

15EC651**Visvesvaraya Technological University, Belagavi****MODEL QUESTION PAPER****6th Semester, B.E (CBCS) EC/TC****Course: 15EC651 – Cellular Mobile Communications****Time: 3 Hours****Max. Marks: 80****Note: (i) Answer Five full questions selecting any one full question from each Module.****(ii) Question on a topic of a Module may appear in either its 1st or/and 2nd question.**

		Module-1	Marks
1	a)	What are co-channel cells? with a diagram & relevant equations, explain the interference between signals from co-channel cells.	8
	b)	Explain how cell splitting is used to improve coverage and capacity in cellular systems with a diagram.	8
OR			
2	a)	Explain the three basic propagation mechanisms which impact propagation in a mobile communication system.	8
	b)	Explain okumura and hata outdoor propagation models.	8
Module-2			
3	a)	Explain the impulse response model of a multipath channel with relevant equations.	8
	b)	Explain the clarke's model for flat fading with relevant equations.	8
OR			
4	a)	Consider a transmitter which radiates a sinusoidal carrier frequency of 1850 MHz. For a vehicle moving 60mph, compute the received carrier frequency if the mobile is moving a) Directly towards the transmitter b) Directly away from the transmitter c) In a direction which is perpendicular to the direction of arrival of the transmitted signal.	6
	b)	What is small scale fading? explain different types of small-scale fading.	10
Module-3			
5	a)	What is multiframe in GSM? explain the channel organization in a 51-frame multiframe.	8
	b)	With a simplified block diagram, explain the GSM speech coder.	8
OR			
6	a)	Explain the GSM system architecture with a diagram.	8
	b)	Explain the GSM protocol architecture for signaling with a diagram.	8
Module-4			
7	a)	Explain the GPRS system architecture & interfaces with a diagram	8

	b)	Explain the location updating procedure used in GSM.	8
		OR	
8	a)	Explain the Multimedia messaging service network architecture (MMSNA) with a diagram.	8
	b)	Explain the effects of EDGE on the GSM system architecture	8
		Module-5	
9	a)	Explain the generation of the CDMA forward traffic/power control channel for 9.6 kbps	8
	b)	Explain the various states involved in CDMA call establishment	8
		OR	
10	a)	Explain the different types of CDMA handoff with neat diagrams.	8
	b)	Explain the evolution of CDMA to 3G with a diagram	8