

January 2023

M.Tech. 1st SEMESTER

Wireless and Mobile Communication (MEC-102)

Max. Marks:75

Time: 3 Hours

Instructions:

1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
2. Answer any four questions from Part -B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

**PART -A**

- Q1 (a) What do you understand by Frequency reuse factor? (1.5)
- (b) What do you mean by reflection, diffraction and scattering? (1.5)
- (c) What is the difference between CCI and ACI? (1.5)
- (d) What do you mean by GPRS? (1.5)
- (e) What is Brewster angle? (1.5)
- (f) What do you mean by AMPS and ETACS (1.5)
- (g) What are the key features of IS-95? (1.5)
- (h) What is the difference between LTE and VOLTE? (1.5)
- (i) What do you mean by cell? Why cell is chosen in hexagonal shape? (1.5)
- (j) What is near-far problem in CDMA System? (1.5)

**PART -B**

- Q2 (a) What do you mean by Handoff? Write its strategies. (7.5)
- (b) Explain Basic cellular System. How it operates? (7.5)
- Q3 (a) What do you mean by physical and logical channel of GSM and also explain the dedicated and control channel. (10)
- (b) Consider Global System for Mobile, which is a TDMA/FDD system that uses 25 MHz for the forward link, which is broken into radio channels of 200kHz. If 8 speed channels are supported on a single radio channel, and if no guard band is assumed, find the number of simultaneous users that can be accommodated in GSM. (5)
- Q4 (a) What do you mean by indoor and outdoor propagation model? Explain Hata model in detail (7.5)
- (b) Explain the term fading. What are the factors influencing small scale fading? (7.5)

- Q5 (a) How many channels are there in CDMA forward channel? Write their uses and purposes. (7.5)
- (b) Explain the reverse link capacity of IS-95 CDMA system. (7.5)
- Q6 (a) Write down classification of different diversity techniques used to improve the signal in wireless link. (7.5)
- (b) Which factors are adopted to determine the performance of algorithm for adaptive Equalization? explain (7.5)
- Q7 (a) Explain UMTS technology with its feature architecture. (7.5)
- (b) What do you mean by 4G and 5G ? explain in detail. (7.5)

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