

Unit IV

Part (a): POLYPHASE A.C. CIRCUITS

- 1 Three phase star connected balanced system the magnitude of line current is equal to
- One-third the phase current
 - Equal to the corresponding phase current
 - Three times the corresponding phase current
 - Zero
- ans: b
- 2 Three phase star connected balanced system the magnitude of line voltage is equal to
- One-third the line voltage
 - Equal to the corresponding line voltage
 - Three times the corresponding line voltage
 - 1.73 times phase voltage
- ans: d
- 3 Three phase Delta connected balanced system the magnitude of line current is equal to
- One-third the phase current
 - Equal to the corresponding phase current
 - Three times the corresponding phase current
 - 1.73 times phase current
- ans: d
- 4 Three phase delta connected balanced system the magnitude of line voltage is equal to
- One-third the line voltage
 - Equal to the corresponding phase voltage
- Three times the corresponding line voltage
 - 1.73 times phase voltage
- ans: b
- 5 In a balanced three-phase load, each phase has
- An equal amount of power
 - One-third of total power
 - Two-thirds of total power
 - A power consumption equal to $\sqrt{3}V_L I_L$
- ans: a
- 6 In a three-phase system, the voltages are separated by
- 45°
 - 90°
 - 120°
 - 180°
- ans: c
- 7 Advantage of three phase system over single phase system
- Power factor of three-phase motor is greater than single-phase motor for same rating.
 - Three-phase motors are self-starting
 - The rating of three-phase motor and three-phase transformer are about 150% greater than single-phase motor or transformer with a similar frame size.
 - All of the above
- ans: d
- 8 Three phase system the load is said to be balanced only when

- a. loads in each phase are equal in magnitude
- b. loads in each phase are equal in nature
- c. loads in each phase are equal in magnitude and nature
- d. All of the above

ans: c

9 Three phase system is said to be symmetrical

- a. when voltages of same frequency in different phases are equal in magnitude
- b. when voltages of same frequency are displaced from each other by equal phase angle
- c. when voltages of same frequency in different phases are equal in magnitude and displaced from each other by equal phase angle
- d. All of the above

ans: c

10 Three phase star connected balanced system the total power drawn from the circuit is

- a. $V_{ph} I_{ph} \cos\phi$
- b. $V_L I_L \cos\phi$
- c. $3V_L I_L \cos\phi$
- d. $3V_{ph} I_{ph} \cos\phi$

ans: d

11 Three phase star connected balanced system the total power drawn from the circuit is

- a. $V_{ph} I_{ph} \cos\phi$

- b. $V_L I_L \cos\phi$
- c. $\sqrt{3} V_L I_L \cos\phi$
- d. $\sqrt{3} V_{ph} I_{ph} \cos\phi$

ans: c

12 Three phase delta connected balanced system the total power drawn from the circuit is

- a. $V_{ph} I_{ph} \cos\phi$
- b. $V_L I_L \cos\phi$
- c. $3V_L I_L \cos\phi$
- d. $3V_{ph} I_{ph} \cos\phi$

ans: d

13 Three phase star connected balanced system the total power drawn from the circuit is

- a. $V_{ph} I_{ph} \cos\phi$
- b. $V_L I_L \cos\phi$
- c. $\sqrt{3} V_L I_L \cos\phi$
- d. $\sqrt{3} V_{ph} I_{ph} \cos\phi$

ans: c

14 A balanced delta-connected load of $(4 + j 3)$ Ohm/phase is connected to a 3 phase 400 V supply. Calculate Phase current

- a. 80 Amp
- b. 138.56 Amp
- c. 50 Amp
- d. 150 Amp

Ans: a

15 A balanced delta-connected load of

- (4 + j 3) Ohm/phase is connected to a 3 phase 400 V supply. Calculate Line current
- 80 Amp
 - 138.56 Amp
 - 50 Amp
 - 150 Amp
- ans: b
- 15 A balanced delta-connected load of (4 + j 3) Ohm/phase is connected to a 3 phase 400 V supply. Calculate power factor
- 0.6 lagging
 - 0.6 leading
 - 0.8 lagging
 - 0.8 leading
- ans: c
- 16 A balance Ohm per phase is connected to a 3-phase, 400 V supply. Calculate phase current
- 46.182 Amp
 - 79.98 Amp
 - 30 Amp
 - 100 Amp
- ans: a
- 17 A balanced star-connected load of $5 \angle 36.86^\circ$ Ohm per phase is connected to a 3-phase, 400 V supply. Calculate Line current
- 46.182 Amp
 - 9.98 Amp
 - 30 Amp
 - 100 Amp
- ans: a
- 18 A balanced star-connected load of $5 \angle 36.86^\circ$ Ohm per phase is connected to a 3-phase, 400 V supply. Calculate power factor
- 0.6 lagging
 - 0.6 leading
 - 0.8 lagging
 - 0.8 leading
- ans: b
- 19 A balanced star-connected load is supplied from a symmetrical 3-phase 400 V, 50 Hz system. The current in each phase is 30 ampere and lags 30° behind the phase voltage. Find phase voltage
- 400 Volt
 - 230.9 Volt
 - 220 Volt
 - 200 Volt
- ans: b
- 20 A balanced star-connected load is supplied from a symmetrical 3-phase 400 V, 50 Hz system. The current in each phase is 30 ampere and lags 30° behind the phase voltage. Find impedance of the circuit
- $13.33 \angle 30^\circ$
 - $7.698 \angle 45^\circ$
 - $7.698 \angle 60^\circ$
 - $7.698 \angle 30^\circ$
- ans: d

Part (b) :SINGLE PHASE TRANSFORMER

1. A transformer is used to_____

- a. change ac voltage to dc voltage
- b. change dc voltage to ac voltage
- c. step up or step down dc voltages
- d. step up or step down ac voltages

ans: d

2. The two windings of a transformer are_____

- a. conductively linked
- b. inductively linked
- c. not linked at all
- d. electrically linked

ans: b

3.The magnetically operated device that can change values of voltage, current, and impedance without changing frequency is the_____

- a. Motor
- b. Generator
- c. Transformer
- d. Transistor

ans:c

4. The transformer winding across which the supply voltage applied is called the _____ winding.

- a. Primary
- b. Secondary
- c. Tertiary
- d. Tapped

ans:a

5. The transformer winding which is connected to the load is called the_____ winding.

- a. Primary

b. Secondary

- c. Tertiary
- d. Tapped

ans:b

6. If supply frequency of a transformer increases, the secondary output voltage of the transformer_____

- a. Decreases
- b. increases
- c. remains same
- d. decreases slightly

ans:b

7. The horizontal and vertical portions of transformer magnetic core are called as_____

- a. Limb, yoke
- b. Yoke, limb
- c. Winding, Yoke
- d. Winding, Limb

ans:b

8. The principle of working of transformer is based on _____

- a. Static induction
- b. Mutual induction
- c. Dynamic induction
- d. Self induction

ans:b

9. Transformer is used to change values of_____

- a. Frequency
- b. Voltage
- c. Power
- d. Power factor

ans:b

10. The path of the magnetic flux in transformer should have _____

- a. Low resistance
- b. Low reluctance
- c. High reluctance
- d. High conductivity

ans:b

11. Electrical power is transformed from one coil to other coil in transformer _____

- a. Physically
- b. Electrically
- c. Magnetically
- d. Electromagnetically

ans:d

12. A transformer operates _____

- a. Always at unity power factor
- b. At power factor depending on load
- c. Has its own power factor
- d. At power factor below particular value

ans: b

13. The laminations of transformer core are made up from _____

- a. Low carbon steel
- b. Silicon sheet steel
- c. Nickel alloy steel stamping
- d. Chrome sheet steel

ans:b

14. The material used for construction of transformer core should have _____

- a. Low permeability & high hysteresis loss
- b. Low permeability & low hysteresis loss
- c. High permeability & high hysteresis loss
- d. High permeability & low hysteresis loss

ans:d

15. Most transformer cores are not made from a solid piece of metal. Instead, they are assembled from many thin sheets of metal. This type of construction is called _____

- a. Laminated
- b. Toroid
- c. H core
- d. tape wound

ans:a

16. The concentric cylindrical winding is used for _____

- a. Core type transformer
- b. Shell type transformer
- c. Berry type transformer
- d. None of these

ans:a

17. The sandwich type winding is used for _____

- a. Core type transformer
- b. Berry type transformer
- c. Shell type transformer
- d. None of these

ans:c

18. Silicon steel is used for transformer core _____

- a. To reduce hysteresis loss
- b. To reduce eddy current loss
- c. To reduce both losses
- d. None of these

ans:a

19. What is common in two windings of transformer?

- a. Electric current
- b. Magnetic circuit
- c. Winding wire gauge
- d. None of these

ans:b

20. The main function of transformer iron core is to_____

- a. Provide strength to the winding
- b. To decrease hysteresis loss
- c. Decrease the reluctance of magnetic path
- d. Reduce eddy current loss

ans:c

21. The emf induced in the primary of a transformer_____

- a. is in phase with the flux
- b. lags behind the flux by 90 degree
- c. leads the flux by 90 degree
- d. is in phase opposition to that of flux

ans:b

22.The transformer turns ratio determines_____

- a. the ratio of primary and secondary voltages
- b. the ratio of primary and secondary currents
- c. The resistance on other side
- d. all of the above

ans:a

23. Turns ratio of single phase transformer is given as_____

- a. N_2/N_1
- b. N_1/N_2
- c. $(N_1 \times N_2)/N_1$
- d. $(N_1 \times N_2)/N_2$

ans:b

24. A transformer in which the secondary voltage is more than the primary voltage is called a _____ transformer

- a. step-down
- b. step-up
- c. Isolation
- d. Auto

ans:b

25. A transformer in which the primary voltage is more than the secondary voltage is called a _____ transformer.

- a. step-down
- b. step-up
- c. Isolation
- d. Auto

ans:a

26. Any transformer flux that does not follow the core and escapes into the surrounding air is called_____

- a. magnetizing flux
- b. coupling flux
- c. leakage flux
- d. reactance flux

ans:c

27. A transformer that does not isolate the output from the input is called _____ transformer

- a. Distribution
- b. step-up
- c. Auto
- d. Control

ans:c

28. Ideal transformer assumptions do not include_____

- a. Zero reactance of the winding
- b. Zero resistance of the winding
- c. No leakage flux
- d. No saturation of the core

ans:a

29.The efficiency of the transformer is normally is normally in the range of_____

- a. 50 to 70%
- b. 60 to 75 %
- c. 80 to 90 %
- d. 90 to 98%

ans:d

30. The resistance of low voltage side of transformer _____

- a. Is equal to resistance of its high voltage side
- b. Is more than its resistance on high voltage side
- c. Is less than its resistance on high voltage side
- d. 0

ans:c

31. Eddy current losses in transformer core are reduced by _____

- a. Increasing the thickness of laminations
- b. Decreasing the thickness of laminations
- c. Decreasing the air gap in magnetic circuit
- d. Using wire of higher guage for winding

ans:b

32. A good transformer oil should be absolutely free from _____

- a. Sulpher
- b. Alkalies
- c. Moisture
- d. All of the above

ans:c

33. Single phase core type transformer has _____

- a. One magnetic path
- b. Two magnetic paths
- c. No magnetic path
- d. None of these

ans: a

34. Single phase shell type transformer has _____

- a. One magnetic path
- b. Two magnetic paths
- c. No magnetic path
- d. None of these

ans:b

35. Natural cooling is better in _____

- a. Core type transformer
- b. Shell Type transformer
- c. Both A& B
- d. Berry type transformer

ans:a

36. EMF equation for single phase transformer is _____

- a. $E = 4.44 \Phi_m A f N$
- b. $E = 4.44 B_m A N$
- c. $E = 4.44 B_m f N$
- d. $E = 4.44 \Phi_m f N$

ans:d

37. Transformation ratio(K) of transformer is _____

- a. N_2/N_1
- b. E_1/E_2
- c. I_2/I_1
- d. V_1/V_2

ans:a

38. For Isolation transformer the transformation ratio(K) is _____

- a. 0
- b. Greater than 1
- c. Less than 1
- d. 1

ans:d

39. In step up transformer the transformation ratio (K) is _____

- a. Greater than 1
- b. 1
- c. Less than 1
- d. 0

ans: a

40. In step down transformer the transformation ratio (K) is _____

- a. Greater than 1

b.1

c. Less than 1

d.0

ans:c

41. The primary and secondary voltages in transformer are_____

a. Always in Phase

b. 180° out of phase

c. 90° out of phase

d. 30° or 60° out of phase

ans:b

42. The induced emf in transformer secondary depends on_____

a. Maximum flux in core

b. Frequency

c. No of turns on secondary

d. all of the above

ans:d

43. Transformer rating usually expressed in_____

a.kW

b.kVA

c. kV

d. kWh

ans:b

44. In a transformer if secondary turns are doubled, at the same time primary voltage is reduced by half, the secondary voltage will_____

a. Be halved

b. Not change

c. Be four times

d. Be reduced to quarter

ans:b

45. The no load current in terms of full load current is usually_____

a. 1 to 3%

b. 3 to 9 %

c. 9 to 12%

d. 12 to 20%

ans:a

46. Transformer oil is used in transformer to provide_____

a. Cooling and insulation

b. Cooling and lubrication

c. Insulation and lubrication

d. Insulation, cooling and lubrication

ans:a

47. What is the typical use of autotransformer_____?

a. Toy transformer

b. Control transformer

c. Variable transformer

d. Isolating transformer

ans:c

48. In any transformer the voltage per turn in primary and secondary remains_____

a. Always different

b. Always the same

c. Always in ratio of K

d. Sometimes same

ans:b

49. Full load copper loss in a transformer is 400 Watt. At half load, copper losses will be_____

a. 400 Watt

b. 100 Watt

c. 200 Watt

d. 50 Watt

ans:b

50. A transformer is working with its maximum efficiency. If the iron losses are 500 W, the copper loss will_____

a. 300 W

b. 350 W

c. 250 W

d. 500 W

ans:d

51. If we increase the flux density in case transformer_____

- a. The size of transformer will reduce
- b. The distortion in transformer will reduce
- c. Hysteresis and eddy current losses will reduce
- d. None of these will be true

ans:a

52. The direct loading test is performed on transformer to find its_____

- a. Regulation
- b. Efficiency
- c. Both
- d. None of these

ans:c

53. The regulation of transformer is calculated as_____

- a. $\frac{\text{No load Voltage}-\text{Full load voltage}}{\text{No load voltage}}$
- b. $\frac{\text{Full load Voltage}-\text{No load voltage}}{\text{No load voltage}}$
- c. $\frac{\text{No load Voltage}-\text{Full load voltage}}{\text{Full load voltage}}$
- d. $\frac{\text{Full load Voltage}-\text{No load voltage}}{\text{Full load voltage}}$

ans:a

54. The efficiency of single phase transformer is calculated as_____

- a. $\frac{V_2 I_2 \cos\phi}{V_2 I_2 \cos\phi + \text{iron loss} + \text{copper loss}}$
- b. $\frac{V_1 I_1 \cos\phi}{V_2 I_2 \cos\phi + \text{iron loss} + \text{copper loss}}$
- c. $\frac{V_1 I_1 \cos\phi}{V_1 I_1 \cos\phi + \text{iron loss} + \text{copper loss}}$

d. $\frac{V_2 I_2 \cos\phi}{V_1 I_1 \cos\phi + \text{iron loss} + \text{copper loss}}$

ans:a

55. For 100 kVA, 11000V/110V single phase transformer, the primary full load current is_____

- a. 909.09 Amp
- b. 90.90 Amp
- c. 9.09 Amp
- d. 9090.9 Amp

ans:c

56. For 100 kVA, 11000V/110V single phase transformer, the secondary full load current is_____

- a. 90.90 Amp
- b. 9090.9 Amp
- c. 909.0 Amp
- d. 9.09 Amp

ans:c

57. The disadvantage of auto transformer is_____

- a. No separation between primary & secondary
- b. Size is more than normal transformer for same rating
- c. More costlier than normal transformer
- d. All

ans:d

58. In a transformer the voltage regulation will be near to zero when it operates at_____

- a. unity p.f.
- b. leading p.f.
- c. lagging p.f.
- d. full load.

ans:b

59. A transformer steps up voltage by a factor of 100. The ratio of current in the primary to that in secondary_____

- a.1
 - b.100
 - c.0.01
 - d.0.1
- ans:b

60. An ideal transformer does not change_____

- a. Voltage
 - b. Power
 - c. current
 - d. None of these
- ans:b

61. The flux in transformer core_____

- a. increases with load
 - b. decreases with load
 - c. remains constant irrespective of load
 - d. none of these
- ans:c

62. Efficiency of transformer is maximum when_____

- a. transformer is unloaded
 - b. copper losses is equal to iron losses
 - c. eddy current losses are equal to hysteresis losses
 - d. it is maximally loaded
- ans:b

63. If the supply frequency in transformer is doubled, then_____

- a. hysteresis loss also doubles
 - b. eddy current loss also doubles
 - c. iron losses doubles
 - d. copper losses doubles
- ans:a

64. Hysteresis loss in transformer depends on_____

- a. both voltage and frequency
 - b. voltage alone
 - c. frequency alone
 - d. none of these
- ans:a

65. Eddy current loss depends on_____

- a. both current and frequency
 - b. current alone
 - c. frequency alone
 - d. none of these
- ans:a

66.The flux involved in EMF equation of a transformer has_____

- a. RMS Value
 - b. Average Value
 - c. Total Value
 - d. maximum Value
- ans:d

67. A transformer has maximum efficiency at $\frac{3}{4}$ of full load. The ratio of its iron loss and full load copper loss is_____

- a. 16/9
 - b. 4/3
 - c. 3/4
 - d. 9/16
- ans:d

68. If primary of the transformer is connected to dc supply, then_____

- a. Primary draws small current
 - b. primary leakage reactance is increased
 - c. core losses are increased
 - d. primary may burn out
- ans:d

69. For an ideal transformer the windings should have_____

- a. maximum resistance on primary side and least resistance on secondary side
- b. least resistance on primary side and maximum resistance on secondary side
- c. equal resistance on primary and secondary side
- d. no ohmic resistance on either side

ans:d

70. The full load copper and iron loss of a transformer are 6400 W and 5000 W respectively. The copper loss and iron loss at half load will be respectively_____

- a. 3200 W and 2500 W
- b. 3200 W and 5200 W
- c. 1600 W and 1250 W
- d. 1600 W and 5000 W

ans:d

71. A transformer does not raise or lower the voltage of DC supply because_____

- a. there is no need to change the DC voltage
- b. DC circuit has more losses
- c. Faradays law of Electromagnetic Induction are not valid since the rate of change of flux is zero
- d. none of these

ans:c

72. Primary winding of a transformer _____

- a. is always low voltage winding
- b. is always high voltage winding
- c. could either be a low or high voltage winding
- d. none of these

ans:c

73. Which winding of a transformer has more number of turns_____

- a. Low voltage winding

b. High voltage winding

c. Primary winding

d. secondary winding

ans:b

74. In a given transformer for a given applied voltage, which losses remain constant irrespective of change in load_____

- a. Friction and windage loss
- b. copper loss
- c. hysteresis and eddy current loss
- d. none of these

ans:c

75. Main advantage to use autotransformer over two winding transformer_____

- a. Hysteresis losses are reduced
- b. savings in winding material
- c. copper losses are negligible
- d. Eddy current losses are totally eliminated

ans:b

76. An ideal transformer is one which has _____

- a. no losses and magnetic leakage
- b. interleaved primary and secondary winding
- c. a common core for its primary and secondary
- d. core of stainless steel and winding of pure copper material

ans:a

77. In a practical transformer core losses remains constant from no load to full load because_____

- a. value of transformation ratio remains constant
- b. permeability of transformer core remains constant
- c. core flux remains practically constant
- d. primary and secondary voltage remains constant

ans:c

78. The transformer laminations are insulated from each other by _____

- a. mica strip
- b. thin coat of varnish
- c. paper
- d. any one of these

ans:b

79. In transformer resistance between primary and secondary should be _____

- a. zero
- b. 10 ohm
- c. 1000 ohm
- d. infinity

ans:d

80. A good voltage regulation of transformer means _____

- a. output voltage fluctuations from no load to full load is least
- b. output voltage fluctuations with power factor is least
- c. difference between primary and secondary voltage is least
- d. difference between primary and secondary voltage is maximum

ans:a

81. Negative voltage regulation is indicative that the load is _____

- a. Capacitive only
- b. inductive only
- c. inductive or resistive
- d. none of these

ans:a

82. The size of the transformer core depend on _____

- a. frequency
- b. area of the core
- c. flux density of the core material

d. (a) and (b) both

ans:d

83. A shell type transformer has _____

- a. high eddy current losses
- b. reduced magnetic leakage
- c. negligible hysteresis loss
- d. none of these

ans:b

84. Deduction in core losses and increase in permeability are obtained with transformer employing _____

- a. core built up of laminations of cold rolled grain oriented steel
- b. core built up of laminations of hot rolled steel
- c. either a or b
- d. none of these

ans: c

85. Losses which occur in rotating electric machine and do not occur in transformers are _____

- a. friction and windage losses
- b. magnetic losses
- c. hysteresis and eddy current losses
- d. copper losses

ans:a

86. Which of the following loss in a transformer is zero even at full load _____

- a. core loss
- b. friction loss
- c. eddy current loss
- d. Hysteresis loss

ans:b

87. The noise produced by transformer is termed as _____

- a. zoom
- b. hum

- c. ringing
- d. buzz

ans:b

88. Part of the transformer which is most subject to damage from overheating is_____

- a. iron core
- b. copper winding
- c. insulation of the winding
- d. transformer tank

ans:c

89. In a step down transformer, there is a change of 15A in the load current. This results in change of supply current of_____

- a. less than 15 A
- b. more than 15 A
- c. 15A
- d. none of these

ans:a

90. As per the name plate of transformer, the secondary normal voltage is 220V. Which of the following statement about it is correct?_____

- a. 220V is no load voltage
- b. The no load voltage is more than 220V
- c. The secondary voltage increases with increase in load
- d. At a load which draws the rated current & the voltage becomes less than 220V.

ans:b

91. In which of the following transformer, part of the primary winding serves as the secondary winding__

- a. Potential transformer
- b. Auto transformer
- c. Step up transformer
- d. None of these

ans:b

92. The rating of the transformer is given in kVA instead of kW because_____

- a. kVA is fixed whereas kW depends on load pf
- b. load power factor is often not known
- c. it has become customary
- d. total transformer loss depends on VA

ans:b

93. Increase in secondary current of transformer brings about increase in primary current. This is possible because_____

- a. primary and secondary windings are capacitively coupled.
- b. primary and secondary windings are inductively coupled
- c. primary and secondary windings are conductively coupled
- d. none of these

ans:b

94. Transformer for constant voltage application is considered good if its voltage regulation is_____

- a. low
- b. high
- c. zero
- d. none of these

ans:c

95. Transformer action needs that the magnetic flux linking with the winding must be_____

- a. constant
- b. pulsating
- c. alternating
- d. none of these

ans:c

96. Low voltage windings are placed next to the core to reduce_____

- a. Hysteresis loss
- b. eddy current loss

c. insulation requirement

d. copper loss

ans:c

97. The relation between the primary and secondary ampere turns of transformer -----

a. exactly equal

b. approximately equal

c. primary mmf larger than secondary mmf

d. primary mmf smaller than secondary mmf

ans:a

98. Positive voltage regulation occurs in case of transformer for _____

a. capacitive load

b. resistive load only

c. inductive load only

d. either inductive or resistive load

ans:d

99. Cooling of the transformer is required so as to _____

a. increase the efficiency

b. to reduce the losses

c. to reduce humming

d. to dissipate the heat generated in the winding

ans:d

100. The transformer efficiency will be maximum at a power factor of _____

a. 0.8pf lead

b. unity

c. 0.8 lag

d. 0.5 lag or lead

ans:b

101. The regulations of two transformers are (i) 3% and (ii) 97%. The one with better regulation is _____

a. second

b. first

c. both are same

d. depends on loading

ans:b

102. A transformer has 2600 V on primary side and 260 V on secondary side. The transformation ratio is_

a.10

b.5

c.0.1

d.9

ans:c

103. If the copper loss of a transformer at 70% of full load is 200 W. The full load copper loss is _____

a. 200 W

b. 285.71 W

c.408.16W

d. none of these

ans:c

104. A transformer having 1000 primary turns is connected 250 V ac supply. For a secondary voltage of 400 volt, the no of secondary turns should be _____

a.1600

b.250

c.400

d.1250

ans:a

105. If Copper loss of a transformer at $7/8^{\text{th}}$ of the full load is 4900W. Then its full load copper loss is _____

a.5600

b.6400

c.375

d.429

ans:b

106. At relatively light loads, the 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. copper loss is small.

ans:c

107. A 3000 V/200 V, 50 Hz, single phase transformer is built on a core having an effective cross sectional area of 120 cm^2 and 60 turns on the secondary winding. The value of maximum flux density____

- a. 1.25 Tesla
- b. 1.52 Tesla
- c. 1.3 Tesla
- d. none of the above

ans:a

108. A 3000 V/200 V, 50 Hz, single phase transformer is built on a core having an effective cross sectional area of 120 cm^2 and 60 turns on the secondary winding. The number of turns on the high voltage winding_____

- a. 600 turns
- b. 900 turns
- c. 300 turns
- d. 450 turns

ans:b

109. A 3300 V/250 V, 50 Hz, single phase transformer has to be worked at a maximum flux density of 1.1 wb/m^2 in the core. The effective cross sectional area of the core is 145 cm^2 . The no of primary turns____

- a. 930 turns
- b. 950 turns
- c. 932 turns
- d. 923 turns

ans:c

110. A 3300 V/250 V, 50 Hz, single phase transformer has to be worked at a maximum flux density of 1.1 web/m^2 in the core. The effective cross sectional area of the core is 145 cm^2 . The no of secondary turns____

- a. 71 turns
- b. 75 turns
- c. 932 turns
- d. 923 turns

ans:a

111. A 80 kVA, 6000 V/ 400 V, 50 Hz single phase transformer has 80 turns on the secondary winding. The value of maximum flux in the core_____

- a. 25.22mwb
- b. 22.52mwb
- c. 52.22mwb
- d. none of these

ans:b

112. A 6600 V/220 V, 50 Hz, step down single phase transformer has 1500 turns on its primary side. If its maximum flux density is 1.2 Tesla, then the effective cross sectional area of core is _____

- a. $16.516 \times 10^{-3} \text{ m}^2$
- b. $61.516 \times 10^{-3} \text{ m}^2$
- c. $26.516 \times 10^{-3} \text{ m}^2$
- d. $62.516 \times 10^{-3} \text{ m}^2$

ans:a

113. A 10 kVA, 3300/240 V, single phase, 50 Hz transformer has a core area of 300 sq. cm. The flux density is 1.3 tesla. The primary full load current is _____

- a. 3.03 amp
- b. 33.03 amp
- c. 30.3 amp
- d. 0.303 amp

ans:a

114. A transformer is rated at 90 kVA, at full load its copper losses is 1100 W and its iron losses is 950 W. The efficiency at full load for unity power factor is _____

- a. 99%
- b. 96%
- c. 97.77%
- d. none of these

ans:c

115. A transformer is rated at 90 kVA, at full load its copper losses is 1100 W and its iron losses is 950 W. The efficiency at 60% of full load for 0.8 lagging power factor is _____

- a. 96.97%
- b. 96%
- c. 98%
- d. none of these

ans:a

116. A 500 kVA transformer has iron loss of 2 kW and full load copper losses of 5 kW. The efficiency at 75% of full load and unity power factor _____

- a. 98.13%
- b. 98.73%
- c. 99%
- d. none of these

ans:b

117: The no load voltage at the secondary terminals of single phase transformer is observed as 230 volt. When the transformer is loaded, the voltage on secondary side has reduced to 224 volt. Then the % regulation of transformer for that loading is _____

- a. 2.6%
- b. 2.67%
- c. 0%
- d. none of these

ans:a