

SET _ 1

Code No: R21025			(R10)		(SET - 1)	
II B. Tech I Semester Supplementary Examinations, May/June - 2017 ELECTRICAL MACHINES - I (Electrical and Electronics Engineering)						
Time: 3 hours			M	ax. M	arks: 75	
Answer any FIVE Questions All Questions carry Equal Marks						
1.		Explain in d the energy ba	etail about the principle of conservation of energy and then expandence equation	plain	(15M)	
2.	a) b)	Explain the c An 8-pole 1 generates a v flux per pole	different types of dc machine based on excitation ap connected armature has 40 slots with 12 conductors per voltage of 520 V. Determine the speed at which it is running if is 55 m Wb.	slot f the	(7M) (8M)	
3.	a) b)	Derive the magnetizing Explain in de	necessary equation for the Demagnetizing AT/pole and C AT/pole etail about the usage of Inter poles in DC Machines	Cross	(10M) (5M)	
4.	a) b)	Explain the e Describe the	external characteristics of a DC Compound generator process of voltage build up in a DC shunt generator.		(8M) (7M)	
5.	a)	Explain care with others a	fully the exact procedure for connecting a shunt generator in par lready supplying a load.	allel	(7M)	
I	b)	The shunt get 400 V on no on no – load and the volta	enerators are together supplying 100 A to a load. Generator 1 g – load and 360 V when supplying 100 A. Generator 2 gives 40 and 350 V when supplying 100 A. Find the current supplied by age across load.	gives)0 V each	(8M)	
6.	a)	Describe the	principle of operation of DC motor.		(8M)	
1	b)	Explain the s DC Shunt me	speed – current, torque – current and speed – torque characteristic otor.	cs of	(7M)	
7.	a)	Why are sma	all motors connected directly to supply lines without starters		(8M)	

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- b) A series motor, with an unsaturated magnetic circuit and 0.5Ω total resistance, (7M) when running at a certain speed takes 60 A at 500 V. If the load torque varies as the cube of the speed, calculate the resistance required to reduce the speed by 25 %
- 8. Explain the Swinburne's test on DC machine and give the procedure to calculate (15M) the efficiency of both generator and motor

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