Registration No : | | | | | | | | | | |

Total Number of Pages : 02

B.Tech
PEE4I101

4th Semester Regular / Back Examination 2018-19
ELECTRICAL MACHINES-II
BRANCH : ELECTRICAL
Max Marks : 100
Time : 3 Hours
Q.CODE : F836

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.
The figures in the right hand margin indicate marks.

Part- I

Q1 **Only Short Answer Type Questions (Answer All-10)** (2 x 10)

a) Why the armature winding in a DC machine is always double layer winding?
b) Distinguish between demagnetization and cross magnetization effect of armature reaction.
c) What happens if DC machine is operated at a speed below the rated speed?
d) What is the coil span to eliminate 7th Harmonic in term of pole pitch?
e) Why Load angle is positive in case of alternator and negative in case of motor?
f) The resultant flux density in the air gap of synchronous generator is lowest during:
a. Open circuit b. Short circuit c. Full load d. Half Load
g) Which alternator uses damper winding, state the reason?
h) What is Short circuit ratio of Alternator and what is effect on size of alternator?
i) What are the advantages of cylindrical rotor for a turbo alternator?
j) Why the flux wave is not sinusoidal in Salient pole machine?

Part- II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** (6 x 8)

a) Explain about various losses in DC machine.
b) Explain the internal and external characteristic for self and separately excited DC generator.
c) Why starter is necessary for DC motor. Explain any starting method.
d) A 400V DC motor running at 1200 r.p.m takes an armature current of 32.8Amp.The armature resistance is 0.5Ω.If the load torque increases by 25% and the flux increases by 10%, by neglecting iron and friction losses Find (i) Armature current (ii) Speed (iii) output of the machine
e) Explain universal motor. Draw speed-Load characteristics for both AC and DC and state its applications.
f) Explain the construction of alternator and write the advantages of stationary armature.
g) A 10 kVA, 440V, 1200 rpm 3 phase, Y connected alternator has armature winding resistance is (0.3+j5) Ω/phase. When generator operates at its full load and 0.8 pf lagging. Determine :
i) voltage regulation
ii) Generated emf.
h) Explain about parallel operation of alternator and state the advantages of parallel operation.
i) A 12 pole 3 phase star connected alternator has 72 slots. The flux per pole 0.88 Wb. Calculate :
i) The speed if frequency of generated EMF is 50Hz.
ii) The terminal emf for full pitch coils and 8 conductors per slot.
iii) The terminal emf if coil span is reduced to 2/3 of pole pitch.