Q.P. Code: **16EE211** **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester (R16) Regular Examinations Nov/Dec 2017
ELECTRICAL MACHINES-I
(ELECTRICAL & ELECTRONICS ENGINEERING)

Time: **3 hours** Max. Marks: **60**

(Answer all Five Units **5 X 12 = 60** Marks)

UNIT-I

1		Explain the principle of energy conversion of an electromechanical system	12M

OR

2		Write energy balancing Equation?	12M

UNIT-II

3	a	Deduce an expression for e.m.f equation of DC Generator	6M
	b	An 8-pole lap connected armature has 960 conductors, a flux of 40 m Wb per pole and a speed of 400 r.p.m. Calculate the emf generated on open circuit. If the armature were wave connected, at what speed it must be driven to generate 400 V.	6M

OR

4		Draw the developed winding diagram of progressive lap winding for 4-poles, 24 slots with one coil side per Slot, single layer showing there in position of the poles, direction of motion, direction of induced e.m.fs. and position of brushes.	12M

UNIT-III

5		Explain in detail about the parallel operation of DC Series generators.	12M

OR

6		Explain about self excited and separately excited D.C generators?	12M

UNIT-IV

7		Why is a starter necessary for a DC motor? Explain the working of a 3-point starter with the help of a neat diagram?	12M

OR

8		Explain the armature voltage and field flux control methods for the Speed control of a DC Motor.	12M

UNIT-V

9		Explain Swinburne's test on DC machines? What are its advantages and disadvantages?	12M

OR

10		What do you mean by power stages in a D.C machine? Also explain (i) Electrical efficiency ii) Mechanical efficiency (iii) commercial efficiency?	12M

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