



Multiple Choice Questions

1. A bank of three identical single-phase 250 kVA, 11 kV/230 V transformers is used to provide 400 V low tension supply from a 11 kV, 3-phase sub-station. The effective kVA rating of the bank will be:

(a) 250 (b) $250\sqrt{3}$
(c) 500 (d) 750 [IAS-1994]

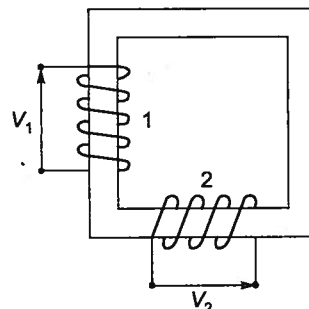
2. A 4 kVA, 230/115 volt, 400 Hz, single-phase transformer, originally designed for use in aircrafts, is available in a laboratory for obtaining 115 V supply from standard 230 V, 50 Hz mains. If overloading of the device is not permitted, then the net kVA output of the transformer in the laboratory cannot exceed

(a) 32 (b) 16
(c) 4 (d) 0.5 [IAS-1994]

3. A transformer designed for operation on 60 Hz supply is worked on 50 Hz supply system without changing its voltage and current ratings. When compared with full load efficiency at 60 Hz, the transformer efficiency on full load at 50 Hz will

(a) increase marginally
(b) increase by a factor of 1.2
(c) remain unaltered
(d) decrease marginally [IAS-1994]

4. The given figure represents a transformer with two windings 1 and 2 wound on the core as shown. By applying a voltage V_1 across winding 1, a voltage V_2 is induced across winding 2. In an idealised condition V_2 would lag V_1 by



(a) zero degrees (b) 90 degrees
(c) 180 degrees (d) 270 degrees

[IAS-1995]

5. The leakage flux in a transformer depends upon the

(a) applied voltage (b) frequency
(c) load current (d) mutual flux

[IAS-1995]

6. The voltage regulation of a large transformer is mainly influenced by

(a) no-load current and load power factor
(b) winding resistance and load power factor
(c) leakage fluxes and load power factor
(d) winding resistance and core loss

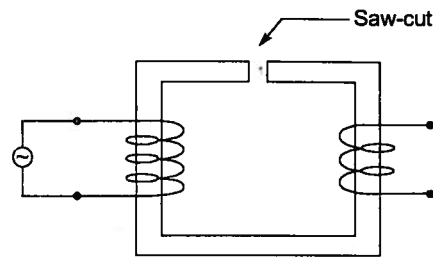
[IAS-1995]

7. The series equivalent impedance of a single-phase transformer referred to its secondary side is $Z_{e2} = R_{e2} + jX_{e2}$. The voltage regulation of this transformer will be zero when the power factor of the load is

(a) unity (b) $\left| \frac{X_{e2}}{Z_{e2}} \right|$ leading
(c) $\left| \frac{X_{e2}}{Z_{e2}} \right|$ lagging (d) $\left| \frac{R_{e2}}{Z_{e2}} \right|$ leading

[IAS-1995]

8. If a saw-cut is made in the iron core of a single-phase transformer as shown in the given figure, with secondary terminals open, it will result in



- (a) no voltage across secondary terminals due to discontinuity
- (b) excessively large current drawn by primary
- (c) no appreciable change in the operation of the transformer
- (d) no transformer action and the primary current will be greatly reduced

[IAS-1996]

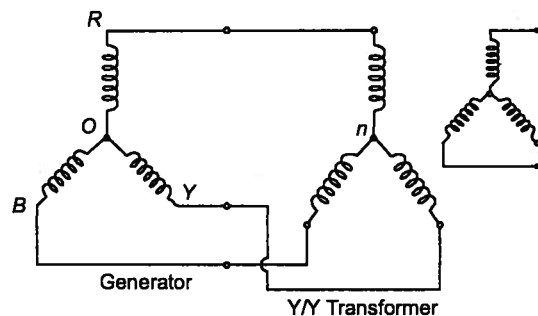
9. **Assertion (A):** The iron losses of a transformer increase if the supply frequency is increased with applied voltage remaining constant.

Reason (R): The flux density in a core is inversely proportional to the frequency of the exciting current.

- (a) Both A and R are true and R is the correct explanation of A
- (b) Both A and R are true but R is NOT the correct explanation of A
- (c) A is true but R is false
- (d) A is false but R is true

[IAS-1996]

10. A star connected generator supplies power to a star/star connected transformer as shown in the given figure. The generator voltages are perfectly balanced. As a result,



- (a) third harmonic exciting currents will flow in the primaries of star
- (b) third harmonic exciting currents cannot flow in the primaries of star
- (c) the fluxes in the three transformer cores are sinusoidal in time
- (d) the voltage between 'O' and 'n' is zero

[IAS-1997]

11. If the height to width ratio of the window of core-type transformer is increased, then

- (a) its leakage reactance and percentage voltage regulation will decrease
- (b) its leakage reactance and percentage voltage regulation will increase
- (c) its leakage reactance will be unaffected but total space in the window will increase to accommodate the windings better
- (d) efficiency will increase and temperature rise will decrease

[IAS-1997]

12. A 220/110 V, 50 Hz single-phase transformer having a negligible winding resistance operates from a variable voltage, variable frequency supply such that V_1/f (V_1 = primary applied voltage, f = source frequency) is constant. This will bring in, in the given range of frequencies,

- (a) variation in both eddy current loss and hysteresis loss
- (b) variation only in the eddy current loss, hysteresis loss remaining constant
- (c) variation only in the hysteresis loss, eddy current loss remaining constant
- (d) no change either in the eddy current loss or the hysteresis loss

[IAS-1997]

13. **Assertion (A):** The no-load current of star/star connected bank of three single-phase transformers contains all harmonics except the triplen harmonics.

Reason (R): Saturation of the core is responsible for the harmonics in the no-load current of a single-phase transformer.

- (a) Both A and R are true and R is the correct explanation of A
- (b) Both A and R are true but R is NOT the correct explanation of A
- (c) A is true but R is false
- (d) A is false but R is true

[IAS-1997]

14. Consider the following statements:

The use of Delta-connected tertiary windings in star-star connected power transformers

1. make available supply for single-phase loads.
2. suppresses harmonic voltages.
3. allows flow of earth fault current for operation of protective devices.
4. provides low-reactance paths for zero-sequences currents.

Of these statements:

- (a) 1, 2 and 3 are correct
- (b) 1, 3 and 4 are correct
- (c) 2 and 4 are correct
- (d) 1, 2, 3 and 4 are correct

[IAS-1998]

15. **Assertion (A):** Three-phase transformers of different vector groups should not be operated in parallel.

Reason (R): Transformers belonging to different vector groups will not have the same sequence on the secondary side.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is NOT the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

[IAS-1998]

16. A 3-phase Y/Δ transformer has per phase turn ratio ' K ' and line voltage ratio ' K_1 '. If the voltage of Δ winding lags the voltage of Y winding by a angle ϕ , then K , K_1 and ϕ are related as

- (a) $K_1 = K$ and $\phi = -30^\circ$
- (b) $K_1 = \frac{K}{\sqrt{3}}$ and $\phi = -30^\circ$
- (c) $K_1 = \sqrt{3}K$ and $\phi = 30^\circ$
- (d) $K_1 = \sqrt{3}K$ and $\phi = -30^\circ$

[IAS-2000]

17. Two transformers X and Y with identical ratings and dimensions have 0.8 mm and 1.2 mm thick laminations respectively. If R_m and X_m are the magnetizing branch parameters in the equivalent circuit, then

- (a) R_m values in both are likely to be equal, but X_m of X is likely to be higher than R_m of Y
- (b) X_m values in both are likely to be equal, but R_m of X is likely to be higher than R_m of Y
- (c) X_m values in both are likely to be equal, but R_m of X is likely to be lower than R_m of Y
- (d) R_m values in both are likely to be equal, but X_m of X is likely to be lower than X_m of Y

[IAS-2000]

18. Hysteresis loss of a transformer designed at voltage ' V ' and frequency ' f ' is P_h . If the transformer is operated from a voltage ' xV ' and frequency ' xf ' the hysteresis loss for a Steinmetz constant of 2 will be

- (a) $x^2 P_h$
- (b) $x P_h$
- (c) P_h
- (d) $X_3 P_h$

[IAS-2001]

19. The below diagrams show a two-winding transformer (Fig.1) and an auto-transformer (Fig. 2) formed by reconnection of the terminals of the former. The terminal markings are the conventional ones with regard to the respective polarities.

When operated as an auto-transformer with an input voltage of 500 V, the output load current would be

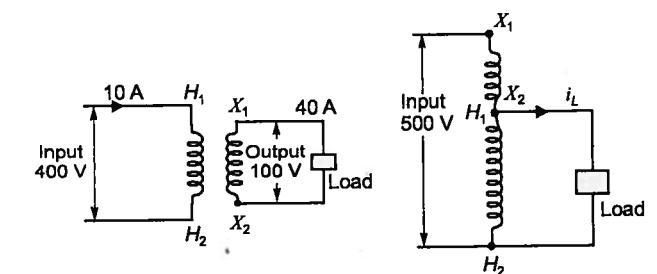


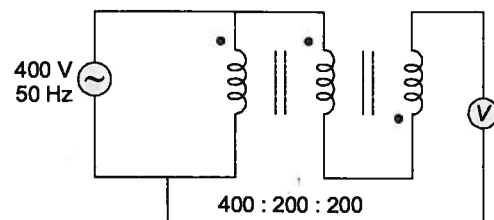
Figure 1

Figure 2

- (a) 50 A
- (b) 40 A
- (c) 30 A
- (d) 10 A

[IAS-2002]

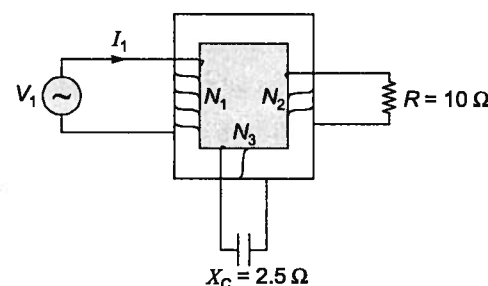
20. A 400 V/200 V/200 V, 50 Hz three winding transformer is connected as shown in figure. The reading of the voltmeter ' V ' will be



- (a) 0 V
(b) 400 V
(c) 600 V
(d) 800 V

[GATE-2002]

21. Figure shows an ideal three winding transformer windings are wound on the same core as shown. The turns ratio $N_1 : N_2 : N_3$ is 4 : 2 : 1. A resistor of 10Ω is connected across winding-2. A capacitor of reactance 2.5Ω is connected across winding-3. Winding-1 is connected across a 400 V, as supply. If the supply voltage phasor $V_1 = 400 \angle 0^\circ$ V, the supply current phasor I_1 is given by



- (a) $(-10 + j10)$ A
(b) $(-10 - j10)$ A
(c) $(10 + j10)$ A
(d) $(10 - j10)$ A

[GATE-2003]

22. Three single-phase transformers, each of 100 kVA rating are connected in delta. If one of the transformers is taken out of service, the capacity of the system will be
(a) 2000 kVA
(b) 173. kVA
(c) 115.5 kVA
(d) 36.6 kVA

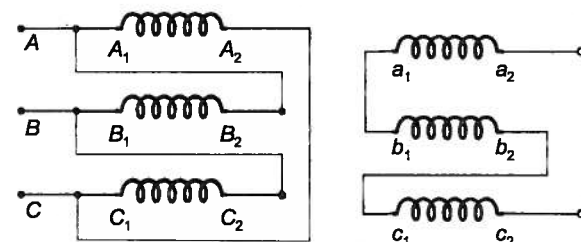
[IAS-2003]

23. Three units of 1 : 5 transformers are connected in $\Delta - Y$ to supply a 3-phase load from a 400 V, 3-phase source. The line voltage on the load side is

- (a) 1000 V
(b) 80 V
(c) 3464 V
(d) 803 V

[IAS-2003]

24. Figure shows the phase winding connections of a bank of three single-phase transformation. For unity turn ratio and balanced three-phase supply voltage V (line-to-line), voltage between the terminals a_2 and c_2 on the secondary side will be



- (a) $\sqrt{3} V$
(b) $3 V$
(c) V
(d) $2 V$

[IAS-2003]

25. The full-load copper loss of a transformer is twice its core loss. At what percent of the full-load will the efficiency be maximum?

- (a) 25%
(b) 50%
(c) 70.7%
(d) 141%

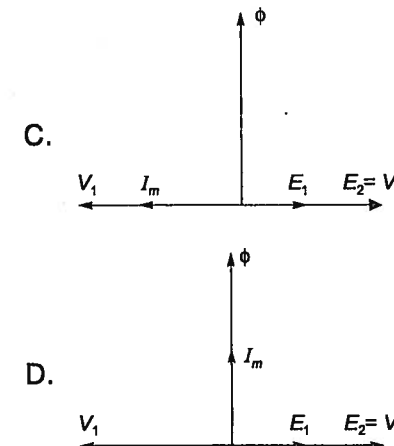
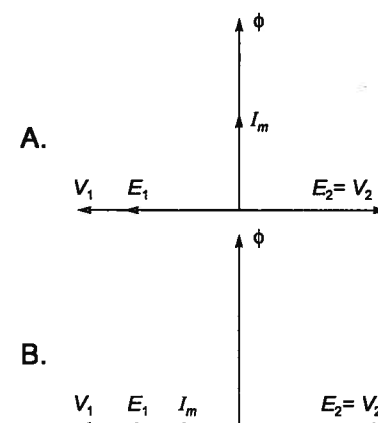
[IAS-2003]

26. Conventional power frequency equivalent circuit of a two-coiled transformer is obtained on the assumption of

- (a) Equal primary and secondary ampere turns
(b) Negligible mutual reactance
(c) Uniform voltage drop along the windings
(d) Presence of leakage current between the windings

[IAS-2003]

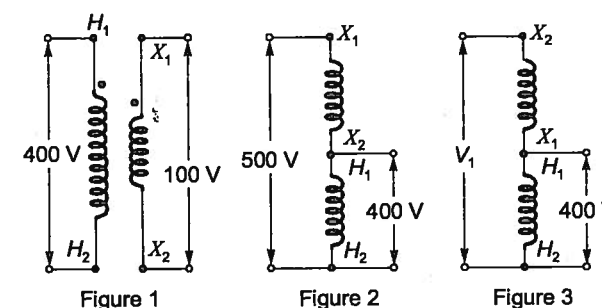
27. For a lossless two winding single-phase transformer on NO-LOAD, the following four phasor diagrams A, B, C and D are considered. Standard symbols are being used to represent the voltage, current and flux



- (a) A
(b) B
(c) C
(d) D

[IAS-2004]

28. A single-phase two-winding transformer shown below in Fig. 1, is connected an autotransformer shown in Fig. 2. If the connections of the 100 V winding are reversed as shown in Fig. 3, what is the value of the voltage V_1 required to be applied across terminals X_2 and H_2 to obtain the same 400 V output?



- (a) 500 V
(b) 400 V
(c) 300 V
(d) 100 V

[IAS-2005]

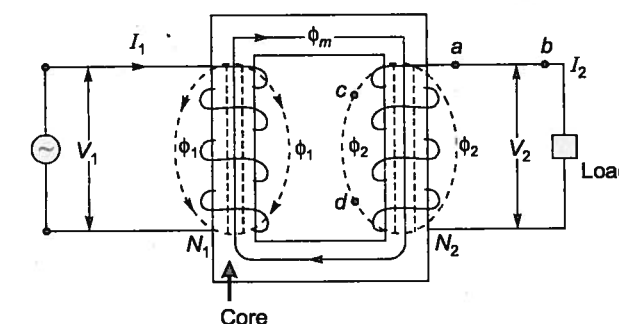
29. Two transformers with identical voltage ratings are working in parallel to supply a common load. The percentage impedance of one transformer is higher compared to that of the other. The load sharing between the two transformer will

- (a) be proportionate to their percentage impedances
(b) be independent of their percentage impedances

- (c) be inversely proportional to their respective impedances
(d) depend on the resistance to leakage reactance ratio of each transformer

[IAS-2005]

30. The figure given below shows a two winding core-type transformer. The instantaneous directions of the primary current I_1 , the mutual flux ϕ_m and the primary leakage flux ϕ_1 are as indicated in the figure; the corresponding directions, at the same instant, of the secondary current I_2 , and the secondary leakage flux ϕ_2 would be



- (a) I_2 , a to b; and ϕ_2 , c to d
(b) I_2 , b to a; and ϕ_2 , c to d
(c) I_2 , a to b; and ϕ_2 , d to c
(d) I_2 , b to a; and ϕ_2 , d to c

[IAS-2005]

31. It is desired to measure parameters of 230 V/115 V, 2 kVA, single-phase transformer. The following wattmeters are available in a laboratory:

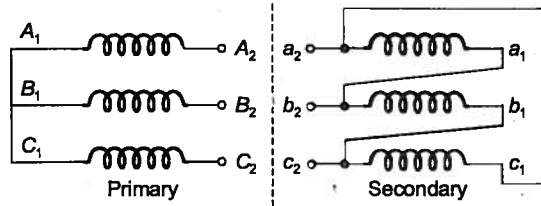
- W_1 : 250 V, 10 A, Low Power Factor
 W_2 : 250 V, 5 A, Low Power Factor
 W_3 : 150 V, 10 A, High Power Factor
 W_4 : 150 V, 5 A, High Power Factor

The wattmeters used in open circuit test and short circuit test of the transformer will respectively be

- (a) W_1 and W_2
(b) W_2 and W_4
(c) W_1 and W_4
(d) W_2 and W_3

[GATE-2008]

32. Three single-phase transformers are connected to form a 3-phase transformer bank. The transformers are connected in the following manner:



The transformer connection will be represented by

- (a) Yd0 (b) Yd1
(c) Yd6 (d) Yd11

[GATE-2008]

33. In transformers, which of the following statements is valid?

- (a) In an open circuit test, copper losses are obtained while in short circuit test, core losses are obtained
(b) In an open circuit test, current is drawn at high power factor
(c) In a short circuit test, current is drawn at zero power factor
(d) In an open circuit test, current is drawn at low power factor

[GATE-2006]

34. Two transformers are to be operated in parallel such that they share load in proportion to their kVA ratings. The rating of the first transformer is 500 kVA and its pu leakage impedance is 0.05 pu. If the rating of second transformer is 250 kVA, its pu leakage impedance is

- (a) 0.20 (b) 0.10
(c) 0.05 (d) 0.025

[GATE-2006]

35. A 300 kVA transformer has 95% efficiency at full load 0.8 pf lagging and 96% efficiency at half load, unity pf. The iron loss (P_i) and copper loss (P_c) in kW, under full load operation are

- (a) $P_c = 4.12$ $P_i = 8.51$
(b) $P_c = 4.12$ $P_i = 9.21$
(c) $P_c = 8.51$ $P_i = 4.12$
(d) $P_c = 12.72$ $P_i = 3.07$

[GATE-2006]

36. What is the maximum efficiency (in %) at unity pf load?

- (a) 95.1 (b) 96.2
(c) 96.4 (d) 98.1

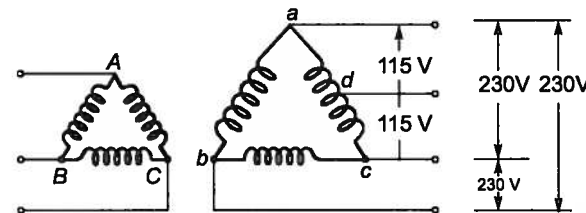
[GATE-2006]

37. A single-phase 50 kVA, 250 V/500 V two winding transformer has an efficiency of 95% at full load, unity power factor. If it is reconfigured as a 500 V/750 V autotransformer, its efficiency at its new rated load at unity power factor will be

- (a) 95.752% (b) 97.851%
(c) 98.276% (d) 99.241%

[GATE-2007]

38. The diagram given below shows the connection of a four-wire delta bank for obtaining a 3-phase 4-wire distribution system. The secondary voltages between the terminals are as indicated.



What is the voltage between the terminals b and d in the system when the primary side is energized from an appropriate symmetrical 3-phase system?

- (a) $\frac{230}{\sqrt{2}}$ V (b) $\frac{230}{\sqrt{3}}$ V
(c) $115 \times \sqrt{3}$ V (d) $115 \times \sqrt{2}$ V

[ESE-2004]

39. Assertion (A): Transformer is not used in a d.c. line.

Reason (R): Losses in the d.c. circuit are not negligible.

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is NOT the correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

[ESE-2004]

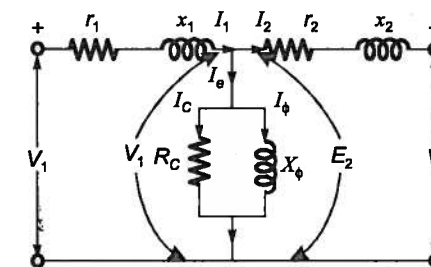
40. Assertion (A): For obtaining improved magnetic properties, the transformer magnetic core is assembled using cold-rolled silicon-steel sheets.

Reason (R): The laminations for the core could be cut out of the cold-rolled silicon steel sheets, cutting either in the direction of rolling or transverse thereof, without affecting the magnetic properties in any way.

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is NOT the correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

[ESE-2005]

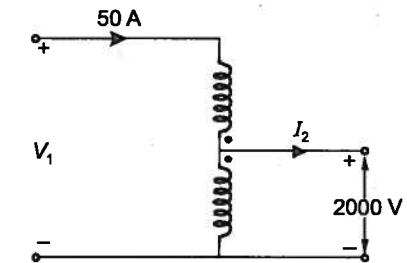
41. The exact equivalent circuit of a two-winding transformer is given in the figure given below. For affecting simplification, the parallel magnetising branch, consisting of R_C and X_ϕ is shifted to the left of the primary leakage impedance ($r_1 + jx_1$). This simplification introduces the inaccuracy, in the neglect of



- (a) Voltage-drop in the primary impedance due to the secondary current
(b) Voltage-drop in the primary impedance due to the exciting current
(c) Voltage-drop in the secondary impedance due to the exciting current
(d) Reduction in values of R_C and X_ϕ of the exciting circuit

[ESE-2005]

42. A single-phase, 10 kVA, 2000/200 V, 50 Hz transformer is connected to form an autotransformer as shown in the figure given below. What are the values of V_1 and respectively?



- (a) 2200 V, 55 A (b) 2200 V, 45 A
(c) 2000 V, 45 A (d) 1800 V, 45 A

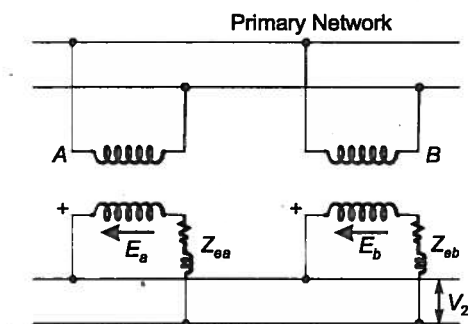
[ESE-2005]

43. Three single phase 11000/220 V transformers are connected to form 3-phase transformer bank. High voltage side is connected in star, and low voltage side is in delta. What are the voltage ratings and turn ratio of 3-phase transformer?

- (a) 19052/220 V, 50
(b) 19052/220 V, $50\sqrt{3}$
(c) 11000/381 V, $50\sqrt{3}$
(d) 11000/220 V, 50

[ESE-2005]

44. Two single phases transformers A and B are connected in parallel, observing all requirements of a parallel operation, except that the induced voltage E_a is slightly greater than E_b , Z_{ea} and Z_{eb} being the equivalent impedances of A and B, both referred to the secondary side.



Under this operating condition with the primary bus-bars being energized, a circulating current will flow:

- (a) Only in the secondary windings of A and B
(b) In both the primary and the secondary windings of A and B

- (c) In both the primary and the secondary windings of A and B, as well as in the primary side network
- (d) In the primary and the secondary windings of A and B, and boost the voltages on the secondary side of both A and B

[ESE-2005]

45. If the voltage applied to a transformer primary is increased by keeping the V/f ratio fixed, then the magnetizing current and the core loss will, respectively,
- (a) decrease and remain the same
- (b) increase and decrease
- (c) remain the same and remain the same
- (d) remain the same and increase

[ESE-2006]

46. The equivalent circuit of a transformer has the leakage reactances X_1, X_2' and the magnetising reactance X_m . What is the relationship between their magnitudes?
- (a) $X_1 \gg X_2' \gg X_m$
- (b) $X_1 \ll X_2' \ll X_m$
- (c) $X_1 \approx X_2' \gg X_m$
- (d) $X_1 \approx X_2' \ll X_m$

[ESE-2006]

47. If the iron core of a transformer is replaced by an air core, then the hysteresis losses in the transformer will
- (a) increase
- (b) decrease
- (c) remain unchanged
- (d) become zero

[ESE-2006]

48. Percentage resistance and percentage reactance of a transformer are 1% and 4%, respectively. What is voltage regulation at power factor 0.8 lagging and 0.8 leading?
- (a) 2.4% and -0.8%, respectively
- (b) 3.2% and -1.6%, respectively
- (c) 3.2% and -3.2%, respectively
- (d) 4.8% and 1.6%, respectively

[ESE-2006]

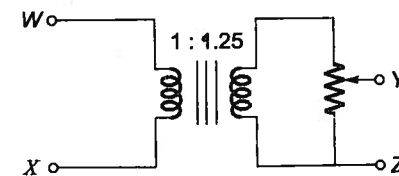
49. A two-winding transformer is converted into an auto-transformer. If we apply additive polarity and subtractive polarity for the connections, then the secondary voltage is 2640 V and 2160 V, respectively. What is the ratio of primary to secondary voltage of the original transformer?
- (a) 66 : 54
- (b) 54 : 66
- (c) 10 : 1
- (d) 1 : 10

[ESE-2006]

50. What is the efficiency of an auto-transformer in comparison to that of a two-winding transformer of the same rating?
- (a) Slightly less than that of a two-winding
- (b) Same as that of a two-winding transformer
- (c) More than that of a two-winding transformer
- (d) As low as $1/5^{\text{th}}$ of the efficiency of a two-winding transformer

[ESE-2006]

51. The following arrangement consists of an ideal transformer and an attenuator which attenuates by a factor of 0.8. An ac voltage $V_{WX1} = 100$ V is applied across WX to get an open circuit voltage V_{YZ1} across YZ. Next, an ac voltage $V_{YZ2} = 100$ V is applied across YZ to get an open circuit voltage V_{WX2} across WX. Then, $V_{YZ1}/V_{WX1}, V_{WX2}/V_{YZ2}$ are respectively,



- (a) 125/100 and 80/100
- (b) 100/100 and 80/100
- (c) 100/100 and 100/100
- (d) 80/100 and 80/100

[GATE-2013]

52. On which of the following factors does hysteresis loss depend?
1. Flux density
 2. Frequency
 3. Thickness of lamination
 4. Time
- Select the correct answer using the code given below:

- (a) 2 and 3
- (b) 1 and 2
- (c) 3 and 4
- (d) 1 and 4

[ESE-2007]

53. Consider the following statements regarding transformers:
1. The function of the magnetizing component of no load current is to sustain the alternating flux in the core.
 2. Short circuit test is performed to find core losses only.
 3. The function of the breather in transformer is to arrest flow of moisture when outside air enters the transformer.

Which of these statements are correct?

- (a) 1 and 2
- (b) 1 and 3
- (c) 2 and 3
- (d) 1, 2 and 3

[ESE-2007]

54. Consider the following tests:
1. Load test
 2. Short circuit test
 3. OC test
 4. Retardation test
- Which of the above tests are to be conducted for the determination of voltage regulation of a transformer?
- (a) 1 only
- (b) 2 only
- (c) 2 and 3
- (d) 3 and 4

[ESE-2009]

55. A 200/100 V, 50 Hz transformer is to be excited at 40 Hz from the 100 V side. For the exciting current to remain same, the applied voltage should be
- (a) 150 V
- (b) 125 V
- (c) 100 V
- (d) 80 V

[ESE-2014]

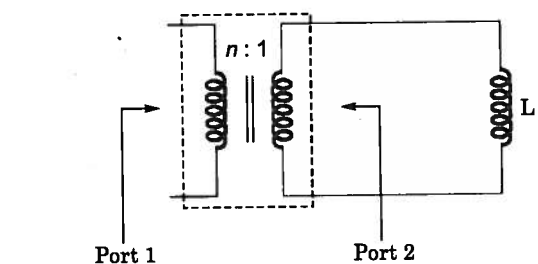
56. In the core-type two winding transformer, the low voltage winding is placed adjacent to the steel core, in order to
- (a) facilitate dissipation of heat during the operation of the transformer.
 - (b) minimize the amount of insulation required.
 - (c) reduce the chances of axial displacement with respect to the high voltage winding placed outside.
 - (d) reduce the mutual radial stress between the two windings.

[ESE-2014]

57. Two transformers of the same type, using the same grade of iron and conductor materials, are designed to work at the same flux and current densities; but the linear dimensions of one are two times those of the other in all respects. The ratio kVA of the two transformers closely equals
- (a) 16
- (b) 8
- (c) 4
- (d) 2

[GATE-1992 : 1 Mark]

58. If an ideal transformer has an inductive load element at port 2 as shown in the figure below, the equivalent inductance at port 1 is



- (a) nL
- (b) n^2L
- (c) $\frac{n}{L}$
- (d) $\frac{n^2}{L}$

[GATE-2016]

59. A single-phase, 22 kVA, 2200 V/220 V, 50 Hz, distribution transformer is to be connected as an auto-transformer to get an output voltage of 2420 V. Its maximum kVA rating as an autotransformer is
- (a) 22
- (b) 24.2
- (c) 242
- (d) 2420

[GATE-2016]

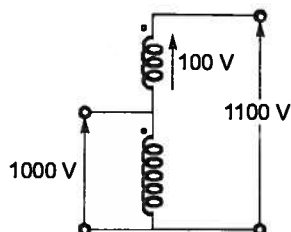
60. Three single-phase transformers are connected to form a delta-star three-phase transformer of 110 kV/11 kV. The transformer supplies at 11 kV a load of 8 MW at 0.8 p.f. lagging to a nearby plant. Neglect the transformer losses. The ratio of phase currents in delta side to star side is
- (a) $1:10\sqrt{3}$
- (b) $10\sqrt{3}:1$
- (c) $1:10$
- (d) $\sqrt{3}:10$

[GATE-2016]



Numerical Data Type Questions

61. A single-phase, 50 kVA, 1000 V/100 V two winding transformer is connected as an autotransformer as shown in the figure.



The kVA rating of the autotransformer is _____.
[GATE-2014]

62. A 3- ϕ transformer has its primary connected in delta and secondary in star. Secondary to primary turns ratio per phase is k . If the ratio of secondary to primary line voltage is k_1 , then $k_1 = x k$, the value of x is _____.
63. A single-phase 400 V, 50 Hz transformer has an iron loss of 5000 W at the rated condition. When operated at 200 V, 25 Hz, the iron loss is 2000 W. When operated at 416 V, 52 Hz, the value of the hysteresis loss divided by the eddy current loss is _____.
64. A single-phase, 2 kVA, 100/200 V transformer is reconnected as an auto-transformer such that its kVA rating is maximum. The new rating, in kVA, is _____.

[GATE-2016]



Try Yourself

- T1. A 3- ϕ , 50 Hz transformer has an iron cross section of 400 cm² (gross). If the flux density be limited to 1.2 Wb/m², find the sum of number of turns per phase on high and low-voltage windings. The voltage ratio is 2200/110 V, the high voltage side being connected in star and low voltage in mesh assume stacking factor to be 0.9.

[Ans. : 150]

- T2. In a 25 kVA, $\frac{2000}{200}$ V transformer the iron and copper losses are 350 and 400 W respectively. Determine the load for maximum efficiency.

[Ans. : 23.4]

- T3. The ratio of the number of turns per phase in the primary, secondary and the tertiary windings of a transformer is 10 : 2 : 1. With lagging currents of 45 A at P.F. 0.8 in the secondary, and 50 A at power factor 0.71 in the tertiary winding, the primary side power factor will be _____ lag.

[Ans. : 0.77]

- T4. A 10 kVA, 2500/250 V, single phase transformer gave the following test results:
Open circuit test : 250 V, 0.8 A, 50 W
Short circuit test : 60 V, 3 A, 45 kW
Calculate the efficiency at 25% loading at a p.f. of 0.8 lag
- (a) 98.4% (b) 97.3%
(c) 95.2% (d) 92.5%

[Ans. : (b)]

- T5. A 400/200 V, 50 Hz transformer operates at a flux density of 1.2 T when energized from its H.V. side. For this transformer, at the linear dimensions of core are doubled while the number of turns are halved on both of its H.V. and L.V. sides. If this transformer is now connected to 800 V, 50 Hz on its H.V. side, then its flux density would be
- (a) 0.6 T (b) 1.2 T
(c) 2.4 T (d) 4.8 T

[Ans. : (b)]

- T6. A 600 kVA, single-phase transformer with 0.012 pu resistance and 0.06 pu reactance is connected in parallel with a 300 kVA transformer with 0.014 pu resistance and 0.045 pu reactance to share a load of 800 kVA at 0.8 pf lagging. Find how they share the load, when both the secondary voltages are 400 V.

