

	• Reflection and refraction concepts – 2 Marks • Mathematical expressions/equations – 3 Marks • Suitable diagrams and applications – 2 Marks		
B)	Discuss reflection and refraction of traveling waves at junctions of transmission lines. Marking Scheme • Introduction – 2 Marks • Reflection coefficient derivation – 3 Marks • Refraction coefficient derivation – 3 Marks • Traveling wave behaviour at junctions – 2 Marks • Diagrams/examples – 2 Marks	(L2/CO2)	12
Q. 3	Solve Any one of the following.		
A)	Explain the origin and different types of over voltages in EHV systems. Marking Scheme • Introduction to over voltages – 2 Marks • Origin/causes of over voltages – 3 Marks • Types: • Lightning over voltage • Switching over voltage • Temporary over voltage – 4 Marks • Effects on EHV systems – 3 Marks	(L2/CO3)	12
B)	Discuss over voltages caused by switching operations in transmission systems. Marking Scheme • Introduction to switching over voltages – 2 Marks • Causes during switching operations – 3 Marks • Types of switching surges – 2 Marks • Effects on insulation/system stability – 2 Marks • Control/protection methods – 3 Marks	(L2/CO3)	12
Q. 4	Solve Any one of the following.		
A)	Explain steady-state static real power and reactive power stability in power systems. Marking Scheme • Introduction to stability – 2 Marks • Steady-state real power stability – 3 Marks • Reactive power stability – 3 Marks • Power-angle characteristics/diagrams – 2 Marks • Applications – 2 Marks	(L2/CO4)	12
B)	Differentiate between transient stability and dynamic stability with suitable examples. Marking Scheme • Introduction to power system stability – 2 Marks • Transient stability explanation – 3 Marks • Dynamic stability explanation – 3 Marks • Comparison/differentiation table – 3 Marks • Examples – 1 Mark	(L2/CO4)	12

Q. 5	Solve Any one of the following.		
A)	Explain voltage stability limit in EHV transmission lines with suitable derivation. Marking Scheme • Introduction to voltage stability – 2 Marks • Voltage stability concept and conditions – 3 Marks • Mathematical derivation – 4 Marks • Stability limit explanation with phasor/power curve – 3 Marks	(L3/CO5)	12
B)	Derive and explain the magnitude of receiving-end voltage at voltage stability limit. Marking Scheme • Introduction – 2 Marks • Voltage stability condition – 2 Marks • Derivation of receiving-end voltage magnitude – 5 Marks • Significance and interpretation – 3 Marks	(L3/CO5)	12
	*** End ***		