5E1356

B.Tech V - Semester (Main) Examination, Nov. - 2019
PCC/PEC Computer Sc. and Engg.
5CS5-11 Wireless Communication

Time : 2 Hours

Maximum Marks : 80
Min. Passing Marks : 28

Instructions to Candidates:

Attempt all five questions from Part A, four questions out of six questions from Part B and two questions out of three from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.

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PART - A

(Answer should be given up to 25 words only)

All questions are compulsory

1. What is fading in wireless channels and its types?

2. Explain frequency reserve concept in brief.

3. Describe principle of offset-QPSK.

4. Explain the concept of macrodiversity.

5. What is beam forming in multiple antenna technique?   [5×2=10]

PART - B

(Analytical/Problem solving questions)

Attempt any four questions

1. A mobile is moving at 60 m/s in a cellular system with 930 MHz. Find the Dopplar spread, coherence time and appropriate sampling time and distance to predict small-scale fading.

2. Describe the capacity of cellular CDMA system.

3. Consider free space propagation model. Calculate the received power in dBm at a free space distance of 100 meter from the transmitting antenna, if the transmitter produced 50 watt of power and it apply to unity gain antenna with a 900 MHz carrier frequency.

4. Write a short note on digital modulation in frequency selective mobile channel

5. Describe channel state information capacity in fading and non-fading channels.

6. What are cyclic prefix and PAPR. [4×10=40]

PART - C
(Descriptive/Analytical/Problem Solving/Design questions)
Attempt any two questions

1. Describe following in details :-

   a) MIMO systems in details.

   b) Spatial multiplexing in detail.

   c) Transmitter and receiver diversity.

2. Explain following in details:-

   a) Adaptive equalization.

   b) Zero forcing and LMS algorithms.

   c) Rake receiver

3. Describe structure of a wireless communication link with the help of suitable diagram. Explain gaussian minimum shift keying and OFDM principle. [2×15=30]