C.U.SHAH UNIVERSITY
Summer Examination-2016

Subject Name: Testing & Commissioning of Electrical Machines

Subject Code: 4TE06TCM1   **Branch: B.Tech (EEE,EE)**

Semester: 6   **Date: 17/05/2016**   **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.

Q-1   **Attempt the following questions:**   **(14)**

  a) Define the term : Derating factor
  b) Define the term : Dummy coil
  c) Out of different methods available for testing of d.c. motors, Swinburne's test and Hopkinson's test are commonly used in practice on
      (a) shunt generators   (b) shunt motors
      (c) series motors   (d) none of the above
  d) A transformer oil must be free from
      (a) sludge   (b) odour
      (c) gases   (d) moisture
  e) Swinburne's test can be performed at
      (a) any load   (b) only no load
      (c) only half load   (d) any of the above
  f) The dielectric strength of transformer oil is expected to be
      (a) 11 kV   (b) 33 kV
      (c) 100 kV   (d) 330 kV
  g) In the transformer following winding has got more cross-sectional area
      (a) Low voltage winding
      (b) High voltage winding
      (c) Primary winding
      (d) Secondary winding
  h) Efficiency of a power transformer is of the order of
      (a) 100 per cent
      (b) 98 per cent
      (c) 50 per cent
      (d) 25 per cent

i) Earth wire or ground wire is made of
(a) copper
(b) aluminium
(c) iron
(d) galvanized steel

j) For which among the following the current ratings are not required?
(a) Circuit breakers
(b) Relays
(c) Isolators
(d) Load break switch

k) Zero power factor method of an alternator is used to find its
(a) field resistance
(b) armature resistance
(c) efficiency
(d) voltage regulation.

l) In a synchronous motor, the rotor Cu losses are met by
(a) motor input
(b) armature input
(c) d.c. source
(d) supply lines

m) Breaking capacity of a circuit breaker is usually expressed in terms of
(a) Amperes
(b) Volts
(c) MW
(d) MVA.

n) The efficiency of a 3-phase induction motor is approximately proportional to
(a) $(1 - s)$
(b) s
(c) N
(d) N_s

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

Q-2	**Attempt all questions**	**(14)**
(a)	What is polarisation index? What is its significance?	**(07)**
(b)	Describe the test setup for impulse testing of power transformers.	**(07)**
Q-3	**Attempt all questions**	**(14)**
(a)	Explain drying out process of DC machines.	**(07)**
(b)	Explain field test on two identical dc series machines.	**(07)**
Q-4	**Attempt all questions**	**(14)**
(a)	Explain the classification of various tests performed on induction motor.	**(07)**
(b)	Describe the Hammer test for 3-phase induction motor.	**(07)**

Q-5   **Attempt all questions**   **(14)**
- **(a)** Explain the line to line short circuit test for synchronous motor. **(07)**
- **(b)** Explain commissioning steps for synchronous machine. **(07)**

Q-6   **Attempt all questions**   **(14)**
- **(a)** Explain Murray loop test and warley loop test. **(07)**
- **(b)** Explain open circuit test and short circuit test on synchronous machine. **(07)**

Q-7   **Attempt all questions**   **(14)**
- **(a)** Explain soil resistivity measurement. **(07)**
- **(b)** Explain power frequency voltage withstand test on bus bar. **(07)**

Q-8   **Attempt all questions**   **(14)**
- **(a)** Explain the significance of temperature rise test and the method to conduct temperature rise test on power transformer. **(07)**
- **(b)** Explain the tan delta test on transformer. **(07)**