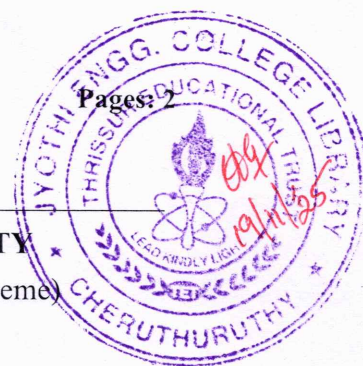


B

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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S3 (R) Examination November 2025 (2024 Scheme)

Course Code: PCMRT302

Course Name: ELECTRICAL MACHINES & DRIVES

Max. Marks: 60

Duration: 2 hour 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	Explain back EMF in a DC motor. Mention its significance.	1	(3)
2	Give a short note on ideal transformer.	1	(3)
3	Sketch and explain Torque slip characteristics of 3 phase induction motor	2	(3)
4	A three-phase, 6 pole induction motor is supplied from a 50 Hz, 400 V supply. Calculate (a) the synchronous speed, and (b) the speed of the rotor when the slip is 4%.	2	(3)
5	What do you mean by the step angle of stepper motors? List the applications of stepper motors.	3	(3)
6	What are the different modes of operation of SCR?	3	(3)
7	What do you mean by load equalization?	4	(3)
8	Define steady-state stability of an electric drive.	4	(3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module - 1

9	Explain the working principle of a transformer. Derive the EMF equation of a transformer.	1	(9)
10	With a neat diagram, explain the constructional details of a DC machine.	1	(9)

Module – 2

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|----|---|---|-----|
| 11 | Explain the construction and working of a 3-phase induction motor with suitable diagrams. | 2 | (9) |
| 12 | Explain the working of a capacitor start induction motor with necessary sketches. | 2 | (9) |

Module – 3

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|----|--|---|-----|
| 13 | Explain single phase half wave controlled rectifier with R load with necessary circuit diagram and wave form | 3 | (9) |
| 14 | Explain the construction and working principle of universal motors. | 3 | (9) |

Module – 4

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|----|--|---|-----|
| 15 | Explain the components of load torque in an electric drive system with examples. | 4 | (9) |
| 16 | With a schematic, describe the main components of an electric drive. | 4 | (9) |
