

DiplETE – ET

Time: 3 Hours

DECEMBER 2013

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. The received power at the receiver is
- (A) Inversely proportional to distance
 (B) Directly proportional to distance
 (C) Inversely proportional to the square of distance
 (D) None of these
- b. Ethernet is a protocol that controls data transmission over a
- (A) LAN (B) WAN
 (C) PAN (D) MAN
- c. In CRC, of the data unit is 111111 and the divisor is 1010, then the dividend at the transmitter is
- (A) 1111111000 (B) 1111110000
 (C) 111111 (D) 11111000
- d. Frequency reuse may introduce
- (A) Fading of signal (B) Path loss
 (C) Interference (D) Doppler shift
- e. In a time dispersion medium transmission rate R must justify
- (A) $R < \frac{1}{2\tau_d}$ (B) $R < \frac{1}{\tau_d}$
 (C) $R > \frac{1}{2\tau_d}$ (D) $R > \frac{1}{\tau_d}$
- f. The satellites in the GPS form a set of
- (A) Celestial bodies (B) Triangular points
 (C) Orbital position points (D) Reference points

Code: DE66

Subject: WIRELESS & MOBILE COMMUNICATIONS

- g. IMT-2000 stands for
- (A) Interim Mobile Telecommunications - 2000
 (B) International Mobile Technology - 2000
 (C) Indian Mobile Telecommunications - 2000
 (D) International Mobile Telecommunications - 2000
- h. Fast Fading in Wireless communication follows
- (A) Gaussian PDF (B) Random PDF
 (C) Rayleigh PDF (D) Ricin PDF
- i. TORA Routing protocol is used in
- (A) WSN (B) MANET
 (C) WIMAX (D) LTE
- j. Which of these is preferred in wireless communication?
- (A) HTML (B) XML
 (C) WML (D) SGML

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

- Q.2** a. Explain the first, second and third generation wireless system and services in brief. (8)
- b. Discuss wireless MANs, LANs and PANs. (4)
- c. Compare WSN (Wireless Sensor Network) and MANET. (4)
- Q.3** a. In a cellular system, diffraction, reflection and direct path take a different amount of time for the signal to reach a MS. How do you differentiate and use these signals. (8)
- b. Find the linear block encoder G and all possible code words if code generator polynomial $S(x) = 1 + x + x^3$ for a (7, 4) code, if received codeword's is 1001001, find the correct decoded message. (8)
- Q.4** a. Write a short note on:
- (i) Frequency reuse
 (ii) Formation of cluster
 (iii) Cell sectoring
 (iv) $D = R\sqrt{3N}$ (8)
- b. Explain in detail, co-channel and adjacent channel interference. How it will affect the system capacity? (8)

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- Q.5** a. Compare SDMA, CDMA & TDMA in cellular system. (8)
- b. What are the specific advantages of static channel allocation over dynamic channel allocation strategies? (8)
- Q.6** a. What do you mean by handoff? Explain the different Hand off strategies, required to make the Hand off efficient. (10)
- b. What are the differences between orbital and elevation angles of a satellite? (6)
- Q.7** a. How do you compare AMPS and GSM system in terms of coverage area, transmitting time, power and error control? Explain. (10)
- b. Explain the various logical channels in IS-95. (6)
- Q.8** a. What are the differences between cellular and mobile Adhoc Networks. (4)
- b. How do you use a 'data centric' approach in a sensor network? (4)
- c. What do you mean by proactive and reactive routing in Mobile-Adhoc Networks? Explain on demand routing with neat diagram. (8)
- Q.9** Write short notes on. (8×2)
- (i) ALOHA
- (ii) Basic function of smart antennas.