(3 Hours) **Total Marks: 80**

NB: (1) Question **No. 1** is **compulsory**.
(2) **Answer** any **THREE** questions out of the remaining **FIVE** questions.
(3) Assume suitable data if **necessary** and **justify** them.
(4) **Figure** to the **right** indicates **marks**.

1.	(a)	Explain briefly working of switched reluctance motor.	5
	(b)	Explain any one power controller used in stepper motor stating one application.	5
	(c)	State the merits of PMSM in electric vehicle application.	5
	(d)	State the principle of operation synchronous reluctance motor.	5
2.	(a)	Explain the open loop speed control of stepper motor. What is bipolar converter circuit? State any two applications of stepper motor.	10
	(b)	Compare variable reluctance, permanent magnet and hybrid stepper motor stating its merits and demerits.	10
3.	(a)	Draw the cross-sectional view of switched reluctance motor and explain its principle of operation. What is its difference compared to stepper motor?	10
	(b)	Describe with neat sketches the current control of switched reluctance motor. Under what operating condition the current control is not suitable in SRM.	10
4.	(a)	Discuss the advantages, disadvantages, and typical applications of brushless DC motors.	10
	(b)	Describe with neat sketches, the electronic commutation process in a BLDC motor.	10
5.	(a)	With a neat sketch, explain the microprocessor-based speed control of PMSM.	10
	(b)	With necessary phasor diagram and circle diagram, describe the torque speed characteristics of PMSM.	10
6.	(a)	State the principle of operation and applications of linear induction motor. Compare it with rotating IM.	10
	(b)	Compare the performance of synchronous reluctance motor with switched reluctance motor.	10

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