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Internal Assessment Test III – May 2018

Sub:	GSM	Sub Code:	10TE82/10E C843	Branch:	TCE(A) & ECE
Date:	23.5.18	Duration:	90 min's	Max Marks:	50
		Sem/Sec:	VIII		OBE
<u>Answer any FIVE FULL Questions</u>					MARKS
1.	Describe slow frequency hopping with neat diagram.	[10]	CO2	L2	
2.	What is meant by channel borrowing? Why it is used? What are the different types of channel borrowing techniques ?	[10]	CO2	L1	
3.	Why Adaptive Power Control is important in GSM.?Also discuss how it is done with the help of a diagram.	[10]	CO2	L2	
4.	Explain Token based authentication with the help of token based registration	[10]	CO5	L5	
5.	What are the security algorithms used in GSM? Explain with proper diagrams.	[10]	CO5	L2	
6.	Write short notes on Wireless security requirements.	[10]	CO5	L2	
7.	Consider a GSM system with the following data , Calculate, (1) minimum received power P_{rmin} . (2) Maximum allowable path loss (3) Cell radius in miles (4) Number of cells required to cover the service area Coverage area: 60,000 miles ² , One way system Bandwidth:12.5 MHz, Channel spacing:200 KHz, Frequency reuse factor:4 MS output power (W):800 mW (29 dBm), BS antenna gain (G_{bs}):20 dBi, Receive cable/connector losses (L_c):2 dB, MS antenna gain (G_m):0 dB, Required S/I ratio:12 dB, Information rate:271 kbps, Receiver noise figure (F):7 dB, Propagation path loss exponent, γ :4, One-mile path-loss intercept (I_0):80dBm, Lognormal fading margin (f_m):10 dB $kT=-174$ dBm/Hz	[10]	CO2	L4	

