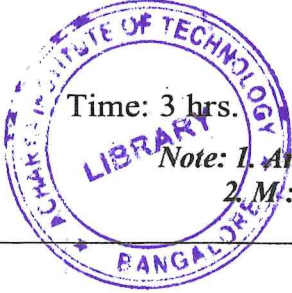


Fourth Semester B.E./B.Tech. Degree Examination, June/July 2026
Electrical Drives and Control



Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
 2. M: Marks, L: Bloom's level, C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain the classification of Electric Drives with neat diagram and mention the advantages and limitations of each type.	10	L2	CO1
	b.	Outline the factors influence the electric drives during selection and operation.	10	L2	CO1
OR					
Q.2	a.	With a neat graph, explain the four quadrant operation of an electric motor driving a load.	10	L2	CO1
	b.	Explain the components of load torque with relevant expressions.	10	L2	CO1
Module – 2					
Q.3	a.	Outline the various classes of duty and represent each class with variation in temperature and torque.	10	L2	CO2
	b.	Explain the selection of motor power rating and its factors based on applications.	10	L2	CO2
OR					
Q.4	a.	Derive an expression for thermal model of an electric motor and plot the heating and cooling curves to represent the same.	10	L3	CO3
	b.	Half – hour rating of a motor is 100 KW. Heating time constant is 80 min and maximum efficiency occurs at 70% full load. Determine the continuous rating of the motor.	10	L2	CO3
Module – 3					
Q.5	a.	Explain the following types of braking in DC motors: (i) Dynamic braking (ii) Plugging braking	10	L2	CO3
	b.	With a neat circuit diagram, explain the working of single-phase full wave drive with output waveforms.	10	L2	CO3
1 of 2					

OR

Q.6	a.	Summarize the working of chopper fed DC series motor and plot the speed-torque characteristics for the same.	10	L2	CO3
	b.	Explain the different types of starting methods in an electric motor.	10	L2	CO3

Module – 4

Q.7	a.	Mention the factors influence the speed control of induction motor and explain the concept of PWM based speed control technique in induction motor.	10	L2	CO4
	b.	With a neat circuit, explain the operation of brushless DC motor (BLDC) drive and mark the significance of Hall effect sensor feedback during operation.	10	L2	CO4

OR

Q.8	a.	With a neat diagram, explain the working of resistor-split phase starting method and show the phase diagram.	10	L2	CO4
	b.	Explain the Variable Frequency Drive (VFD) to control the speed in AC motor with relevant sketches.	10	L2	CO4

Module – 5

Q.9	a.	Illustrate the principle of orientation or vector control in three phase induction motor.	10	L2	CO5
	b.	Outline the various stages in control system design for microprocessor based variable speed drives.	10	L2	CO5

OR

Q.10	a.	Explain the similarities and differences between dedicated hardware and microprocessor based drive technology.	10	L2	CO5
	b.	With a neat diagram, explain the control of dual converter and show the plot to detect current directions.	10	L2	CO5
