Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14EC3049** | **Duration :** | **3hrs** |
| **Sub. Name :** | **Mobile Communication Networks** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | In GSM TDMA/FDD, the total spectrum allocated is 25MHz and the channel bandwidth is 200KHz. If 8 speech channels are supported, find the number of simultaneous users that can be accommodated assuming no guard band. | CO1 | **10** |
| b. | What is the multiple access method used in IEEE 802.11 WLAN? Explain the operation using suitable timing diagram and flow chart. | CO1 | **10** |
| **(OR)** | | | | |
| 2. | a. | List the important features of TDMA. Compare TDMA and FDMA. | CO1 | **10** |
| b. | How throughput is increased in slotted ALOHA compared to pure ALOHA? | CO1 | **10** |
| 3. | a. | In CDMA, for a sender A sending ‘0’ using code 010011 and sender B sending ‘1’ using code 110101, show that their corresponding receivers can receive their signals without any interference. | CO1 | **10** |
|  | b. | What are the three basic procedures in Mobility management. | CO1 | **10** |
| **(OR)** | | | | |
| 4. | a. | Differentiate the sleep modes used in IS-136 and IEEE 802.11. | CO3 | **10** |
|  | b. | What type of power control mechanism is used inIS-95 CDMA and GSM? | CO3 | **10** |
| 5. | a. | What is the role of VAD in cellular communication? | CO2 | **10** |
|  | b. | What is the need for Mobile IP? List the entities and terminologies used in Mobile IP. | CO2 | **10** |
| **(OR)** | | | | |
| 6. | a. | In mobile networks, when handoff should be initiated? | CO2 | **10** |
|  | b. | Consider an AMPS network in which a MS is located at a distance of R/3 from its own BS, where R is the radius of the cell. If the radio propagation in the cell has a distance-power gradient of four, what must be the transmit power in order to operate it at lowest possible Sr. What are the advantages of doing so? | CO1 | **10** |
| 7. | a. | Why Radio propagation studies are required? | CO1 | **10** |
|  | b. | Determine the path loss between the Base station and Mobile station of a 1.8 GHz PCS system operating in a high rise urban area. The Mobile station is located in a perpendicular street to the location of the Base station. The distance of the base station and the mobile station to the corner of the street are 10 and 40 meters respectively. The Base station height is 20m. | CO1 | **10** |
| **(OR)** | | | | |
| 8. |  | What is the need for Universal Mobile Technology System? Detail the significant features of the radio access system for UMTS. | CO3 | **20** |
|  | | **Compulsory:** |  |  |
| 9. | a. | What is the difference between the 802.11g and 802.11a and 802.11b? | CO3 | **10** |
|  | b. | What is cryptography? illustrate a symmetric key algoritnm. | CO2 | **10** |

ALL THE BEST