Printed Pages: 4 **EIC- 602**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 132603	**Roll No.**

B.TECH.

Theory Examination (Semester-VI) 2015-16

ELECTRICAL MACHINES

Time : 3 Hours ***Max. Marks : 100***

Section-A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10 = 20)

(a) Define armature reaction in dc machines.

(b) Write the advantages of synchronous machines over DC machines.

(c) How does d.c. motor differ from d.c. generator in construction?

(d) Why an induction motor is called as rotating transformer?

(e) What is the application of shaded pole motor?

(f) Draw the torque slip characteristics of induction motor.

(g) What is back EMF in D.C. motor?

(h) What is the function of capacitor in single phase induction motor?

(i) State any 4 uses of single phase induction motor.

(j) Enumerate the factors on which speed of a d.c.motor depends.

Section-B

Attempt any five questions from this section. (10×5=50)

(a) Explain with a neat sketch the matching characteristics of electric machines and load.

(b) A dc shunt generator driven by a belt from engine runs at 750 rpm while feeding 100 KW of electric power into 230v mains. When the belt breaks it continues to run as a motor drawing 9KW from the mains. At what speed would it run? Given armature resistance 0.08 ohm and field resistance 115 ohm.

(c) Enlist the different types of single phase motor. Explain any one type with neat diagram.

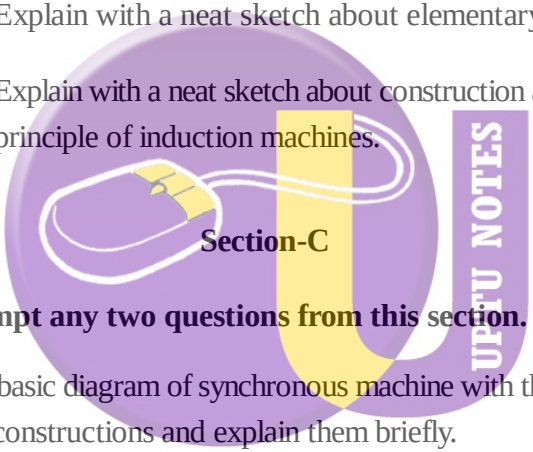
(d) Determine the leakage reactance of synchronous machine.

(e) Explain with a neat sketch about the parallel operation of synchronous generators.

(f) A 6-pole, 50HZ, 3-phase induction motor has a rotor resistance of 0.25 ohm per phase and a maximum torque of 10Nm at 875 rpm. Calculate the torque when the slip is 5%. The stator impedance is assumed to be negligible.

(g) Explain with a neat sketch about elementary machines.

(h) Explain with a neat sketch about construction and working principle of induction machines.



Section-C

Note: Attempt any two questions from this section. (15×2=30)

3. Draw basic diagram of synchronous machine with their different rotor constructions and explain them briefly.

4. (a) What is the function of no-voltage release coil in d.c. motor starter? (3)

(b) Explain three point starter with neat diagram and give advantage of three point starter over two point starter. (12)

5. Differentiate between "capacitor start" & "Capacitor start capacitor run" single phase induction motor with explanation and neat diagram.