (C) zero (D) Unity

112. The voltage applied across an RL circuit is equal to. ..... of VR and VL.

(A) arithmetic sum (B) algebraic sum (C) phasor sum (D) sum of the squares

113. At half power points of resonance curve, the current is ———times the maximum current.

(A) $\frac{1}{2}$ (B) $\frac{1}{\sqrt{2}}$ (C) $\frac{\sqrt{-}}{2}$ (D) 2

114. what is the power factor of a series RLC circuit having voltage $V(t) = 20sin(10t + 150)$ and current $I(t) = 10sin(10t + 120)$?

(A) 0.866(lag) (B) 0.866(lead) (C) 0.5(lag) (D) 0.5(lead)

115. At resonance frequency, Power factor in series or parallel RLC is.....

(A) Lies between 0 and 1 (B) Negative value (C) zero (D) Unity

116. The frequency at which Inductive reactance X_L is equal to Capacitive reactance X_C is known as.....

(A) Indian star frequency (B) PK Frequency (C) Resonant frequency (D) Power star frequency

117. RMS value of voltage for half wave rectifier output is.....

(A) $\frac{Vm}{\pi}$ *(B)* $\frac{2Vm}{\pi}$ *(C)* $\frac{Vm}{2}$ *(D)* $\frac{Vm}{2}$

118. RMS value of voltage for full wave rectifier output is.....

(A) $\frac{Vm}{\pi}$ *(B)* $\frac{2Vm}{\pi}$ *(C)* $\frac{Vm}{2}$ *(D)* $\frac{Vm}{2}$

119. Average value of voltage for half wave rectifier output is.....

(A) $\frac{Vm}{\pi}$ *(B)* $\frac{2Vm}{\pi}$ *(C)* $\frac{Vm}{2}$ *(D)* $\frac{Vm}{2}$

120. Average value of voltage for full wave wave rectifier output is.....

(A) $\frac{Vm}{\pi}$ *(B)* $\frac{2Vm}{\pi}$ *(C)* $\frac{Vm}{2}$ *(D)* $\frac{Vm}{2}$

121. Form factor for an sinusoidal signal.....

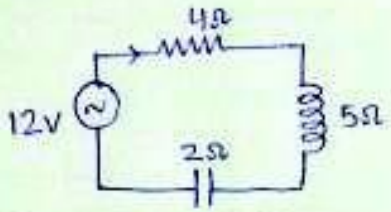
(A) $\frac{Averagevalue}{RMSvalue}$ (B) $\frac{Peakvalue}{RMSvalue}$ (C) $\frac{RMSvalue}{Averagevaluevalue}$ (D) $\frac{Averagevalue}{Peakvalue}$

122. peak factor for a sinusoidal signal.....

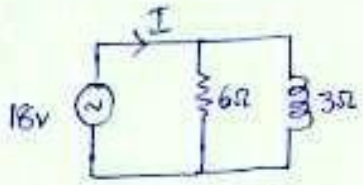
(A) $\frac{Averagevalue}{RMSvalue}$ (B) $\frac{Peakvalue}{RMSvalue}$ (C) $\frac{RMSvalue}{Averagevaluevalue}$ (D) $\frac{Averagevalue}{Peakvalue}$

123. Form factor for alternating sinusoidal signal(Full wave rectifier) is.....
(A) 1.11 (B) 1.414 (C) 0 (D) None

124. Peak factor for alternating sinusoidal signal(Full wave rectifier) is.....
(A) 1.11 (B) 1.414 (C) 0 (D) None



CIRCUIT-12



CIRCUIT-13

125. A resistor of 4 Ω, Inductor of reactance 5Ω and capacitor of reactance 2Ω are connected in series with an AC voltage of 12V (see circuit12). What is the value of current passing through Resistor.
(A) 5 A (B) 3 A (C) 2.4 A (D) 1.714 A

126. What is the magnitude of impedance in circuit12?
(A) 10 Ω (B) 2.4 Ω (C) 12 Ω (D) 5 Ω

127. What is the impedance in circuit12?
(A) 3+4j (B) 4+3j (C) 4-7j (D) 4+7j

128. What is the reactance across capacitor and Inductor for the circuit12.
(A) 5 Ω (B) 2 Ω (C) 3 Ω (D) None

129. What is the voltage across Inductor in circuit12?
(A) 9.6 V (B) 12 V (C) 4.8 V (D) 7.2 V

130. What is the power factor in circuit12?
(A) 0.8 (B) 0.6 (C) 1 (D) None

131. What is the Real or true,Reactive and Apparent power in the circuit12?
(A) 23.04 W, 17.28 W, 28.8 W (B) 23.04 VAR, 17.28 VAR, 28.8 VA
(C) 23.04 W, 17.28 VAR, 28.8 VA (D) None

132. What is the value of current I in circuit13?
(A) 9 A (B) 6.70 A (C) 3 A (D) 6 A

133. What is the value of Admittance in circuit13?
(A) $\frac{1}{6}+\frac{1}{3}i$ (B) $\frac{1}{6}-\frac{1}{3}i$ (C) $6+\frac{1}{3}i$ (D) $6-\frac{1}{3}i$

134. What is the Real or true,Reactive and Apparent power in the circuit13?
(A) 120.74 VA, 54 W, 108 VAR (B) 54 W, 108 VAR, 162 VA
(C) 54 W, 108 VAR, 120.74 VA (D) None

135. Quality factor(Q) is defined as.....
(A) $2\pi\frac{maximumstoredenergy}{energydissipatedpercycle}$ (B) $\frac{Reactance}{Resistance}$ (C) $\frac{1}{Powerfactor}$ (D) All the above

136. Quality factor for series RLC circuit is given by:
(A) $\frac{1}{R}\sqrt{\frac{C}{L}}$ (B) $\frac{1}{R}\sqrt{\frac{L}{C}}$ (C) $R\sqrt{\frac{C}{L}}$ (D) $R\sqrt{\frac{C}{L}}$

137. Quality factor for parallel RLC circuit is given by:
(A) $\frac{1}{R}\sqrt{\frac{C}{L}}$ (B) $\frac{1}{R}\sqrt{\frac{L}{C}}$ (C) $R\sqrt{\frac{C}{L}}$ (D) $R\sqrt{\frac{C}{L}}$

138. what is the relation between bandwidth, resonance frequency and quality factor
(A) $Qualityfactor=\frac{resonancefrequency}{Bandwidth}$ (B) $Qualityfactor=\frac{resonancefrequency}{Bandwidth}$
(C) $Qualityfactor=\frac{resonancefrequency}{Bandwidth}$ (D) $Qualityfactor=\frac{resonancefrequency}{Bandwidth}$

139. What kVA rating is required for a transformer that must handle a maximum load current of 8 A with a secondary voltage of 2 kV?
(A) 4kVA (B) 0.25kVA (C) 16kVA (D) 8kVA

140. The turns ratio required to match an 80 Ω source to a 320 Ω load is
(A) 1:2 (B) 2:1 (C) 4:1 (D) 1:4

141. A transformer with a 110 V primary has a 15:1 turns ratio. The load resistance is 120Ω . What is the approximate voltage across the load?

142. In a certain loaded transformer, the secondary voltage is one-fourth the primary voltage. The secondary current is
(A) one-fourth the primary current (B) four times the primary current
(C) equal to primary current (D) none

143. The primary winding of a power transformer should always be
(A) open (B) fused (C) shorted (D) none

144. A transformer
(A) changes ac to dc (B) changes dc to ac
(C) steps up or down dc voltages (D) steps up or down ac voltages

145. In a certain transformer, the input power to the primary is 120 W. If 8.5 W are lost to the winding resistance, what is the output power to the load, neglecting any other issues?
(A) 0 W (B) 14.1 W (C) 111.5 W (D) 1020 W

146. What is the coefficient of coupling for a transformer in which 4 percent of the total flux generated in the primary does not pass through the secondary?
(A) 0.4 (B) 4 (C) 9.6 (D) .96

147. The mutual inductance when k = 0.65, L1 = 2 H, and L2 = 5 H is
(A) 2.05 (B) 0.205 (C) I don't know sir (D) None

148. If 25 W of power are applied to the primary of an ideal transformer with a turns ratio of 10, the power delivered to the secondary load is
(A) 25 W (B) 2.5 W (C) 250 W (D) None

149. Transformer rating will be in.....
(A) k VA (B) k W (C) k VAR (D) None

150. Different types of transformer based on winding are.....
(A) Core type (B) Shell type (C) Both a and b (D) None

151. No load test or Open circuit test in transformer is used to measure.....
(A) Core losses (B) Copper losses (C) Both a and b (D) None

152. Full load test or Short circuit test in transformer is used to measure.....
(A) Core losses (B) Copper losses (C) Both a and b (D) None

153. EMF equation of transformer is given by.....
(A) $E = 4.44Nf\varphi_m$ (B) $E = 2.22Nf\varphi_m$ (C) $E = 1.11Nf\varphi_m$ (D) None

154. Combination of hysterisis loss and eddy current losses is known as.....
(A) Core losses (B) Copper losses (C) Both a and b (D) None

155. When AC supply is given to the transformer, the flux will depend on
(A) Current (B) Voltage (C) Frequency (D) Both b and c

156. In transformer, humming sound occurs due to
(A) oil (B) load (C) magnetostriction (D) None

157. The primary and secondary winding of transformer are linked each other by
(A) Conduction (B) Mutual induction (C) Both a and b (D) None

158. Which parameter does not change during transformation action in transformer?
(A) Frequency (B) Voltage (C) Current (D) None

159. The working principle of transformer depends upon
(A) Ohm's law (B) Lenz's law
(C) Fleming's left hand rule (D) Faraday's law of electromagnetic induction

160. Secondary current of a step down transformer is
(A) Lower than primary current (B) Higher than primary current
(C) I can't say (D) I don't know

161. An ideal transformer is one which has
(A) No winding resistance (B) No Leakage reactance (C) No losses (D) All the above

162. Which of the following losses varies with load in transformer?
(A) Copper loss (B) Hysterisis loss (C) Eddy current loss (D) None

163. Which of the following losses remain constant during normal operation of transformer?
(A) core loss (B) copper loss (C) both a and b (D) None

164. The efficiency of a transformer is mainly dependent on
(A) core loss (B) copper loss (C) both a and b (D) None

165. Oil is provided in an oil filled transformer for....
(A) cooling (B) Insulation (C) Both a and b (D) None

166. Lamination of transformer core is made of
(A) cast iron (B) cast steel (C) silicon steel (D) None

167. Which of the following is minimized by laminating the core of a transformer?
(A) Hysterisis loss (B) Eddy current loss (C) copper loss (D) stray loss

168. Which of the following is not a basic element of a transformer?
(A) core (B) Primary winding (C) secondary winding (D) Mutual flux

169. The primary and secondary induced e.m.fs. E1 and E2 in a two-winding transformer are always
(A) equal in magnitude (B) antiphase with each other
(C) in-phase with each other (D) determined by load on transformer secondary

170. Transformers are rated in kVA instead of kW because
(A) load power factor is often not known (B) kVA is fixed whereas kW depends on load p.f.
(C) total transformer loss depends on voltampere (D) it has become customary

171. The ordinary efficiency of a given transformer is maximum when
(A) it runs at half full-load (B) it runs at full-load (C) its Cu loss equals iron loss (D) it runs slightly overload

172. The all-day efficiency of a transformer depends primarily on
(A) its copper loss (B) the amount of load (C) the duration of load (D) both (b) and (c)

173. At relatively light loads, transformer efficiency is low because
(A) secondary output is low (B) transformer losses are high
(C) fixed loss is high in proportion to the output (D) Cu loss is small

174. A dc motor is a device which converts.....energy into. .....energy.
(A) Electrical, Mechanical (B) class, Mass (C) Mechanical, Electrical (D) Mass, class

175. A dc generator is a device which converts.....energy into. .....energy.
(A) Electrical, Mechanical (B) class, Mass (C) Mechanical, Electrical (D) Mass, class

176. Dc motor uses..... rule.
(A) Fleming's Head (B) Fleming's Brain (C) Fleming's Left hand (D) Fleming's Right hand

177. Dc generator uses……..rule.

(A) Fleming's Head (B) Fleming's Brain (C) Fleming's Left hand (D) Fleming's Right hand

178. The basic requirement of a d.c. armature winding is that it must be

(A) a closed one (B) a lap winding (C) a wave winding (D) either (b) or (c)

179.provides mechanical support for the poles and acts as a protecting cover for the whole DC machine.

(A) Yoke (B) Brushes (C) Magnets (D) commutator

180.converts the alternating current induced in the armature conductors into unidirectional current in the external load circuit.

(A) Yoke (B) Brushes (C) Magnets (D) commutator

181.function is to collect current from commutator

(A) Yoke (B) Brushes (C) Magnets (D) commutator

182. Brushes are made up of usually.....

(A) Carbon (B) Graphite (C) Either a or b (D) None

183. .....generators are those whose field magnets are energised from an independent external source of d.c. current.

(A) Self-excited generators (B) Separately-excited generators

(C) Either a or b (D) None

184.are those whose field magnets are energised by the current produced by the generators themselves.

(A) Self-excited generators (B) Separately-excited generators

(C) Either a or b (D) None

185. In a D.C. shunt motor, speed is

(A) independent of armature current (B) directly proportional to the armature current

(C) proportional to the square of the current (D) inversely proportional to the armature current

186. If a D.C. motor is connected across the A.C. supply it will

(A) run at normal speed

(B) not run

(C) run at lower speed

(D) burn due to heat produced in the field winding by eddy currents

187. Voltage equation of DC motor is.....

(A) $E_g = V + I_a R_a$ (B) $E_g = V - I_a R_a$ (C) $E_b = V + I_a R_a$ (D) $E_b = V - I_a R_a$

188. Voltage equation of DC generator is.....

(A) $E_g = V + I_a R_a$ (B) $E_g = V - I_a R_a$ (C) $E_b = V + I_a R_a$ (D) $E_b = V - I_a R_a$

189. DC shunt motor is……speed motor.

(A) Constant (B) Variable (C) Either a or b (D) None

190. DC series motor is……. speed motor.

(A) Constant (B) Variable (C) Either a or b (D) None

191. EMF equation of generator is given by.....

(A) $E_g = \frac{P\varphi ZN}{60A}$ *(B)* $E_b = \frac{P\varphi ZN}{60A}$ (C) $E = 4.44Nf\varphi_m$ (D) Wrong Question

192. EMF equation of Motor is given by.....

(A) $E_g = \frac{P\varphi ZN}{60A}$ *(B)* $E_b = \frac{P\varphi ZN}{60A}$ (C) $E = 4.44Nf\varphi_m$ (D) Wrong Question

193. Number of parallel paths for wave winding in Dc motor is equal to.....

(A) 2 (B) Number of poles in dc motor

(C) either a or b (D) None

194. Number of parallel paths for lap winding in Dc motor is equal to.....

(A) 2 (B) Number of poles in dc motor

(C) either a or b (D) None

195. The speed at which the rotating magnetic field revolves is called as.....

(A) Rotor speed (B) stator speed (C) synchronous speed (D) GoWind speed

196. What is the synchronous speed in rpm for a P-pole, f Hz, 3-phase induction motor?

(A) $\frac{120P}{f}$ *(B)* $\frac{120f}{P}$ *(C)* $\frac{120P}{A}$ *(D)* $\frac{120Pf}{A}$

197. For a 3-phase induction motor having rotor speed N and synchronous speed N_S , % age of slip is given by:

(A) $\frac{N_S-N}{N} \times 100$ (B) $\frac{N_S-N}{N_S} \times 100$ (C) $\frac{N_S-N}{N_S}$ *(D)* $\frac{N_S-N}{N}$

198. For a 3-phase induction motor having rotor speed N and synchronous speed N_S , slip is given by:

(A) $\frac{N_S-N}{N} \times 100$ (B) $\frac{N_S-N}{N_S} \times 100$ (C) $\frac{N_S-N}{N_S}$ (D) $\frac{N_S-N}{N}$

199. slip ring Induction motor also known as.....

(A) Wound type Induction motor (B) Squirrel cage induction motor

(C) Tiger cage Induction motor (D) None

200. Which Dc motor is preferred for elevators?

(A) Shunt (B) series (C) compound (D) None

201. Shunt motors are used in Lathes, drills, boring mills, shapers, spinning and weaving machines etc.

202. series motors used in where starting torque is large and used in Electric traction, cranes, elevators, air compressors, vacuum cleaners, hair drier, sewing machines etc.

203. Differential-compound motors are rarely used because of their poor torque characteristics. However, cumulative-compound motors are used where a fairly constant speed is required with irregular loads or suddenly applied heavy loads.

204. A slip-ring induction motor runs at 290 r.p.m. at full load, when connected to 50-Hz supply. Determine the number of poles and slip.(Assume synchronous speed as 300r.p.m)

205. A 3-phase induction motor is wound for 4 poles and is supplied from 50-Hz system. Calculate (i) the synchronous speed (ii) the rotor speed, when slip is 4 percent and (iii) rotor frequency when rotor runs at 600 rpm.

206. A 220V dc machine has an armature resistance of 0.5 Ω. If the full-load armature current is 20A, find the induced e.m.f when the machine acts as a)generator b)motor.

207. A four pole generator, having wave wound armature winding has 51 slots, each slot containing 20 conductors. what will be the voltage generated in the machine when driven at 1500rpm assuming the flux per pole to be 7m Wb?

208. An 8-pole d.c. generator has 500 armature conductors, and a useful flux of 0.05 Wb per pole. What will be the e.m.f. generated if it is lap-connected and runs at 1200 rpm ? What must be the speed at which it is to be driven produce the same e.m.f. if it is wave-wound?

ALL THE BEST FOR MTE BY GOVIND

58. What is the equivalent value of resistance when 4 resistors of 8Ω connected in series?

(A) 32 Ω (B) 12 Ω (C) 2 Ω (D) None

59. What is the equivalent value of resistance when 4 resistors of 8Ω connected in parallel?

(A) 32 Ω (B) 12 Ω (C) 2 Ω (D) None

60. What is the equivalent value of resistance when parallel combination of two 10Ω resistances are in series with 5Ω resistance?

(A) 5 Ω (B) 10 Ω (C) 15 Ω (D) 20 Ω

61. What is the equivalent value of capacitance when 6F capacitance is connected in series with 3F?

(A) 0.5F (B) 2F (C) 9F (D) .9F

62. What is the equivalent value of capacitance when 6F capacitance is connected in parallel with 3F?

(A) 0.5F (B) 2F (C) 9F (D) .9F

63. What is the equivalent value of capacitance when parallel combination of two 3F capacitances are in series with 3F capacitance?

(A) 0.5F (B) 2F (C) 9F (D) .9F

64. What is the equivalent value of resistance between A and B terminals in above circuit1?

(A) 1.5 Ω (B) $\frac{5}{6}\Omega$ (C) $\frac{4}{3}\Omega$ (D) $\frac{6}{5}\Omega$

65. What is the equivalent value of resistance between C and D terminals in above circuit1?

(A) 1.5 Ω (B) $\frac{5}{6}\Omega$ (C) $\frac{4}{3}\Omega$ (D) $\frac{6}{5}\Omega$

66. What is the equivalent value of resistance between A and C terminals in above circuit1?

(A) 1.5 Ω (B) $\frac{5}{6}\Omega$ (C) $\frac{4}{3}\Omega$ (D) $\frac{6}{5}\Omega$

67. What is the equivalent value of resistance between A and B terminals in above circuit2?

(A) 3 Ω (B) 4.5 Ω (C) 5.2 Ω (D) 6 Ω

68. What is the voltage between terminals A and B in above circuit3?

(A) 25 V (B) 15 V (C) -15 V (D) None

69. What is the voltage between terminals A and B in below circuit4?

(A) 24 V (B) -24 V (C) I don't know (D) 42 V

70. What is the voltage between terminals A and B in above circuit5?

(A) 30 V (B) -30 V (C) 5 V (D) -5 V

71. What is the voltage between terminals C and D in above circuit5?

(A) 30 V (B) -30 V (C) 5 V (D) -5 V

72. What is the voltage between terminals A and B in below circuit6?

(A) 10 V (B) -10 V (C) 6 V (D) -6 V

73. What is the total power consumed in below circuit6?

(A) 10 W (B) 20 W (C) 40 W (D) None

74. What is the value of current passing through 100 V voltage source in above circuit7?

(A) 2 A (B) 6 A (C) -2 A (D) 8 A

75. What is the total power consumed in above circuit7?

(A) 320 W (B) 720 W (C) 840 W (D) None

76. What is the value of Voltage across current source in below circuit8?

(A) 20 V (B) 40 V (C) 60 V (D) None

77. What is the value of Power across current source in below circuit8?

(A) 2 W (B) 20 W (C) 200 W (D) 120 W

78. Calculate I in above circuit9.

(A) 10 A (B) 1 A (C) 11 A (D) None

79. What is the voltage across resistor R_1 in the following circuit10?

(A) $\frac{R_2}{R_1+R_2}$ (B) $\frac{VR_2}{R_1+R_2}$ (C) $\frac{VR_1}{R_1+R_2}$ (D) none

80. What is the current across resistor R_2 in the following circuit11?

(A) $\frac{R_2}{R_1+R_2}$ (B) $\frac{IR_2}{R_1+R_2}$ (C) $\frac{IR_2}{R_1+R_2}$ (D) $\frac{IR_1}{R_1+R_2}$

81. Circuit10 is the.....division circuit and circuit 11 is the ..... division circuit

(A) Voltage, current (B) Voltage, Voltage (C) Current, Voltage (D) None

82. Three parallel connected resistors when connected across a d.c. voltage source dissipate a total power of 72 W. The total current drawn is 6 A, the current flowing through the first resistor is 3 A and the second and third resistors have equal value. What are the resistances of the three resistors?

(A) 4,8,8 (B) 4,12,12 (C) 4,4,4 (D) None

123. Form factor for alternating sinusoidal signal(Full wave rectifier) is.....

(A) 1.11 (B) 1.414 (C) 0 (D) None

124. Peak factor for alternating sinusoidal signal(Full wave rectifier) is.....

(A) 1.11 (B) 1.414 (C) 0 (D) None

125. A resistor of 4 Ω, Inductor of reactance 5Ω and capacitor of reactance 2Ω are connected in series with an AC voltage of 12V (see circuit12). What is the value of current passing through Resistor.

(A) 5 A (B) 3 A (C) 2.4 A (D) 1.714 A

126. What is the magnitude of impedance in circuit12?

(A) 10 Ω (B) 2.4 Ω (C) 12 Ω (D) 5 Ω

127. What is the impedance in circuit12?

(A) 3+4j (B) 4+3j (C) 4-7j (D) 4+7j

128. What is the reactance across capacitor and Inductor for the circuit12.

(A) 5 Ω (B) 2 Ω (C) 3 Ω (D) None

129. What is the voltage across Inductor in circuit12?

(A) 9.6 V (B) 12 V (C) 4.8 V (D) 7.2 V

130. What is the power factor in circuit12?

(A) 0.8 (B) 0.6 (C) 1 (D) None

131. What is the Real or true,Reactive and Apparent power in the circuit12?

(A) 23.04 W, 17.28 W, 28.8 W (B) 23.04 VAR, 17.28 VAR, 28.8 VA

(C) 23.04 W, 17.28 VAR, 28.8 VA (D) None

132. What is the value of current I in circuit13?

(A) 9 A (B) 6.70 A (C) 3 A (D) 6 A

133. What is the value of Admittance in circuit13?

(A) $\frac{1}{6} + \frac{1}{3}i$ (B) $\frac{1}{6} - \frac{1}{3}i$ (C) $6 + \frac{1}{3}i$ (D) $6 - \frac{1}{3}i$

134. What is the Real or true,Reactive and Apparent power in the circuit13?

(A) 120.74 VA, 54 W, 108 VAR (B) 54 W, 108 VAR, 162 VA

(C) 54 W, 108 VAR, 120.74 VA (D) None

135. Quality factor(Q) is defined as.....

(A) $2\pi \frac{maximumstoredenergy}{energydissipatedpercycle}$ (B) $\frac{Reactance}{Resistance}$ (C) $\frac{1}{Powerfactor}$ (D) All the above

136. Quality factor for series RLC circuit is given by:

(A) $\frac{1}{R}\sqrt{\frac{C}{L}}$ (B) $\frac{1}{R}\sqrt{\frac{L}{C}}$ (C) $R\sqrt{\frac{C}{L}}$ (D) $R\sqrt{\frac{C}{L}}$

137. Quality factor for parallel RLC circuit is given by:

(A) $\frac{1}{R}\sqrt{\frac{C}{L}}$ (B) $\frac{1}{R}\sqrt{\frac{L}{C}}$ (C) $R\sqrt{\frac{C}{L}}$ (D) $R\sqrt{\frac{C}{L}}$

138. what is the relation between bandwidth, resonance frequency and quality factor

(A) $Qualityfactor = \frac{resonancefrequency}{Bandwidth}$ (B) $Qualityfactor = \frac{resonancefrequency}{Bandwidth}$

(C) $Qualityfactor = \frac{resonancefrequency}{Bandwidth}$ (D) $Qualityfactor = \frac{resonancefrequency}{Bandwidth}$