Reg. No. :

Question Paper Code : X65661

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Eighth Semester

Electronics and Communication Engineering

080290073 – CELLULAR AND MOBILE COMMUNICATION

(Regulations 2008)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   **(10×2=20 Marks)**

1. What is the basis of SDMA protocol ?

2. Determine the frequency reuse factor for a cell radius of 4 km separated from nearest co-channel cell by a cluster of 3.2 km.

3. Mention the parameters of mobile multipath channels.

4. Determine the co-channel reuse ratio for the cluster with 20 cells.

5. Explain about Gaussian MSK.

6. Give the types of diversity.

7. What is adaptive quantization ?

8. What is a vocoder ?

9. What mechanisms would cause breakdown in the reverse link of an IS-95 CDMA system as the number of users in a sector approaches the theoretical limit ?

10. What is the reasons for choosing $\pi/4$ QPSK modulation scheme for USDC against DQPSK ?

PART – B   **(5×16=80 Marks)**

11. a) i) Suggest the ways to increase the radio coverage and capacity in cellular systems. **(12)**

     ii) For a cellular system a cluster size of 12 and the signal to interference ratio S/I is 15 db. The mobile is at a distance of 15 km between the reused cell. Determine the radius of the cell. **(4)**

(OR)

     b) i) Compare the performance of different multiple access techniques used in wireless environment. **(10)**

     ii) Explain generic handoff scenario in cellular systems. **(6)**

12. a) With free space propagation model, explain propagation mechanism and derive an expression for received power at the mobile using the two ray ground reflection model.

(OR)

     b) Explain the following :
        i) Link budget design using path loss models. **(8)**
        ii) Parameters of mobile multipath channels. **(8)**

13. a) Draw an M-finger RAKE receiver and explain its working.

(OR)

     b) With block diagram explain MSK transmitter and receiver.

14. a) i) Explain the uniform and nonuniform quantization techniques. **(8)**

     ii) With block diagram, explain the ADPCM encoder. **(8)**

(OR)

     b) Discuss in detail about Linear Predictive Coding and its types. **(16)**

15. a) Explain GSM architecture.

(OR)

     b) With diagram explain forward CDMA channel modulation process.

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