18 NOV 2025 SE ELECTRICAL SEM-III C SCHEME FEMM QP CODE: 10095002

Time: 3 Hours **Max. Marks: 80**

N.B. 1. Question no.1 is compulsory.
2. Attempt any three from the rest.
3. Make any suitable assumption wherever required.

Q.1		Answer any four.	
	(a)	Explain both the laws of Farday's magnetic induction and give one application of each.	5M
	(b)	Define following terms i)RMF ii)magnetic saturation and iii)Leakage Flux.	5M
	(c)	Why DC motor needs a starter and how many types of starter do you know for DC Machine?	5M
	(d)	Differentiate between thermocouple and thermistor.	5M
	(e)	Write difference between Resolution & sensitivity of digital meters	5M
Q.2	**(a)**	Explain the concept of singly excited machines and derive the expression for the electromagnetic torque.	10M
	(b)	What is the armature reaction in DC machine? Explain with neat diagram and methods to overcome armature reaction. Derive expressions for ATd and ATc.	10M
Q.3	**(a)**	Explain construction & working of PMMC instrument and derive the torque equation.	10M
	(b)	Explain the term Transducer. How will you classify the transducers? Explain Piezo electric transducer.	10M
Q.4	**(a)**	Explain calibration of ammeter and voltmeter using potentiometer.	10M
	(b)	Write about working of Digital Storage Oscilloscope and Digital Techo Meter.	10M
Q.5	**(a)**	Explain working principles of digital Voltmeter, Ammeter	10M
	(b)	What are different methods for speed control of DC motor explain Field flux control in detail with diagram and characteristics.	10M
Q.6		Write a short note on any two	
	(a)	Hopkinson's test on DC Machine	10M
	(b)	Energy and co energy stored in magnetic field.	10M
	(c)	Instrument transformers	10M

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