S.B. Roll No. _____

ELECTRICAL MACHINES-1

3RD Sem Exam/EE/2520/0952/May 2015

Duration: 3Hrs. **M.Marks: 75**

Section-A

Q1. Fill in the blanks: 1x15=15

a) When a conductor cuts the _____ an _____ is induced in it.
b) The magnitude of dynamically induced e.m.f is given by expression, e =_____.
c) The brushes for commutator are made of _____.
d) The best suited motor for electric traction is _____.
e) Iron losses of transformer consist of _____ and _____.
f) Tap changers are provided on the _____ voltage winding of the transformer.
g) Transformers are always rated in ____.
h) The full load copper loss in a transformer is 400W. At half load, the copper losses will be_____.
i) _____ is placed in between the tank and conservator.
j) The colour of silica gel is _____ when dry and _____ when wet.
k) Fleming's right hand rule may be applied to an electric generator to find out _____.
l) The secondary voltage of PT is generally ____ V.
m) Under stable equilibrium position there exist a force of _____between the poles of two magnets.
n) Swinburne's test is used to find the _____ in a DC machine.
o) Frictional torque always acts in opposite direction to _____.

Section-B

Note: Attempt any six questions. 5x6=30

Q2.a) What are conditions for parallel operation of a three phase transformer?
b) What are the advantages and disadvantages of auto-transformer?
c) What is back e.m.f ? Derive the relation for back e.m.f and supplied voltage in term of armature resistance?
d) Derive the expression for armature torque of DC machine.
e) Explain short circuit test of transformer.
f) What is isolation transformer?
g) How AC machines are different from DC machines?

Section-C

Note: Attempt any three questions. 10x3=30

Q3.a) Explain the constructional features of DC machine.
b) Write the function of the following auxiliaries of the transformer:
(1) Breather
(2) Cooling tube
(3) Conservation Tank
(4) Buchholz Relay
c) Explain the principle, construction and working of three point starter with neat sketch.
d) Describe the methods of speed control used for DC series motor.
e) What are the possible methods of connecting three phase transformer?