INTRODUCTION TO ELECTRICAL ENGINEERING

Worksheet - 3

Unit 3: Transformers

Choose the correct answer

1. The transformer works on the principle of
   (a) Mutual induction (b) ohm's law (c) KVL (d) none

2. In a transformer, the frequency of the AC supply remains
   (a) increases (b) decreases (c) constant (d) depends on voltage

3. Silicon steel is used for the construction of core to minimize
   (a) eddy current loss (b) ohmic loss (c) hysteresis loss (d) all

4. An ideal transformer is one which has
   (a) no losses and magnetic leakage
   (b) interleaved primary and secondary windings
   (c) a common core for its primary and secondary windings
   (d) core of stainless steel and winding of pure copper metal

5. The short circuit test is performed on _____ side of transformer
   (a) Low Voltage Side (b) High Voltage Side (c) both sides (d) none

6. When transformer is on no-load, the current drawn by primary winding of the is used to
   (a) magnetize the core (b) produce ohmic loss in secondary
   (c) equal to short circuit current (d) all the above

7. Transformation ratio K is equal to
   (a) V2/V1 (b) V1/V2 (c) I1/I2 (d) all

8. The induced emf in primary winding is proportional to
   (a)number of turn on primary (b) supply frequency (c)both a and b (d) none

9. The efficiency of a transformer is maximum when
   (a) iron losses = copper losses (b) iron losses > copper losses
   (c) iron losses < copper losses (d) none

10. The purpose of the core in transformer is
    (a) To provide a path for magnetic flux (b) To support the winding
    (c) To provide insulation between windings (d) To protect the windings from dust

Fill in the blanks

1. The transformer core is laminated to reduce _____ losses.
2. The emf equation of transformer is given by E1= _____
3. An auto-transformer is a type of transformer that uses _____winding, saving in winding material and providing higher efficiency.
4. The open circuit test is performed on the transformer to find _____.
5. The voltage regulation of transformer is given by _____
6. The transformer rating is always in _____.
7. The full-load copper loss of a transformer is 1600 W. At half-load, the copper loss will be _____
8. For a transformer with primary turns 400, secondary turns 100, if 20A current is flowing through primary, the secondary current is_____
9. The no load current I_0 is resolved into two components, they are _____ and _____.
10. For Ideal transformer input VA = _____.