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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**

Branch: Electronics & Telecommunication Engineering **Duration: 3 Hrs.**

Course Code: 22ET7PCSIE **Max Marks: 100**

Course: SIGNAL INTEGRITY AND EMI/EMC

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

				CO	PO	Marks
			UNIT - I			
1	a)		Explain the role of EMC in the system approach of designing any product.	CO2	PO1	**10**
	b)		Discuss in detail signal integrity challenges.	CO2	PO1	**10**
			OR			
2	a)		Explain and analyze the various types of coupling along with techniques to minimize their effect.	CO2	PO1	**10**
	b)		With a neat diagram and an example, describe the differential and common mode noise in EMC.	CO2	PO1	**10**
			UNIT - II			
3	a)		What is an anechoic chamber? Explain its constructions and analyze its use in EMC testing.	CO2	PO1	**10**
	b)		Explain, in detail, the construction and working of current probe in EMC measurements.	CO1		**10**
			OR			
4	a)		Explain the working of a spectrum analyzer with a neat functional block diagram.	CO1		**10**
	b)		Discuss the role of EMC for wireless testing mentioning the specified standards.	CO1		**10**
			UNIT - III			
5	a)		What is the basic purpose of the power system grounding? How are they accomplished in facility wiring?	CO2	PO1	**10**

		b)	Analyze the need for grounding in any electronic system? Describe its various types.	*CO2*	*PO1*	**10**
			OR			
	6	a)	Define signal grounding and explain its objectives.	*CO1*		**10**
		b)	Describe and analyze the three basic ways of dealing with a problematic loop.	*CO2*	*PO1*	**10**
			UNIT - IV			
	7	a)	Analyze the need for shielding in EMI /EMC? Explain any two ways in which shielding can be used.	*CO2*	*PO1*	**10**
		b)	Describe how coaxial cables and twisted pair cables are designed to address EMI/EMC.	*CO3*	*PO2*	**10**
			OR			
	8	a)	Explain the role of braided shield, Aperture, Gaskets and Conductive windows in addressing EMI/EMC issues.	*CO1*		**10**
		b)	Analyze in detail the test methods used for ESD.	*CO2*	*PO1*	**10**
			UNIT - V			
	9	a)	Discuss the general PCB layout considerations.	*CO1*		**10**
		b)	Explain how discontinuities in the current return path affect the EMC and signal integrity issues.			**10**
			OR	*CO1*		
	10	a)	What is computational electromagnetics? Mention their applications and advantages.	*CO1*		**10**
		c)	Explain the computational tools used to solve the EM problems.	*CO2*	*PO1*	**10**

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