**20ECD22**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **July/August, 2023** | **Electronics & Communications Engineering** | | |
| **Sixth Semester** | **Mobile & Cellular Communications** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | Give the advantages of cell splitting. | CO1 | L2 | 1M |
|  | b) | What is Grade of service? | CO1 | L2 | 1M |
|  | c) | Give the examples of Examples of wireless communication systems? | CO1 | L1 | 1M |
|  | d) | Define Free space propagation model. | CO2 | L2 | 1M |
|  | e) | What is ground reflection (Two-Ray) model. | CO2 | L2 | 1M |
|  | f) | What is Fading effects due to multipath time delay spread? | CO2 | L2 | 1M |
|  | g) | What is Decision feedback equalization? | CO3 | L2 | 1M |
|  | h) | Differences between Frequency diversity and Time diversity. | CO3 | L2 | 1M |
|  | i) | What are First generation cellular systems? | CO4 | L2 | 1M |
|  | j) | What are the Key requirements of LTE design? | CO4 | L2 | 1M |
|  | k) | Write one difference between co-channel and adjacent channel interference. | CO1 | L2 | 1M |
|  | l) | What is soft Handoff? | CO1 | L1 | 1M |
|  | m) | What is the use of sectoring? | CO1 | L1 | 1M |
|  | n) | Define scattering. | CO2 | L2 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Elucidate the evolution of Mobile Radio Communications. | CO1 | L2 | 7M |
|  | b) | Discuss in detail about microcell zone concept. | CO1 | L4 | 7M |
|  |  | **(OR)** |  |  |  |
| 3 | a) | Define Handoff. What are its types? Explain in detail. | CO1 | L2 | 7M |
|  | b) | Illustrate the frequency reuse concept. | CO1 | L3 |  |
| **Unit-II** | | | | | |
| 4 | a) | Explain about the Practical link budget design using path loss models. | CO2 | L2 | 7M |
|  | b) | Discuss in detail about the basic propagation mechanisms of reflection, diffraction, and scattering. | CO2 | L4 | 7M |
| **(OR)** | | | | | |
| 5 | a) | What is Free space propagation model and explain in detail. | CO2 | L2 | 7M |
|  | b) | Discuss the different types of small-scale fading. | CO2 | L4 | 7M |
| **Unit-III** | | | | | |
| 6 | a) | Discuss about the merits and demerits of Maximum likelihood sequence estimation (MLSE) equalizer. | CO3 | L4 | 7M |
|  | b) | Explain the differences between Linear equalizers and Nonlinear equalization. | CO3 | L3 | 7M |
| **(OR)** | | | | | |
| 7 | a) | Draw and explain about RAKE receiver. | CO3 | L2 | 7M |
|  | b) | Write a short note on Selection diversity and feedback or scanning diversity. | CO3 | L2 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | With a neat block diagram explain the architecture of GSM. | CO4 | L4 | 7M |
|  | b) | Explain the LTE architecture with neat sketch. | CO4 | L2 | 7M |
| **(OR)** | | | | | |
| 9 | a) | Discuss in detail the 2G and 3G wireless network standards. Compare the relative merits and demerits of both the standards. | CO4 | L4 | 7M |
|  | b) | Discuss the improvements from 1G to 4G. | CO4 | L3 | 7M |

