**R16** 

Code No: **R164102G** 

**Time: 3 hours** 

## Set No. 1

## IV B.Tech I Semester Supplementary Examinations, July/Aug – 2021 SPECIAL ELECTRICAL MACHINES

(Electrical and Electronics Engineering)

Max. Marks: 70

[7]

Question paper consists of Part-A and Part-B Answer ALL sub questions from Part-A Answer any FOUR questions from Part-B \*\*\*\*\*

\*\*\*\*

		PART-A(14 Marks)	
1.	a)	Explain the term magnequench w.r.t permanent magnetic materials.	[2]
	b)	Differentiate between a stepper motor and a conventional motor.	[2]
	c)	Explain the significance of Hysteresis current control.	[2]
	d)	Can the flux-linkage of any coil vary?	[3]
	e)	Explain the term magnet alignment torque w.r.t Sine wave permanent magnet brushless motor.	[2]
	f)	What are the advantages of linear motors compared with induction motors?	[3]
		<b>PART–B</b> $(4x14 = 56 Marks)$	
2.	a)	Explain the various magnetic properties that are considered which are obtained	
		from suppliers data sheet of magnetic materials	[7]
	b)	Explain in detail about the Temperature effects: reversible and Irreversible losses in magnetic materials	[7]
3.	a)	Explain the construction and working of Hybrid Stepper motor	[7]
	b)	Find the resolution of a stepper motor that is to be operated at an input pulse	Γ. Ι
		frequency of 6000 pulse/sec and travel a distance of $180^{\circ}$ in 0.025 sec.	[7]
4.	a)	Explain the construction and principle of working of Switched reluctance motor	
		with a neat block diagram.	[7]
	b)	List the advantages, disadvantages and applications of SRM.	[7]
5.	a)	Derive the torque equation of the BLDC Motor	[7]
	b)	Explain the working of BLDC motor with $180^{\circ}$ magnet arcs and $120^{\circ}$ square –	. <b>-</b>
		wave phase currents.	[/]
6.	a)	Distinguish between Square wave permanent magnet brushless DC motor and	
	<b>b</b> )	Sine wave permanent magnet brushless DC motor	[7]
	D)	magnet Brushless motor	[7]
			Γ.]
7.	a)	Explain the principle and working of an linear induction Motor	[7]
	b)	Explain the factors to be considered while choosing specific electric and	

magnetic loadings of linear Induction Motor.

1 of 1