

[Total No. of Questions - 8]  
(2123)

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M. Tech 1st Semester Examination

Design of Wireless and Mobile Communication System

EC-101

Time : 3 Hours

Max. Marks : 100

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Answer any five full questions.

1. (a) Describe the relationship between data rate and band width with the help of an example.  
(b) Describe Terrestrial and Satellite microwave communication.  
(c) Elaborate the term Broadcast Radio.  
(d) What is the channel capacity for a teleprinter channel with 300-Hz bandwidth and a signal to noise ratio of 3dB?  
(20)
2. (a) Differentiate the following:  
(i) Fast and slow fading.  
(ii) Flat and Selective fading.  
(b) What do you mean by parabolic reflective antenna? Calculate effective area and antenna gain for a parabolic reflective antenna with a diameter of 2m, operating frequency at 12GHz and area  $(A)=\pi$ .  
(20)
3. (a) What do you understand by error control coding? Explain convolution codes with a suitable example.

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- (b) Explain Linear feedback shift register sequence. Also, explain max. length sequence using an example. (20)
4. (a) What do you mean by WLL? Also explain the role of WLL in wireless communication system.
- (b) Explain OFDM. What are principle advantages of OFDM? (20)
5. (a) Explain ISO - OSI model in detail.
- (b) Explain the working of registration process of a mobile? (20)
6. (a) Explain network and data link layer of a CDMA system.
- (b) Explain voice applications in CDMA system. (20)
7. (a) Explain GSM frame structure.
- (b) Explain GSM architecture in detail. (20)
8. Write short notes on the following:
- (a) FDMA
- (b) Handover over 65m
- (c) GSO
- (d) PCM (4×5=20)
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