Unit 2 - Introduction to Wireless Systems

Assignment-1

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-11, 23:59 IST.

1) The acronym WCDMA stands for *1 point*

- Worldwide band Code Division Multiple Access
- Wideband Code Division Multiple Access
- Wireless Interoperability Code Division Multiple Access
- Wireless-Fidelity CDMA

No, the answer is incorrect.
Score: 0
Accepted Answers:
Wideband Code Division Multiple Access

2) Multipath Propagation of the wireless channel leads to *1 point*

- Fading
- Inter-symbol interference
- Both of the above
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Both of the above

3) The process by which the channel coefficient is constantly changing is termed as _____ and it arises due to _____ *1 point*

- Variation, large bandwidth
- Modulation, small coherence bandwidth
- Signal, frequency selectivity
- Fading, mobility

No, the answer is incorrect.
Score: 0
Accepted Answers:
Fading, mobility

4) The probability density function of an exponential random variable X with mean 2 is *1 point*

- $\frac{1}{2}e^{-\frac{x}{2}}$
- $\frac{1}{2}e^{\frac{x}{2}}$
- $\frac{1}{2}e^{\frac{|x|}{2}}$
- $\frac{1}{2}e^{(x-2)^2}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{1}{2}e^{-\frac{x}{2}}$

5) Which of the following is NOT a 3G Wireless Standard *1 point*

- HSDPA
- HSUPA
- HSPA
- OFDM

No, the answer is incorrect.
Score: 0
Accepted Answers:
OFDM

6) The distribution of the phase of the Rayleigh fading channel coefficient is *1 point*

- Rayleigh random variable
- Uniform random variable
- Exponential random variable
- Gaussian random variable

No, the answer is incorrect.
Score: 0
Accepted Answers:
Uniform random variable

7) The probability that the attenuation of the Rayleigh fading channel is worse than 25 dB is *1 point*

- $1 - e^{-0.01124}$
- $1 - e^{-0.001581}$
- $1 - e^{-0.003162}$
- $1 - e^{-0.0562}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$1 - e^{-0.003162}$

8) Consider a simple multipath propagation scenario with $a_0 = a_1 = \sqrt{2}$ and $a_2 = 2$. Let the delays $\tau_0 = \frac{3}{4f_c}$, $\tau_1 = \frac{5}{4f_c}$, $\tau_2 = \frac{9}{8f_c}$. The net amplitude of the channel coefficient h is *1 point*

- 0
- 1
- 2
- 3

No, the answer is incorrect.
Score: 0
Accepted Answers:
2

9) The real and imaginary parts of a standard wireless channel coefficient are assumed to be distributed as *1 point*

- Rayleigh random variable
- Uniform random variable
- Exponential random variable
- Gaussian random variable

No, the answer is incorrect.
Score: 0
Accepted Answers:
Gaussian random variable

10) What is the approximate dB SNR required to achieve BER of 8×10^{-9} in the AWGN channel $y = 2x + n$, where x denotes the transmitted symbol and n denotes the additive white Gaussian noise. *1 point*

- 6.53 dB
- 12.5 dB
- 9.53 dB
- 8.97 dB

No, the answer is incorrect.
Score: 0
Accepted Answers:
9.53 dB