

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER-1 (NEW) EXAMINATION – WINTER 2018

Subject Code: 3710508**Date: 01/01/2019****Subject Name: Wireless and Mobile Communication****Time: 02:30 PM To 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full mark.

Q.1 (a) Define Channel Assignment. Determine static, borrowing and dynamic channel assignment strategies. **07**

(b) Define: **07**

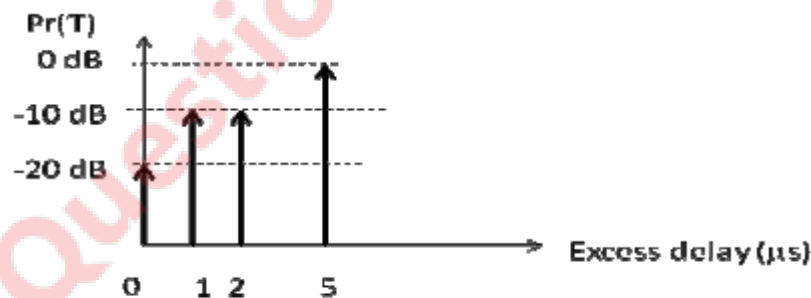
- | | |
|-------------------------|------------------------|
| 1. Mean excess delay | 2. RMS delay Spread |
| 3. Coherence Bandwidth | 4. Doppler Spread |
| 5. Spatial Multiplexing | 6. Spectral Efficiency |
| 7. Energy Efficiency | |

Q.2 (a) What is fading? Explain different types of small scale fading. **07**

(b) Explain how hand-off takes place in GSM. Also explain MAHO, Intersystem hand-off and prioritizing hand-off. **07**

OR

Q.2 (b) Calculate the mean excess delay, rms delay spread, and maximum excess delay, (10 dB) for the multipath profile given in the Fig. 1. Estimate the 50% coherence bandwidth of the channel.

**FIG.1**

Q.3 (a) What is diversity? State the difference between time diversity, frequency diversity and space diversity. **07**

(b) State the advantage of MIMO system with OFDM. Also explain in detail about spatial multiplexing of MIMO System. **07**

OR

Q.3 (a) Explain OFDM signal processing in detail. **07**

(b) Explain in detail maximal ratio combining techniques and equal gain combining technique. **07**

Q.4 (a) Write a Short note on Cognitive Radio. **07**

(b) What is mobile ad-hoc network? Give the detail classification of routing protocol for mobile ad-hoc network with advantage and disadvantage of each. **07**

OR

Q.4 (a) Explain WCDMA in detail. **07**

- (b) Explain MACA and MACAW protocol for MANET. **07**
- Q.5** (a) Discuss security issue and challenges for wireless network. **07**
(b) Write a short note on Massive MIMO system. **07**
- OR**
- Q.5** (a) Explain NOMA system in detail. **07**
(b) Write a short note on RAKE receiver. **07**

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