

DiplETE – ET

Time: 3 Hours

DECEMBER 2012

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. A cellular system forward channel is referred as

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|--------------------|------------------|
| (A) control signal | (B) uplink |
| (C) downlink | (D) logical path |

b. Fast Fading in Wireless communication follows

- | | |
|--------------|------------|
| (A) Gaussian | (B) Random |
| (C) Rayleigh | (D) Rician |

c. Aloha is a

- | | |
|-------------------------------|-------------------|
| (A) contention based protocol | (B) conflict free |
| (C) collision resolution | (D) All of these |

d. Frequency reuse may introduce

- | | |
|----------------------|-------------------|
| (A) Fading of signal | (B) Path loss |
| (C) Interference | (D) Doppler shift |

e. In MANET, the information is transferred by

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|-----------------------|---------------------------------------|
| (A) Circuit switching | (B) Directly from one node to another |
| (C) Packet switching | (D) Store end forward technique |

f. Statistical multiplexing refers to

- | | |
|---------------------|----------------------|
| (A) Synchronous TDM | (B) Asynchronous TDM |
| (C) FDM | (D) CPM |

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g. Mobile satellites are preferred in

- (A) LEO (B) GEO
(C) HEO (D) ICO

h. Due to the reflection of signal there is :

- (A) Doppler effect (B) Frequency reuse
(C) Delay spread (D) Path loss

i. GSM and IS 95, systems implement error correction.

- (A) Hamming code (B) CRC
(C) Parity Code (D) Convolution codes

j. The most appropriate wireless networking standard for creating PANs is:

- (A) I-mode (B) IEEE 802.11b
(C) WiFi (D) Bluetooth

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. What are the challenges for good cellular system infrastructure? (8)
b. Compare CDMA & TDMA in cellular system. (8)
- Q.3** a. Explain the various propagation mechanisms in brief. (8)
b. What do you mean by Cyclic Redundancy Check (CRC). Explain with suitable example. (8)
- Q.4** a. What is the concept of frequency reuse? How it is implemented. (8)
b. A cellular mobile radio system has the following characteristics (8)
(i) Transmitted signal power at base station = -90dBm
(ii) Cluster size = 7cells
(iii) The signal-to- (noise+ the total interference ratio)= 16dB.
(iv) Assuming that all the interfering base stations are at equidistant from the desired base station and thermal and amplifier noise at the mobile unit are negligible.
Determine:
• The co-channel interference (CCI) in W and dBm.
• The adjacent channel interference (ACI) in W and dBm.
- Q.5** a. What do you mean by channel allocation in cellular system? Explain the specific advantages of Dynamic channel allocation over static channel allocation. (8)

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- b. Compare DSSS and FHSS transmission techniques. (8)
- Q.6** a. Explain with neat diagram the satellite system infrastructure. (8)
- b. Explain multicasting in mobile communication systems. (8)
- Q.7** a. Define 'RICOCHET' wireless microcellular data network. (8)
- b. Difference between UWB and Spread Spectrum Techniques. (8)
- Q.8** a. Explain AMPS operation in detail. (8)
- b. What do you mean by routing in Mobile-Adhoc Networks? Explain Dynamic source routing with neat diagram. (8)
- Q.9** Write short notes on the following:- (8×2)
- (i) On-demand Routing.
- (ii) IMT – 2000.