MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
Paper Code : PE-EC701C   Mobile Communication and Networks

Time Allotted : 3 Hours

Full Marks :70

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[1 x 10 = 10]

(I)   SSMA is bandwidth efficient when used with a single user
State true or false.

(II)   A RAKE receiver collects the _____ versions of the original signal.

(III)   Traffic channels carries digitally encoded user data. State true or false

(IV)   Cell splitting increases the number of base stations in order to increase capacity?
State true or false.

(V)   Why neighboring stations are assigned different group of channels in cellular system?

(VI)   The symbol time in FDMA systems is _____ thus intersymbol interference is _____

(VII)   Which of the following mechanism do not impact propagation in mobile communication system?
Reflection, Diffraction, Scattering, Refraction

(VIII)   Cell dragging is a problem occur due to _____
a) Pedestrian users
b) Stationary users
c) High speed mobile systems
d) Base stations having same frequency

(IX)   Diversity decisions are made by _____

(X)   In OFDMA, what is the relationship between the subcarrier spacing f and symbol time t?

(XI)   Which is one of the major disadvantages of 2G standards?

(XII)   _____ problem occurs when many mobile users share the same channel.

Group-B (Short Answer Type Question)
Answer any three of the following

[5 x 3 = 15]

2. What is small scale fading? [5]

3. Differentiate between FDMA and TDMA [5]

4. What do you mean by frequency hopping? [5]

5. How QPSK better than BPSK? [5]

6. Explain in details the PRN code generation of CDMA [5]

Group-C (Long Answer Type Question)
Answer any three of the following

[15 x 3 = 45]

7. (a) What is frequency allocation? [7]

(b) Explain fixed channel allocation (FCA) and dynamic channel allocation (DCA) [8]

8. (a) Explain two outdoor propagation models in cellular communication. [8]

(b) Write a short note on path loss model for indoor propagation in wireless environment [7]

9. (a) Justify 'Microcell zone concept used to increase Channel Coverage and capacity. [8]

(b) Explain the step by step procedure of a mobile originated call [7]

10. (a) Define Erlang [7]

(b) Explain with mathematical expressions "Erlang B" and "Erlang C" formulas. [8]

11. (a) What is Code Division Multiple Access (CDMA)? Write down the features of the Code Division Multiple Access (CDMA) [8]

(b) What is WCDMA? What are the main features of WCDMA?

*** END OF PAPER ***