Course Code: ECT-355-3

V Semester B.E. (Electronics & Communication Engineering) Examination

Wireless Communication

Time: 2 Hours] [Max. Marks: 40

Instructions to Candidates:

1. Assume suitable data whenever necessary.
2. Wherever necessary, illustrate your answer with neat sketches.

Question		Description of Question	Marks	CO
1	**(a)**	What are the techniques to improve the capacity of cellular system? Describe any one in brief.	4	CO1, CO2
	(b)	Describe the significance of sectorization in the field of cellular communication. Define it's operation with neat diagram.	3	CO1, CO2
2	**(a)**	If a transmitter produces 100 W of power, express the transmit power in units of (i) dBm, (ii) dBW. If 100 W is applied to a unity gain antenna with a 1800 MHz carrier frequency, find the received power in dBm at a free space distance of 200 m from the antenna. What is Pr (20 km)? Assume unity gain for the receiver antenna	4	CO2
2	**(b)**	Illustrate importance of fading coefficient to determine constructive and destructive interference with suitable example.	3	CO1, CO2
3	**(a)**	Does the total phase shift obtained in QPSK, O – QPSK and Pi/4 – QPSK, affect the performance of each? Justify	4	CO3
3	**(b)**	Define the term Diversity. Explain its significance in mobile radio environment.	3	CO3
4	**(a)**	Spread Spectrum is recommended for multipath propagation, Justify.	4	CO3
	(b)	With neat diagram explain the forward CDMA channel Structure.	3	CO3
5	**(a)**	A normal GSM has a 3 start bits, 3 stop bits, 26 training bits for allowing adaptive equalization, 8.25 guard bits and 3 burst of 58 bits of encrypted data which is transmitted at 270.833 kbps in the channel. Find (a) Number of overhead bits per frame (b) Total number of bits per frame (c) Frame rate (d) Time duration of a slot (e) Frame efficiency.	4	CO4
	(b)	Discuss complete channel categorization in GSM.	3	CO4
6	**(a)**	What is the principle of OFDM systems and explain its operation with neat block diagram.	5	CO4