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**B.TECH. IN ELECTRONICS AND
COMMUNICATION ENGINEERING (BTECVI)**

Term-End Examination

June, 2012

BIEL-018 : WIRELESS COMMUNICATION

Time : 3 hours

Maximum Marks : 70

Note : (i) *All questions carry equal marks.*
(ii) *Attempt **any seven** questions out of **ten** questions.*

1. (a) Discuss the evolution of Mobile Communication. 5
- (b) Explain different types of Mobile Communication systems. 5

2. (a) Discuss the free space propagation model for wireless system. 5
- (b) Determine the far-field distance for an antenna with maximum dimension of 1 M and operating frequency of 900 MHz. 5

3. (a) Define the 'Brewster Angle' and discuss its significance. 5
- (b) Determine the Brewster angle for a wave impinging on ground having a permittivity of $\epsilon_r = 4$. 5

4. (a) Discuss the 'Knife-edge Diffraction model'. 5
(b) What is fading in wireless communication ? Explain the types of fading. 5
5. (a) Discuss the equalization techniques used in wireless communication system. 5
(b) Consider the design of the US digital cellular equalizer. If $f=900$ MHz and the mobile velocity 80 km/hrs. Determine the maximum Doppler shift. 5
6. (a) What is space diversity ? And explain its types. 5
(b) Discuss the RAKE Receiver model. 5
7. (a) Discuss the speech spectrum. 5
(b) What is Vocoders ? Discuss its applications. 5
8. (a) What is co-channel interference ? Determine and discuss system capacity. 5
(b) Discuss the channel planning for wireless systems. 5
9. (a) Discuss the differences between 2G and 3G. 5
(b) What is GPRS ? Discuss its applications. 5
10. Write short notes on *any two* of the following :
(a) 4G WiMAX 5x2=10
(b) Frequency Reuse
(c) Sub Band Coding
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