Code No: **R1642041** **R16** **Set No. 1**

IV B.Tech II Semester Advanced Supplementary Examinations, Aug/Sep - 2022

CELLULAR AND MOBILE COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) What is Grade of Service? [3]
   b) What is the phase difference between direct and reflected paths [3]
   c) Define the gain of an antenna and write the expression for it. [2]
   d) What are the advantages of cell sectorization over cell splitting. [2]
   e) What is handoff? Describe its classification. [2]
   f) List different handover techniques in GSM. [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the steps involved in planning a cellular system. Illustrate how the performance criteria is evaluated. [7]
   b) Explain briefly different ways of improving coverage and capacity in cellular systems [7]

3. a) Distinguish between signal and co-channel interference received by the mobile unit and cell site. [7]
   b) In detail Illustrate the different types of non-co channel Interferences in a cellular environment. [7]

4. a) What are the different techniques to utilize the frequency spectrum, give a brief explanation? [7]
   b) Explain in detail access channels and operational techniques. [7]

5. a) Let a distance between two fixed stations be 25 Km. The effective antenna height at one end h1 is 100m above sea level. Find h2 at the other end so that the received power always meets the condition PrPo and find the maximum received power Pr for Pr=4Po. [7]
   b) Derive the path loss prediction model in non obstructive condition. [7]

6. Write short notes on the following (a) Cell splitting (b) Vehicle locating methods (c) Dropped cell rate [14]

7. a) Why CDMA is needed and explain it with an example? [7]
   b) List the difference between TDMA/FDMA/CDMA. [7]