B.E. Information Technology Seven Semester (CBS)

IT702 - Wireless Communication

P. Pages : 2 **GUG/W/18/1813**

Time : Three Hours * 1 4 1 2 * Max. Marks : 80

Notes : 1. All questions carry as indicated.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.

1. a) Describe Quadrature phase shift keying with the help of waveforms, block diagram and constellation diagram. **12**

b) Plot waveform for FSK signal for the code. **4**
i) 1011011 ii) 1101010

OR

2. a) Describe 16QAM system with suitable constellation & block diagram. **10**

b) Compare QPSK and MSK system. **6**

3. a) Derive expression for CDF for discrete random variables. **8**

b) Derive expression for PDF. **8**

OR

4. a) State and derive expression for Baye's theorem. **8**

b) In a factory, four machines A1, A2, A3 and A4 produce 10%, 20%, 30% & 40% of the items respectively. The % of defective items produced by them is 5%, 4%, 3% and 2% respectively. An item selected at random is found to be defective what is the probability that it was produced by machine A? **8**

5. a) Compare CDMA/TDMA/SDMA/FDMA Systems. **8**

b) Explain Aloha and slotted Aloha systems. **8**

OR

6. a) Explain with suitable circuit how a PN sequence is generated. **8**

b) Describe DS-SS system with suitable waveforms and block diagrams. **8**

7. a) Describe GSM architecture in detail. **8**

b) What is handoff mechanism? Also explain soft handoff and hard handoff. **8**

OR

8. a) Describe the different channel assignment. **8**

b) Discuss about dropped call rates and their evaluation. **8**

9. a) Explain the following terms. **8**

i) Entropy ii) Shannon's theorem

iii) Hamming distance iv) Hamming Weight

b) Derive expression for entropy Explain its properties. **8**

OR

10. a) Explain Linear block code. Explain Generator Matrix and parity check matrix. Also explain how error syndrome helps in detecting error. **8**

b) The generator polynomial of (6, 3) cyclic code is given by **8**

$g(x) = 1 + x^2$

Find the code vector for all data bite.

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