

**B.Tech. - VIEP - ELECTRONICS AND  
COMMUNICATION ENGINEERING  
(BTECVI)**

**Term-End Examination**

00525

**June, 2019**

**BIEL-018 : WIRELESS COMMUNICATION**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Attempt any seven questions. Use of scientific calculator is permitted.*

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1. (a) Explain simplex, half-duplex and full-duplex mode of Radio transmission system in detail. 5
- (b) Define the following wireless communication terms : 5
  - (i) Base station
  - (ii) Mobile switching center
  - (iii) Control channel
2. (a) Draw and explain TDMA frame structure. 5
- (b) What is the concept of spread spectrum multiple access ? Explain FHMA in detail. 5

3. (a) Explain the concept of cellular frequency reuse with the help of appropriate diagram. 5
- (b) If a total of 33 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 25 kHz simplex channels to provide full-duplex voice and control channels, compute the number of channels available per cell if a system uses
- (i) 4-cell reuse,
  - (ii) 7-cell reuse, and
  - (iii) 12-cell reuse.
- 1 MHz of the allocated spectrum is dedicated to control channels and voice channels in each cell for each of the three systems. 5
4. (a) Explain the physical factors influencing the small-scale fading in radio-propagation channel. 5
- (b) Explain different types of small-scale fading due to multipath time delay spread in detail. 5
5. (a) Explain different types of channel assignment strategies. 5
- (b) Explain hand-off in first and second generation cellular systems. 5

6. Discuss in detail any two methods of non-linear equalization for improvement in Linear Equalization. 10
  7. Explain how a cellular telephone call is made using timing diagram in detail. 10
  8. What is GSM ? Mention the GSM services and its features. Give the GSM system architecture and various interfaces used. 10
  9. Explain the term Vocoder in speech coding and its different types in detail. 10
  10. Explain impulse response model of multipath channel in detail. 10
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