

Reg.No. \_\_\_\_\_



# Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)  
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

## End Semester Examination – Nov / Dec – 2016

Code : **14EE2019**  
Sub. Name : **Special Electrical Machines**

Semester : **2016-17 ODD**  
Duration : **3hrs**  
Max. marks : **100**

### ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	With neat diagram explain the stepping sequence of half and full stepping modes of stepper motor in detail.	CO2	15
	b.	List out the major features of a stepper motor	CO1	5
(OR)				
2.	a.	Determined the resolution of a four-phase hybrid stepper motor with a 1.8° step angle if the stepper motor operated: a) full step & b) half step.	CO3	10
	b.	List out the advantages, disadvantages and applications of stepper motor.	CO1	10
3.	a.	Classify the SRM Converter Topologies.	CO1	5
	b.	Draw a schematic diagram and explain the operations of a 'C' dump Converter used for the control of switched reluctance motor. Also mention the advantages and disadvantages.	CO2	15
(OR)				
4.	a.	Sketch the basic diagram of SRM drive System.	CO1	5
	b.	List out the advantages of switched reluctance motor	CO1	5
	c.	Briefly explain the operations of a Bifilar winding converter for SRM	CO2	10
5.	a.	Compare BLDC Motor to an AC Induction Motor.	CO3	10
	b.	Draw the closed loop controller of PM Brushless DC Motor.	CO3	5
	c.	List the advantages, disadvantage of BLDC Motor	CO1	5
(OR)				
6.	a.	Outline the essential elements of a typical BLDC Motor.	CO1	10
	b.	Discuss about the Applications and Hall Effect Sensor of BLDC Motor	CO2	10
7.	a.	Explain about the Iron core and Ironless Type Linear Motors in Detail.	CO3	15
	b.	Compare the Features of three types of Linear Motors.	CO3	5
(OR)				
8.	a.	Describe the Slotless Type Linear Motor with neat diagram.	CO2	10
	b.	Give the Benefits and Downsides of Linear Motors.	CO1	5
	c.	List out the major components of Linear Motor	CO1	5
<b><u>Compulsory:</u></b>				
9.	a.	Give the key characteristics, advantages and disadvantages of PMSM	CO2	10
	b.	Explain the principle of operation and working of PMSM with neat diagrams and waveforms.	CO3	10

ALL THE BEST