

R15

Code No: 128FG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech IV Year II Semester Examinations, May - 2019****WIRELESS COMMUNICATIONS AND NETWORKS****(Electronics and Communication Engineering)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A**(25 Marks)**

- 1.a) Draw the block diagram of cellular system. [2]
- b) Write short notes on GOS. [3]
- c) Discuss about Brewster angle. [2]
- d) Write a short note on signal reflections in a flat terrain. [3]
- e) Explain Doppler shift. [2]
- f) Discuss about slow fading. [3]
- g) Discuss the significance of MLSE. [2]
- h) Give the differences between linear and non-linear equalizers. [3]
- i) Discuss the differences between the 802.11a and HIPERLAN-2. [2]
- j) State the challenges faced by WLAN industry. [3]

PART - B**(50 Marks)**

- 2.a) Explain frequency reuse concept. [5+5]
 - b) Discuss about trunking and Grade of service.
- OR**
- 3.a) How we can improve coverage and capacity in cellular system? [5+5]
 - b) Determine the number of cells in cluster for the following values of the shift Parameters i and j in a regular hexagon geometry pattern: (i) $i=2$ and $j=4$ (ii) $i=3$ and $j=3$.
- 4.a) Discuss in detail i) The propagation in near distance ii) Long distance propagation [5+5]
 - b) Explain knife-edge diffraction model.
- OR**
- 5.a) Explain the phase difference between direct and reflected paths in detail. [5+5]
 - b) Discuss about indoor propagation models in detail.
- 6.a) Explain Fading effects due to multipath time delay. [5+5]
 - b) Discuss Ricean distribution.
- OR**
- 7.a) Explain different types of small scale fading. [5+5]
 - b) Discuss about frequency selective fading in detail.

- 8.a) Explain about time diversity and frequency diversity methods.
b) Discuss about equal gain and selection diversity techniques. [5+5]
- OR**
- 9.a) Explain in detail about non linear equalizers
b) Derive the LMS algorithm for an adaptive equalizer. [5+5]
- 10.a) Describe the services offered by MAC and MAC management sub layers of IEEE 802.11 wireless LAN.
b) Explain the MAC management sub layer of IEEE 802.11. [5+5]
- OR**
- 11.a) Write notes on HIPERLAN.
b) Describe WPAN. Give its main features. [5+5]

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