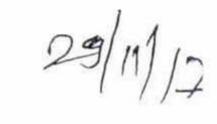
BF-Sam-VIII - CBSGS - Electrical - DC

(3 Hours)







[Total Marks-80]

N. D.			1
	(1) Question No. 1 is compulsory.	
	(2	Attempt any three questions out of remaining questions.	
) Figures to the right indicate full marks.	
	(4	Assume suitable data if necessary.	
			-
1.		Attempt the following	20
	a)	State and explain advantages of electrical drives over drives employing other forms of	
	aj	energy.	
	b)	Explain fully controlled converter fed DC motor	
		Enlist classes of motor duty. State its importance in selection of motor.	
	c)	Write a brief note on "switched reluctance motor drives".	
	d)	Write a brief note on Switched reflectance motor drives.	
		The state of the s	10
2.	a)	Explain synchronous motor drive with the help of block diagram.	10
	b)	Write a short note on "Choice of motor for a drive." Explain with example	
3.	a)	A delta connected three phase, 50Hz, 6pole, 400V, 925rpm squirrel cage induction motor	10
		has following parameters Rs= 0.2 Ω , Xs=0.5 Ω , Rr'=0.3 Ω , Xr'=1 Ω . The motor is fed from	
		a voltage source inverter with constant V/f ratio from 0 to 50Hz and constant voltage of	
		400V above 50Hz frequency. Determine	
		i) breakdown torque for frequency of 100Hz as a ratio of its value at 50Hz	
		ii) Calculate the motor torque at 30Hz and slip speed of 60 rpm.	
	b)	Write a note on 'stepper motor drive'	10
	U)	Write a note on stepper motor and	
4.	a)	Explain closed loop speed control of drives. Why inner current loop is needed?	10
7.	4)	Explain closed loop speed control of different	
	LV	Explain star-delta starting with characteristics.	10
	b)	Explain star-delta starting with characteristics.	
_		Show how the time and energy lost in a transient operation are calculated.	10
5.	a)	A 400 V, star connected 3ph, 6 pole, 50 Hz Induction motor has following parameters	10
	b)		25050
		referred to stator	
		$R_s = R_r = 1 \Omega$, $X_s = X_r = 2 \Omega$	
		for plugging from its initial full load speed of 950 rpm, Stator to rotor turns ratio is 2.3.	
		determine-	
		1. Initial braking current and torque as a ratio of their full load values.	
		2. Resistance to be incerted in the rotor circuit to reduce the maximum braking current to	
		1.5 times the fullload current. What will be the initial braking torque, now?	
			10
6.	a)	Explain dynamic braking of dc shunt motor.	10
	b)	Compare scalar and vector control of induction motor.	10