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Total Number of Pages : 02

B.Tech
PET6J003

6th Semester Regular / Back Examination 2018-19

MOBILE COMMUNICATION

BRANCH : ECE,ETC

Max Marks : 100

Time : 3 Hours

Q.CODE : F638

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Only Short Answer Type Questions (Answer All-10) (2 x 10)

- What is the function of control channel? What are the types?
- What are the techniques used to expand the capacity of cellular system?
- In a cellular network, among a handoff call and a new call, which one is given priority? Why?
- Define coherence time and coherence bandwidth.
- How is propagation path loss related to the received signal power in the mobile communication?
- Define near-far problem. How it can be avoided in case of spread spectrum cellular system?
- State different types of topologies of WLAN.
- What are the goals of 4G systems?
- What are the features of TDMA?
- What are main subsystems of GSM architecture?

Part- II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- Explain frequency hopping spread spectrum system.
- What is the need of cell sectoring? Explain for worst case interference with 60° sectorized cells.
- Discuss the cost 231 Model.
- Discuss different types of fading based on multipath time-delay spread. Explain factors influencing small scale fading.
- What is co-channel interference? How can it be minimized?
- Derive an expression for SIR for a worst-case scenario that a user experiences from first file of co-channel interferers when it is located at the cell boundary. Draw a suitable sketch.
- What do you mean by Direct-Sequence Spread Spectrum? Requirements of DSSS.
- What is handoff in a cellular system? Why is handoff used? Mention different types of handoff.
- What are the main differences between the IEEE 802.11b (Wi-Fi) and WiMAX?
- Why is cell splitting needed in a cellular system? Define 4:1 and 3:1 cell splitting.
- What is the ZigBee technology? Discuss briefly. Write some of its applications.
- Discuss the evolution in mobile communication from 1G to 4G.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 What are the different techniques used for increasing the capacity and improving the coverage in cellular system? Explain them. **(16)**

Q4 Derive and explain the Free space propagation model to determine the received power at a distance d and relate this power to Electric field. **(16)**

Q5 Explain in detail about the system and protocol architecture of IEEE 802.11. **(16)**

Q6 Calculate the capacity and frame efficiency of a TDMA System. Derive a comparison with DS-SS system capacity. **(16)**