



ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION : MAY 2021
(Academic Session: 2020 – 21)

Name of the Program:	B.TECH [ECE]	Semester:	VI
Paper Title :	Mobile Communication	Paper Code:	EEC43108
Maximum Marks :	40	Time duration:	3 Hrs
Total No of questions:	08	Total No of Pages:	02
(Any other information for the student may be mentioned here)	1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam. 2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page. 3. Assumptions made if any, should be stated clearly at the beginning of your answer.		

Answer all the Groups

Group A

Answer all the questions of the following

$5 \times 1 = 5$

1. a) What is scattering?
b) When does large scale propagation occur?
c) Differentiate time selective and frequency selective channel.
d) Explain path loss.
e) Define MS, BS and MSC.

GROUP –B

Answer *any three* of the following

$3 \times 5 = 15$

2. Prove that for a hexagonal geometry, the co-channel reuse ratio is given by $Q = \sqrt{3N}$ where $N = i^2 + ij + j^2$. [5]
3. a) Describe the different mechanisms of multipath phenomena.
b) How is received power at the mobile station related with distance and path loss exponent? [2+3=5]
4. Compare between FDMA and TDMA [5]
5. a) What do you mean by cell splitting? Discuss its advantages and disadvantages.
b) What is hard and soft hand off? [3+2=5]

GROUP –C

Answer *any two* of the following

$2 \times 10 = 20$

6. a) Prove that Bit Error rate in AWGN channel is $Q\sqrt{SNR}$
b) Compute the BER of wireless communication system at SNR=20dB [5+5=10]

7. . a) For the two ray model , how the Taylor series approximation applied in $\Delta\phi = \frac{2\pi(x+x'-l)}{\lambda} \approx \frac{4\pi h_t h_r}{\lambda}$. Where $\Delta\phi$ is phase difference, h_t is height of transmitter and h_r is height of receiver.
b) Find the far-field distance for an antenna with maximum dimension of 1 m and operating frequency of 900 MHz. [7+3=10]

8. a) Explain Fast fading and Slow fading.
b) Consider a transmitter which radiates a sinusoidal carrier frequency of 1850 MHz. For a vehicle moving 60 mph, compute the received carrier frequency if the mobile is moving (a) directly towards the transmitter, (b) directly away from the transmitter, (c) in a direction which is perpendicular to the direction of arrival of the transmitted signal. [4+6=10]
