

2023~2024 学年第二学期 移动通信 补考试题

1.

- a) When do reflection, diffraction and scattering respectively happen? What are their results?

[50%]

- b) What is the difference between wireless propagation sky wave and wireless propagation ground wave? Explain how each kind of wave propagates.

[50%]

2. Four received power measurements were taken at the distances of 100m, 200m, 1km and 3km from a transmitter, which are respectively 0dBm, 20dBm, -35dBm and 70dBm. The path loss equation model for other measurement follows log-normal shadowing model where $d_0=100\text{m}$.

- a) Find the minimum square error(MMSE) estimate for the path loss exponent n .

[50%]

- b) Calculate the standard deviation around the mean value.

[50%]

3.

- a) List at least 2 different error compensation mechanisms and describe how they work.

[50%]

- b) State the advantages/disadvantages of FDM and TDM.

[50%]

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4.

a) What's Doppler effect? How to calculate frequency shift, write the formula.

[50%]

b) Explain the difference between large-scale fading and small-scale fading (From the aspect of character, reason, etc).

[50%]

5.

a) Explain co-channel and adjacent-channel interferences in cellular networks, and tell their relation with system capacity.

[50%]

b) Respectively tell the functionalities of MSC and VLR in GSM system.

[50%]

6.

a) What is HSDPA proposed for? List several key features in Release 5.

[50%]

b) Describe definitions of three separated channel concepts in UMTS.

[50%]

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