
The core flux in a double wound transformer cuts the -

- a) primary winding only
- b) secondary winding only
- c) primary winding on one half cycle and the secondary winding on the other half cycle
- d) primary and secondary windings simultaneously

The secondary voltage of a transformer is produced by -

- a) electrostatic induction
- b) current conduction
- c) mutual induction
- d) self induction

The number of primary winding turns on a transformer is determined by the -

- a) supply frequency, voltage and core flux
- b) primary current and voltage
- c) impedance of the secondary load
- d) frequency of the supply only

If a double wound transformer having a voltage ratio of 2:1 is supplied with a 50Hz sine wave to the primary winding, the frequency of the secondary output will be -

- a) 25Hz sine wave
- b) 25Hz distorted wave
- c) 50Hz sine wave
- d) 50Hz distorted wave

The number of primary turns on a transformer is governed by the -

- a) secondary current
- b) primary current
- c) primary voltage
- d) required ratio of transformation

SECTION C

1. The primary winding of a 440/55V transformer has 400 turns. How many turns are there on the secondary winding? (50 turns)
 2. A single phase 240/32V transformer has 300 primary turns and takes a primary current of 1A. Determine the -
 - a) secondary turns (40 turns)
 - b) secondary current (7.5A)
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3. A transformer with a core flux of 25mWb has a primary winding of 1000 turns and a secondary of 1500 turns. Calculate the secondary voltage if the supply frequency is 50Hz. (8325V)

1. The core of a transformer is laminated to -

- a) reduce hysteresis loss
- b) reduce eddy current loss
- c) enhance the coupling between windings
- d) make core construction simpler

2. Silicon steel is used for transformer cores because it -

- a) reduces hysteresis loss
 - b) keeps the iron loss to a minimum
 - c) is cheaper than ordinary steel
 - d) has low resistance
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3. The material most commonly used for transformer windings is -
- a) aluminium
 - b) copper
 - c) silicon steel
 - d) iron
1. What is meant by the term *leakage flux*, and how is it kept to a minimum?
2. A 240/115V single phase transformer has 960 turns on its primary winding. Calculate the number of turns required on the secondary winding. (460 turns)
3. A 300/32V, 50Hz single phase transformer has 500 primary turns. Determine the maximum value of core flux. (0.0027Wb)
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1. In general the power factor of the primary side of a transformer with an inductive secondary load is -
 - a) lower than
 - b) equal to
 - c) higher than
 - d) unrelated to the power factor of the secondary winding.

 2. The primary and secondary currents of a transformer are "**approximately**" -
 - a) in phase
 - b) 60° out of phase
 - c) 90° out of phase
 - d) 180° out of phase

 3. The no-load power factor of a transformer is approximately -
 - a) 0.1
 - b) 1.0
 - c) 0.9
 - d) 0.707
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4. In order to obtain maximum cooling effect a transformer tank should be -
- a) plain
 - b) finned
 - c) tubed
 - d) painted in a light colour
1. A single phase 240/32V transformer is to supply a low voltage lighting circuit. The no-load current of the transformer is 2A at a power factor of 0.1 lag. If the lights take a current of 40A at unity power factor, determine the -
- a) primary current (5.9A)
 - b) primary phase angle (20° lag)
 - c) primary power factor. (0.94 lag)
- Scale: 1mm = 0.1A
2. A 240/110V single phase transformer takes a no-load current of 2.5A at a power factor of 0.1 lag. If the transformer supplies a load current of 20A at a power factor of 0.866 lag, determine the -
- a) load component of primary current (9.17A)
 - b) primary current (10.82A)
 - c) primary phase angle (41°) Phasor diagram scale; 1mm = 0.1A
 - d) primary power factor (0.75 lag)
1. A single phase transformer is rated at 20kVA at 100V. The true power output at full-load and 0.8 power factor is -
- a) 25kW
 - b) 20kW
 - c) 16kW
 - d) 8kW
2. The all day efficiency of a transformer is the ratio of the -
- a) input energy over 24 hours to the output energy over 24 hours
 - b) output kVA over 24 hours to the input kVA over 24 hours
 - c) input kVA over 24 hours to the output kVA over 24 hours
 - d) output energy over 24 hours to the input energy over 24 hours
1. A 33kV/11kV, three phase transformer with a rating of 500kVA has a percentage impedance of 4.5%. Determine the secondary prospective short circuit current of the transformer. (583A)
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2. Determine the full load efficiency of a transformer supplying full load output of 15kW at unity power factor, if the transformer has iron losses of 400W and copper losses of 800W when tested at full load. (92.6%)
3. A 50kVA transformer has a full load copper loss of 460W and an iron loss of 220W. Determine the -
 - a) iron loss when delivering 25kVA (220W)
 - b) copper loss when delivering 25kVA. (115W)
1. When conducting a final additive/subtractive polarity test for paralleling two singlephase transformers, the voltmeter is connected across -
 - a) each transformer primary winding
 - b) each transformer secondary winding
 - c) the two transformer secondaries in series
 - d) the two transformer primaries in parallel
1. In an auto transformer the current in the primary is 10 amperes and the current in the secondary is 20 amperes; the current in the common part of the winding is—
 - a) 30 amperes.
 - b) 20 amperes.
 - c) 15 amperes.
 - d) 10 amperes.
1. An auto transformer is used to step up from 200 volts to 250 volts. The primary winding consists of 400 turns and the secondary current is 20 amperes. Determine:
 - a) secondary turns (500 turns)
 - b) primary current (25A)
 - c) current in common portion of winding, neglecting all losses (5A).