Q.P. Code :25968

[Time: Three Hours]

[Marks:80]

Please check whether you have got the right question paper.

N.B:
1. Question.**No.1** is compulsory.
2. Out of the remaining questions attempt any **three**.
3. Figures in the bracket indicate maximum marks.

Q. 1 Answer **any four** of the following:
  a) What is the difference between the physical and logical channels of a GSM system? (05)
  b) A large city with an area of 1500 km² is covered with a 12-cell system each cell with a radius (05)
     of 1.387 km each. If the total spectrum allocated is 28.5 MHz with a full duplex channel
     bandwidth of 25 MHz. How many cell sites would be required assuming regular hexagonal
     shaped cells?
  C) Compare GSM and GPRS technologies.
  d) Differentiate between hard hand off and soft hand off. (05)
  e) What is the difference between active and passive RFID tags? (05)
     (05)

Q. 2 a) With the help of a neat block diagram, explain the working of GSM system architecture. (10)
  b) What is frequency reuse? How does it influence the co channel interference? (10)

Q. 3 a) A spectrum of 30 MHz is allocated to a wireless FDD cellular system which uses two 25 kHz (10)
     simplex channels to provide full duplex voice and control channels. Compute the number of
     channels available per cell if a system uses, a) four cell reuse, b) seven cell reuse, c) 12 cell
     reuse and d) 13 cells reuse.
  b) With the help of a neat block diagram, explain the working of a reverse CDMA IS 95
     modulation process for a single user. (10)

Q. 4 a) Explain in detail the packet and frame formats of CDMA IS 95 system.
  b) What is WCDMA air interface? Give important parameters of it. (10)
     (10)

Q. 5 a) What is UMTS technology? Explain with the help of a neat block diagram
  b) Explain the evolution path towards LTE and give important features of LTE. (10)
     (10)

Q. 6 Write short notes on **any four** of the following:
  a) Importance of PN sequences in CDMA IS 95 system.
  b) Wireless sensor networks (05)
  c) RFID technology (05)
  d) Speech coding in GSM (05)
  e) Grade of service in mobile communication (05)
     (05)

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