



## Department of Electronics and Communication Engineering

### EC8652 – Wireless Communication

#### Unit I - MCQ Bank

1. The power delay profile helps in determining
  - (a) Excess delay
  - (b) rms delay spread
  - (c) excess delay spread
  - (d) all of the above**
  
2. Types of small scale fading, based on Doppler spread are
  - (a) Fast fading**
  - (b) Frequency non selective fading
  - (c) Flat fading
  - (d) Frequency selective fading
  
3. Flat fading or frequency nonselective fading is a type of
  - (a) Multipath delay spread small scale fading**
  - (b) Doppler spread small scale fading
  - (c) Both a) and b)
  - (d) None of the above
  
4. In Frequency Selective Fading, the
  - (a) Coherence Bandwidth of the channel is less than bandwidth of transmitted channel**
  - (b) Coherence Bandwidth of the channel is more than bandwidth of transmitted channel
  - (c) Coherence Bandwidth of the channel is equal to bandwidth of transmitted channel
  - (d) None of these
  
5. The Doppler shift for mobile moving with constant velocity,  $v$  is given by \_\_\_\_\_
  - (a)  $(v \cdot \cos \theta) / \lambda$**
  - (b)  $v / \lambda$
  - (c)  $v \cdot \cos \theta$
  - (d)  $v \cdot \lambda$

6. Which of the following factor does not influence small scale fading?
- (a) Multipath propagation
  - (b) Power density of base station**
  - (c) Speed of mobile
  - (d) Speed of surrounding objects
7. Relation between gain and effective aperture is given by \_\_\_\_\_
- (a)  $G = (4\pi A_e) / \lambda^2$**
  - (b)  $G = (4\pi \lambda^2) / A_e$
  - (c)  $G = 4\pi A_e$
  - (d)  $G = A_e / \lambda^2$
8. Path loss in free space model is defined as difference of \_\_\_\_\_
- (a) Effective transmitted power and gain
  - (b) Effective received power and distance between T-R
  - (c) Gain and received power
  - (d) Effective transmitter power and receiver power**
9. Fraunhofer distance is given by \_\_\_\_\_
- (a)  $2D^2 / \lambda$**
  - (b)  $2D / \lambda$
  - (c)  $D / \lambda$
  - (d)  $2D / \lambda^2$
10. Friis free space equation
- 1. Is an expression for noise power
  - 2. Is a function of transmitting and receiving antenna gain
  - 3. Depends upon the distance between transmitting and receiving antenna
- (a) 1) and 2) are correct
  - (b) All the three are correct
  - (c) 1) and 3) are correct
  - (d) 2) and 3) are correct.**

11. According to Friis free space equation
1. Received power falls with square of the distance between the transmitter and receiver
  2. Increases with square of the distance between the transmitter and receiver
  3. Received power increases with gains of transmitting and receiving antennas
- (a) 1) and 2) are correct  
**(b) All the three are correct**  
(c) 1) and 3) are correct  
(d) 2) and 3) are correct.
12. Which of the following antenna radiates power with unit gain uniformly in all directions?
- (a) Directional antenna  
(b) Dipole antenna  
**(c) Isotropic antenna**  
(d) Loop antenna
13. EIRP is abbreviated as \_\_\_\_\_
- (a) **Effective isotropic radiated power**  
(b) Effective isotropic radio power  
(c) Effective and immediate radiated power  
(d) Effective and immediate ratio of power
14. Coherence time refers to
- (a) Time required to attain a call with the busy base station  
(b) Time required for synchronization between the transmitter and the receiver  
**(c) Minimum time for change in magnitude and phase of the channel**  
(d) None of the above
15. Doppler spread refers to
- (a) **Signal fading due to Doppler shift in the channel**  
(b) Temporary failure of message transfer  
(c) Large coherence time of the channel as compared to the delay constraints  
(d) All of the above
16. The effects of small scale multipath propagation are
1. Changes in signal strength
  2. Random frequency modulation
  3. Time dispersion
- (a) 1) and 2) are correct  
**(b) All the three are correct**  
(c) 1) and 3) are correct  
(d) 2) and 3) are correct

17. The received signal from a multipath channel is expressed as
- (a) **convolution of transmitted signal and impulse response**
  - (b) addition of transmitted signal and impulse response
  - (c) subtraction of transmitted signal and impulse response
  - (d) none of the above
  - (e) all of the above
18. Direct RF pulse system helps in calculating
- (a) impulse response in frequency domain
  - (b) impulse response in phase domain
  - (c) **power delay of the channel**
  - (d) all of the above
19. Coherence bandwidth is
- (a) channel that passes all spectral components with equal gain
  - (b) the bandwidth of modulated signal
  - (c) channel that passes all spectral components with linear phase
  - (d) **both a) and c)**
  - (e) both a) and b)
20. If coherence time of the channel is smaller than the symbol period of the transmitted signal, it is
- (a) **Fast fading**
  - (b) Slow fading
  - (c) Frequency selective fading
  - (d) Frequency non selective fading
21. The mechanism behind electromagnetic wave propagation cannot be attributed to \_\_\_\_\_
- (a) Reflection
  - (b) Diffraction
  - (c) Scattering
  - (d) **Sectoring**
22. The propagation model that estimates radio coverage of a transmitter is called \_\_\_\_\_
- (a) **Large scale propagation model**
  - (b) Small scale propagation model
  - (c) Fading model
  - (d) Okumura model

23. Propagation model that characterize rapid fluctuation is called \_\_\_\_\_
- (a) Hata model
  - (b) Fading model**
  - (c) Large scale propagation model
  - (d) Okumura model
24. Which of the following do not undergo free space propagation?
- (a) Satellite communication system
  - (b) Microwave line of sight radio links
  - (c) Wireless line of sight radio links
  - (d) Wired telephone systems**
25. In free space transmission, the signal attenuation increases
- (a) proportionally with distance
  - (b) proportionally with the square distance**
  - (c) proportionally with distance cube