BE SEM VII C-scheme summer-2025 (EXTC)

04/06/2025

Time: 3 Hours **Marks: 80**

N.B.: (1) Question No.1 is compulsory
(2) Write any three questions from Q.2 to Q.6.
(3) Draw a neat diagram wherever necessary.
(4) Assume suitable data if required and state it clearly.

Q.1	Attempt **any four**	**20**
A	Explain power control process in WCDMA.	
B	Explain FHSS with diagram.	
C	How MIMO increases data rate.	
D	Explain large scale and small-scale fading.	
E	Explain RAKE receiver.	
Q.2 A	Explain handoff process with diagram, also explain soft and hard handoff.	**10**
B	Draw GSM architecture and explain working of it.	**10**
Q.3 A	Compare multiple access techniques SDMA, TDMA, FDMA and CDMA	**10**
B	Explain following terms related to fading 1. Coherence BW 2. Doppler spread 3. Multipath propagation Determine the received signal power by a mobile at a distance of 10km from a 50W cell-site transmitter operating at a carrier frequency of 1900Mhz. The transmitter antenna gain is unity and receive antenna gain is 2. Assume free-space propagation conditions.	**10**
Q.4 A	Draw UTRAN block diagram and explain function of each block.	**10**
B	Explain speech signal processing in GSM.	**10**
Q.5 A	Explain technologies enabling 5G.	**10**
B	Draw and explain 3GPP LTE architecture.	**10**
Q6	Write short notes **(any two)**	**20**
A	Explain reverse link traffic channel of IS 95 CDMA system.	
B	Software Defined Radio	
C	Compare 1G, 2G, 3G and 4G	
D	Explain architecture of EDGE technology, how EDGE technology enhances data rate.	