

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-VIII Examination May 2012****Subject code: 180901****Subject Name: Commissioning of Electrical Equipments****Date: 10/05/2012****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain with the help of circuit diagram the partial discharge test of transformer. **07**
- (b) For the following conditions explain in detail troubles, causes and its remedies for synchronous of motor. **07**
- i) Motor fails to start
 - ii) Motor fails to synchronize
 - iii) motor starts but fail to come up to full speed
- Q.2** (a) A 3 phase, 6900/415 volt step down transformer having terminals A1, B1, C1 on primary side and having terminal A2, B2, C2 on secondary side and N indicate the neutral terminal on primary side. Now A1 and A2 are short circuited and by applying 3- phase supply of 435 V on primary the following reading was obtained
- | | | |
|--------------|-------------|------------|
| A 1, B1=435V | B1, B2=415 | C1, B2=440 |
| A1, N=250 | B1, C1=435V | B1, C2=415 |
| A1, C2= 25 | C1, A1=435V | C1, C2=420 |
| C2, N=225 | | |
- Then with the help of phasor diagram find the vector group of Transformer. **07**
- (b) List out the routine test and type test on power transformer. Explain the polarity test and Voltage ratio test with the help of circuit diagram. **07**
- OR**
- (b) Explain in detail the procedure of drying out of power transformer. **07**
- Q.3** (a) List out the various test performed on the synchronous machine. Explain any two tests with necessary circuit diagram and also explain its significance. **07**
- (b) State the causes for vibration in motors and generators. Explain the harmful effects of vibration. How are the vibration measured. **07**
- OR**
- Q.3** (a) State the various troubles with commutator and brush gear , their causes and remedies .Explain the choice of selection of materials used for the brushes of various rotating machine. **07**
- (b) Explain with the help of necessary diagrams the various types of test performed on high voltage A.C circuit breaker **07**
- Q.4** (a) Why to conduct tan delta test on transformer? Explain it with the help of circuit diagram. **07**
- (b) Explain the procedure of installation of synchronous machines arriving in **07**

dismantled condition at site.

OR

- Q.4** (a) What is polarization index? How can you measure the slip of induction motor? **07**
(b) Explain the procedure of alignment of shaft of electrical machines. **07**

- Q.5** (a) explain the procedure of locating earth fault and open circuit in shunt field of D.C machine **07**
(b) State the types of cable fault locators and their applications. **07**

OR

- Q.5** (a) Explain the causes and remedies of unbalance input current in 3- phase induction motor. **07**
(b) In an industry main motor of 300 KW slip ring induction motor was burnt. An other motor of same size and rating was tested in workshop and found its meggar value of 0.5 M Ohm. To prevent heavy loss of production it becomes compulsory to install this within minimum possible time motors. As a engineer what will be your decision. **07**
