

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Testing and Commissioning of Electrical Machines

Subject Code: 4TE06TCM1

Branch: B.Tech (EEE,EE)

Semester: 6

Date: 21/4/2017

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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Q-1

Attempt the following questions:

(14)

- a) A transformer oil must be free from
- a) sludge
 - b) odour
 - c) gases
 - d) moisture
- b) Swinburnes test can be performed at
- a)any load
 - b)no load
 - c) only half load
 - d)any of the above
- c) The usual test to determine the efficiency of traction motor is _____ test
- a) field's
 - b) retardation
 - c) Hopkinson's
 - d) Swinburn
- d) The dielectric strength of transformer oil is excepted to be
- a) 11 kv
 - b)33 kv
 - c)100 kv
 - d) 330 kv
- e) In a synchronous motor, the rotor Cu losses are met by
- a) motor input
 - b) armature input
 - c) d.c source
 - d) supply lines
- f) For which among the following the current rating are not required?
- a) circuit breakers
 - b) relays
 - c) isolators
 - d) load break switch



- g) In electric motor in which both rotor and stator field rotates with same speed is called _____ motor
- a) charge b) dc
c) synchronous d) universal
- h) Define derating
- i) Define testing and commissioning
- j) Classify various types of test on induction motor.
- k) Define short circuit ratio
- l) The main disadvantage of Hopkinson test for finding efficiency _____
- m) Draw diagram of drying out of transformer.
- n) In Hopkinson test on two 220V 100kw generator the circulating current equal to the full-load current 90A are taken from the supply. Find efficiency of machine.

Attempt any four questions from Q-2 to Q-8

- Q-2 Attempt all questions (14)**
- (a) List the routine and type tests on power transformer. Explain the polarity and ratio test with the help of circuit diagram. **07**
- (b) Explain open circuit test and short circuit test on synchronous motor. **07**
- Q-3 Attempt all questions (14)**
- (a) Explain murray loop test and warley loop test of insulation cable. **07**
- (b) Describe Drying out procedure and commissioning steps for synchronous machine. **07**
- Q-4 Attempt all questions (14)**
- (a) Explain noise measurement, vibration measurement and slip measurement in case of three phase induction motor. **07**
- (b) Describe the test setup for impulse testing of power transformer. **07**
- Q-5 Attempt all questions (14)**
- (a) Explain the derating of the cable. Explain ac/dc resistance method checking **07**



method

- (b) Explain test regarding circuit breaker: 1) Mechanical endurance test. **07**
2) Measurement breaker time
3) Impulse testing

Q-6 Attempt all questions (14)

- (a) Explain the tan delta test on transformer. **07**
(b) Explain with the help of necessary diagram the various type of test performed on circuit breaker. **07**

Q-7 Attempt all questions (14)

- (a) Explain requirement of testing and hopkinson's test of DC machine. **07**
(b) Explain with the help of circuit diagram the partial discharge test of transformer. **07**

Q-8 Attempt all questions (14)

- (a) Explain power frequency voltage withstand test on bus-bar. **07**
(b) What is the significance of polarity in case of current transformer? How can we test the polarity of C.T? **07**

