DEPARTMENT OF ELECTRICAL ENGINEERING
INTERNAL ASSESSMENT, SESSION 22-23(S)
TH- 1, ENERGY CONVERSION -I
4TH SEMESTER   F.M=20   TIME- 1 Hr

1. ANSWER **ALL** QUESTIONS   (2X5=10)
   i)   State the working principle of DC motor and DC generator.
   ii) What are the factors which affect the torque of DC motor?
   iii) What do you mean by armature reaction? State the effect of armature reaction .
   iv) What are conditions of voltage build up in DC shunt generator?
   v)   Write the significance or role of back emf in DC motor ?

ANSWER ANY **TWO** QUESTIONS   (5X2=10)

2. Derive the emf equation of DC generator.
3. A 4-pole, 240 V, wave connected D.C. shunt motor gives 11.19 kW when
   running at 1000 rpm and drawing armature and field currents of 50 A and
   1.0 A respectively. It has 540 conductors. Its resistance is 0.1Ω. Assuming a
   drop of 1 volt per brush. Find
           a) total torque
           b) useful torque
           c) useful fluxper pole
           d) rotational losses
           e) efficiency
4. The armature winding of a 4-pole, 250V DC shunt motor is lap connected. There are
   120 slots in each slot containing 8 conductors. The flux per pole is 20 mWb and
   current taken by the motor is 25A. The resistances of armature and field circuit are
   0.10 and 1250 respectively if the rotational losses amount to be810W. Find
           a) Gross torque
           b) Useful torque and
           c) Efficiency