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## CS-8303-GS

### B.E. VIII Semester

Examination, December 2020

### Grading System (GS)

### Wireless Networks

(Elective - III)

Time : Three Hours

Maximum Marks : 70

**Note:** i) Attempt any five questions.

ii) All questions carry equal marks.

1. Calculate the uplink cell load factor and number of voice user for WCDMA system using the following data. What is the pole capacity of the pole?

Information rate ( $R_i$ ) = 12.2 Kbps

Chip Rate ( $R_c$ ) = 3.84 Kbps

Required  $E_b/N_t$  = 4 dB

Required Interference Margin = 3 dB

Interference Factor Due to other cells = 0.5

Channel activity factor = 0.65

2. Write short notes on the following (any three)
  - a) Mobile Application protocols
  - b) 16 QAM
  - c) HomeRF
  - d) Cellular Topology

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3. a) Explain in detail about wireless and mobile devices with neat diagrams.  
b) Explain link budget analysis and requirements of wireless networks.
4. a) Discuss WiMAX. What are the main differences between the IEEE 802.116(Wi-Fi) and WiMAX.  
b) Explain the functions of various layers of WLAN and the protocol architecture.
5. a) Differentiate between 2.5 G and 3G of cellular network.  
b) Why power control mechanism is important in wireless networks?
6. a) What do you mean by Doppler spectrum? How can we measure it?  
b) What is wireless network? Explain the characteristics of the wireless medium.
7. What is a WPAN? What is the difference between WPAN and WLAN? Name two example technologies for WPAN.
8. Explain the term interference in the space time, frequency and code domain. What are counter measures in SDMA, TDMA, FDMA and CDMA?

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