S.B. Roll No.....

ELECTRICAL MACHINES-I
4TH Exam/Elect/EEE/2520/May'17

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

SECTION-A

Q1. Fill in the blanks- **1.5x10=15**

a) A 4- Pole, dc wave wound machine will wave .....parallel paths.
b) Eddy currents in a transformer can be minimized by .....
c) Transformer is always rated in.....
d) Tap changers are provided on..... voltage winding of transformer.
e) In motoring action, armature rotates in the same direction as that of .....torque.
f) Fleming's right hand rule may be applied to an electric generator to find out.....
g) The commutator converts .....to .....
h) Shaft of a D.C machine is made of .....
i) Which type of motor is suitable for electric traction.....
j) Transformer cannot work on ..... supply.

SECTION-B

Q. 2 Attempt any six questions:- **6x5=30**

a) An electrical motor or generator is also called electro-mechanical energy conversion device. Why?
b) Write the conditions necessary for parallel operation of transformer.
c) The secondary of a CT is never open circuited, why?
d) What is the function of commutator in dc motor and generator?
e) Draw and Explain speed current characteristics of DC series motor.
f) What is an auto transformer? How is its different from a single phase transformer?
g) Explain the cooling of a three phase transformer?
h) Explain the working of an ON- load tap changer.

SECTION-C

Attempt any three questions:- **3x10=30**

Q3. What do you mean by commutation in a d.c machine? Explain. Mention the methods to improving it.
Q4. Draw and explain transformer phasor diagram for Inductive load.
Q6. Describe with neat sketch the working of a 3-point starter for a D.C shunt motor. Explain the function of (a) No volt release coil (b) over load release coil.
Q7. The no load current of a transformer is 5A at 0.25 p.f when supplied at 230 V,50 Hz. The numbers of turns on primary winding are 200. Calculate
(a) Maximum value of flux in core (b)Core loss (c) Magnetising current
Q8. Write short note on -
(a) Auto transformer (b) cooling of transformer