Subject: Mobile Computing and Wireless Communication (2170710)

B.E. SEM – VII,

CE, IT, CSE, ICT

Questions Bank

Unit : 01	
Topics ➲	**Introduction, Transmission Fundamentals-** Signals for Conveying Information, Analog and Digital Data Transmission, Channel Capacity, Transmission Media, Multiplexing **Communication Networks** LANs, MANs, and WANs, Switching Techniques, Circuit Switching, Packet Switching, **Protocols and the TCP – IP Suite** The Need for a Protocol Architecture, The TCP/IP Protocol Architecture, The OSI Model, Internetworking

1	Explain the following parameter a. SNR b. Channel capacity	
2	Explain the transmission media with physical description, application and transmission characteristics.	
3	Explain the different types of multiplexing.	
4	Explain the LANs, MANs and WANs Networks.	
5	Explain the difference between circuit and packet switching techniques.	
6	Explain the TCP/IP Architecture with layers, operations and applications.	
7	Explain the OSI Model.	
8	Define following the internetworking terms. a. Internet b. Intranet c. Intermediate system d. Bridge e. Router	
9	Explain router and example of internetworking.	
10	What is the need of protocol architecture?	

Unit : 02	
Topics ➲	**Cellular Wireless Networks** Principles of Cellular Networks, First-Generation Analog Second-Generation TDMA Second-Generation CDMA, Third-Generation Systems **Antennas and Propagation** Antennas, Propagation Modes, Line-of-Sight Transmission, Fading in the Mobile Environment **Modulation Techniques** Signal Encoding Criteria, Digital Data- Analog Signals, Analog Data-Analog Signals, Analog Data-Digital Signals **Spread Spectrum** The Concept of Spread Spectrum, Frequency Hopping Spread Spectrum, Direct Sequence Spread Spectrum, Code Division Multiple Access, **Coding and Error Control** Error Detection, Block Error Correction Codes , Convolutional Codes, Automatic Repeat Request

1	Explain the principles of cellular networks and derive the Q and S/I equation.	
2	Explain the following definition 1. Cell sectoring 2. Cell splitting 3. Paging 4. Handoff 5. Call blocking 6. Traffic intensity 7. Erlang B unit	
3	Explain the frequency reuse concept.	
3	Explain the mobile cellular system call with all required steps.	
4	Explain the first generation with the AMPS control channels.	
5	Explain the one of the second generation technology. a. CDMA b. IS-95	
6	What is difference between CDMA and W-CDMA?	
7	Explain the following antenna parameter. a. Radiation patterns b. Antenna types c. Antenna gain	
8	Explain significant impairments of line of sight transmission.	
9	Explain different types of Noise. a. Thermal noise b. Intermodulation noise c. Crosstalk d. Impulse noise	
10	Drive the equation of received power equation and path loss for the free space propagation.	

11	Drive the equation of received power equation and path loss for the two ray (ground reflection) model for radio propagation.	
12	Explain the following terms. a. RMS Delay Spread b. Excess Delay c. Coherence bandwidth – Bc d. Signal bandwidth - Bs e. Intersymbol interference - ISI	
13	Explain the Doppler Effect.	
14	Explain the Modulation techniques. a. BPSK b. QPSK c. MSK d. QAM	
15	Explain the delta modulation.	
16	Explain the Frequency hopping spread spectrum.	
17	Explain the Direct sequence spread spectrum.	
18	Explain the following Error detection codes. a. Parity check b. Cyclic redundancy check c. Module 2 arithmetic d. Polynomial division	
19	Explain the following Error correction codes. a. Block code b. Hamming code c. Cyclic codes d. BCH code e. Reed-Solomon codes f. Block Interleaving	
20	Explain the convolution code and turbo coding with example.	
21	Explain the flow and error control using automatic repeat request – (ARQ).	
	Example No	
	5.1 to 5.10	
	6.1 to 6.15	
	7.1 to 7.6	
	8.7 to 8.15	

Unit : 03	
Topics ➲	**Multiple access in Wireless System** Multiple access scheme, frequency division multiple access, Time division multiple access, code division multiple access, space division multiple access, packet radio access, multiple access with collision avoidance.

1	Explain the time division multiple access.	
2	Explain the code division multiple access.	
3	Explain the packet radio access.	
	Example No : 9.1, 9.2, 9.3, 9.4	