

Unit 13 - Week 11

Course outline

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 Lecture 57 : Single Phase Transformer (Contd.)

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 Lecture 59 : Three phase Induction Motors (Contd.)

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Week 11 Assignment 11

The due date for submitting this assignment has passed.

Due on 2019-10-16, 23:59 IST.

As per our records you have not submitted this assignment.

1) In a three phase slip ring induction motor, a three phase balanced supply is given to the rotor and the stator winding is short circuited. The rotor would

1 point

- Not run at all
- Run at half of the synchronous speed
- Run against the direction of the rotating field
- Run in the direction of the rotating field

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

2) A 400 V / 100 V, 5 kVA, 50 Hz, two-winding transformer is to be used as an autotransformer to supply power at 400V from 500V source. Determine the kVA output of the autotransformer.

1 point

- 18.75
- 31.25
- 15.00
- 25.00

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

3) In case of short-circuit test of a single phase transformer in the Electrical Machines Laboratory, the following statements are given:

1 point

- Applied voltage is around 5 to 6 percent of the rated voltage of the winding.
- Reading of the wattmeter shows full-load copper loss of the transformer.
- All the meters are connected in the high voltage side while the low voltage terminal is shorted.
- All the meters are connected in the low voltage side while the high voltage terminal is shorted.

Which of the following statements are correct? Choose the best possible option.

- ii & iv
- ii & iii
- i, ii & iii
- i, ii & iv

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

4) In a transformer, zero voltage regulation at full load is

1 point

- Not possible
- Possible at leading power factor load
- Possible at lagging power factor load
- Possible at unity power factor load

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

5) A 100 kVA, 50 Hz, 440V / 11kV, single phase transformer has an efficiency of 98.5% when supplying full load at 0.8 power factor lagging, and an efficiency of 99% when supplying half of the full load at unity power factor. Find out the efficiency (in %) of the transformer when it is supplying 75 % of the full load at 0.6 power factor lag?

1 point

- 97.35 – 97.37
- 98.24 – 98.26
- 99.15 – 99.17
- None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

6) A single-phase, 50 Hz, transformer is found to have 2% equivalent resistance and 4% equivalent leakage reactance. Find out the approximate voltage regulation (in %) of the transformer when it is supplying load at 0.8 lagging power factor.

1 point

- 3%
- 4%
- 5%
- 6%

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

7) In case of open-circuit test of a single phase transformer in the Electrical Machines Laboratory, the following statements are given:

1 point

- The current reading in the ammeter should be 2 to 5 % of the full-load current.
- Reading of the wattmeter shows full-load copper loss of the transformer.
- All the meters are connected in the high voltage side while the low voltage terminal is kept open.
- All the meters are connected in the low voltage side while the high voltage terminal is kept open.

Which of the following statements are correct? Choose the best possible option.

- (i) & (iv)
- (i) & (iii)
- (i), (ii) & (iii)
- (i), (ii) & (iv)

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

8) In a single-phase transformer, if the iron and copper losses are 64 W and 100 W respectively, then at what fraction of load the efficiency of the transformer will be maximum?

1 point

- 0.8
- 0.9
- 0.7
- 0.57

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

9) Consider a 20 kVA, 2200/220 V, 50 Hz transformer. The open circuit and the short circuit test results are obtained as below:

1 point

OC test: 220 V, 4.2 A, 148 W
 SC test: 86 V, 10.5 A, 360 W

Find out the power factor on short circuit

- 0.3—0.45 lag
- 0.5—0.65 lag
- 0
- 0.7—0.95 lag

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

10) A 3-phase, 6 pole induction motor is supplied from a 415V, 50Hz supply. The motor speed is 970 rpm at full load. Determine the slip.

1 point

- 0.03
- 0.97
- 3.0
- None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

11) Consider a 20 kVA, 2200/220 V, 50 Hz transformer. The open circuit and the short circuit test results are obtained as below

1 point

OC test: 220 V, 4.2 A, 148 W
 SC test: 86 V, 10.5 A, 360 W

Find out the voltage regulation (in %) at full load of the transformer at 0.8 lagging power factor

- 0.6—0.8
- 4—6
- 1—2
- 2.5—3.5

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

12) The daily variation of load of a 100 kVA transformer is as follows:

1 point

TIME	Active Power	Reactive Power
8 AM to 1 PM	65 kW	45 kVAR
1 PM to 6 PM	80 kW	50 kVAR
6 PM to 1 AM	30 kW	30 kVAR
1 AM to 8 AM	No load	No load

This transformer has no-load core-loss of 370 W and a full load ohmic loss of 1200 W. The all-day efficiency (in %) of the transformer is

- 97.5—98.5
- 94—95
- 99—100
- 96—97

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.