Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 08-10-2025 **Time:** 11.45am to 01.15pm

School: SOE	**Program:** B.Tech. (EEE)	
Course Code: EEE3004	**Course Name:** Special Electrical Machines	
Semester: V	**Max Marks:** 50	**Weightage:** 25%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	26	24	-	-	-

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Mention the significance of the control drive for the switched reluctance motor.	**2 Marks**	**L1**	**CO1**
2	List out the power converters used to control the switched reluctance motor.	**2 Marks**	**L1**	**CO1**
3	State the parameters that affect the torque in a permanent magnet BLDC motor.	**2 Marks**	**L1**	**CO1**
4	Outline the differences between a BLDC motor and a conventional DC motor.	**2 Marks**	**L1**	**CO2**
5	Identify the applications of the BLDC motor.	**2 Marks**	**L1**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	Explain the working of a switched reluctance motor with a neat diagram.	**10 Marks**	**L2**	**CO1**
		Or			

7.	**a.**	Explain the two-switching devices per phase power converter to control the SRM.	**10 Marks**	**L2**	**CO1**

8.	**a.**	Describe the torque equation of a switched reluctance motor with suitable notations.	**10 Marks**	**L2**	**CO1**
		Or			
9.	**a.**	Explain the control scheme to control the operation of a switched reluctance motor.	**10 Marks**	**L2**	**CO1**

10.	**a.**	Explain the working of a permanent magnet DC motor with a neat diagram.	**10 Marks**	**L2**	**CO2**
		Or			
11.	**a.**	Describe the torque speed characteristics of a permanent magnet DC motor using the torque equation with suitable notations?	**10 Marks**	**L2**	**CO2**

12.	**a.**	A permanent magnet DC motor has an armature resistance of 1.03 Ω. It draws a current of 1.25 A at no load with 50 V supply and running at 2100 rpm. Find (a) speed–voltage constant, (b) rotational losses and (c) output power when it runs at 1700 rpm at 48 V supply.	**10 Marks**	**L3**	**CO2**
		Or			
13.	**a.**	Determine the EMF equation in a permanent magnet synchronous motor with suitable notations.	**10 Marks**	**L3**	**CO2**