1T01037 - B.E.(Electronics and Telecommunication)(SEM-VII)(Choice Base Credit Grading System) (R-20) (C Scheme) / 42472 - MOBILE COMMUNICATION SYSTEM

QP CODE: 10015619 DATE: 12/12/2022

Time: 3 Hours **Max. 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 diagrams wherever necessary.
(4) Assume suitable data, if required and state it clearly.

Q1		**Solve any five**	
	a	Compare GSM and GPRS	**4**
	b	What is Doppler frequency shift?. Derive an expression for it	**4**
	c	Explain why OFDMA is preferred for downlink and SC-FDMA for uplink in LTE	**4**
	d	Explain soft and hard handoff with a neat diagram	**4**
	e	What is SDR? State its advantages	**4**
	f	List the specifications of 5G	**4**
Q2	**a**	Explain GSM Network Architecture with neat diagram	**10**
	b	In a cellular system with frequency reuse distance of 7 and the mobile receiver located at the boundary of its operating cell, under the influence of interfering cells in the first tier. Compute the S/I ratio at mobile receiver for: i) omnidirectional antenna design ii) 3 sector 120^{o} directional antenna design iii) 6 sector 60^{o} directional antenna design comment on the effect of sectoring on S/I ratio. Consider path loss exponent of 3.	**10**
Q3	**a**	Compare 1G, 2G, 3G, 4G and 5G with respect to speed, applications, bandwidth, spectral efficiency and handoff.	**10**
	b	Compare IS-95, CDMA-2000 and WCDMA	**10**
Q4	**a**	What is MIMO? What are its advantages. Explain MIMO with respect to 4G Technology.	**10**
	b	Draw LTE network architecture and Discuss in details.	**10**
Q5	**a**	Explain multi-path signal propagation and RAKE receiver in detail	**10**
	b	Draw a neat diagram of UMTS system architecture showing all interfaces and explain in details.	**10**
Q6		**Write a short note on (Solve any 2)**	**20**
	a	Two Ray ground reflection Model	
	b	Traffic Theory with respect to mobile cellular networks	
	c	Orthogonal Frequency Division Multiple Access	